The background features three vertical stripes on the left: a wide pink one, a medium blue one, and a narrow light beige one. The rest of the background is a light beige color with a pattern of small, light pink dots arranged in a grid that tapers off towards the right edge.

DOWN SYNDROME AND DEMENTIA

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Aarhus University | 2024

DS AND DEMENTIA

Advances in function, well-being, and life span for individuals with DS reveal a great increase risk of developing a type of dementia that is either similar to or the same as Alzheimer's dementia (AD).

Autopsy results

Autopsy reports have shown that by age 40, the brains of almost all individuals with DS have significant levels of beta-amyloid plaques and tau tangles (although not all develop symptoms).

Prevalence

Approximately 30% of individuals with DS in their 50s and 50% in their 60s have Alzheimer's dementia.

DIAGNOSTIC CRITERIA

1

Assesment (through adapted tests for those with intellectual disabilities): Down Syndrome Mental Status Examination, Test for Severe Impairment, Cambridge Cognitive Examination for Older Adults with DS, Arizona Cognitive Test Battery, modified Cued Recall Test (Fortea et al., 2021)

2

Declines in episodic memory, reductions in attention and executive functioning, declines in everyday living skills and impairments in visuospatial ability, verbal fluency, motor coordination, and planning are all signs of dementia in this population (Lautarescu et al., 2017).

3

Behavioral and psychological symptoms of dementia are often observed during pre-clinical and early stages preceding memory loss suggesting memory loss as an effective measure of dementia only in later stages (Lautarescu et al., 2017).

HYPOTHETICAL CASE STUDY

Rose is a 55-year-old woman diagnosed with Down syndrome at birth. She has been living in a supportive community for individuals with intellectual disabilities for most of her life. Recently, Rose's caregivers and family members have noticed changes in her behavior and cognitive abilities. She is becoming increasingly forgetful, often repeating the same questions or stories within short periods. She struggles with tasks that used to be routine for her, such as dressing herself or completing simple puzzles. Additionally, she seems more withdrawn and disinterested in activities she once enjoyed, preferring to spend more time alone in her room.



EVALUATION

Due to the nature of Rose's existing intellectual disabilities, the evaluation of decline due to dementia must be tailored. It is also important to note that while individuals with DS may have a similar clinical presentation to those with sporadic or autosomal dominant AD, management interventions for AD may not be effective in the DS population.

CAMDEX-DS

The Cambridge Examination for Mental Disorder of Older People with DS allows detections of longitudinal changes over a period of years using the individual's own best ever level of functioning as a baseline (Pape et al., 2021).

DLD

The Dementia Scale for People with Learning Disabilities is able to reasonably discriminate consensus dementia diagnosis in individuals with DS and includes informant behavior ratings (Wallace et al., 2021)

PHYSICAL ACTIVITY

- **Pape et al., 2021**
Evaluated longitudinal associations between day-to-day levels of physical activity and symptoms of AD
Found positive association between moderate physical activity and maintenance of memory, personality, behavior

- **Ptomey et al., 2018**
Found two sessions per week for a 12-week intervention improved performance on memory tasks
Associated with increases in local gray matter volume in prefrontal and cingulate cortex

BIOPSYCHOSOCIAL MODEL

● Biological/Physiological

Implement nonpharmacological interventions such as physical exercise and avoiding risk factors such as poor diet, smoking, and alcohol use (Lamichhane et al., 2022)

