WP3 -Joint Training programme for Social, Cultural, and Health Sectors Module overview Module 1

DOCUMENT PRODUCED BY:
ROMANIAN ALZHEIMER SOCIETY

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Contents

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Module Overview

Module 1	**The main mental health disorders in old age (cognitive decline, dementia and Alzheimer disease, other neurological disorders – e.g. multiple sclerosis, Parkinson's disease): symptoms, warning signs, stages**
Module summary / main contents	This training module provides an overview of mental health disorders affecting older adults, focusing on cognitive decline, dementia (including Alzheimer's disease), and neurological conditions such as multiple sclerosis and Parkinson's disease. It covers key areas including early signs, symptom progression, and distinct stages of each condition, as well as prevention strategies aimed at reducing the risk of cognitive impairment. Additionally, the module delves into the diagnostic process, emphasizing accessible assessment tools, and reviews both pharmacological and non-pharmacological treatment options. Designed for social workers, caregivers, and healthcare providers, this module aims to improve understanding and support for aging populations through early detection, informed care, and practical interventions that enhance well-being and quality of life.
Timetable & schedule	**4 hours in total** **(55 min): Oral presentation (PPT presentation – 30 slides)** • Introduction (10 min) • Chapter I: Identifying cognitive decline (15 min)

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	• Chapter II: Neurodegenerative disorders (20 min) • Chapter III: Neurological disorders (10 min) **(40 min): Multimedia Resources** • 2 Videos and guided discussion (10 min each) • 4 h5p multimedia resources (5 min each) **(45 min): Activity 1 – Game board**: Navigating Cognitive Health – A Journey Through Risks and Prevention **(45 min): Activity 2 – Debate Topic**: "Should Dementia Patients Be Allowed to Live Alone in Early Stages?" **(40 min): Activity 3 – Case study:** Enhancing empathy to overcome communication barriers and support emotional expression in patients with neurological conditions like Parkinson's disease and multiple sclerosis **(15 min): Quiz – 8 questions** (Drag and Drop, Single Answer, Multiple Answers, True/False)
Learning outcomes of the module	By the end of this module, participants will be able to: • **Identify Cognitive Decline**: Recognize the distinguishing features of normal aging versus cognitive decline and understand the early indicators of cognitive impairment in older adults. • **Understand Neurodegenerative Disorders**: Describe key neurodegenerative disorders, including dementia, Alzheimer's disease, and other types of dementia.

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	• Participants will identify **warning signs, symptoms, and stages of progression,** enhancing their ability to detect and respond to these conditions. • **Recognize Other Neurological Disorders**: Distinguish between neurodegenerative disorders and other neurological conditions, such as multiple sclerosis and Parkinson's disease. Participants will identify specific **warning signs, symptoms, and stages,** improving their ability to support individuals affected by these diseases. These outcomes ensure participants gain practical knowledge to effectively support aging individuals experiencing cognitive and neurological health challenges.

Introduction to Mental Health in Old Age

By 2050, the global elderly population is expected to rise from 12% to 22%, reaching 2 billion people. In low- and middle- income countries, more people might attain the age of 60 years due to lower young-age mortality, while high-income countries see rising life expectancy due to reduced elderly mortality [1]. Over 20% of adults over 60 suffer from mental or neurological disorders (excluding headaches), contributing to 6.6% of disability in this age group, which hinders active aging [2].

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There are several key differences in how mental health issues manifest and are experienced by older adults compared to younger populations [3,4]:

Prevalence of Disorders: Younger adults (16–29) are more likely to experience anxiety and depression at higher rates than older adults. This has been partially attributed to life transitions, financial instability, and social pressures. In contrast, older adults face a higher prevalence of conditions like dementia and cognitive impairments, which may influence their mental health later in life.

Symptoms and Presentation: Depression in younger adults often manifests with feelings of sadness, hopelessness, and irritability, while older adults may present with more physical complaints, such as fatigue or somatic issues, which complicates diagnosis. Additionally, older adults may experience depression intertwined with chronic physical illnesses.

Suicidality: While suicide rates among young adults are alarming, particularly among young men, older adults, especially elderly men, have the highest suicide rates. Loneliness, loss of loved ones, and poor physical health contribute to this elevated risk in older adults.

Cognitive Decline and Anxiety: In older adults, anxiety disorders can overlap with cognitive decline, making diagnosis and treatment more complex. Older adults may also experience heightened anxiety due to concerns about health, death, and loss of independence.

These differences highlight the need for age-specific diagnostic tools and treatments to account for the unique challenges each age group faces.

Research has linked social isolation and loneliness to higher risks for a variety of physical and mental conditions: high blood pressure, heart disease, obesity,

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a weakened immune system, anxiety, depression, cognitive decline, Alzheimer's disease, and even death [5].

People who find themselves unexpectedly alone due to the death of a spouse or partner, separation from friends or family, retirement, loss of mobility, and lack of transportation are at particular risk.

Conversely, people who engage in meaningful, productive activities with others tend to live longer, boost their mood, and have a sense of purpose. These activities seem to help maintain their well-being and may improve their cognitive function, studies show.

1. Cognitive Decline

1.1. Normal Aging vs. Cognitive Decline

The natural aging process leads to gradual declines in specific cognitive functions such as [6]:

Processing speed declines: Tasks may take longer to complete.

Memory: Difficulty with recalling names or specific words.

Language: Challenges in finding the right words may increase with age.

Visuospatial skills: Difficulty with spatial tasks such as navigating or judging distances.

Executive function:

- Multitasking: More effort is required to manage multiple tasks simultaneously (e.g., needing silence to focus on setting up a pillbox).
- Planning and organization: More complex tasks, like scheduling or organizing, may become harder.
- Mental flexibility: Reduced ability to switch between tasks or adapt to changes in plans.

