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Research paper

The impact of depressive symptoms on utilization of home care by the elderly: Longitudinal results from the AgeMooDe study

Andreas Hoell [a,*], Siegfried Weyerer [a], Wolfgang Maier [b], Michael Wagner [b], Martin Scherer [c], Anne Stark [c], Hanna Kaduszkiewicz [d], Birgitt Wiese [e], Hans-Helmut König [f], Jens-Oliver Bock [f], Janine Stein [g], Steffi G. Riedel-Heller [g]

[a] Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, Mannheim, Germany
[b] Department of Psychiatry, University of Bonn and German Center for Neurodegenerative Diseases within the Helmholtz Association, Bonn, Germany
[c] Institute of Primary Medical Care, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
[d] Institute of General Practice, Medical Faculty, Kiel University, Kiel, Germany
[e] Institute for General Practice, Working Group Medical Statistics and IT-Infrastructure, Hannover Medical School, Hannover, Germany
[f] Department of Health Economics and Health Services Research, Hamburg Center for Health Economics, University Medical Centre Hamburg-Eppendorf, University of Hamburg, Hamburg, Germany
[g] Institute of Social Medicine, Occupational Health and Public Health, Medical Faculty, University of Leipzig, Leipzig, Germany

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ABSTRACT

Background: Depression is the most common psychiatric disease in older people, often accompanied by co-morbidities and functional limitations. In cross-sectional studies, depression is associated with an increased use of health care resources, including informal care and home care. Longitudinal data are needed to better understand the causal links between depression, functional impairments, and health care utilization.

Methods: Data were obtained at baseline and follow-up of the multicenter, prospective cohort study "Late life depression in primary care: needs, health care utilization and costs" (AgeMooDe). A sample of 955 primary care patients aged 75 years and older was interviewed twice. The primary outcomes were the average respective amounts of time spent utilizing home care, professional nursing care, domestic help and informal care. These outcomes were analyzed with Generalized Linear Mixed Models (GLMM).

Results: GLMM analysis revealed that the amount of time utilizing home care over the study period was positively associated with depression, higher age, and functional and cognitive impairments, but negatively associated with living alone. In-depth analyses revealed that these associations were particularly obvious for the utilization of informal care.

Limitations: The generalizability of our findings may be limited due to use of a dimensional instrument to determine depressive symptoms.

Conclusions: Over the study period, the average amount of time receiving home care and especially informal care increased in the group of patients with depression only. People with depressive symptoms experience a growing number of functional limitations over time, increasing their dependency on others. Functional limitations, depression and dependency appear to form a vicious cycle.

1. Introduction

Depression is the most frequent undetected and untreated psychiatric disease (Park and Unutzer, 2011). The life-time prevalence for developing any form of depression is nationally and internationally roughly 16–20% (DGPPN et al., 2009). According to the Global Burden of Disease Study 2013, depression (especially Major Depressive Disorder (MDD)) is the second leading cause of years lived with disability (YLD) globally and in high-income countries (Global Burden of Disease Study, 2013 Collaborators, 2015). Although depression is less prevalent in the elderly than in younger adults, its impact is significantly higher (Fiske et al., 2009). Thus, depression in old age is the most common psychiatric disease for this age cohort and is often accompanied by co-morbidities and functional limitations (DGPPN et al., 2009). The course of depression in old age is more chronic, the relapse rate higher

* Correspondence to: Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg University, J5, D-68159 Mannheim, Germany.
E-mail address: Andreas.Hoell@zi-mannheim.de (A. Hoell).

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and the prognosis worse than for depression at a younger age (Ismail et al., 2013). Besides that, subsyndromal depression (SSD, i.e., the presence of depressive symptoms beneath the threshold of diagnostic criteria of depressive disorder) is common in old people (Djernes, 2006; Riedel-Heller et al., 2012). SSD adds to the complexity of multi-morbidity and functional limitations and causes severe illness progression, decreased quality of life and higher mortality rates (Fiske et al., 2009; Laborde-Lahoz et al., 2015; Luppa et al., 2012), but often remains unrecognized.

The impact of depression in old age on the use and cost of the health care system, including inpatient and outpatient health services like primary care physicians, is well established (Bock et al., 2014; Grabe et al., 2009; Luppa et al., 2012). However, the relationship between depressive symptoms and informal care (i.e., help from relatives in activities of daily living) and home care is inconsistent. Until recently, studies on that topic reported no correlation between depressive symptoms in the elderly and the use of informal care or home care (Beekman et al., 2002; Larsson et al., 2004). Structural changes in health care systems in high-income countries (e.g., the National Service Framework in Great Britain, the introduction of Community Care Access Points in Canada and Australia, and the Long-Term Care Development Act in Germany) and recognition of the importance of assessing needs among the elderly (Stein et al., 2016) prompted a sensitivity to the increased care needs of older people with psychiatric symptoms. First results of studies in elderly patients with depression point towards a substantial higher use of informal care (Busch et al., 2013; Langa et al., 2004; Luppa et al., 2012).

