



Neighborhood linking social capital as a predictor of psychiatric medication prescription in the elderly: A Swedish national cohort study



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ARTICLE INFO

Article history:

Received 17 September 2013

Received in revised form

6 April 2014

Accepted 21 April 2014

Keywords:

Linking social capital

Neighborhood

Psychiatric medication

Socioeconomic status

ABSTRACT

Objectives: Little is known about the association between neighborhood linking social capital and psychiatric medication in the elderly. The present study analyzes whether there is an association between linking social capital (a theoretical concept describing the amount of trust between individuals and societal institutions) and prescription of antipsychotics, anxiolytics, hypnotics/sedatives, antidepressants, or anti-dementia drugs.

Design, setting, participants and measurements: The entire Swedish population aged 65+, a total of 1,292,816 individuals, were followed from 1 July 2005 until first prescription of psychiatric medication, death, emigration, or the end of the study on 31 December 2010. Small geographic units were used to define neighborhoods. The definition of linking social capital was based on mean voting participation in each neighborhood unit, categorized in three groups. Multilevel logistic regression was used to estimate odds ratios (ORs) and between-neighborhood variance in three different models.

Results: There was an inverse association between the level of linking social capital and prescription of psychiatric medications (except for anti-dementia drugs). The associations decreased, but remained significant, after accounting for age, sex, family income, marital status, country of birth, and education level (except for antidepressants). The OR for prescription of antipsychotics in the crude model was 1.65 (95% CI 1.53–1.78) and decreased, but remained significant (OR = 1.26; 95% CI 1.17–1.35), after adjustment for the individual-level sociodemographic variables.

Conclusions: Decision-makers should take into account the potentially negative effect of linking social capital on psychiatric disorders when planning sites of primary care centers and psychiatric clinics, as well as other kinds of community support for elderly patients with such disorders.

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1. Objective

The number of elderly people in industrialized countries is increasing, which constitutes a challenge for somatic and psychiatric health care. The importance of social and contextual factors for

people's somatic and psychiatric health is well established and it is therefore essential for clinicians and decision-makers to consider elderly people's health within a social context. An important component of the social context is social capital, which during the past 15–20 years has emerged as a societal component that is associated with democracy, (Putnam, 1993, 2000) economic prosperity (Holzmann and Jorgensen, 1999; Woolcock and Narayan, 2000) and different health outcomes in all ages. (Green et al., 2000; Hyyppä and Mäki, 2001; Kawachi et al., 1997; Sundquist et al., 2006) Few previous studies have, however, analyzed in the elderly the association between the amount of vertical trust

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between individuals and societal institutions, i.e., linking social capital, and prescriptions of psychiatric medications. Linking social capital may be particularly important for elderly people, considering their high need of community support.

Definitions of social capital in the literature are usually obtained from key protagonists such as Putnam, Bourdieu, and/or Coleman, and it has most frequently been operationalized as a collective dimension of society, external from the individual. (Kawachi and Berkman, 2000) The concept of linking social capital was introduced in the mid-2000s as a sort of diagonal bridge across power differentials. (Szreter and Woolcock, 2004) The theoretical concept of social capital influencing mental health was reviewed carefully in 2005. (Almedom, 2005) Social capital belongs to the society or to social organizations, is external from the individual, and is created in social relationships, based on Putnam's definition of social capital: "features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions." (Putnam, 1993) Furthermore, horizontal social capital is between individuals while linking social capital is between individuals and institutions. Linking social capital includes vertical trust, which exists between individuals and societal institutions of any kind.

Japan, well known for its high social capital, has performed several studies on social capital and health. For example, in a recent publication, national survey data were analyzed in a multilevel framework at Shimane University, revealing that both cognitive social capital (trust) and structural social capital (group membership) were associated with psychiatric health. (Hamano et al., 2010) A previous study on elderly persons found that lower social capital, measured by trust, was associated with psychological distress (Hamano et al., 2011). The same authors also reported that systolic blood pressure, which may be affected by chronic stress, increased with an increasing proportion of individuals who perceived a lack of fairness, after adjustment for individual confounders in a multilevel framework. (Hamano et al., 2011) In another study from 2009, around 4000 adults were surveyed in Okayama City, Japan for participation in different types of associations. Bridging social capital (between individuals who are not alike) was associated with good health in both men and women, while bonding social capital (between individuals who are alike) had no additional effect on health. (Iwase et al., 2012)

