

Music As A Protective Factor Against Dementia And Cognitive Impairment: A Twin Study

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Abstract

Dementia, of which Alzheimer's disease (AD) is the most common type, with its dramatic increase in incidence with age, is a leading cause of disability and death world-wide. Causes of AD are not yet established, although it is generally accepted that AD is due to a combination or interaction of many factors, both genetic and environmental. Increasingly, data suggest that environmental influences originating in early or mid-life may contribute to risk or protection many years later. While listening to music has been included in lists of leisure activities, making music has not previously been the focus of investigation.

Music-making is a uniquely complex process in that it necessitates multiple brain regions and functions to work in concert, stimulating much interest in how music may benefit brain health and cognition. While recent research provides evidence that playing an instrument positively influences cognitive development in youth, whether the cognitive benefits of music-making extend throughout the life course and into older adulthood has not been thoroughly investigated.

In a population-based co-twin case-control study, we examined whether playing a musical instrument protects against dementia and cognitive impairment. Using the Study of Dementia in Swedish Twins, participation in music-making was taken from informant-based reports of twins' leisure activities. Dementia diagnoses were based on a complete clinical workup. In twin pairs discordant for dementia and cognitive impairment (n=157) we find evidence that playing a musical instrument is protective against dementia and cognitive impairment. Compared to the twin who developed dementia or cognitive impairment, we find that the twin who engaged in music in older adulthood was significantly protected from dementia and cognitive impairment after controlling for sex, education, and physical activity (OR=0.36, 95% CI: 0.13, 0.99). Given music's universality, this evidence of its potential role as a non-pharmacological, non-invasive, and modifiable protective factor against dementia is particularly encouraging.