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Sensory changes: Declines in vision or hearing may amplify cognitive difficulties. Some skills such as vocabulary and verbal reasoning remain unchanged or may even improve during the aging process. Though the causes of these changes are not fully understood, research suggests they may be linked to reductions in gray and white matter volume, alterations in white matter, and decreasing levels of neurotransmitters. While these cognitive shifts are typically mild and do not cause significant impairments in daily life, they may affect activities like driving. Early detection of safety issues is important [7].

Normal cognitive decline with age is subtle, primarily affecting processing speed and attention. In abnormal aging, cognitive declines are more severe, often impacting memory, problem-solving, navigation, and communication. Additionally, abnormal aging can affect motor functions, leading to frequent falls or tremors. It can be challenging to determine when cognitive changes become concerning, as symptoms vary from person to person.

Signs of Abnormal Aging include getting lost in familiar places, repetitive questioning, unusual behavior, forgetfulness, loss of balance, personality changes, and increased apathy. Often, cognitive decline accelerates when stressors or illnesses push the brain beyond its compensatory ability, highlighting the importance of regular medical check-ups [8].

1.2. Introduction to Mild Cognitive Impairment (MCI)

Mild Cognitive Impairment (MCI) vs. Dementia: MCI involves cognitive decline without affecting daily activities, while dementia refers to declines that impair everyday tasks. Both terms describe severity but not the underlying cause,

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which may include Alzheimer's, vascular disease, or other neurodegenerative conditions [9.10].

Symptoms of MCI

The brain, like the rest of the body, changes with age. Many people notice they become more forgetful as they age. It may take longer to think of a word or to recall a person's name. If concerns with mental function go beyond what's expected, the symptoms may be due to mild cognitive impairment (MCI). MCI may be the cause of changes in thinking if:

- You forget things more often.
- You miss appointments or social events.
- You lose your train of thought. Or you can't follow the plot of a book or movie.
- You have trouble following a conversation.
- You find it hard to make decisions, finish a task or follow instructions.
- You start to have trouble finding your way around places you know well.
- You begin to have poor judgment.
- Your family and friends notice any of these changes.

If you have MCI, you also may experience:

- Depression.
- Anxiety.
- A short temper and aggression.
- A lack of interest

Risk Factors for Cognitive Decline: Conditions such as type 2 diabetes, hypertension, midlife obesity, smoking, depression, lack of mental activity, and physical inactivity are linked to a higher risk of Alzheimer's and dementia. Many of these risk factors are modifiable, potentially preventing up to 50% of Alzheimer's cases.

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Diagnosing mild cognitive impairment (MCI) requires gathering information through various tests and observations, as no single test can confirm the condition. Health care providers generally follow criteria set by experts in the field to determine if a patient is experiencing MCI.

1.3. Stages of Cognitive Decline

Monitoring **The Global Deterioration Scale (GDS), or Reisberg Scale**, classifies cognitive decline into seven stages (table 1.1.). This scale is primarily used for Alzheimer's disease, as it may not accurately reflect other dementias like frontotemporal dementia [11].

Stages 1–3 reflect mild cognitive decline that usually doesn't lead to a dementia diagnosis. By stage 4 ("early dementia"), symptoms become significant enough for a diagnosis. Stages 5 and 6 are considered "middle dementia," while stage 7 is labeled "late dementia," with more severe cognitive impairment of progression of MCI into dementia or Alzheimer's disease [11].

Table 1.1.: Reisberg Scale/ Global Deterioration Scale (CGS)

Diagnosis	Stage	Signs and Symptoms	Expected Duration of Stage
	Stage 1: No Cognitive Decline	Normal function No memory loss People with NO dementia are considered in Stage 1	N/A
	Stage 2:	Forgets names Misplaces familiar objects	Unknown

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No Dementia	Very Mild Cognitive Decline	Symptoms not evident to loved ones or doctors	
	Stage 3: Mild Cognitive Decline	Increased forgetfulness Slight difficulty concentrating Decreased work performance Gets lost more frequently Difficulty finding right words Loved ones begin to notice	The average duration of this stage is between 2 years and 7 years.
Early-stage	Stage 4: Moderate Cognitive Decline	Difficulty concentrating Forgets recent events Cannot manage finances Cannot travel alone to new places Difficulty completing tasks In denial about symptoms Socialization problems: Withdraw from friends or family Physicians can detect cognitive problems	The average duration of this stage is 2 years.
	Stage 5: Moderately Severe Cognitive Decline	Major memory deficiencies Need assistance with ADLs (dressing, bathing, etc.) Forget details like address or phone number Doesn't know the time or date	The average duration of this stage is 1.5 years.

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Mid-Stage		Doesn't know where they are	
	Stage 6: Severe Cognitive Decline (Middle Dementia)	Cannot carry out ADLs without help Forgets names of family members Forgets recent events Forgetting major events in the past Difficulty counting down from 10 Incontinence (loss of bladder control) Difficulty speaking Personality and emotional changes Delusions Compulsions Anxiety	The average duration of this stage is 2.5 years.
Late-Stage	Stage 7: Very Severe Cognitive Decline	Cannot speak or communicate Require help with most activities Loss of motor skills Cannot walk	The average duration of this stage is 1.5 to 2.5 years.

