

Home Care Worker Continuity in Home-Based Long-Term Care: Associated Factors and Relationships With Client Health and Well-Being

Jennifer M. Reckrey, MD,^{1,*} David Russell, PhD,^{2,3} Mei-Chia Fong, PhD,⁴ Julia G. Burgdorf, PhD,² Emily C. Franzosa, PhD,^{1,5} Jasmine L. Travers, RN, PhD,⁶ and Katherine A. Ornstein, PhD⁷

¹Department of Geriatrics and Palliative Medicine, Icahn School of Medicine at Mount Sinai, New York City, New York, USA.

²VNS Health Center for Home Care Policy & Research, New York City, New York, USA.

³Department of Sociology, Appalachian State University, Boone, North Carolina, USA.

⁴L&M Policy Research, Washington, District of Columbia, USA.

⁵James J. Peters VA Medical Center, Bronx, New York, USA.

⁶NYU Rory Meyers College of Nursing, New York City, New York, USA.

⁷Johns Hopkins University School of Nursing, Baltimore, Maryland, USA.

*Address correspondence to: Jennifer M. Reckrey, MD. E-mail: Jennifer.reckrey@mountsinai.org

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Abstract

Background and Objectives: Despite the importance of provider continuity across healthcare settings, continuity among home care workers who provide hands-on long-term care is understudied. This project describes home care worker continuity, identifies factors associated with increased continuity, and examines associations between continuity and client outcomes.

Research Design and Methods: We conducted a retrospective cohort study of clients receiving Medicaid-funded home-based long-term care ($n = 3,864$) using insurance plan and home care agency data from a large nonprofit organization. We estimated home care worker continuity for clients between 6-month clinical assessments using Bice–Boxerman scores. We then used generalized estimating equations to model associations between home care worker continuity and (1) client characteristics (e.g., cognitive impairment), and (2) client functional, health, and psychosocial outcomes.

Results: While home care worker continuity was lowest for clients receiving the most weekly care hours, a range of continuity existed across all levels of care need. Those who were male, older, Asian/Pacific Islander/Native American, cognitively impaired, and functionally impaired had lower continuity. Higher home care worker continuity was significantly associated ($p < .05$) with fewer falls, a higher likelihood of functional improvement/stabilization, and fewer depressive symptoms.

Discussion and Implications: The finding that home care worker continuity is associated with the health and well-being of home-based long-term care clients underscores the importance of building high-quality relationships in long-term care. Continued efforts are necessary to understand and advance home care worker continuity and to identify other aspects of the home care experience that benefit those receiving long-term care at home.

Translational Significance: While home care workers play an essential role keeping older adults living safely at home, home care workers are rarely examined in relation to their clients. We find that continuity in the individual home care worker providing home-based long-term care is associated with important client outcomes including fewer falls, a higher likelihood of functional improvement/stabilization, and fewer depressive symptoms. These findings provide foundational evidence of how aspects of the home care experience matter for clients and point to home care worker continuity as an important marker of home care quality.

Keywords: Caregiving, Home- and community-based services, Home health aide, Long-term care

Background and Objectives

Seeing the same provider over time (i.e., “provider continuity”) has known benefits across healthcare settings including inpatient hospital, primary care, and skilled home healthcare (Amjad et al., 2016; Russell et al., 2011, 2012, 2013; Saultz & Lochner, 2005). Provider continuity strengthens therapeutic

relationships by allowing providers to earn clients’ trust and increase their knowledge of the clients’ health and care needs. Despite the recognized importance of trust between home care workers (e.g., home health aides, personal care attendants, and others who provide hands-on care to people with functional impairment in their homes) and clients (Russell et

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al., 2021; Stuck & Rogers, 2019), empirical exploration of continuity among home care workers in long-term care and its impact on client outcomes is minimal (Gjevjon et al., 2014; Woodward et al., 2004).