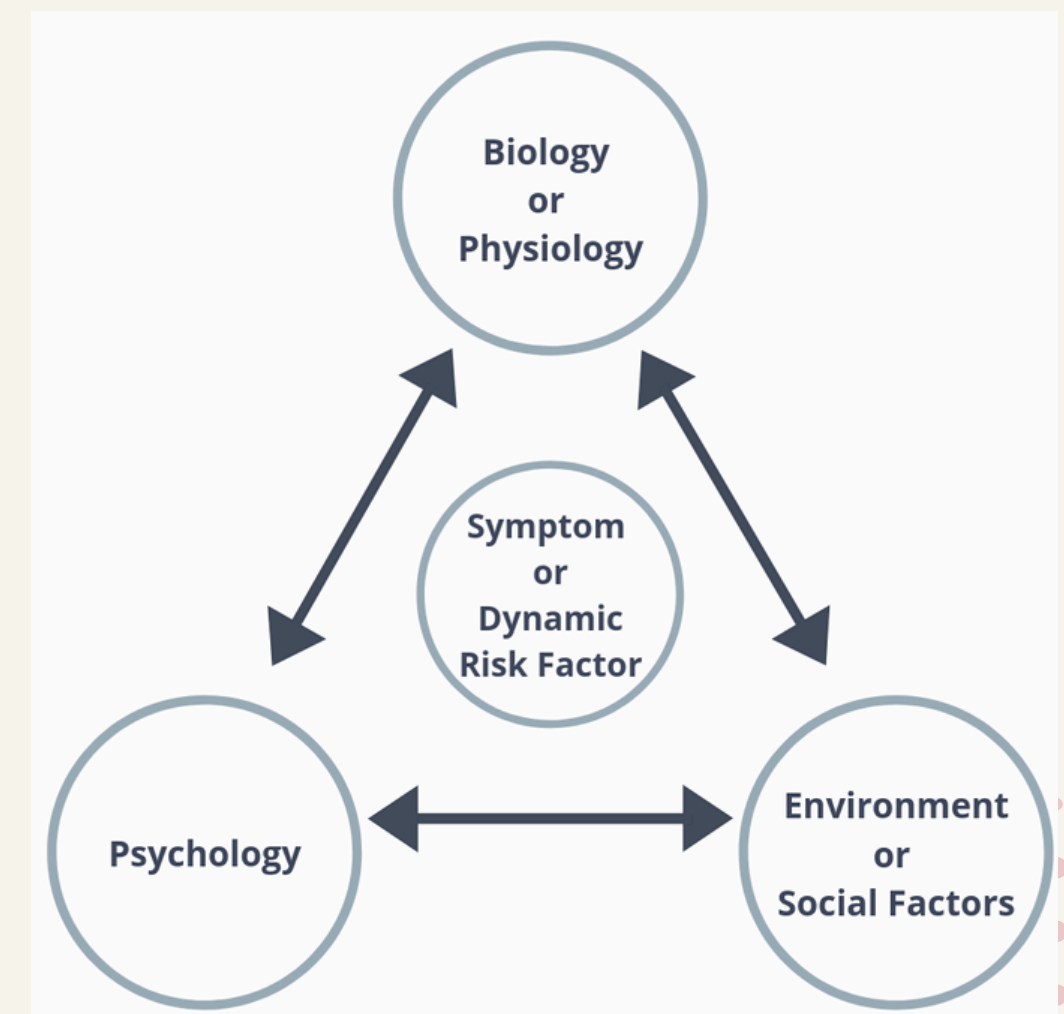
● Psychological

Cognitive stimulation such as music therapy, reminiscence therapy, sensory stimulation exercises.

Develop strategies for behavioral interventions including modification of environment and routine

● Social

Maintain social engagement through participation in community outings and activities in a way that is meaningful for Rose



PROFESSIONAL TEAM

● Occupational Therapist

Train informal caregivers
Assess home environment, daily activities, and organize interventions for caregivers including risk, safety, and manual handling (Raj et al., 2020)

● Psychologist

Conduct standardized test to assess cognitive abilities, memory, language skills, and executive functions
Provide support and guidance to caregivers
Advocate for Rose when collaborating with other specialists

● Geriatrician

Assess chronic medical conditions
Coordinate with other members of the team to modify interventions to be appropriate for an older adult

● Caregivers

Aid in day-to-day activities and responsibilities
Attend social gatherings with Rose
Provide emotional support and companionship

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