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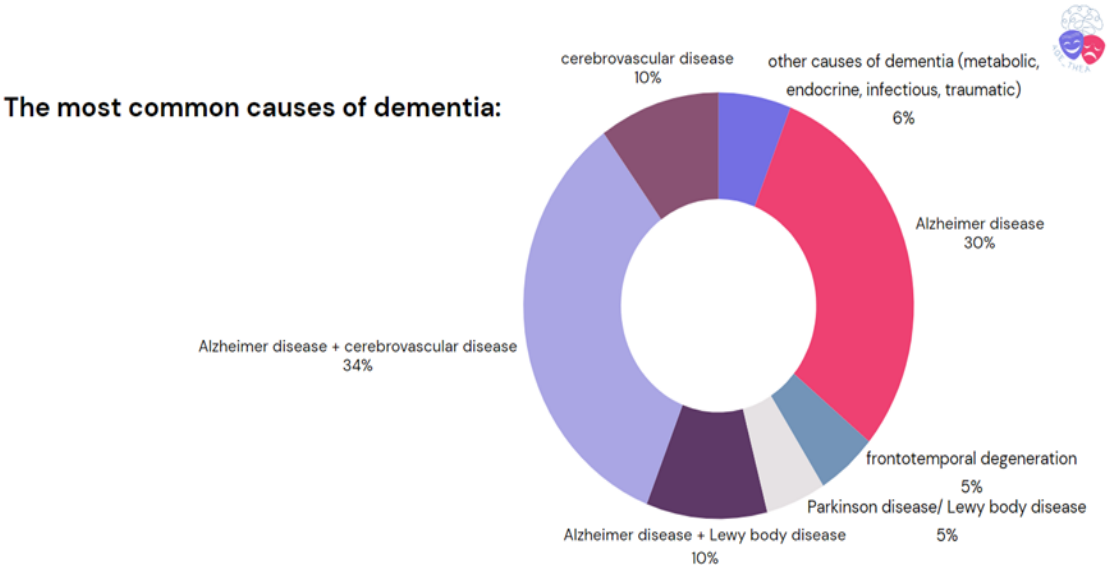
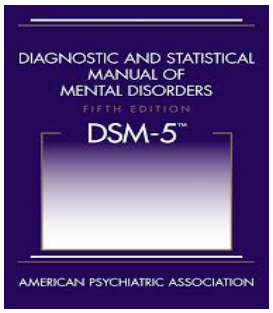
2. Neurocognitive disorders

Did you know?

... Dementia is usually caused by diseases that affect widespread regions of the brain or strategically important areas. The former includes neurodegenerations as well as metabolic, endocrine, and infectious disorders [12]. The latter includes cerebrovascular diseases and head traumas (fig 2.1.).



2.1. Types of Dementia



The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (fig.2.2.), published by the American Psychiatric Association, provides diagnostic criteria and classifications for various mental disorders, including dementia [13]. DSM-5 uses the term **major neurocognitive disorder** to describe what was previously referred to as dementia. This terminology reflects a broader understanding of cognitive

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impairments and the different conditions that can lead to significant cognitive decline.

Major Neurocognitive Disorder (Dementia)

Criteria for Diagnosis [13] (fig.2.3.):

1. Evidence of Significant Cognitive Decline:

There must be a noticeable decline in cognitive function (e.g., memory, reasoning, language) from a previous level of performance.

This decline can be documented through:Concerns of the individual or a knowledgeable informant;

standardized neuropsychological testing or other assessments that demonstrate a decline.

2. Impairment in Daily Living:

The decline must be significant enough to interfere with independence in everyday activities (e.g., managing finances, medication, self-care).

3. Not Due to Other Disorders:

Cognitive impairment cannot be better explained by other mental disorders (e.g., delirium, depression) or the effects of a medical condition.

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2.1.1. Alzheimer's Disease (AD)

Pathology [14,15,16]:

Amyloid Plaques: These are clumps of protein fragments (beta-amyloid) that accumulate between neurons and disrupt cell function.

Neurofibrillary Tangles: Composed of hyperphosphorylated tau protein, these tangles disrupt the transport system within neurons.

Neurodegeneration: The buildup of plaques and tangles leads to inflammation, cell death, and brain atrophy, particularly in the hippocampus and cerebral cortex.

Symptoms [14,15,16]:

Early Stage:

- Memory loss (particularly short-term)
- Difficulty with problem-solving and planning
- Language difficulties (e.g., trouble finding the right words)
- Disorientation in time and space

Middle Stage:

- Increased confusion and forgetfulness
- Behavioral changes (e.g., aggression, anxiety, depression)
- Difficulty recognizing friends and family
- Challenges with routine tasks (e.g., dressing, cooking)

Late Stage:

- Severe cognitive decline and inability to communicate
- Loss of mobility and ability to perform daily activities
- Increased dependence on caregivers

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Progression:

Stages: Alzheimer's progresses through three general stages: mild (early), moderate (middle), and severe (late). The average duration from diagnosis to death can range from 4 to 20 years.

Risk Factors: Age, family history, genetics (e.g., APOE-e4 allele), and lifestyle factors (e.g., cardiovascular health) increase risk.

2.1.2. Vascular Dementia

Pathology [14,15,16]:

Cerebrovascular Issues: Caused by a lack of blood flow to the brain due to strokes, small vessel disease, or conditions that impede circulation (e.g., atherosclerosis).

Ischemic Events: These can result in localized brain damage, leading to cognitive impairment.

Multiple Infarcts: Patients may experience multiple small strokes over time, resulting in cumulative brain damage.

Symptoms [14,15,16]:

Early Stage:

- Confusion and difficulty concentrating
- Slower processing speed and diminished problem-solving abilities
- Sudden changes in cognition or functionality following a stroke

Middle Stage:

- Fluctuations in cognitive function (good days and bad days)
- Issues with organization and planning
- Increased difficulty with language and attention

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Late Stage:

- Severe memory problems
- Difficulty with daily living activities
- Emotional changes (depression, apathy)

Progression:

Stepwise Decline: Unlike Alzheimer's, which is gradual, vascular dementia often has a stepwise decline where cognitive abilities decline suddenly after a stroke.

