Informal caregiver characteristics and subsequent hospitalization outcomes among recipients of care*

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ABSTRACT. Background and aims: It is reasonable to surmise that informal caregivers might influence access and use of health services among disabled older adults, although this relationship has not been well studied. The objective of this research was to examine caregiver attributes with respect to recipients’ hospitalization experiences. Methods: Generalized estimating equations were used to generate population-average logistic regression models for the risk of incurring inpatient hospitalization or being delayed in discharge from hospital. Data come from a sample of 420 women aged 65 or older receiving informal care, who participated in both the Women’s Health and Aging Study and its accompanying Caregiving Survey. Results: Individuals whose primary caregivers were characterized by feelings of competence in their role were 40% more likely to experience an inpatient hospitalization (p<0.05) but 48% less likely to be delayed in discharge from the hospital (p<0.05). Measures related to caregiver overload and personal gain were not found to be related to the likelihood of either incurring an inpatient admission or being delayed in hospital discharge, although individuals whose primary caregivers were characterized by role captivity (a measure related to perceived burden) were more than twice as likely to be delayed in discharge from the hospital (p<0.05) without controlling for other characteristics (p<0.10 in the multivariate model). Individuals whose primary caregivers reported being involved with recipients’ medical professionals were 50% more likely to incur an inpatient hospitalization (p<0.01). Conclusion: These findings suggest that primary caregiver attributes have relevance to recipients’ hospitalization experiences. (Aging Clin Exp Res 2004; 16: 307-313)

INTRODUCTION

Many studies have examined the interface between informal and formal long-term care service use by older adults (1-5), but little is known about the effects of informal care on the utilization of other types of medical services. Inpatient hospital care deserves particular attention, as it comprises the largest component of health care expenditures for elderly people and poses its own risk for adverse health consequences (6). Physicians are key actors in the decision to hospitalize, but it is reasonable to surmise that caregivers might also influence hospital use among older individuals who are disabled enough to require assistance from family or friends in routine daily activities.

Prior studies report that 36-37% of geriatric outpatients are accompanied on physician visits by a family member (7, 8) and that the presence of a third party can alter the dynamics of medical encounters (7, 9). Of the few studies that have considered health services consequences related to long-term care, one reported that individuals receiving assistance from co-residing offspring had shorter inpatient hospital stays (10) whereas another reported that the medical community frequently failed to consider caregiver’s needs and/or ability to cope subsequent to discharge from the hospital, an omission that adversely influenced the discharge planning process (11). Two studies report the presence of a child or spouse to be associated with a lower likelihood of a long hospital stay (12) and a shorter overall length of stay (13). While one of these studies extrapolates this measure to represent informal care (13), it does not capture whether in fact any assistance is provided, or if so, the extent or nature of assistance, or information regarding caregivers’ perceptions regarding their role.

The relationship of caregiver burden to greater risk of nursing home entry has been well documented (4, 14, 15). In this study we hypothesize that caregivers who report

*Results from this manuscript were presented at the 2003 Annual Scientific Meeting of the Gerontological Society of America.

Key words: Health services utilization, hospitalization, informal care.

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Received January 23, 2004; accepted in revised form April 16, 2004.
higher burdens and lower rewards associated with their responsibilities may be less able to manage treatment regimens for chronic conditions, to seek medical care for early-stage symptoms that could forestall an inpatient admission if treated promptly, or to be able to handle the intensive assistance that is needed after discharge from hospital. Likewise, caregivers who are more involved with recipients’ medical care providers may better understand daily treatment regimens, be better able to negotiate the health system to obtain necessary services that could prevent subsequent hospitalizations, or be more apt to advocate for a prompt return home from hospital. In this study, we hypothesize that disabled elderly female care recipients with informal caregivers who report lower levels of burden and higher levels of reward, or who report being involved with care recipients’ medical providers will have a reduced risk of inpatient admissions and will be less likely to be delayed in discharge from hospital.

