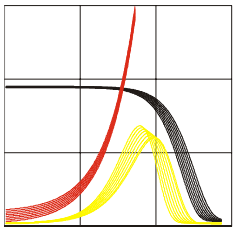

Gender Differences in Older People with Regard to Suicide Risks after Somatic Hospitalization

by

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Introduction

It has consistently been found that men have a shorter life expectancy than women (Kannisto, 1992). Nevertheless, older men have a lower level of disabilities and morbidity than women in the same age group (Ferrucci, Guralnik, Simonsick et al., 1996; Manton, Soldo, 1995).

An interesting trend is found in the suicide rate for older people. The rate ratio of male per female suicide increase with age in late life and among the oldest old, the male suicide rate is remarkably higher than the female rate (Erlangsen, Bille-Brahe & Jeune, 2003). Additionally, somatic disorders has been identified as a stressor for late life suicide (Carney, 1994; Conwell, Rotenberg & Caine, 1990; Heikkinen & Lönnquist, 1996).

This suggests that the association between somatic disorders and suicide is stronger for men than for women.

Purpose

The purpose of the study is to analyze the association between suicide and hospitalization with somatic diagnosis among the elderly with regard to gender differences.

Data and method

We used data on all persons living in Denmark aged 50 or older for the analysis. Socio-demographic data on age, sex, in- and out-migration were obtained from the Centralized Civil Register (CPR-kontoret, 2003). The data were linked on an individual-level with data on causes of death from the Registry of Causes of Death (Juel & Helweg-Larsen, 1999) and admissions to general hospital from the National Registry of Patients (Andersen et al., 1999). The latter register extract consists of all hospitalizations at general hospital and emergency wards with date of admission and discharge as well as all diagnoses given during the hospitalization. The data cover fulltime, part-time, emergency and out-patients (since 1995). In addition, information on persons who had been in psychiatric hospitalization was obtained from the Danish Psychiatric Central Register (Munk-Jørgensen & Mortensen, 1997). The linkage of

the different register extracts was carried out by Statistics Denmark using the personal id-numbers. An anonymized version of the data with dates of hospital admissions and discharges for each individual was made available for the analysis.

Our follow-up period is from 1st Jan. 1996 to 31st Dec. 1998. The inclusion criterion is that the person was aged 50 and living in Denmark at the beginning of the study. People who turned 50 later or immigrated to Denmark after the start date are included at these events. Migrations out of the country and deaths due to other causes than suicide are censored at date of the respective event. People are allowed to migrate and re-immigrated several times during the observation period. The event of interest is suicide, which is defined as the following causes of death 'X60 – X84: Intentional self-harm' and 'Y87: Sequelae of intentional self-harm, assault and events of undetermined intent' according to the 10th revision of the International Classification of Diseases and Related Health Problems (ICD-10), see WHO (1992).

We assess the relative suicide risks by using event-history analysis. Proportional hazard models of the following type were fitted:

$$\ln \mu_i(t) = \sum_{jk} \alpha_{ijk}\, x_{ij}(t)\, y_{ik}(t)$$

where $\mu_i(t)$ denotes the hazard or probability that individual i will commit suicide at time t while coefficient α_{ijk} is estimated for specific combinations of level j of variable x and level k of variable y for individual i. The suicide risk is calculated relative to the reference group based on the estimates of α_{ijk}. In this example both variables are time-varying. If individual i at time $t+n$ would experience a status change of variable x or y, the level for individual i of the corresponding variable would change at time $t+n$. For further details on the methodology, see Hoem (1993; 1997).

Following time-varying covariates were used in the analysis: *current age* and *different somatic diagnoses during past 2 years*. *Current age* groups the population into following levels: middle-aged (50-65), old (65-79), and oldest old (80+). The *different somatic diagnoses during past 2 years* registers how many different somatic diagnoses a person has been given at admissions to general hospitals over the past 2 years at any given point of the observation period. The variable is divided into 'not hospitalized', 'hospitalizations for 1-2 different diagnoses' and 'hospitalizations for 3+

different diagnoses'. The person remains in the status group also after discharge from hospital. Only if the person later is hospitalized with other somatic diagnoses can a person change from the status group of 1-2 diagnoses to 3+ different diagnoses. The variable is updated on the date of each new diagnose. Since we wish to assess the effect of experiencing several different disorders we include all different somatic diagnoses given during each hospitalization in the data analysis. Diverging diagnoses are defined according to the two digit subdivisions in the ICD-10 (WHO, 1992). Following this, 'A00-A09: Intestinal infectious diseases' and 'A15-A19: Tuberculosis' are considered as two different diagnoses.

Results

1,978,527 persons entered the study. During the 3-year observation period, 1,273 persons committed suicide.

Compared to persons with no hospitalizations, the reference group, persons with one or more hospitalizations have a significantly higher suicide risk. With increasing somatic comorbidity, we find an increasing relative suicide risk for persons who have been hospitalized with somatic diagnoses during the past 2 years. Preliminary analyses indicate that men react stronger - in terms of suicide risks - on hospitalizations for somatic disorders than women in the same age group.

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