Prevalence: It is the second most common type of dementia and often coexists with other dementias, particularly Alzheimer's.

2.1.3. Lewy Body Dementia (LBD)

Pathology [14,15,16]::

Lewy Bodies: Abnormal clumps of alpha-synuclein protein accumulate in the brain, disrupting normal brain function. They affect areas that control movement, cognition, and behavior.

Neurodegeneration: The presence of Lewy bodies leads to brain cell death and can affect both cognitive and motor functions.

Symptoms [14,15,16]:

Cognitive Symptoms:

- Memory loss and difficulties with attention and executive functions.
- Fluctuating cognition (periods of confusion and clarity).

Motor Symptoms:

- Bradykinesia (slowness of movement)

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- Rigidity and tremors (similar to Parkinson's disease)

Psychiatric Symptoms:

- Visual hallucinations and delusions
- Mood changes, including depression and anxiety

Sleep Disorders: REM sleep behavior disorder – where individuals act out dreams.

Progression:

Rapid Progression: LBD typically progresses more quickly than Alzheimer's disease, with an average lifespan after diagnosis of 5 to 8 years.

Overlap with Parkinson's Disease: Some patients may later develop symptoms characteristic of Parkinson's disease.

2.1.4. Frontotemporal Dementia (FTD)

Pathology [14,15,16]:

Neurodegeneration: Primarily affects the frontal and temporal lobes of the brain. It may involve tau protein or TDP-43 protein abnormalities.

Atrophy: Results in significant atrophy of these brain regions, leading to changes in personality, behavior, and language.

Symptoms [14,15,16]:

Behavioral Variant FTD:

- Significant changes in personality and social behavior (e.g., impulsivity, loss of empathy).
- Apathy, disinterest in personal hygiene, and lack of concern for social norms.

Language Variant FTD (Primary Progressive Aphasia):

- Difficulties with speaking, understanding language, and finding the right words.
- Eventually leads to loss of the ability to communicate effectively.

Physical Symptoms: In the later stages, motor function may decline, with symptoms resembling those of Parkinson's disease.

Progression:

Age of Onset: Usually occurs between ages 45 and 65, making it one of the younger-onset dementias.

Duration: The disease progression varies, but patients typically survive 3 to 10 years post-diagnosis.

2.1.5. Mixed Dementia

Pathology [14,15,16]:

Combination of Types: Most commonly includes a mix of Alzheimer's disease and vascular dementia pathology, leading to a combination of symptoms from both types.

Neurodegeneration: Presence of amyloid plaques, tau tangles, and cerebrovascular damage in the brain.

Symptoms [14,15,16]:

Cognitive Impairments: Symptoms may include memory loss, confusion, difficulty with planning, and changes in behavior.

Variable Symptoms: The combination of dementia types leads to a wider

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variety of symptoms and a more complex clinical picture.

Progression:

Unpredictable Course: The progression of mixed dementia may be less predictable due to the interaction of different pathological processes and symptoms.

Diagnosis: Often difficult to diagnose until autopsy or imaging reveals the presence of multiple types of dementia.

2.1.6. Potentially Reversible Causes of Dementia

Only a small number of dementia cases (under 2%) are potentially reversible, mainly those linked to specific conditions [17]:

Normal Pressure Hydrocephalus: Fluid buildup in brain ventricles causes pressure, leading to symptoms like cognitive decline, urinary incontinence, and mobility issues.

Thyroid and Parathyroid Issues: Impaired thyroid function can lead to cognitive decline throughout life.

Alcoholic Dementia: Prolonged heavy drinking may cause a significant decline in memory and cognitive function.

Vitamin B12 and Folic Acid Deficiencies: Deficiencies in these nutrients can cause or worsen cognitive issues; in severe cases, they can lead to reversible dementia.

Depression: Depression has been linked to dementia.

2.2.Diagnosis and Assessment

The diagnosis of dementia is a staged process. This process usually begins not in the doctor's office or hospital, but in everyday life when someone

notices a change in a person's performance or behavior [18,19]. This could be the person themselves, a family member, a friend or a work colleague. You can use the infographic below as a quick reminder of the early signs of dementia (fig.2.4.).

Figure 2.4.: Early signs of dementia

Suspected changes should then be checked by a doctor or psychologist using tests and questionnaires. If the changes are confirmed, the causes and contributing factors (comorbid conditions) must be identified [18]. The tools used at this step include physical examination, laboratory examination, brain imaging (for magnetic resonance imaging of brain structure, MRI; for positron emission tomography of brain metabolism, PET); biomarkers in selected cases (protein concentrations in cerebrospinal fluid), and rarely genetic testing. Thanks to advances in brain imaging and biomarkers, the underlying disease (especially Alzheimer's disease) can be identified before typical symptoms develop [20]. This scientific progress raises ethical concerns. An overview of

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diagnostic tools in the course of Alzheimer's disease is given below as a brief reminder (fig.2.5.).