As the locus of long-term care for our aging population shifts from institutions to the community (Kreider & Werner, 2023), older adults will increasingly rely on home care workers. These workers are funded by a patchwork of payers including self-pay, long-term care insurance, and the government. Medicaid is by far the largest government payer for home-based long-term care and is administered through a variety of programs at the state level. An individual's functional care needs typically determine the hours of Medicaid-funded home care they receive. Despite state-level differences in eligibility and coverage of Medicaid-funded home care (Musumeci et al., n.d.), Medicaid-funded home care overall has seen marked growth as states rebalance their Medicaid long-term care spending from institutional care to home- and community-based services (Watts et al., 2020).

While home care has been found to delay client transition to institutional long-term care settings (Roche-Dean et al., 2023), little is known about how factors related to home care workers affect the care experiences and outcomes of clients. In interviews and focus groups, home care workers, clients, and family caregivers all describe that in addition to providing assistance with functional needs (e.g., bathing, dressing), home care workers frequently take on an array of tasks that support their clients' physical health, social needs, and psychosocial well-being (Franzosa et al., 2018; Reckrey et al., 2019). Yet detailed information about home care is rarely collected in studies of care experiences and outcomes among older adults living at home.

Receiving care from the same home care worker over time (i.e., "home care worker continuity") may be a key contributor to better client health and well-being in home-based long-term care and can be measured across varying home care arrangements. Evidence from interviews with family caregivers highlights the importance of stability of home care workers in both client and family caregiver experiences (Reckrey, Perez, et al., 2022) and a broader body of qualitative work supports the centrality of therapeutic relationships between home care workers and clients (Franzosa et al., 2019). In addition, extant research examining the impact of provider continuity among other care providers in the home (i.e., nurses, therapists, home health aides) suggests greater continuity is associated with improved care outcomes (Gjevjon et al., 2014; Russell et al., 2011, 2012, 2013). Our study (1) describes home care worker continuity, (2) identifies factors associated with higher continuity, and (3) examines associations between continuity and client outcomes. We hypothesized that greater home care worker continuity would be associated with better client outcomes across functional, health, and psychosocial domains.

Conceptual Framework

This study is guided by the Convoy Model, which emphasizes the importance of social relations for health and well-being. The Convoy Model posits that older adults are surrounded by others with varying degrees of interpersonal closeness, relationship function, and social network structure across the life course (Antonucci et al., 2014; Kemp et al., 2013). For home-based long-term care clients, care convoys include members who provide unpaid support (i.e., family members,

friends) and paid support (i.e., home care workers, healthcare providers).

Home care workers are an important source of social relations for their clients, due to both the intimate nature of personal care (e.g., bathing) and the breadth of assistance provided (e.g., identifying acute medical issues, assisting with chronic condition management, advocating for client needs, keeping clients safe, combatting depression and anxiety; Reckrey et al., 2019). High home care worker continuity facilitates consistent observation, allows for adjustments to care that address changing needs over time, and helps home care workers build client-specific knowledge and interpersonal rapport. Therefore, we conceptualize provider continuity as an indicator of close social relations between home care workers and their clients, which we posit may contribute to client health and healthcare outcomes (Figure 1). Existing evidence suggests that stability in caregiving relationships between home care workers and long-term care clients is highly valued by family members and is perceived to benefit clients (Reckrey, Perez, et al., 2022). Conversely, unstable caregiving relationships due to sporadic home care and scheduling instability pose substantial medical, social, and safety risks (Xu et al., 2022).

Research Design and Methods

Setting and Data Sources

We conducted a retrospective cohort study using secondary insurance and home care administrative data from a large nonprofit organization (hereafter "the organization") that provides Medicare- and Medicaid-funded health plans as well as a wide range of home-based care and services in the greater New York City area. The organization's insurance plans include a New York State Medicaid Managed Long-term Care program (serving approximately 23,177 enrollees) and Medicaid Advantage Plus program (serving approximately 2,937 enrollees who receive both Medicaid

