Skilled Home Health Care Specialization and Implications for People Living with Dementia

Jun Li PhD[1], Bo Zheng MPA[1], Geoffrey Hoffman, PhD[2]
[1]Department of Public Administration and International Affairs, Syracuse University
[2]Department of Systems, Populations and Leadership, University of Michigan

In many health care settings, people have better health outcomes when treated by specialized providers. One explanation for this association is that specialization, i.e., the extent to which a provider focuses on a particular type of patient or specific area of care, allows the provider to simplify and standardize care processes, dedicate attention and target resources to the area of specialization, and learn from repetition to achieve better outcomes . Yet, little is known about specialization in Alzheimer's Disease and Related Disorders (ADRD) or specialization in settings common to individuals living with ADRD, such as skilled home health care (henceforward just home health care). Existing work has prioritized nursing home care specialization, even though 80% of the ADRD population reside in the community and people with ADRD constitute a third of home health care patients . If specialization leads to better health outcomes, then specialization might be particularly beneficial for the ADRD population, given its high prevalence, tremendous burden to patients and family members, and paucity of effective management strategies .

ADRD care specialization in home health may confer health benefits for ADRD populations for several reasons. First, ADRD-focused care is especially important for outcomes given the characteristics of the disease. ADRD hampers a person's mental functioning, behavior, and decision-making, and is recalcitrant to standard disease management which tend to emphasize self-management and monitoring . In fact, current recommendations emphasize that people living with ADRD should receive ADRD-focused programs, highlighting the importance of addressing their unique care needs . Second, specialization may surmount costly barriers related to standardizing care processes. Agencies are unlikely to establish ADRD-focused care processes if their workers have limited exposure to ADRD care challenges. However, a sizable ADRD patient share allows agencies and individual workers to repeatedly confront similar challenges, potentially making it easier for agencies to standardize practices and reap the benefits. Moreover, home health field workers often deliver care alone in unpredictable environments of patients' homes . Therefore, having robust care processes could be especially advantageous in these situations, unlike in institutional settings where workers have the support of their colleagues. Third, incentives for agencies to invest in worker competencies in ADRD care may be hamstrung absent specialization, especially in light of high annual field worker turnover rates, which was 22% in 2019 . For instance, although worker training could improve ADRD care quality, many home health field workers lack sufficient training. . This deficit in worker competencies may be because the returns from training workers are too short-lived to be worthwhile for agencies , except for specialized agencies where workers care for large shares of ADRD patients.

Alternatively, the nature of community-based care may compromise ADRD care management, limiting the benefits of specialization. Unlike institutional care, which enables providers to control the structural designs of the facility to minimize safety events like falls or wandering, home health care is provided in patients' homes—unpredictable environments over which the agency has little control. Furthermore, skilled home health care is provided intermittently , limiting an agency's opportunity to exert influence. Finally, family caregivers play a large role in caring for patients receiving home health care, especially for people with ADRD . While agencies can follow recommended guidelines to better involve family caregivers , their ability to influence the family caregivers' knowledge and skills is

constrained. Thus, it remains an empirical question whether ADRD specialization in the home health context matters for patient outcomes.

A major empirical challenge in investigating any causal relationship between patients' use of specialized home health agencies and patient outcomes is that patients are not randomly assigned to agencies. Rather, selection into an agency is likely related to other factors that affect patient outcomes. For instance, on the demand side, patients with more advanced ADRD may seek out specialized agencies, in which case specialized agencies might appear worse than they are in terms of patient outcomes. On the supply side, agencies are not required to treat all patients . In 2019, for instance, home health agencies rejected 54% of referrals in part due to profit margin differentials across payers . If specialized agencies are more likely to treat healthier patients with ADRD, for example, then selection can also inflate the estimated benefits of specialized agencies on outcomes.

This study addresses this knowledge gap with the use of an instrumental variable to account for the potential selection of patients into ADRD-specialized agencies. Specifically, we instrument for patient choice of an agency using differential distance from the patient's home to the nearest specialized versus non-specialized agency, where specialized agencies are those with ADRD patient shares at or above the 75^{th} percentile of the national distribution. Heteroscedasticity and cluster robust F-statistic tests reject that the instrument is weak (effective F statistic = 90.98) and exceed the largest critical value associated with a 5% maximal allowable bias . Moreover, means and standard deviations across most covariates are similar across the values of the instrument, and the instrument passes two falsification tests, consistent with no violation of the exclusion restriction assumption. We implement our instrumental variable approach using detailed patient-linked data across the census of Medicare home health patients from 2018-2019. We focus on health outcomes indicative of high-quality home health care that can be reliably measured and relevant for ADRD patients. These include hospital, post-acute skilled nursing facility, and long-term care nursing home use on the extensive margin, and deaths within 180 days of starting home health care.

We find that use of ADRD-specialized agencies is related to outcomes for patients with ADRD in several important ways. Our main results indicate that use of specialized agencies decreases the marginal ADRD patient's use of long-term care nursing homes and deaths but present no evidence of change in rates of hospitalization or skilled nursing facility use. Additionally, we find that health benefits are larger in agencies with larger shares of patients with ADRD. Furthermore, health benefits appear to generalize to Medicare Advantage patients predicted to have ADRD and appear to spillover to non-ADRD populations. In exploratory analyses of mechanisms, we also observe that home health care patients with ADRD who later use skilled nursing facility care tend to use higher quality-rated facilities. This suggests that the health benefits of using specialized agencies may partly result from agencies playing a more proactive role in guiding patients to appropriate outside services. Finally, we find evidence suggesting that agency specialization may be a distinct and potentially more important factor for health outcomes for ADRD populations than agency volume; that is, the advantages of specialization reflect more than just the benefits of repetition.

The home health sector offers an ideal setting to further explore the role of specialization on patient outcomes. Demand for home health care is large and growing due to an aging demographic and increased desire to age in place . There is a substantial share of patients with ADRD across home health agencies, ranging from 0% to over 80%. Caregivers and patients also experience variable care quality across agencies, presenting opportunities for improvement . With rapid growth of home health care demand and high and growing prevalence of ADRD among home health patients , understanding the role of a better match between patients and home health care agencies could have meaningful implications for population health.