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Correlates of caregivers' involvement in the management of older adults' medications

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ABSTRACT

Background: Family caregivers are actively involved in medication management, yet little is known about factors associated with caregivers' involvement in this role and how that information can be utilized to engage caregivers in the healthcare system.
Objectives: To explore factors associated with caregiver involvement in various aspects of older adults' medication management (i.e., ordering, keeping track or ensuring the correct medication is taken at the correct time, and injecting medications).
Methods: A retrospective analysis of two national surveys, the 2011 National Health and Aging Trends Study and the National Study of Caregiving was performed. Multivariate logistic regression models were used to examine the associations between demographic and caregiving variables with caregiver involvement in three medication management activities.
Results: Approximately two-thirds of family caregivers (N = 1369) were involved in one or more medication management activities. Factors associated with caregivers' assistance with ordering medications included being female, high frequency of involvement in instrumental activities of daily living (IADLs), involvement in medically-related activities, and caring for an older, less educated, or Hispanic care-recipient and individuals with lung disease or dementia ($p < 0.05$). Caregiver living arrangement, high frequency of involvement in activities of daily living (ADLs) and IADLs, involvement in medically-related activities along with care-recipient's race/ethnicity and having a dementia diagnosis were all associated with caregiver assistance in keeping track of medications ($p < 0.05$). Factors associated with assistance in injecting medications were caring for older adults with diabetes or stroke, or being involved in medically-related activities ($p < 0.05$).
Conclusions: Different demographic and caregiving factors were associated with caregiver involvement in various medication management activities. Recurring factors included race/ethnicity, certain care-recipient disease states, and caregiver involvement in IADLs and medically-related activities. Healthcare providers can play a proactive role in engaging caregivers in discussion about medication management and these findings can help practitioners more effectively target caregivers for education and support.

1. Introduction

The older adult population (≥65 years) continues to grow and is expected to reach 72 million people or about 20% of the U.S. population by 2030.[1] Older adults have more chronic health conditions,[2,3] consume more prescription medications,[4] and utilize more healthcare resources than any other patient population.[5] Chronic conditions can lead to limitations in older adults' functional and self-care abilities and a decrease in quality of life over time.[1,2,6] Complications of chronic conditions can also decrease older adults' capacity to perform activities of daily living (ADLs), such as eating, dressing, bathing, as well as instrumental activities of daily living (IADLs), such as shopping, doing chores, and managing money.[1,2,6] With only 3.4% of older adults living in

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institutional settings,[6] many older adults live at home and often rely on both formal (paid) and informal (unpaid family or friends) caregivers to assist with their care.[7–9]

Family caregivers of older adults have become responsible for increasingly complex medical and nursing care in the home setting, including medication management.[7,10] While previously categorized as an IADL,[11] there has been more recent recognition of the unique demands and challenges of health-related responsibilities in caregiving.[7,8] Forty-six percent of informal caregivers reported performing a medical or nursing task in 2012 and 36% helped with managing medications. Of these caregivers, 96% also were providing assistance with care recipients' ADLs and/or IADLs.[7]

Some studies have examined caregivers' tasks and hassles associated with medication management and have explored medication management-related issues from quantitative and qualitative perspectives.[7,12–18] Giovannetti and colleagues examined caregivers' assistance with healthcare and medication-related tasks and reported that among 308 caregivers, 80% helped with obtaining medications for older adult care-recipients, 54% planned medication schedules, 35% administered medications, and 28% decided when to change medication doses.[15] A national report by Reinhard and colleagues reported that almost two-thirds of caregivers who managed medications were helping care-recipients who were taking more than five medications a day and 61% stated that medication management was difficult.[7] Travis and colleagues examined 'hassles' associated with caregiving involvement in medication management, including issues with scheduling, administration, and safety.[12–14]

Although these studies have provided a foundation for understanding caregivers' potential challenges when managing medications, there is less information on what caregiver and care-recipient factors are associated with involvement in medication management responsibilities and how caregivers and their responsibilities can be identified within the healthcare system. A study by Wolff and Spillman examined national data of Medicare beneficiaries and the types of assistance they receive from caregivers with healthcare-related activities, specifically physician visits and prescribed medications. The authors indicated that older adults who receive help with both of these activities tend to have higher health and functioning needs, highlighting the need for additional research to, "clarify the scope of activities assumed by family members outside of self-care and household activities."[8] An improved understanding of family caregivers' experiences with medication management would improve healthcare providers' and pharmacists' ability to recognize the role caregivers play in older adult patients' health management and better engage caregivers during routine visits to ultimately optimize patient outcomes.