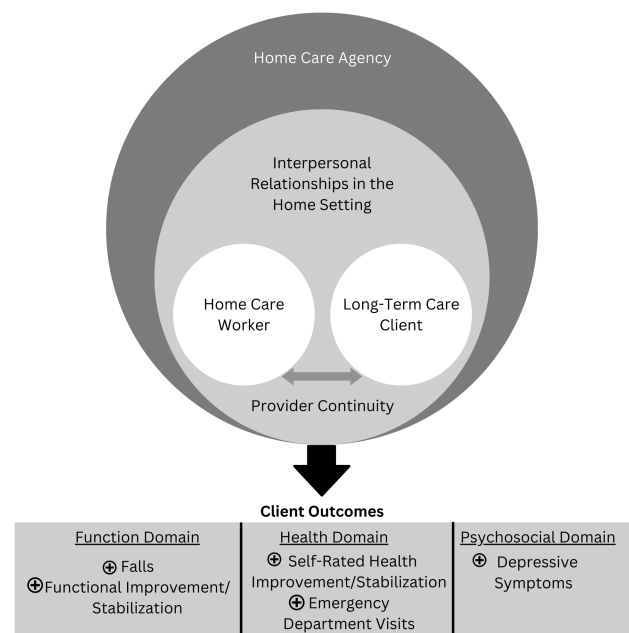


Figure 1. Conceptual framework: The importance of home care worker continuity in home-based long-term care.

and Medicare). The organization's Licensed Home Care Services Agency employs nearly 9,000 home care workers paid via both Medicaid programs and private pay, many of whom care for enrollees of the organization's insurance plans. New York State requires all home care workers providing Medicaid-funded home care to receive Personal Care Aide Training (minimum 40 hr training), though many also receive additional training to certify as home health aides (New York State Department of Health, 2022).

Data were drawn from three distinct sources and merged for this study. First, client demographic information was drawn from insurance administrative databases. Second, client clinical, functional, and health outcome information was drawn from the Uniform Assessment System for New York (UAS-NY), a comprehensive health and functional assessment mandated for all clients receiving Medicaid-funded home care in New York State. UAS-NY assessments are conducted upon clients' enrollment in Medicaid-funded health plans, with subsequent assessments approximately every 6 months. Assessments may be conducted sooner if there are notable changes in clients' health. A registered nurse completes the approximately 1.5-hr assessment in person, relying on client report, family report, and their own observations of multiple domains (e.g., cognition, psychosocial well-being, functional status, health conditions, treatments, and procedures). Third, information about client home care services (e.g., individual visit provider, number of visits, total home care hours) were drawn from Licensed Home Care Services Agency claims records.

Sample

All health plan clients aged ≥ 65 who received home care between January 1, 2018 and March 10, 2020 were considered. Eligible clients were those who: (1) had at least one complete pair of UAS-NY assessments (i.e., one UAS-NY assessment paired with a subsequent assessment approximately 6 months later), and (2) received home care delivered via the organization's Licensed Home Care Services Agency during the period between assessments. A total of 3,864 long-term care clients met eligibility criteria. Individual clients could contribute multiple paired UAS-NY assessments to the sample (mean paired UAS-NY assessments in the study period for each individual client = 2.4, range = 1–5) and our analysis includes 9,452 paired UAS-NY assessments.

Measures

Client characteristics

Client demographic information included sex (female, male), age, race/ethnicity (non-Hispanic Black, Hispanic, non-Hispanic White, Asian/Pacific Islander/Native American, Missing/Unknown), and living arrangements (lives alone, lives with others).

Client functional and clinical information included activities of daily living (ADL) impairment level (limited, extensive/dependence), cognitive impairment level (none, minimal, moderate/severe), and number of chronic health conditions (0–14). The UAS-NY evaluates ADL impairment by assessing performance of 10 functional tasks: bathing, personal hygiene, dressing upper body, dressing lower body, walking, locomotion, transfer to the toilet, toilet use, bed mobility, and eating. Degree of impairment in each task is scored on a 7-point scale (0 = independence, 1 = set-up help only,

