

Link Explored Between Loneliness and Dementia

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The risk of Alzheimer's disease (AD) more than doubles among lonely individuals, according to a recent study. Researchers writing in the *Archives in General Psychiatry* (2007;64:234-240) said, however, the link was not yet clear.

The Rush Memory and Aging Project of the Chicago-based Rush Alzheimer's Disease Center conducted the research with 823 dementia-free older persons from senior citizen facilities in and around Chicago. Of the 823 participants, 791 (97.6%) completed at least one follow-up evaluation. The team reported 76 of the seniors developed clinical AD.

The researchers distinguished their work from other studies that focused on objective indicators of social isolation, such as having a small social network, being unmarried or being inactive. The Rush team's interests were in the association of dementia with emotional isolation or loneliness, feelings of disconnectedness and dissatisfaction with social interactions rather than their absence. In short, they were looking at the effects of "feeling" alone (i.e., loneliness), as distinct from "being" alone (i.e., social isolation).

After four years of baseline as well as annual evaluations, the participants were evaluated again for loneliness, AD and detailed cognitive functioning. Those who died during the study underwent postmortem evaluation to quantify AD pathologic abnormalities and cerebral infarction.

In addition to three previously established composite measures of AD pathology, the team used its own measurement, Global AD Pathology, which is based on counts of neuritic plaques, diffuse plaques and neurofibrillary tangles, identified by a modified Bielschowsky silver stain in five brain regions.

The researchers concluded that loneliness is associated with an increased risk of late-life dementia but not with its leading causes. So what then is the link?

“We are very interested in the biologic mechanisms linking loneliness to dementia,” said lead author Robert S. Wilson, PhD, senior neuropsychologist of the Rush Alzheimer’s Disease Center and professor in the departments of Neurological Sciences and Psychology at Rush University Medical Center. “That loneliness is related to dementia but not to its leading causes suggests that it may be related to distinctive changes in the brain whose pathologic footprint we do not yet recognize, changes which might make us more vulnerable to Alzheimer’s disease pathology in old age.”

The Rush team found that seniors who developed AD were older, more likely to be male and had lower household incomes than did unaffected persons. These individuals also had higher levels of loneliness and disability and lower levels of social and cognitive activities.

The researchers also looked at the relation between loneliness and cognitive decline and found that loneliness was associated with more rapid decline in global cognition, semantic memory, perceptual speed and visuospatial ability, as shown by the interactions of loneliness with time.

However, the team also concluded that the association of loneliness with AD and cognitive decline is “uncertain.” One possible explanation offered by the team is that loneliness may compromise the neural systems underlying cognition and memory, thereby making lonely individuals more vulnerable to the deleterious effects of age-related neuropathology. This would be consistent with earlier tests that showed an association between loneliness and impaired social skills. But, the researchers asserted that further research is needed.

“The study from which the findings came is ongoing and participants have agreed to brain autopsy in the event of death. So we will have an opportunity to further investigate the underlying neurobiology,” said Dr. Wilson. “Because this is the first study to link loneliness with dementia, it may take some time for us to fully understand it. These kinds of studies are time-consuming but the field is making great progress.”

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