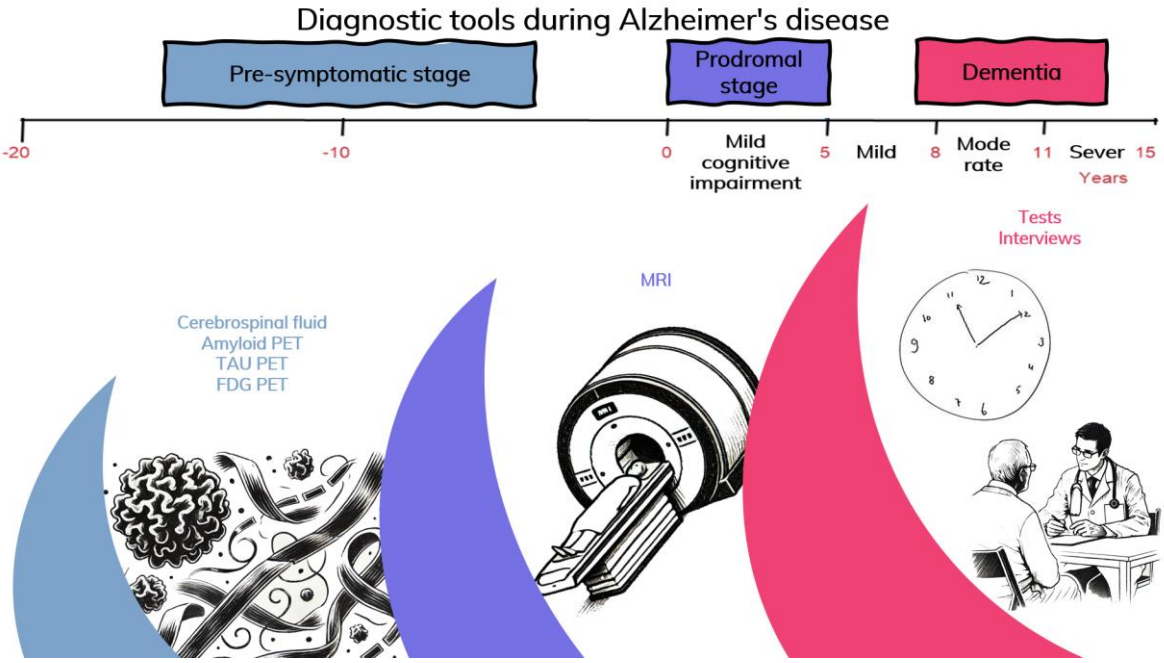

Figure 2.5.: Overview of diagnostic tools in the course of Alzheimer's disease

2.2.1. Cognitive Screening Tests (MMSE, MoCA, etc.)

Cognitive screening tests are tools used to assess an individual's cognitive abilities, helping to identify potential cognitive decline or dementia. These tests are often quick, standardized assessments that evaluate various cognitive domains, including memory, attention, language, and executive function [21,22].

2.2.2. Neuroimaging and Biomarkers

Neuroimaging and biomarkers play a crucial role in the diagnosis and management of dementia. They provide valuable insights into brain structure and function, helping to differentiate between various types of dementia and assess disease progression [20].

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2.3. Pharmacological Treatments

Once a diagnosis is confirmed, long-term care for the person with dementia should start by connecting them and their caregivers to supportive services. Ideally, one dedicated health or social care team will coordinate their care, focusing on their specific needs[23]. This coordinator should guide the person and their family to available services, help identify a main caregiver, suggest a care plan, and ensure good communication within the care team. After diagnosis, it's important for the person to discuss their wishes for future care through an advanced care plan.

Even if you're not a doctor, having basic knowledge about dementia medications is helpful. Understanding how these medicines work, their risks, and how they can support quality of life is essential. However, medications alone have limited effects and work best alongside other supportive treatments. Only two types of dementia medications are approved to help with cognitive symptoms and daily activities: acetylcholinesterase inhibitors and memantine (fig.2.6.).

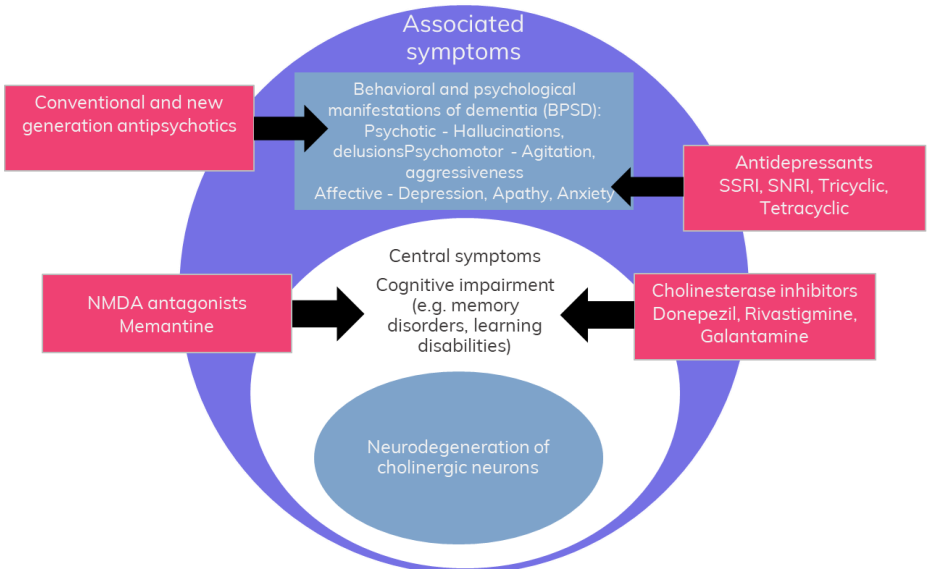

Figure 2.6.: The main classes of drugs used in Alzheimer's dementia.

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2.4. Prevention and Risk Reduction

Several factors can increase the risk of developing dementia over a lifetime. Some are genetic and cannot be changed, ranging from rare, impactful genetic mutations to more common variants like APOE4, which has a smaller effect. About 25% of people aged 55 have a family history of dementia, often due to a mix of genetic factors that slightly increase risk. Individuals with a family history have a 20% chance of developing dementia, compared to 10% in the general population [24].

There are also external risk factors, such as diabetes, high blood pressure, obesity, physical inactivity, depression, smoking, and lower levels of education. Fortunately, certain lifestyle choices can help lower these risks.

The Lancet Commission has highlighted the importance of modifiable risk factors in reducing the risk of dementia, emphasizing that lifestyle changes can significantly impact disease

prevention. Below is an image illustrating these modifiable risk factors (fig. 2.7.) [24].

