PATIENT PAGE

The Lonely Path to Dementia

Melissa Paretsky, PhD

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Related Article

Association of Loneliness With 10-Year Dementia Risk and Early Markers of Vulnerability for Neurocognitive Decline

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People experience loneliness when their desired social experience does not match their perceived social reality. New research shows that social relationships are important for maintaining good mental health and preventing physical illness and disease, such as dementia.[1,2]

Dementia occurs when a person is no longer able to complete daily activities due to a decline in mental and physical function. Most people think of dementia as a disease that causes memory problems. It also affects a person's emotional and psychological health.

What Did the Authors Study?

This study looked at the relationship between loneliness and dementia over time. The authors also compared the effects of loneliness to the early signs of dementia.

How Was the Study Done?

To look at the relationship between loneliness and dementia over time, the authors used information collected from the Framingham Heart Study. This study follows people over a long period of time and looks at a variety of health variables. The 2,308 participants in the study were at least 60 years old and did not have dementia when the study began.

The authors measured loneliness by using a single question from a depression survey. It asked how many days respondents felt lonely in a typical week. Respondents were categorized as either lonely (3–7 days) or not lonely (0–2 days).

The authors then assessed dementia with a review panel that included both neurologists and neuropsychologists. The panel looked at test results, telephone interviews with family and caregivers, and medical records.

The authors also studied various brain changes that are typical with dementia. They used MRI to gather pictures of the participants' brains. Brain cells called neurons communicate

with each other to carry out the functions of the brain. With dementia, these cells stop communicating, and some die. This is known as brain atrophy. The brain is made up of both white and gray matter. White matter, which has a coating that helps cells communicate with each other, shows some of the earliest changes on MRI with aging and dementia.

There are also cognitive changes (that is, changes to thinking and brain function) that can be observed and measured. The researchers in this study used neuropsychological tests to examine various thinking abilities in the study participants. Dementia was measured using tests of cognitive skills, including memory, visual spatial abilities, and executive functioning. Executive functioning refers to mental functions such as attention, judgment, organization, planning, and decision-making. These skills are commonly affected by dementia.

The researchers also considered genetic signs of dementia. The *APOE* gene gives the body instructions for how it should carry cholesterol and other fats. The most common types of this gene are ε2, ε3, and ε4. Past studies have found that many people who have Alzheimer disease and related dementia have the *APOE* ε4 type, or allele, of this gene. Because of this, the authors of this study included *APOE* ε4 allele status to examine the study participants' genetic vulnerability.

What Did the Study Show?

This study showed a higher risk of dementia in adults who experienced loneliness. Those who felt lonely had a significantly higher risk of dementia over a 10-year span. Specifically, 22% of lonely participants developed dementia (as a comparison, 14% of the overall participants developed dementia). Surprisingly, this risk was tripled for participants who were younger and did not carry a genetic marker (*APOE* ε4). For individuals who did not develop dementia, loneliness still led to poorer executive function, lower total brain volume, and greater changes in white matter.

Why Does This Study Matter?

Loneliness is common, and is increasing. Studies suggest that between 13% and 43% of older adults reported feeling lonely between 2018 and 2020.[1,2] Dementia rates are also increasing. There were 57.4 million people living with dementia globally in 2019, and this is projected to increase to 152 million by 2050.[4] Therefore, this is an important study given the increasing numbers of both loneliness and dementia.

Most research linking loneliness and dementia has been limited to studying people at a single point in their lives. This is one of the first studies to look at the relationship between loneliness and dementia over a longer period of time. These results are supported by a recent similar study that found a 40% increased risk of dementia among older adults who reported loneliness.[3]

This study suggests that there may be actions people can take to prevent dementia. Unlike age and genetics, loneliness is a risk factor for dementia that can be influenced. In addition, the association of loneliness with younger participants points to the importance of screening people for both loneliness and dementia at younger ages.

What Remains Unknown?

It remains unclear whether loneliness is a symptom of developing dementia or if it is part of the cause. It is also unclear why the risk of dementia was greater for younger participants of this study who did not have a genetic risk. Finally, this study's participants were mostly White. Similar research is needed in a more diverse population to find out whether these effects are seen among other groups as well.

About Dementia

What Is Dementia?

