The British Psychological Society
Promoting excellence in psychology

Evidence briefing:

Neuropsychological impact of dementia

The aim of this document is to provide an overview of the neuropsychological impact of dementia. It aims to summarise research and clinical evidence in this area and to aid commissioners and other stakeholders to shape the service landscape. It is not intended to be read as a set of recommendations for practitioners.

Key messages

- **Dementia is a broad umbrella term which describes a range of progressive neurological disorders.** It causes a progressive decline in intellectual function, loss of independence and impairment in activities of daily living (see below). There are many different types of dementia and this means that the range of possible presenting features is broad and includes behavioural, cognitive, psychiatric and neurological aspects.

- **Dementia causes a progressive decline in cognitive function.** Dementia is a progressive condition and every person is different. In the early stages people may forget recent events, misplace items, become withdrawn, and have difficulty managing finances and solving problems. As the dementia progresses there may be increased confusion, and support will be required with cooking and other activities of daily living. Some people can become upset and frustrated, perhaps because they misinterpret situations. Impaired ability to communicate makes it difficult to express needs or understand what other people are saying. People may be more likely to get lost or confused about day and night. There may be impairment in perception or the person may experience hallucinations or delusions. Changes in mood and behaviour are also common. As dementia progresses there is a loss of ability to recognise familiar objects and people. Problems with eating, swallowing, mobility and incontinence can also develop.

- **Neuropsychological assessment together with a range of imaging techniques can help determine specific types of dementia.** A neuropsychological assessment looks at a range of cognitive functions including attention, memory, language, visuospatial and executive function. Computerised tomography (CT) and magnetic resonance imaging (MRI) assess the structure of the brain. Positron emission tomography (PET) and single photon emission computerised tomography (SPECT) measure brain activity.

- **Specialised training in neuropsychological assessment reduces the potential negative impact of the assessment process, over-interpretation of the findings or misdiagnosis.** There are many reasons why people can perform poorly on neuropsychological assessment, for example, depression, stress or physical illness. Performance also depends on an individual’s motivation to perform well. During assessment, a person is asked to engage in tasks which highlight areas of weakness, which can be a difficult and anxiety-provoking experience. People can be anxious about the potential outcome of the assessment.

- **The broad range of neuropsychological impairment impacts on a wide range of activities of daily living.** The impact will depend on the type and stage of dementia and will change as the dementia progresses (see page 3).
Neuropsychological impact depends on the type of dementia. The most common types are listed on page 4. Each type has different characteristic profiles and early symptoms because different parts of the brain are affected first, and this adds to the individual variation in the presentation and course of dementia. To add to the complexity, there is considerable overlap in the neuropsychological profile of different dementias and also comorbidity, for example, mixed Alzheimer and vascular dementia. As the dementia progresses and damage spreads to more areas of the brain, the symptoms of different types of dementia become more similar.

Each person is unique and will experience dementia differently. While specific symptoms will depend on the parts of the brain that are damaged, other factors also contribute. These include other illnesses the person has, the medication they take, their emotional resilience, what support they have available to them and their environment. The speed at which a dementia progresses also varies and can depend on the type of dementia, age at onset and physical health.

Calls to action

Ensure input from psychologists with specialist training in neuropsychological assessment is part of diagnosis and treatment planning.

Neuropsychological assessment provides a systematic evidence-based assessment of how a person thinks, feels and behaves. This provides information about the relative strengths and weakness in cognitive abilities and emotional state. This can inform decisions about treatment options, support that may be required, and interventions strategies and techniques which can be used to maximise preserved cognitive function and compensate for areas of identified weakness. For example, reminding a person with Alzheimer’s dementia that their relative visited earlier in the day may not be helpful as the person has not formed a new memory of this, but it may be helpful for a person with vascular dementia whose difficulty is more with recalling information. A person with Lewy body dementia may be able to complete a task one day but not the next, due to fluctuation in attention. For a person with fronto-temporal dementia, impairment in executive function means that it will be more important to structure the environment. Neuropsychological assessment can also inform risk assessments.