In the present study, we choose to operationalize linking social capital as voting in local government elections because refugees and newly arrived immigrants—arguably among Sweden's most powerless residents—may vote in local government elections after a minimum of one year's residence in Sweden. Additionally, participation in local elections is likely to provide a good measure of linking social capital due to the devolved nature of government in Sweden. Furthermore, local governments bear a great deal of local power because they have the right to apply taxes and are responsible for health care, schools, and city planning. Local politicians from local political parties must deliver key services to their population, i.e., their voters. They must build community trust via repeated interaction with people, and many of them have face-to-face contact with the potential voters in the local community. Finally, voting patterns are very stable in Sweden. The number of people voting in national or local government elections has not been affected by large swings from election to election in the number of voters mobilized by get-out-the-vote campaigns or other actions of interest groups or political parties. This makes voting in local government elections a relatively stable variable over time. Levels of voting in local government elections could thus be regarded as a good indicator of linking social capital in the neighborhood.

Some studies have found that social capital has a limited effect on psychological distress. (De Silva et al., 2005; Stafford et al., 2008;

Weich et al., 2005; Propper et al., 2005) In contrast, we previously showed that low linking social capital in the neighborhood increases the risk of poor mental and self-rated health. (Lofors and Sundquist, 2007; Sundquist and Yang, 2007) Studies from the USA and Sweden have found that low linking social capital, defined as lack of participation in voting, is associated with poor self-rated health. (Sundquist and Yang, 2007; Blakely et al., 2001) A study from Southern Sweden (Lindstrom et al., 2003) found that poor linking social capital, operationalized as participation in municipal elections, was associated with sense of insecurity in the neighborhood, which may be particularly harmful for elderly people.

The findings from previous studies led to our hypothesis that low linking social capital is associated with psychiatric medication prescription rates in elderly people. In the present study, we will, for the first time, analyze the association between linking social capital and psychiatric medication in the elderly. This study extends the existing literature on social capital and elderly health by estimating prescription rates of psychiatric medications, used as proxies for psychiatric disorders, at the individual-level. All elderly men and women were linked through their home addresses to small geographic units covering the whole of Sweden. Small geographic units were used to define neighborhoods because they are consistent with how residents define their neighborhoods. (Bond Huie, 2001) In addition, we used a multilevel framework in which linking social capital was operationalized as voting in local government elections at the neighborhood-level. The specific aim was to analyze the association between linking social capital and psychiatric medication prescription, divided into antipsychotics, anxiolytics, hypnotics/sedatives, antidepressants and anti-dementia drugs, in all Swedish men and women aged 65+ years. We also assessed whether the hypothesized association between linking social capital and psychiatric medication among elderly men and women remained after accounting for potential confounding factors related to individual power in society (age, sex, country of birth, education, marital status, and income).

2. Methods

This five-year cohort study included all individuals aged 65+, a total of 543,236 men and 749,580 women. This age group was chosen because 65 is the normal age of retirement in Sweden. The individuals were followed from 1 July 2005 until first prescription of psychiatric medication (further subdivided into antipsychotics, anxiolytics, hypnotics/sedatives, antidepressants, or anti-dementia drugs), death, emigration, or the end of the study on 31 December 2010. This population-based cohort study was based on national register data delivered to us by Swedish authorities. The data included individual-level sociodemographic data collected annually, such as age, marital status, and socioeconomic status. Using the unique personal identification numbers assigned to all residents of Sweden, we linked the Swedish Population Registry (containing sociodemographic data) and the Immigration Registry (containing data on immigration and emigration) to the Cause of Death Register and the National Pharmacy Register. The personal identification numbers were replaced by serial numbers in order to provide anonymity in all registers. In order to examine the effect of the exposure (level of linking social capital in the neighborhood), all individuals were geocoded to their neighborhoods of residence. Small area market statistics (SAMS) were used to define neighborhoods. SAMS are small administrative areas in Sweden with an average population of around 1000 residents in Sweden. The SAMS boundaries are drawn to include similar types of housing construction in a neighborhood, which implies that SAMS neighborhoods are comparatively homogeneous in terms of socioeconomic structure. Data on the 9119 SAMS covering the whole of Sweden

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