

***Do Sociodemographic and Gender Determinants of Late-life Suicide Differ in Older Swedish Users and Non-users of Antidepressants?
A National Population-based Study***

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Abstract

The treatment of depression is a main strategy for suicide prevention in older adults. Our aim was to examine factors related to suicide in older adults (75+) with and without antidepressant therapy. We used register data for all Swedish residents aged ≥ 75 years (N=1 413 806) between 2006-2014. We identified all persons who died by suicide (N=1305; 907 men and 398 women) and matched 50 controls to each case. A nested case-control design was used to investigate the sociodemographic factors associated with suicide among users and non-users of antidepressants. Risk factors were analysed in a conditional logistic regression model in the entire cohort and in men and women separately. Being born outside of Nordic countries was associated with increased suicide risk; a threefold increase in risk was observed for women not treated with antidepressants. Being married was a protective factor in men but not in women. Blue-collar occupations before retirement were associated with increased suicide risk in non-users of antidepressants, particularly in men. Upper white-collar occupations were associated with increased suicide risk in women who used antidepressants. Our differential findings on factors associated with suicide in men and women treated or not by antidepressants suggest the need for gender-specific approaches targeting psychosocial factors for the prevention of suicide in late-life that go beyond the healthcare sector.

Keywords: Suicide, Sociodemographic Factors, Antidepressants, Cohort Study, Older Adults, Population Registers

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Introduction

Despite the fact that suicide rates are the highest in the oldest population in many countries (Bertolote & De Leo, 2012), there is a lack of research focusing specifically on this segment of the population (Fässberg et al., 2012). Results of studies on suicide conducted in “younger” older adults cannot be extrapolated to the oldest population as risk factors differ with age in both clinical and population-based cohorts of older adults (Erlangsen, Bille-Brahe, & Jeune, 2003; Waern, Rubenowitz, & Wilhelmson, 2003).

Depression is considered a strong risk factor for suicide in older adults (Conwell et al., 2010). Most suicide preventive strategies have therefore focused on optimising the diagnosis and treatment of depression (Lapierre et al., 2011). Antidepressants (ADs) have been associated with decreased suicide risk in late-life (Barbui, Esposito, & Cipriani, 2009; Gibbons, Hur, Bhaumik, & Mann, 2005). However, despite their wide use, especially in those aged 75 years and above (Swedish National Board of Health and Welfare, 2018), suicide rates remain high in the oldest population (Statistics Sweden, 2018). One explanation is that suicide has a multifactorial aetiology, and psychosocial factors can drive the association between depression and suicide (Troya et al., 2019). A better knowledge of sociodemographic factors associated with suicide among older adults with and without AD treatment will help to inform and tailor suicide prevention efforts.

The availability of high quality national register data in Sweden makes it possible to examine phenomena associated with suicide in relation to AD use. The aim of our research was therefore to examine, in a population-based register study, sociodemographic factors associated with suicide in a total national cohort of Swedish residents aged 75 and over, with and without exposure to antidepressant therapy. We also aimed to carry out gender-specific analyses because of the large difference between suicide rates in older men and women, and the current dearth of gender-specific findings in late-life suicide research (Fässberg et al., 2012).

Method

Study design and study population

We conducted a population-based register cohort study including all Swedish residents aged 75+ between January 1, 2006 and June 30, 2013. All individuals were followed until December 31, 2014 or until migration or death if it occurred during the follow-up time.

Data sources

Data from national registers were linked through the personal identity number. The Swedish Prescribed Drug Register was used to identify AD users based on the ATC codes (N06A, except N06AA). Suicide deaths were determined by the Cause of Death Register based on the ICD-10 codes: X60-X84, Y10-Y34, Y87.0, Y87.2). Sociodemographic data were collected from the longitudinal integration database for health insurance and labour market studies (LISA) and the Total Population Register. Individuals with a previous episode of self-harm or diagnosis of depression in

specialised care were identified from the National Patient Register. Persons residing in institutions were identified by the National Care and Social Service database.

Sociodemographic characteristics

We considered the following variables: Gender, age group (75-79, 80-84, 85-89, ≥ 90), marital status (married/registered partnership, single, widow/widower, divorced), annual disposable household income (in quartiles), social allowance, country of birth (Sweden, Other Nordic countries, Outside of Nordic countries), residence in institution, education level (mandatory, upper secondary, higher) and occupation category at retirement (upper white collar, lower white collar, blue collar).

Statistical Analysis

A nested case-control design was used to investigate the factors associated with suicide in the total cohort and among users and non-users of AD separately. Each person who died by suicide was matched with 50 individuals of the same gender and age group who did not die by suicide. The nested case-control data were analysed using conditional logistic regression with each case and its controls forming a separate stratum. All sociodemographic variables were included in the univariate and the adjusted models. We also included in the adjusted models the concomitant use of other psychoactive medications, occurrence of non-fatal self-harm during the preceding year and use of specialised psychiatric for depression care as a proxy for severe depression. Gender interaction was incorporated into the model.

The study was approved by the Regional Ethical Review Board in Gothenburg (no: 111-15).

Results

In this national cohort including 1 413 806 persons aged 75+ and followed over an eight-year period, a total of 1305 persons (907 men and 398 women) died by suicide. Being married was a protective factor for suicide in men in both AD users and non-users, but such associations were not seen in women. Suicide risk was elevated threefold in women who were born outside of the Nordic countries and without AD treatment. There was a complex pattern of associations regarding occupational history and suicide when considering AD use and gender. An elevated suicide risk was observed in upper white-collar women who used AD, and in blue-collar men who did not.

Conclusion

Our research identified particularly vulnerable groups of older adults and advocates for the need for new gender-tailored suicide prevention strategies. The optimization of treatment of late-life depression remains an important target for suicide prevention in our oldest adults, but this should be combined with innovative public health interventions to reach those not treated for depression. Research is needed in other countries and settings as socioeconomic conditions, availability of mental healthcare and cultural differences may have an impact on risk of late-life suicide.

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