Ensure Post diagnostic support to help reduce the psychological impact of dementia. Neuropsychological impairment can significantly impact on psychological wellbeing. In addition to the many practical difficulties, there can also be changes to how the person feels. Everyone will react differently but many people become frustrated or worried, or feel a sense of sadness or loss. Fear about the future, of losing control or of becoming a burden on family are other common experiences. A loss of self-confidence can lead to withdrawal from social situations or other activities previously enjoyed. Depression and anxiety are common conditions experienced by people with a dementia. As dementia progresses trying to make sense of the world can cause frustration and anxiety. For further information see Briefing paper: The importance of timely support after a diagnosis of dementia.

Ensure input from psychologists with specialist training in neuropsychological assessment as a part of diagnosis and treatment planning.

Ensure post diagnostic support to help to reduce the psychological impact of dementia.

Ensure carers have appropriate support to help them to understand and cope with changes.

Ensure multidisciplinary input for support and rehabilitation.

Ensure carers have appropriate support to help them understand and cope with changes in behaviour, cognitive function and subsequent changes in relationships and their role. Advice on the strengths and weaknesses identified in a neuropsychological assessment can help carers to understand why difficulties arise. Depression is common among family carers supporting a person with dementia. Change in relationships with family and friends can be difficult to manage and cause significant distress. Education about dementia and how it can impact on daily life, and support to help understand the cognitive changes can have a positive impact on engagement and relationships. Individual, couple or group therapy can help. For further information see briefing paper: The psychological needs of families and carers of people with dementia.

Ensure multidisciplinary input for support and rehabilitation. Psychologists have specialist training, which means they are well placed to develop rehabilitation programmes, including group and individual therapy. Speech and language therapy input is important for people with communication or swallowing difficulties. Occupational therapists can offer support with adapting the environment to support independence and identify appropriate meaningful activity tailored to the person. Motor impairment often necessitates input from physiotherapy.
Examples of good practice
A neuropsychological assessment informs the diagnostic process and highlights areas of strength and weakness. Sharing findings with the person and carer can help them to understand why they are experiencing difficulties in activities of daily living. For example, a person may have difficulty dressing independently. An assessment which highlights sequencing difficulties can help explain why this is happening and help to identify strategies to compensate. The carer could lay the items of clothing on the bed in the order in which they should be put on. This simple strategy can reduce frustration for both the person and their carer, increase independence and maintain self-esteem. Simple changes in the environment can support people with impairment in memory, for example a calendar to help remember appointments or labelling cupboards. Tailored rehabilitation should be offered, informed by the results of the neuropsychological assessment.

Dementia is a progressive condition and the types of compensatory strategies, and support needed, will change as ability declines. An honest discussion about likely changes in function and decision making ability as the dementia progresses will enable people to share their wishes about future care and support while they have the capacity to do this.

Neuropsychological impact on activities of daily living

- **Orientation.** As dementia progresses, a person may be confused about the time of day, date, year or where they are.
- **Memory.** A person may be unable to recall recent events or misplace items (episodic memory), fail to recall names or recognise everyday objects (semantic memory), or remember to take medication or whether it has been taken.
- **Language.** A person may lose the ability to express and understand language. Word finding difficulties in conversation are common. Reading and writing may become impaired. Often, following and engaging in conversation can be difficult and tiring. This can lead to a formerly outgoing person becoming quieter, more introverted and less interested in social interaction.
- **Visuo perceptual and visuospatial processing** enables understanding of what and where things are such as objects, faces and words. Impairment can impact on many activities of daily living, such as accurately locating food on a plate and moving it to the mouth, finding milk which is in plain sight in the fridge. People may find it difficult to work out how to get from where they are now to where they want to be. Impairment in depth perception makes it more difficult to go downstairs, which increases the risk of falls.
- **Executive functions** include the ability to sequence, organise and plan, and also the ability to self-monitor and control behaviour. Impairment can make it difficult to correctly order the multiple steps required to carry out routine tasks such as make a cup of tea. Motivation to engage in routine tasks or activities previously enjoyed may also be reduced. There can be difficulty with selection; for example, in making choices if there is more than one option or with switching attention, when moving from one task to another. Poor judgment and reasoning means that the person may need support to make decisions about healthcare, finance and accommodation.