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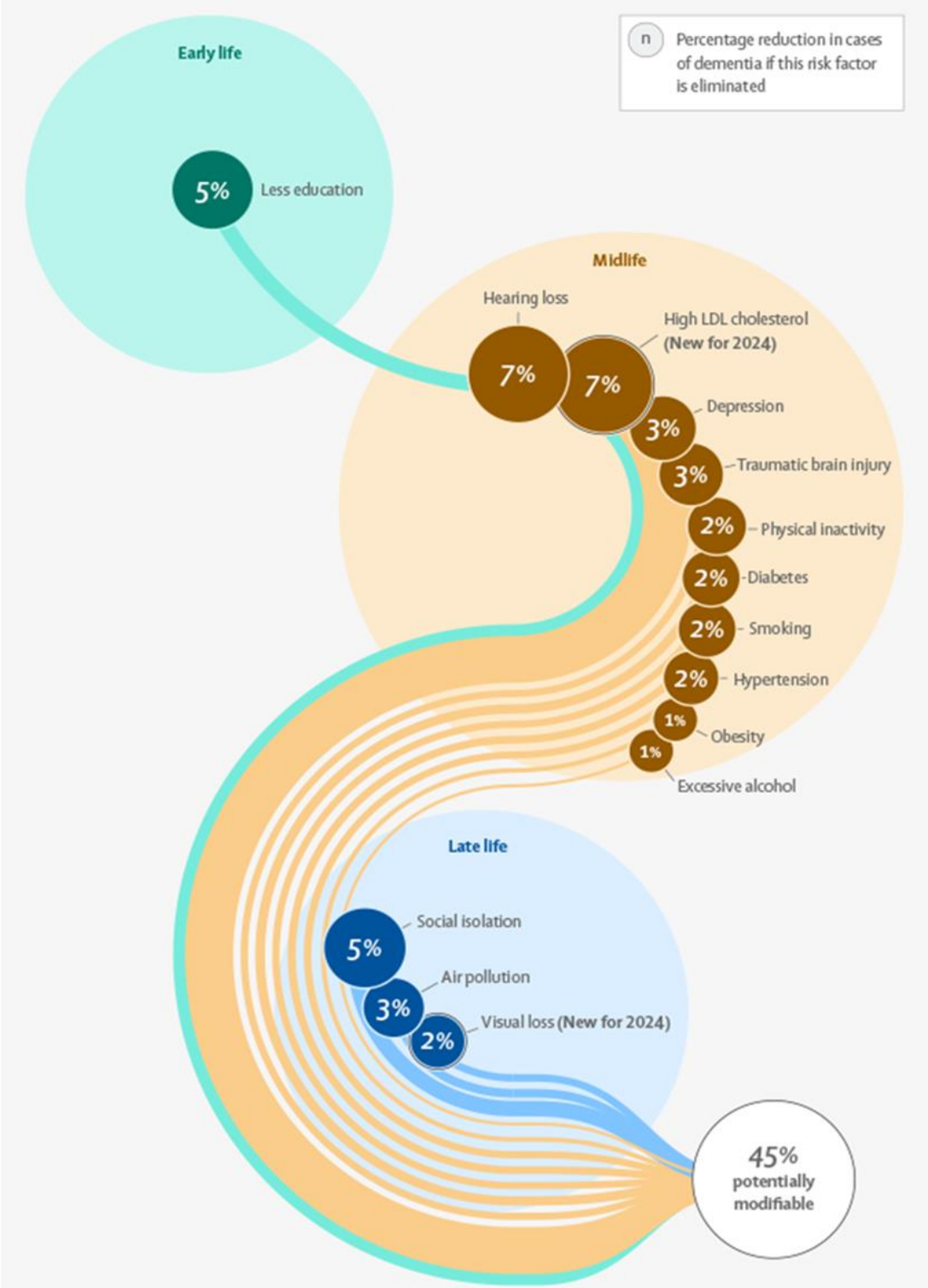

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3. Neurological disorders

3.1. Multiple Sclerosis (MS)

3.1.1. Introduction

MS is a chronic autoimmune disease that affects the central nervous system, gradually leading to nerve damage. Symptoms usually begin in young adults and can progress over time, potentially causing disability after 10–15 years [25].

There are 7 main types of MS. The most common is relapsing-remitting MS, seen in 70–80% of cases, where symptoms come and go. Other types include primary progressive MS, which steadily worsens without relapses; secondary progressive MS, which starts as relapsing-remitting and becomes progressive; and progressive relapsing, where symptoms worsen with occasional acute episodes. Less common types include clinically isolated syndrome, fulminant MS (with rapid progression), and benign MS (mild symptoms with rare relapses) [26].

3.1.2. Warning Signs

MS leads to nerve damage in areas like the spinal cord, brainstem, cerebellum, and optic nerves, so symptoms depend on which areas are affected. In the most common type, Relapsing-remitting MS, symptoms develop gradually over days. In Primary progressive MS, symptoms worsen slowly, over at least 12 months. Early symptoms often include tingling, vision issues, fatigue, weakness, balance problems, and in some cases, temporary vision loss in one eye[26,27].

3.1.3. Symptoms

Due to the widespread impact of MS on the central nervous system, symptoms vary widely (table 3.1.) [26].

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3.1.4. Disease Progression

Without full recovery between relapses, MS symptoms can worsen over time, often affecting mobility, motor control, and balance. Long-term issues may include double vision, chronic dizziness, swallowing problems, and bladder dysfunction. Mood changes and cognitive decline can also appear as the disease progresses. Managing symptoms often involves physical therapy, medication for dizziness or infections, and lifestyle adjustments to maintain quality of life [27].