METHODS

Data source and study sample

This study relies on data from the Women’s Health and Aging Study Caregiving Survey (WHASCGS), a subset of participants from the Women’s Health and Aging Study (WHAS). The WHAS is a prospective epidemiological study of the causes and course of physical disability among older women. The study employed an age-stratified random sampling design of Medicare beneficiaries ages 65 and older who resided in Baltimore, Maryland in 1992. The WHAS study population consisted of 1002 moderately to severely disabled, cognitively intact, community-dwelling women. Study participants were administered an extensive in-home baseline interview and physical examination, after which they were re-interviewed in person every six months over a three-year period. Further details of the WHAS study design have been published elsewhere (16-18).

The WHASCGS was conducted among a subset of WHAS participants who were receiving informal (unpaid) assistance from family or friends. Each participant and her primary caregiver were interviewed about attitudes and preferences concerning caregiving. WHAS participants without a caregiver (23.9%) and those with paid caregivers (14.9%) were not eligible. The WHASCGS was administered annually to study participants over three years. Care recipient and caregiver interviews were completed for 83.2% of eligible cases at baseline, representing 420 study participants. Baseline results from the WHASCGS have been published elsewhere (19). Of the initial 420 participants, 384 (91.4%) in year two and 319 (76.6%) in year three remained in the study. Death was the main reason for attrition.

Measurement

Hospitalization outcomes are based on 3 years of Medicare inpatient claims data obtained from the Centers for Medicare and Medicaid Services. Independent variables took the form of either baseline (invariant) measures, or time-varying measures constructed from information obtained at each of the 3 WHASCGS interviews and corresponding WHAS interviews.

Inpatient hospitalizations. Medicare claims data were used to evaluate whether an admission to an acute care hospital had occurred during the 12 months following a WHASCGS interview. Delayed discharges were identified as hospitalizations with a length of stay more than two days longer than the average length of stay for that type of admission, based on the assigned diagnostic related group (DRG) under the Medicare reimbursement system. Although this is not a measure that has previously been used in published research, we believe that it is an improvement over prior studies (e.g., 10, 12) which have largely ignored the role of diagnosis in determining expected length of stay.

Sociodemographic characteristics. Time-invariant socio-demographic characteristics included baseline age in years, years of education, race (“black” vs “other”) and income (participant’s household income adjusted for household size and expressed as a percent of the federal poverty level). Time-varying characteristics were care recipient living arrangements (“alone”, “with spouse”, or “with others”) and primary caregiver/care recipient relationship (“spouse”, “child”, or “other”).

Health Characteristics. Measures of health included baseline cognitive functioning and prevalent chronic disease, and time-varying measures of subjective health status, physical task limitations, and depression. Baseline cognitive functioning was measured using the Mini-Mental State Examination (MMSE) (20). This study uses previously defined cut-points to distinguish persons with impaired (scores of 18-23) versus normal functioning (24-30) (21). A total of 17 chronic conditions were clinically adjudicated for all WHAS participants at baseline (16). These conditions were grouped into dichotomous categories: musculoskeletal conditions, cardiopulmonary conditions, neurological disorders, sensory impairment, and diabetes (0 absent, 1 present).

Subjective health status was measured on a 5-point Likert scale ranging from “Excellent” (1) to “Poor” (5). Activities of daily living (ADLs) captured self-reported difficulty in eating, bathing, dressing, transferring, and toileting. Instrumental activities of daily living (IADLs) reflected self-reported difficulty in meal preparation, money management, telephone use, shopping, and light housework. These specific ADLs and IADLs have been shown to measure one underlying construct of functional disability (22) and were combined to form an index of limitations in task functioning ranging from 0 to 10.

Depressive symptoms were evaluated using the Geriatric Depression Scale (GDS) (23). This study adopted previously defined cut-points to categorize individuals as “not depressed” (0-10) and “depressed” (11-30) (24).