The present paper considers longitudinal changes in the amount of time that people with and without depression spent utilizing informal care and home care. The assumption is that across time, people with depression differ significantly from people without depression in terms of the amount of time spent receiving outpatient care services, particularly informal care.

2. Methods

2.1. Sample

Data were obtained at baseline (BL) and follow-up (FU) of the multicenter, prospective cohort study "Late life depression in primary care: needs, health care utilization and costs" (AgeMooDe). An in-depth description of the study can be found elsewhere (Stein et al., 2016). Study participants were recruited from General Practitioners (GPs) in the German cities of Leipzig, Bonn, Hamburg, and Mannheim. Patients eligible for the study had to 1) have been a regular patient of the GP, 2) have had at least one visit with the GP during the past six months and 3) be 75 years of age or older. Exclusion criteria were 1) severe illness probably fatal within three months, 2) moderate to severe cognitive impairment at baseline, 3) limited ability to speak or read German, or 4) insufficient ability to consent. All eligible patients were collected on a list only known to the GPs. Afterwards, GPs and practice staffs were asked to screen eligible patients for depressive symptoms. For each participant with depression, another participant without depression was randomly selected from the list. The GP then invited all the selected patients to participate in the study. BL recruitments took place between May 2012 and December 2013. Assessments at FU1 continued approximately one year after BL and ended in December 2014.

At BL n = 1230 patients were assessed. The subsequent analyses were carried out on a total sample size of n = 1197. This sample provided a complete interview including data on health care use and depressive symptoms.

The ethics committees of all participating centers approved the study (Ethics approval Leipzig: 020-12-23012012) and written informed consent was obtained from all GPs and patients. All procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

2.2. Measures

All patients were assessed in their home environment using standardized clinical interviews conducted by trained staff.

These interviews contained the Questionnaire for Health-related Resource Use in an Elderly Population (FIMA) (Seidl et al., 2015). The FIMA is a generic tool that covers all direct medical and non-medical resource use by an elderly population. Its major objective is to calculate out-of-pocket payments. The domains of interest in the calculation of home care costs in this paper are outpatient or in-home care services, like formal home care (i.e., paid professional outpatient nursing services), domestic help (i.e., paid services, e.g., for cleaning or tidying the domicile) and informal home care (i.e., help from family members, neighbors and friends). Data contained health-related resource units like the number of visits by outpatient nursing services, domestic help and informal care (i.e., number of days of visits per week or per month) and the average amount of time (in minutes or hours) per visit during the last 6 months.

Likewise, the FIMA records data on pharmaceuticals. Recall period for pharmaceuticals was the last 7 days prior to the interview, in order to collect primarily long-term medications commonly used in old age. The specification of medication was used to calculate the Chronic Disease Score (CDS) (von Korff et al., 1992). The CDS is an index of the individual burden of disease (i.e., comorbidity), whereby pharmaceuticals prescribed by physicians for specific chronic diseases (e.g., diabetes, cancer, and hypertension) are weighted for disease severity. A sum score of each weighted medication was calculated using a cut-off value of 4 (von Korff et al., 1992). The CDS is recommended for epidemiological studies (MacKnight and Rockwood, 2001), in particular studies in which it is necessary to control for comorbidity as a potential confounder.

The short version of the Geriatric Depression Scale (GDS) was used to assess depressive symptoms in the elderly (Gauggel and Birkner, 1999). It is a reliable and valid screening instrument for major depression as defined by ICD-10 and DSM-IV diagnostic criteria (Almeida and Almeida, 1999). The GDS consists of 15 questions with a "yes" or "no" response. The number of "yes" responses is counted. Consequently, the short GDS sum score ranges from 0 to 15 points. A cut-off score of 6 points was used to screen patients for depression. This cut-off is recommended in a meta-analysis to yield a robust indication of depression (Mitchell et al., 2010).

A further component was the Mini-Mental State Examination (MMSE) to screen for cognitive impairment in the sample (Folstein et al., 1975). The MMSE is the instrument used most widely in primary care to detect dementia (Trenkle et al., 2007). It consists of 30 different cognitive tasks, each worth one point if correctly answered. The sum score ranges from 0 to 30 points. A cut-off score of 24 was used to identify cognitively impaired patients.

Functional disability was assessed with the concept of (instrumental) activities of daily living (ADL/IADL). Therefore, a 24-item scale (Schneekloth, 2008) was used. The scale assesses the capacity to perform everyday activities like body care, mobility, ability to buy food and to prepare meals, to take medication as prescribed, to keep the home clean, to use public transportation, to use the telephone, to visit people, to orientate oneself outside the home environment and to handle finances. Participants who had difficulties in at least one of the aforementioned basal activities were classified as functionally impaired.