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Issues

Information and ideas for those
 serving seniors.

on Aging

UNDERSTANDING COGNITIVE IMPAIRMENT

One senior to another: “I’m always thinking about the here-after.” “Why is that?” asks the other. Replies the first senior, “I’m always going into another room and thinking, ‘What am I here after?’”

While jokes about poor memory can be funny, it is no laughing matter when memory actually fades. The stereotypical attitude that all seniors lose their memories is false; psychological studies show that healthy, active people in their seventies and eighties do not differ greatly in cognitive skills or abilities from younger people. Well-retained skills include reading, writing, vocabulary, word usage, and arithmetic ability. Cognitive skills that decrease typically involve speed, unfamiliar material, complexity of task, and active problem solving.

Normal intellectual decline in old age generally occurs in four areas. The first is the ability to remember lists of

items greater than six or seven. Second is the diminished ability for abstract and complex conceptualization. Third is mental inflexibility, for example, difficulty in adapting to new situations. And fourth is general behavioral slowing. Age-Associated Memory Impairment (AAMI) is a nonprogressive, non-disease, age-related decline in memory which occurs in 18.5% of the over-50 population¹.

COGNITION INCLUDES MORE THAN MEMORY

Most people do not realize that cognition, defined as “the mental process of knowing, including aspects such as awareness, perception, reasoning, and judgment,” includes more than short-term memory. There are four defined classes of cognitive functions.² Higher functions such as thinking are more fragile than more concrete cognitive functions, and may become impaired more easily.

OTHER FACTORS AFFECTING COGNITIVE PERFORMANCE

There are other significant factors which can greatly affect cognitive performance. These include level of consciousness, the abilities to pay attention, to concentrate, to conceptually track data, and activity rate. Executive functions are those activities which are important to initiate a task and carry it to completion. This includes goal formulation, planning, carrying out goal-directed plans, and doing so with effective performance.

Emotional states can also affect cognitive performance. In particular, anxiety can make it difficult to take in information, encode it into memory and manipulate the data accurately. Depression has such a profound effect on cognitive function that many times depressed people are thought to have dementia. Many of the symptoms are quite similar and it may take a specialist to determine that a depressive reason is the cause for low cognitive performance. Fortunately, depression is often treated successfully with full or partial resolution of the cognitive impairments.

Pain can affect cognitive function, particularly severe, chronic pain which causes an individual to reduce normal activities. Also, sleep deprivation due to pain or grief can affect a person’s cognitive abilities.

Medication is another major factor affecting cognition; particularly in seniors who on average consume six more prescription drugs each. Many medications, such as those used for anesthesia, pain, sleep, anxiety, sedation and some psychiatric conditions, have a sedating effect. Some drugs, such as

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FOUR CLASSES OF COGNITIVE FUNCTIONS

CLASSES	DESCRIPTION OF COGNITIVE FUNCTIONS
Receptive Functions	The taking in of information through the senses, especially vision and hearing, but also smell, taste and touch.
Memory and Learning	<i>First step:</i> Registration – new data is taken into the brain, which results in immediate memory. <i>Second step:</i> Rehearsal – or review of the data, encodes information into the long-term memory. <i>Third step:</i> Information retrieval – involves both recall, which involves retrieving data from memory, and recognition, which is dependent on mental storage of data.
Thinking	A complex cognitive function involving two or more bits of information requires retrieving data from immediate or long-term memory, and manipulating this data to reach conclusions about its relationship.
Expressive Functions	Demonstrated through observable behaviors, which can be verbal, physical, or emotional.

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blood pressure medication or anti-depressants, can cause people to feel lightheaded. Some medications cause physical side effects which result in anxiety or physical limitations.

A recent change in one's environment is a frequent cause of cognitive impairment. In fact, 75% of people over 65 become confused at some point during a hospital stay, and some remain confused until they are discharged to their home environment. Moving from a home of many years to a new environment also tends to cause cognitive problems until the person adjusts to the new living situation.

MAJOR CAUSES OF COGNITIVE IMPAIRMENT

Alzheimer's Disease

Alzheimer's Disease is a condition which occurs in people younger than 65, while the term *Senile Dementia of the Alzheimer's Type* is used to describe the condition which occurs in people over 65. These together account for over 50% of dementias. According to a 1989 Harvard University study³, the incidence of Alzheimer's dementia in a community population of suburban Boston was determined to occur at these rates in selected age groups:

ages 65-74	3.0%
ages 75-84	18.7%
85 and over	47.2%

Early cognitive symptoms in Alzheimer's dementias include failing recent memory, depression and irritability. Early behavioral symptoms often include social withdrawal, emotional blunting, agitation and inattentiveness. Impairments noted on testing are found in attention, short-term memory, orientation, word finding and language disturbance. There may be intrusions or inappropriate recurrence of a response from a preceding test item and in conceptual functions.

Vascular Dementias

This group of dementias is caused by damage to brain cells through impaired circulation to the brain. The subtler of these is caused by hypertension, or high blood pressure. Historically this was considered to be blood pressure higher than 140/90. However, more recently CT scans and other evidence have shown that blood pressures higher than 120/80 can result in impaired cerebral circulation.