2 = supervision, 3 = limited assistance, 4 = extensive assistance, 5 = maximal assistance, 6 = totally dependence) with another category indicating "activity did not occur." We averaged the scores corresponding to degree of impairment in each ADL task assessed. After examining item distributions, we classified the sample into "limited impairment" (average score ≥ 4) or "extensive impairment to total dependence (extensive/dependence)" (average score ≤ 3) to indicate overall functional impairment. The UAS-NY evaluates cognitive skills for daily decision making on a 6-point scale (0 = independent, 1 = modified independence, 2 = minimally impaired, 3 = moderately impaired, 4 = severely impaired, 5 = coma). After examining item distributions, we identified three groups of clients based on degree of cognitive impairment: "independent" (score = 0), "minimal" (score = 1 or 2), "moderate/severe" (score = < 3). The UAS-NY asks about the presence of 14 conditions across five domains (musculoskeletal, neurological, cardiac/pulmonary, psychiatric, other). We tallied the total number of conditions present.

Measures of client home care services included the average number of weekly home care hours, the total number of home care workers providing care, the total number of home care worker visits, and the number of visits by each home care worker during the paired assessment period. Each visit represents an episode of care by a home care worker on a given day regardless of the length of the visit (e.g., 4-hr shift, 12-hr shift).

Home care worker continuity

We used the Bice-Boxerman Index to calculate a continuous score measuring home care worker continuity (i.e., consistency in the individual(s) providing home care services over the study period; Bice & Boxerman, 1977). This formula calculates a home care worker continuity score by considering the sum of visits to a client by all home care workers involved in their care, the number of visits to the client by each home care worker, and the total number of home care workers caring for the client. Scores are generated with a range between 0 and 1, where 0 reflects a service period in which all visits are made by different home care workers (i.e., no home care worker continuity) and 1 indicates a service period in which all visits are made by the same home care worker (i.e., perfect home care worker continuity). We weighted continuity scores by the number of days between paired UAS-NY assessments.

Client outcomes

Corresponding to our conceptual framework, we identified five outcomes representing three broad domains: falls and functional improvement/stabilization (function), emergency department visits and self-rated health improvement/stabilization (health), and depressive symptoms (psychosocial).

In the function domain, presence of a fall (yes/no) was defined by ≥ 1 reported falls in the 90 days preceding the second UAS-NY assessment. Functional improvement/stabilization was defined by having the same or better ability to complete ADLs in the second UAS-NY assessment. For each assessment in the pair, we summed the performance scores for each of the 10 functional tasks to obtain an overall function score ranging from 0 to 60. Those with a designation of "activity did not occur" were assigned an imputed score indicating the highest level of impairment for that task. We then calculated the difference between baseline and follow-up

functional score. Those with a change score of ≤ 0 were determined to have functional improvement/stabilization.

In the health domain, presence of an emergency department visit (yes/no) was defined by ≥ 1 emergency room visit in the 90 days preceding the second UAS-NY assessment. Self-rated health improvement/stabilization was defined as self-rated health that was the same or better in the second UAS-NY assessment. Self-rated health is assessed using a 5-point scale, where possible responses to “In general, how would you rate your health?” include could not/would not respond, poor, fair, good, and excellent. The response “could not/would not respond” was treated as missing data.

In the psychosocial domain, change in depressive symptoms was defined by depressive symptoms reported as the same or better in the second UAS-NY assessment of the pair. The UAS-NY asks clients “in the last 3 days, how often have you felt: (1) little interest or pleasure in things you normally enjoy, (2) anxious, restless, or uneasy, and (3) sad, depressed, or hopeless.” Clients report frequency as: 0 = not in last 3 days, 1 = not in last 3 days but often feels that way, 2 = in 1–2 of last 3 days, 3 = daily in last 3 days, or 8 = person could not/would not respond. The response “could not/would not respond” was treated as missing data. We summed these single-item frequency scores and then divided the total score by 3 to create an overall score ranging from 0 to 3. We then calculated the difference between baseline and follow-up depression score.

