The influence of social relationships and leisure activity on adult cognitive functioning and risk of dementia

Longitudinal Population-based Studies

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Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av filosofie doktorsexamen framläggs till offentligt förvar i Hörsal 1031, Norra Beteendevetarhuset, Umeå Universitet, fredagen den 8 maj, kl. 10:15.
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Abstract
Today, as we live longer, dementia diseases are becoming more prevalent around the world. Thus, further knowledge of how to maintain levels of cognitive functioning in old age and how to identify factors that postpone the onset of dementia are of acute interest. Lifestyle patterns and social life are important aspects to consider in this regard.

This thesis includes three studies. Study I investigated the association between participation in various leisure activities in old age (≥65 years) and risk of incident all-cause dementia. Analyses of the total follow-up time period (15 years) showed that higher levels of “Social” and “Total” leisure activity were associated with decreased risk of dementia. In Study II, the aim was to investigate the association between various aspects of social relationships in old age (≥65 years) and risk of incidents of all-cause dementia and Alzheimer’s disease. Results showed that over the total follow-up period (16 years) higher values on the relationship index were associated with reduced risk of both dementia and Alzheimer’s disease. Visiting/visits of friends and acquaintances more than once a week was related to decreased risk for all-cause dementia, but not for Alzheimer’s disease. However, in neither Study I nor II did any of these factors alter the risk of all-cause dementia or Alzheimer’s disease when near-onset dementias were removed from the analyses (Study I, up to five years; Study II, up to three years).

In Study III the aim was to investigate the association between social network size and cognitive ability in a middle-aged (40–60 years) sample. The idea was that if social network size can moderate negative age-related influence on memory functions, it might also put an individual on a cognitive trajectory that is beneficial in old age. Results from longitudinal analyses showed that baseline network size was positively related to five-year changes in semantic memory and with changes in both semantic and episodic memory at the ten-year follow-up. Social network size was unrelated to changes in visuospatial performance.

Taken together, enrichment factors measured in old age (≥65 years) did not alter the risk of all-cause dementia or Alzheimer’s disease when near-onset dementias were removed from the analyses. These results might reflect protective short-term effects or reverse causality, meaning that in the prodromal phase of dementia individuals tend to withdraw from activity. Social network size in middle age (40-60 years), however, appears to have beneficial long-term effects on cognitive functioning. The results highlight the importance of long follow-up periods and the need to adjust for the influences of reverse causality when investigating the impact of a socially and mentally active life on cognitive functioning.

Keywords
Cognitive functioning, cognition, memory, dementia, Alzheimer’s disease, cognitive reserve, reverse causality, old age, middle age, leisure activity, social relationships, social network, longitudinal