Tabel 3.1.: MS typical symptoms

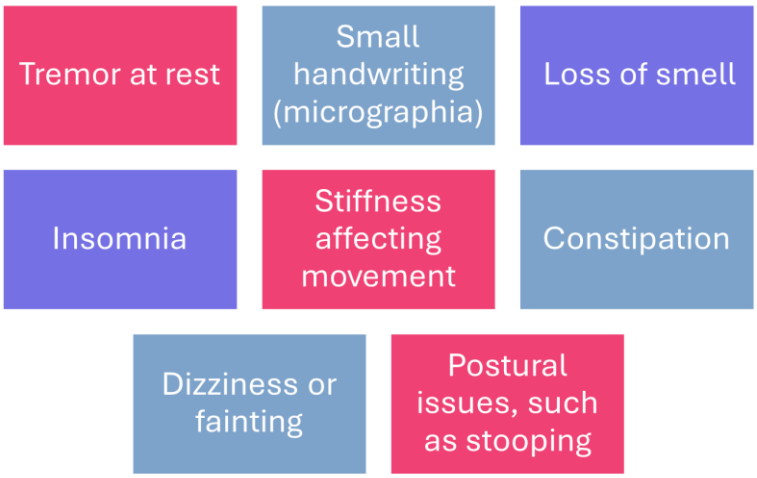
Vision issues like vision loss or double vision	Sensation loss including tingling and numbness
Speech and swallowing problems due to nerve damage	Bladder and bowel issues like incontinence or constipation
Motor difficulties such as weakness, tremors, or muscle stiffness	Emotional effects like anxiety or depression
Cognitive changes such as memory problems or difficulty focusing.	

3.2. Parkinson's Disease (PD)

3.2.1. Introduction

PD is a common neurodegenerative disease, mainly affecting older adults, though it can appear in younger people. It is caused by the loss of dopamine-producing neurons in the brain, leading to motor control issues. PD is marked by the presence of Lewy bodies (protein clusters) in these neurons. Age is the biggest risk factor, with other possible factors including exposure to certain chemicals and metals. Diagnosis is clinical, based on symptoms like tremors, stiffness, and slowness of movement, often confirmed by a good response to levodopa therapy [28,29].

3.2.2. Warning Signs (fig.3.1.)



3.2.3. Symptoms

PD symptoms fall into motor and non-motor categories [29,30,31].

Motor symptoms: These include tremors, slowness of movement (bradykinesia), muscle stiffness, and postural instability. Unique signs include "pill-rolling" tremor and "cogwheel" rigidity in joint movement.

Non-motor symptoms: Experienced by nearly all PD patients, these include depression, anxiety, sleep disturbances, and cognitive decline. Dementia may develop, especially in those with a family history of PD. Other symptoms include digestive issues, urinary problems, and increased skin issues, such as excessive sweating and higher risk of skin cancer. Loss of smell and sensory changes like tingling or burning sensations are also common.

3.2.4. Evolution of disease

Parkinson's disease develops in stages, with the onset of motor symptoms often occurring years after the disease begins. PD has three main stages: preclinical, prodromal, and clinical [32].

Preclinical Stage: Neurodegeneration in the brain occurs without visible symptoms.

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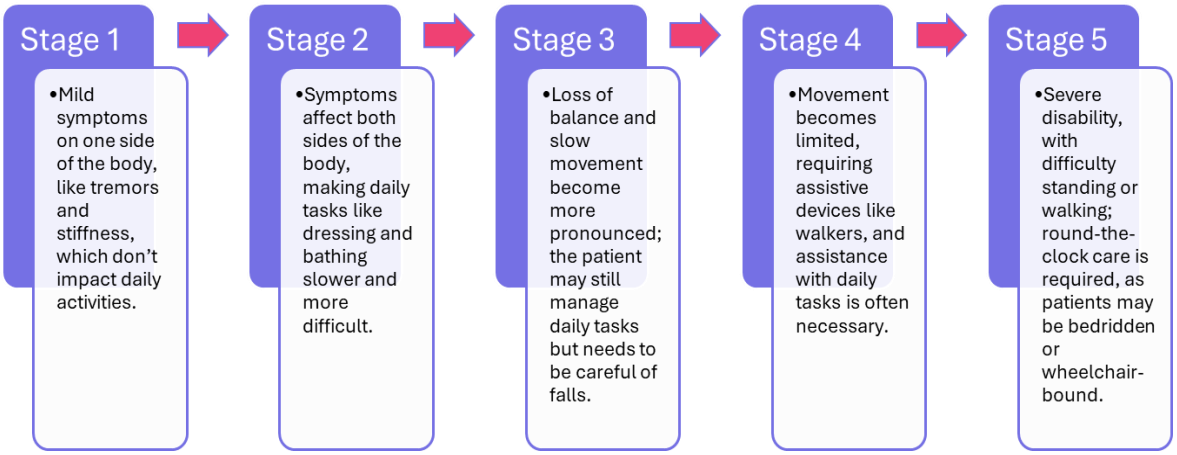
Prodromal Stage: Over about 10 years, early non-motor symptoms like sleep issues, constipation, loss of smell, and depression may appear.

Clinical Stage: When 40-60% of dopamine-producing neurons are lost, motor symptoms (like tremors and stiffness) emerge, marking the early phase of PD.

Symptomatic Stages of PD (fig.3.2.)



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References

1. Khan, H. T. (2019). Population ageing in a globalized world: Risks and dilemmas?. Journal of evaluation in clinical practice, 25(5), 754-760.

2. Leifer, B. P. (2003). Early diagnosis of Alzheimer's disease: clinical and economic benefits. *Journal of the American Geriatrics Society, 51*(5s2), S281-S288.