Transient Ischemic Attacks (TIAs) are more serious events. These are defined as a temporary obstruction of a cerebral blood vessel lasting less than 24 hours and usually only moments. Symptoms can include impaired vision in one eye, numbness and tingling on one side of the face, hand or arm, and speech impairment. People may have few or many TIAs, occurring frequently or spaced out over months or years. The effect of these small infarctions is development of mild cognitive impairments.⁴ But half of all TIA patients ultimately sustain a major stroke.⁵ Impairments noted on testing, which depend on where the infarcts occurred, appear in conceptual thinking, comprehension and memory.

Multi-infarct dementia (MID) is the result of accumulated TIAs which cause enough damage to brain cells to permanently impair cognition in one or more areas⁶. Nearly all individuals with MID have, or had, inadequately treated hypertension. More men than women have MID. It may be mistaken for Alzheimer's type of dementia⁷, but the symptoms are significantly different. There is usually an acute onset with step-like deterioration. The severity may fluctuate hour-to-hour or day to night. Early in the disease, cognitive deficits predominate while personality deterioration lags behind. Motor abnormalities such as gait disturbance and rigidity may occur. Impairments noted on testing depend on where infarcts are occurring, but are most often noted in word finding, conceptual thinking and short-term memory.

Cerebral vascular attack (CVA) or stroke is the most serious of all vascular events. This occurs when there is obstruction (75% of the time) or rupture (25% of the time) of a cerebral blood vessel which causes brain damage due to loss of oxygen and glucose to brain tissue. The consequences range from fatal to some degree of residual cognitive, physical and/or motor impairments. Impairments noted on testing depend on what part of the brain is damaged. Impairments are often noted with word finding, judgment, conceptual thinking and short-term memory. In addition, severe biochemical, as well as situational depression is often a significant factor affecting cognition following stroke.

Other Causes of Dementia

It is not commonly known that alcohol use can affect cognition. However, studies have shown a correlation between social drinking and mild cognitive impairment.⁸ Specific impairments in testing showed reduction in abstract reasoning (similarities) and mental flexibility (problem-solving). In chronic alcoholism, most impairments involve tasks associated with frontal lobe activity, i.e. mental flexibility and constructions. Short-term memory is often severely impaired while long-term memory is intact.

Depression is the most common mental health disorder in the aged.⁹ In fact, white males over 65 have the highest rate of successful suicide in the country¹⁰. Depression usually has a defined onset over several weeks as opposed to the more insidious onset of dementia. General symptoms include loss of appetite, disturbed sleep and lack of interest in activities. Structure and content of speech remain intact. General memory may be impaired, but the individual is highly aware of his or her impairments, which is not true of individuals with an organically caused dementia.

EVALUATING COGNITIVE FUNCTION

Cognitive function is measured in several different ways. The simplest method of assessing cognitive abilities is through administration of a standardized screening instrument. This type of brief screening test can be given in 15 minutes in the clinic, at the bedside, or in a client's home. A much more thorough neuropsychological examination can often differentiate which type of dementia is present. It is given and interpreted by a PhD psychologist who specializes in this field and requires four to eight hours for administration. Though this exam provides much more detailed information about cognitive function, due to its length and complexity, it may not be suitable for people with significant impairments¹¹. Geriatric psychiatrists and licensed medical doctors also evaluate cognitive function along with the mental health issues which can cause symptoms of cognitive impairment. Certain symptoms, such as delusions, hallucinations, paranoia, agitation or combative behavior, need to be addressed by a psychiatrist, as

medication management is usually indicated to relieve these problems.

There are several easily administered screening tools in common use, including the Mini-Mental State Exam (MMSE), the Blessed Dementia Scale and the Delayed Word Recall Exam. As part of its Comprehensive Assessment process, Matrix uses the Cognistat which separately assesses ten domains of cognitive function¹². These domains and the cognitive functions they measure include:

- Attention tests attention, concentration and tracking
- Orientation tests attention, perception and memory
- Comprehension tests sensation, perception and memory
- Repetition tests integration of receptive and expressive speech
- Naming tests speech fluency through word finding
- Memory tests short term memory through both recall and recognition
- Calculation tests arithmetic conceptual function & memory
- Similarities tests conceptual function, including perception, memory, conceptual tracking, and expressive behavior

■ Judgment tests logical thinking, comprehension of relationships and practical judgments

Scoring each of these subtests separately, the Cognistat defines the specific abilities and impairments of each client¹³. This information allows for greater accuracy in care planning. For example, individuals whose score is normal in all other subtests and have a borderline Memory score are likely to have non-progressive AAMI and not dementia. However, impairment in Memory and one additional subtest, especially Orientation, is often indicative of cognitive impairment. People who pass Memory and are impaired on other subtests may have a vascular condition. And impairments on non-cognitive items may indicate a psychiatric disorder and not dementia. To screen for depression-caused impairments, Matrix uses the Geriatric Depression Scale for seniors and the Beck Depression Inventory for younger adults.

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2 Ibid, 23-40.

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