Dementia is a decline in a person's memory and thinking that prevents the person from carrying out daily social and work activities. It takes many years and sometimes decades for someone's dementia to progress enough to cause disabling impairment. Because these changes happen slowly, they are often subtle at first. For example, a person might forget things more than usual or have trouble finding the right words to say. Mild cognitive impairment is a term used when these changes do not interfere with a person's ability to complete daily tasks and activities. Later, as memory and more complex cognitive processes worsen and a person is no longer able to complete daily activities, the person is diagnosed with dementia.

What Are the Symptoms?

Cognitive symptoms include changes in memory, language, attention, planning, and organization. Memory is typically one of the first changes that is noticed. People in the early stages of dementia may forget the names of common objects or be unable to remember recent events. Later, they will experience difficulties with more complex attention skills such as organization, judgment, and problem solving. They may not be able to follow step by step instructions or may start missing bill payments. Some may have trouble driving or get lost in familiar locations. Eventually, a person with dementia may experience confusion and disorientation.

There are also emotional symptoms such as anxiety and depression. People may lose interest in activities they used to enjoy, have a hard time making decisions, and withdraw from friends and family. Sleep disturbances are common. Some also experience paranoia, delusions, and aggression.

How Is Dementia Diagnosed?

A medical, neurologic, and neuropsychological evaluation is needed to diagnose dementia. A family history assessment, medication assessment, and a timeline of the changes in cognition and personality will be completed. The medical provider, typically a neurologist, will test the person's mental abilities. The provider will also perform tests to rule out other conditions such as vitamin deficiencies, toxins, and infection that may have symptoms that are similar to what is seen with dementia. Providers may also look for genetic markers and complete brain scans and psychiatric tests. Finally, neuropsychologists can perform comprehensive cognitive tests both at the time the diagnosis is first made and again later on to follow cognitive changes over time.

A formal diagnosis of dementia is made when an individual has 2 or more impairments in cognition that show a clear decline from the previous level of function and that keep the person from carrying out everyday activities.

What Causes Dementia?

Dementia is caused when loss of or damage to brain cells prevents them from communicating effectively with each other. Dementia can result from both irreversible and reversible causes. Examples of irreversible causes include neurodegenerative diseases such as Alzheimer disease. Reversible causes include lifestyle and other factors that can be changed or improved, such as alcohol and drug use, vascular disease, head injury, and dietary deficiencies. Age and genetics are also major risk factors.

What Are the Treatments?

At this time, there is no restorative treatment for dementia. Medications and rehabilitation help individuals with dementia maintain their current levels of function, manage their behavioral symptoms, slow or delay the progression of the disease, and adapt their lifestyles to changes. The home environment should be made safe and there should be a caretaker available. Maintaining a calm home and creating a consistent routine can help with the behavioral and psychological symptoms of dementia. The role of a caregiver can be challenging. There are support groups for caretakers of individuals with dementia.

Prevention

Factors such as age and genetics cannot be changed, but there are reversible causes of dementia that are under a person's control. These include lifestyle choices: maintaining a healthy diet, avoiding excess alcohol and other toxic chemicals, exercising, maintaining good sleep habits, and engaging in activities that keep the mind active, including social activities.

For More Information

Brain & Life
brainandlife.org

American Brain Foundation
americanbrainfoundation.org

Alzheimer's Association
alz.org

Alzheimer's Foundation of America
alzfdn.org

References

1. Salinas J, Beiser AS, Samra JK, et al. Association of loneliness with 10-year dementia risk and early markers of vulnerability for neurocognitive decline. *Neurology*. 2022;98(13):e1337-e1348.
2. Ong AD, Uchino BN, Wethington E. Loneliness and health in older adults: a mini-review and synthesis. *Gerontology*. 2016;62(4):442-449.
3. Sutin AR, Stephan Y, Luchetti M. Loneliness and risk of dementia. *L Gerontol B Psychol Sci Soc Sci*. 2020;75(7):1414-1422.
4. Nichols E, Steinmetz JD, GBD 2019 Dementia Forecasting Collaborators. Estimation of the global prevalence of dementia in 2019 and forecasted prevalence in 2050: an analysis for the Global Burden of Disease study. *Lancet Public Health*. 2022;7(2):e105-e125.

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