3. Kiely, K. M., Brady, B., & Byles, J. (2019). Gender, mental health and ageing. Maturitas, 129, 76-84.

4. Segal, D. L., Qualls, S. H., & Smyer, M. A. (2018). Aging and mental health. John Wiley & Sons.

5. Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. Public health, 152, 157-171.

6. Lo, R. Y. (2017). The borderland between normal aging and dementia. *Tzu Chi Medical Journal, 29*(2), 65-71.

7. Harada, C. N., Love, M. C. N., & Triebel, K. (2013). Normal cognitive aging. Clinics in geriatric medicine, 29(4), 737.

8. Rossini, P. M., Rossi, S., Babiloni, C., & Polich, J. (2007). Clinical neurophysiology of aging brain: from normal aging to neurodegeneration. Progress in neurobiology, 83(6), 375-400.

9. Anderson, N. D. (2019). State of the science on mild cognitive impairment (MCI). CNS spectrums, 24(1), 78-87.

10. Monastero, R., Mangialasche, F., Camarda, C., Ercolani, S., & Camarda, R. (2009). A systematic review of neuropsychiatric symptoms in mild cognitive impairment. Journal of Alzheimer's disease, 18(1), 11-30.

11. Reisberg, B., Jamil, I. A., Khan, S., Monteiro, I., Torossian, C., Ferris, S., ... & Wegiel, J. (2010). Staging dementia. *Principles and Practice of Geriatric

Psychiatry*, 162–169.

12. James, B. D., & Bennett, D. A. (2019). Causes and patterns of dementia: an update in the era of redefining Alzheimer's disease. Annual review of public health, 40(1), 65–84.

13. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

14. James, B. D., & Bennett, D. A. (2019). Causes and patterns of dementia: an update in the era of redefining Alzheimer's disease. Annual review of public health, 40(1), 65–84.

15. Arvanitakis, Z., Shah, R. C., & Bennett, D. A. (2019). Diagnosis and management of dementia. Jama, 322(16), 1589–1599.

16. Fymat, A. L. (2018). Dementia: A review. J Clin Psychiatr Neurosci, 1(3), 27–34.

17. Yousuf, R. M., Fauzi, A. R. M., Wai, K. T., Amran, M., Akter, S. F. U., & Ramli, M. (2010). Potentially reversible causes of dementia. International Journal of Collaborative Research on Internal Medicine & Public Health, 2(8), 258.

18. Perry-Young, L., Owen, G., Kelly, S., & Owens, C. (2018). How people come to recognise a problem and seek medical help for a person showing early signs of dementia: A systematic review and meta-ethnography. Dementia, 17(1), 34–60.

19. Robinson, L., Tang, E., & Taylor, J. P. (2015). Dementia: timely diagnosis and early intervention. Bmj, 350.

20. Blennow, K., & Zetterberg, H. (2018). Biomarkers for Alzheimer's disease: current status and prospects for the future. *Journal of Internal Medicine, 284*(6), 643–663.

21. Glenn, J. M., Bryk, K., Myers, J. R., Anderson, J., Onguchi, K., McFarlane,

J., & Ozaki, S. (2023). The efficacy and practicality of the Neurotrack Cognitive Battery assessment for utilization in clinical settings for the identification of cognitive decline in an older Japanese population. *Frontiers in Aging Neuroscience, 15*, 1206481.

22. Sheehan, B. (2012). Assessment scales in dementia. Therapeutic advances in neurological disorders, 5(6), 349-358.

23. Vaz, M., & Silvestre, S. (2020). Alzheimer's disease: Recent treatment strategies. *European Journal of Pharmacology, 887*, 173554.

24. Livingston, G., Huntley, J., Liu, K. Y., Costafreda, S. G., Selbæk, G., Alladi, S., ... & Mukadam, N. (2024). Dementia prevention, intervention, and care: 2024 report of the Lancet standing Commission. *The Lancet, 404*(10452), 572-628.

25. Ajdacic-Gross, V., Steinemann, N., Horváth, G., Rodgers, S., Kaufmann, M., Xu, Y., ... & Wyl, V. V. (2021). Onset symptom clusters in multiple sclerosis: characteristics, comorbidities, and risk factors. *Frontiers in Neurology, 12*, 693440.

26. Noyes, K., & Weinstock-Guttman, B. (2013). Impact of diagnosis and early treatment on the course of multiple sclerosis. *American Journal of Managed Care, 19*(17 Suppl), s321-31.

27. University of California, San Francisco MS-EPIC Team, Cree, B. A., Gourraud, P. A., Oksenberg, J. R., Bevan, C., Crabtree-Hartman, E., ... & Hauser, S. L. (2016). Long-term evolution of multiple sclerosis disability in the treatment era. *Annals of Neurology, 80*(4), 499-510.

28. Poewe, W., Seppi, K., Tanner, C. M., Halliday, G. M., Brundin, P., Volkmann, J., Schrag, A.-E., & Lang, A. E. (2017). Parkinson disease. *Nature Reviews Disease Primers, 3*, 17013.

29. Noyce, A. J., Lees, A. J., & Schrag, A. E. (2016). The prediagnostic phase

of Parkinson's disease. *Journal of Neurology, Neurosurgery & Psychiatry, 87*(8), 871-878.

30. MacPhee, G., & Stewart, D. (2001). Parkinson's disease. *Reviews in Clinical Gerontology, 11*, 33-49.

31. Jankovic, J., Hurtig, H., & Dashe, J. (2014). Etiology and pathogenesis of Parkinson disease. *UpToDate*. Retrieved from http://www.uptodate.com/home/index.html.

32. Beitz, J. M. (2013). Skin and wound issues in patients with Parkinson's disease: an overview of common disorders. *Ostomy/Wound Management, 59*(6), 26-36.

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