The purpose of this study was to explore caregiver, care-recipient, and caregiving factors associated with caregiver involvement in various medication management activities, including ordering, keeping track, and administering medications.

2. Methods

2.1. Study design and data sources

A retrospective analysis of caregiver data from the National Study of Caregiving (NSOC) and care-recipient data from the 2011 National Health and Aging Trends Study (NHATS) was conducted. NSOC is a supplement of the 2011 NHATS and both studies were sponsored by the U.S. National Institute on Aging (grant number U01AG032947) and conducted by Johns Hopkins University Bloomberg School of Public Health.[19–22] NHATS is comprised of a nationally representative sample of 8245 Medicare beneficiaries (65 years of age and older) who are surveyed annually beginning in 2011.[20,21] Participants were selected using a multi-stage sampling design oversampling for oldest age and African-American Medicare beneficiaries to ensure adequate sample sizes. NHATS interviews collected information on beneficiaries' health conditions, physical and cognitive functioning, home and community environment, participation in self-care and medical activities, and economic and social factors.[20] The NSOC consists of 2007 informal caregivers who were identified by Medicare beneficiaries as unpaid individuals who provided assistance with self-care, mobility, or household activities and agreed to participate in the NSOC interview.[22] NSOC interviews covered a range of topics including, care activities, duration of care, caregiving impact on caregivers, health and well-being, employment, and demographics.[22] NHATS Round One data files are publically available for download and analysis; however, NSOC data files are considered sensitive and require additional permissions for access. NHATS and NSOC data files may be linked. Permission for the use of the NSOC data was obtained via a sensitive data use agreement. This study was deemed exempt by the Institutional Review Board of Purdue University.

NSOC was designed to interview multiple caregivers for the same NHATS participant. For purposes of analysis, a primary caregiver for each NHATS participant (i.e., care-recipient) was identified based on care index similar to the one created by the National Alliance for Caregiving based on frequency of care and involvement in activities of daily living and instrumental activities of daily living.[23] Of the 2007 caregivers interviewed, 1369 were identified as sole or primary caregivers thus providing the sample for this study.

2.2. Measures

2.2.1. Dependent variables

Caregivers' assistance with medication management was examined using items that asked if the caregiver helped their care-recipient with ordering medications, keeping track of medications (i.e., "to ensure the correct ones were taken at the proper time,"[19] or administering injections in the last month. To examine factors associated with caregiver involvement in multiple medication management tasks, a categorized variable was created to describe the number of medication-related activities (none or one versus two or three) reported by caregivers.

2.2.2. Independent variables

Caregiver-specific demographic data included age, gender, education level, relationship to the care-recipient, marital status, and work status. Age was calculated from birth date information provided in the NSOC data set and collapsed into four categories (i.e., 18–49, 50–59, 60–69, and 70+ years). Education was collapsed from nine to four categories (i.e., no degree, high school, some college/technical degree, and Bachelor's, professional, Master's, or doctoral degree) similar to previous studies. Relationship was collapsed from thirty to three categories (i.e., spouse/partner, child, or other relative/friend/nonrelative). Marital status was collapsed from six to three categories (i.e., married/living with a partner, formerly married, never married). Work status in the last month was also examined.

Care-recipient demographic and health data were obtained from the NHATS file and consisted of age, gender, race/ethnicity, education level, and number and type of diagnosed health conditions as reported by NHATS participants. Age was provided as both a continuous variable and categorical variable, which was subsequently collapsed from six into two categories (i.e., 65–79, 80+ years). Care-recipient's education was collapsed to four categories (i.e., no degree, high school, some college/technical degree, and Bachelor's, professional, Master's, or doctoral degree). Race/