

## The Use of Mobility Devices and Personal Assistance: A Joint Modeling Approach

### **BACKGROUND**

As people age, it is common for their mobility to decline, making it harder to function independently and accomplish everyday tasks like shopping, cleaning, and even moving around one's own home. In addition to physical limitations, a decline in mobility can impact relationships, social activity, and quality of life. Moreover, it can increase the probability of experiencing obesity, cardiovascular disease, diabetes, poor cognitive function, and depression. There are two primary ways to increase an individual's mobility: utilizing a mobility device (i.e. cane, walker, wheelchair, scooter) or obtaining personal assistance (i.e. when another person helps with tasks required for daily living). The goal of this study was to determine whether the use of mobility devices substitutes for personal assistance among U.S. older adults. This is important because device use has the potential to increase independence for those with mobility limitations, easing the pressure on family caregivers and a strained long-term care workforce.

### **STUDY METHOD**

*Measures.* The study utilized data from the 2011 wave of the National Health and Aging Trends Study (NHATS) to identify 3,211 community-dwelling older adults (65+) who reported mobility difficulties. Mobility difficulties were assessed by asking study participants if they had difficulty moving inside, moving outside, or getting out of bed in the prior month. The two primary outcome

variables were (a) any use of mobility device and (b) any use of personal assistance for mobility. The NHATS survey assessed mobility device use with a yes/no question concerning use of a cane, walker, wheelchair, or scooter in the last month. To assess personal assistance, the survey asked respondents yes/no questions concerning whether in the previous month they had received personal help going outside their home or building, getting around inside, or getting out of bed. They were considered to use personal assistance if they received help with any of the mobility tasks. Variables shown in prior studies to be associated with mobility were included as independent variables. These were gender, age, race/ethnicity, education, income, and insurance participation. Physical and social environment were evaluated with questions about whether participants lived alone or resided in a retirement community, and whether there were stairs or steps at their residences. Their physical capacity was determined through a series of questions concerning the ability to perform various physical tasks (e.g. climbing stairs, kneeling down). Probable dementia was determined based on the NHATS classification scheme, which included self-reported physician diagnosis, interviews, and tests of cognition. Depression was assessed with a validated two-item depression screener. Finally, physical impairment and health variables were evaluated using participant reports of pain, balance problems, or limited lower body or upper body strength, as well as height and weight (to assess body-mass index), if they had spent a night in the hospital within the last 12 months, and if

they had been diagnosed with a stroke, arthritis, osteoporosis, or diabetes.

*Analytic method.* Bivariate analyses were used to examine the independent variables by accommodation (mobility device alone, personal assistance alone, both, and neither). Recursive bivariate probit models were then used to jointly estimate the effect of independent variables on the likelihood of using mobility devices and personal assistance. This method is suitable for the joint modeling of two dichotomous dependent variables that are correlated and not assumed to occur in any order. The model consists of two equations, with the dependent variable of the second equation (device use) entered into the first equation (personal assistance) as an independent variable, thereby linking the two equations to form a recursive model.

## **FINDINGS**

Results indicated that 37% of the sample used mobility devices only, while about 8% of participants reported using only personal assistance, and 30% reported using both. Statistically, the use of a mobility device was associated with a 50% lower likelihood of receiving personal assistance, indicating that mobility devices can substitute for personal assistance in some situations. Those with physical impairments and past hospitalization were more likely to use both personal assistance and mobility devices. Those with probable dementia or depression were more likely to use personal assistance and less likely to use mobility devices. Several sociodemographic variables predicted whether someone used personal assistance or a mobility device. Specifically, women were more likely to use personal assistance and less likely to use mobility devices. Conversely, those who lived alone were more likely to use mobility devices.

## **POLICY IMPLICATIONS**

Overall, the use of mobility devices can be substituted for personal assistance; however, individual conditions or situations can determine which accommodation is used. For example, those with a higher level of physical illness or cognitive impairment may not be able to forgo personal assistance, and those who live alone may not have the option for personal assistance. Although the use of assistive devices has increased within the past decade, there is still an opportunity to further promote the use of such devices in place of personal assistance or in conjunction with personal assistance. Further research is needed to understand the lower likelihood of device use among women and those with depression, and how to make device use easier, particularly for those with dementia. With the promotion of mobility devices, the load on caregivers could be lightened. It could also promote individual independence, resulting in better physical and emotional well-being of those dependent on personal assistance. Policymakers should educate the public about mobility options, disseminate the benefits of using such a device, and ensure that these devices are affordable and accessible to those who could benefit from their use.

## **Original Article**

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