

# Depression in older people with and without dementia

–Non-pharmacological interventions and associations between psychotropic drugs and mortality

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## Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt försvar i Vårdvetarhusets Aula, Umeå universitet, onsdagen den 4 maj, kl. 9:00.

Avhandlingen kommer att försvaras på svenska.

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**Abstract**

The aim of this thesis was to investigate associations between psychotropic drug use and death, associations between functional capacity, dependency in ADL and depression, and to evaluate a non-pharmacological intervention to reduce depressive symptoms, among older people with and without dementia.

In a representative sample of people  $\geq 85$  years ( $n = 992$ ), baseline antidepressant use was not associated with an increased 5-year mortality risk when adjusting for confounding factors. A significant interaction between gender and antidepressant use was found, with a higher mortality risk in women, than in men.

In a sample of older people with dementia ( $n = 1037$ ), there was a significant gender difference in 2-year mortality associated with the baseline use of antidepressant drugs, with a lower mortality risk in men, than in women. In men with dementia, the mortality risk was significantly reduced with antidepressant use. During the first year of follow-up, a significant gender difference was found in mortality risk associated with benzodiazepine use, with a higher mortality risk in men than women. No significant associations were found between baseline use of antipsychotic drugs and mortality.

In a heterogeneous sample with a high mean age, a large range of cognitive and functional capacity, a wide spectrum of dependency in ADL, and a high prevalence of comorbidities ( $n = 392$ ), depressive symptoms were associated with a significantly reduced functional balance capacity, but not with overall dependency in ADL. Among individual ADL tasks, dependency in transfer and dressing were associated with depressive symptoms.

Care-facility residents with dementia ( $n=186$ ) were cluster-randomized to a high-intensity functional exercise program or a non-exercise control activity conducted for 45 minutes every other weekday for 4 months. No significant difference between the exercise and control activity was found in depressive symptoms at 4 or 7 months. Among participants with high levels of depressive symptoms, reductions were observed in both the exercise and control groups at 4 and 7 months.

In conclusion, ongoing treatment at baseline with any of the three psychotropic drug classes antidepressants, antipsychotics and benzodiazepines did not increase the risk of mortality in older people with dementia. Neither did antidepressant drugs in very old people. In both samples, gender differences were found in the mortality risk due to antidepressant use. In those with dementia, the mortality risk due to benzodiazepine use also differed by gender. The potential risk from initial treatment and gender differences regarding mortality risk require further investigation in randomized controlled trials or in large cohort studies properly controlled for confounding factors. In older people, living in community and residential care facilities, functional capacity seems to be independently associated with depressive symptoms whereas overall ADL performance may not be associated. Dependency in the individual ADL tasks of transfer and dressing appear to be independently associated with depressive symptoms and may be an important focus for future interdisciplinary multifactorial intervention studies. Among older people with dementia living in residential care facilities, a 4-month high-intensity functional exercise program has no more effect on depressive symptoms than a control activity. Both exercise and non-exercise group activities may reduce high levels of depressive symptoms. However, this finding must be confirmed in three-armed randomized controlled trials including control groups receiving standard care.

**Keywords**

Depression, Dementia, Exercise, Randomized controlled trial, Psychotropic drugs, Mortality, Gender, Residential facilities, Frail elderly, Epidemiology, Cohort study

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