- **Awareness** can be impaired because of damage to the brain or because the person does not acknowledge particular difficulties or minimises the severity and impact of difficulties. Lack of awareness may arise from a combination of both neuropsychological and psychological reasons. It means that the person may not realise they need support. This can be stressful and a source of conflict if not managed sensitively.
- **Behaviour and personality changes** could result directly from neuropsychological impairments, for example, when behaviour is disinhibited and inappropriate to the social setting. Other reasons include changes in interests as dementia progresses, changes in physical wellbeing, misunderstanding situations and lack of meaningful activity. Failure to understand changes in behaviour can cause significant distress for the person and their carers (see evidence briefing: Behaviour that Challenges).
- **Driving** may not be impaired in the early stages of a dementia but over time this ability may diminish, in part because of changes in the ability to understand spatial relationships and judge distances. For example, navigating a turn, changing lanes or parking could become a significant challenge.
- **Attention** can fluctuate, or the ability to sustain attention on a task may decrease, which causes difficulty concentrating or focusing on a task. The person may become more distracted.
- **Motor impairment** can include apraxia, difficulty planning movements, which can impact on activities of daily living such as dressing and eating. Ataxia, poor coordination and balance, increases the risk of falls.
- **Hallucinations and delusions**, seeing or hearing things that are not there, or falsely believing something to be true which is not, may cause distress. Misinterpretation of what is seen or heard, or illusions, can also occur, for example, mistaking a pile of socks for snakes or a wardrobe for the bathroom.
- **Sleep disturbances** can occur with disruption of the sleep wake cycle, for example, waking in the middle of the night thinking that it is time to go to work.

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Types of dementia

**Alzheimer’s dementia**
- Accounts for the majority of cases – approximately 62 per cent of cases diagnosed\(^1\).
- Typical early indications include impairment in episodic memory, attention and executive functions, but the underlying disease causes different presentations depending on which brain regions are most affected:
  - Amnesic Alzheimer’s dementia – difficulty remembering recent events and disorientation in familiar environments.
  - Posterior cortical atrophy – early impairment in vision.
  - Logopenic progressive aphasia – language.
  - Dysexecutive Alzheimer’s dementia – behaviour.

**Vascular dementia**
- Accounts for around 17 per cent of cases\(^1\).
- Progressive decline in cognitive function secondary to a variety of different types of vascular brain injury, including infarctions or brain haemorrhage. The location and nature of the areas of damage substantially determine the nature of impairments observed, leading to great variety in presentation.
- Presentation can include urinary problems and gait disturbance, executive dysfunction and slowed processing speed.

**Dementia with Lewy bodies**
- Accounts for around four per cent of cases of dementia\(^1\).
- Hallmark features include significant fluctuations in attention and alertness, recurrent visual hallucinations, slowed processing, executive dysfunction, visuospatial impairment, and sleep disturbance.
- Related to Parkinson’s disease dementia (where the movement disorder precedes the cognitive changes).
- Tends to be under recognised in memory clinics; working with movement disorder clinics may be helpful.
- Anti-psychotic medication is especially harmful for people with dementia with Lewy bodies.

**Fronto-temporal dementias (FTDs)**
- Accounts for approximately 2 per cent of cases of dementia\(^1\).
- Impairments early on depend on brain region affected:
  - language (primary progressive aphasias and semantic dementia)
  - behaviour (behavioural variant FTD)
  - motor function (motor variants of FTD).

**Mixed dementia**
- About half of older people with dementia have evidence at post-mortem of more than one cause of dementia\(^2\).
- Characterised by the hallmark features of more than one cause of dementia, most commonly Alzheimer’s dementia combined with vascular dementia.

**Other dementias**
- Caused by metabolic changes, prion disease, inflammatory disorders, neoplasm, infection of the brain and toxins.
- All of these will have unique neuropsychological profiles\(^3\).

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**References**


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