Approximately 17% of clients were not able to self-report their status on measures of self-rated health and depression, the great majority of whom had moderate to severe cognitive impairment. For these reasons, we limited our analytic sample on these two outcomes (i.e., self-rated health and depression) to clients with no or minimal cognitive impairment.

Analysis

While paired UAS-NY assessments ($N = 9,452$) represented our main analytic unit, we used the first UAS-NY assessment of the study period to describe characteristics of unique clients ($N = 3,864$). We used Chi-square and t tests to compare the characteristics of those who received <40 versus ≥ 40 hr of home care per week. This cut point has been used in prior work (Reckrey et al., 2021) and corresponds to receipt of full-time home care. We described home care worker continuity scores and intensity of home care services. We then visually described the relationship between home care worker continuity scores and client weekly hours of home care.

We used generalized estimating equations to separately model associations of home care worker continuity with (1) client characteristics, and (2) client outcomes. Models for binary outcome variables (i.e., falls, emergency room visits, functional improvement/stabilization, self-rated health improvement/stabilization) specified a binomial distribution, exchangeable correlation structure, and identity link function. Models for continuous outcome variables (i.e., continuity score, depressive symptoms) specified a Gaussian distribution, exchangeable correlation structure, and identity link function. Both sets of models controlled for baseline covariates of client demographic, clinical, and functional characteristics as well as average weekly home care hours between baseline and follow-up assessments. These models adjust for repeated paired assessments from a single individual and their sequence during the study observation period. Multiple imputation using the MICE package in R was used to replace missing data on relevant measures for a small portion of clients

($<5\%$ of the total analytic sample; van Buuren & Groothuis-Oudshoorn, 2011). We also estimated average marginal effects to provide predictions of study outcomes based on unit-specific changes in regressor variables.

This study was approved by the Icahn School of Medicine at Mount Sinai and the VNS Health Institutional Review Boards.

Results

Client Characteristics

Table 1 presents the demographic, functional, and clinical characteristics of clients ($N = 3,864$). Clients were mostly female (77.3%) with an average age of 82 years (standard deviation [SD] = 8.3) and were racially and ethnically diverse (29.9% non-Hispanic Black; 25.9% Hispanic). Over half of clients lived alone (50.6%) and had extensive ADL impairment (52.3%). Fewer clients were assessed as having either minimal or moderate/severe cognitive impairment (17.2% and 12.0%, respectively). On average, clients had five chronic health conditions ($SD = 2.0$). Clients who received ≥ 40 hr of home care per week were more likely than those receiving <40 hr per week to be female (79.2% vs 76.2%), older age (85.5 vs 80.4), have extensive ADL impairment (86.8% vs 33.1%), have moderate/severe cognitive impairment (27.1 vs 3.7%), and more chronic conditions (5.2 vs 4.9).

Home Care Worker Continuity and Home Care Hours

The average home care worker continuity score was 0.59 ($SD = 0.25$). On average, there were 190.09 ($SD = 26.60$) days between paired UAS-NY assessments. Between assessments, clients were visited by an average of 7.20 ($SD = 5.64$) home care workers and received an average of 163.60 ($SD = 76.84$) total visits. Weekly hours of home care ranged from 1 to 219 hr, with an average of 39.29 ($SD = 29.95$) hr. Clusterings of client weekly home care hours occurred around hour totals corresponding to typical home care worker shifts (e.g., total 20 hr per week representing five 4-hr shifts, 84 hr per week representing seven 12-hr shifts, 168 hr per week representing fourteen 12-hr shifts per week; Supplementary Figure 1).

Figure 2 displays the association between weekly home care hours and continuity scores. Clients with greater weekly home care hours had lower continuity scores than clients with fewer hours. For example, clients who received 40 or more weekly hours of home care service had significantly lower continuity scores ($M = 0.44$; $SD = 0.17$) than their counterparts receiving less than 40 hr of service per week ($M = 0.68$; $SD = 0.24$; $p < .001$). Meanwhile, the range of continuity scores was comparable for clients with both higher and lower levels of care (i.e., scores ranging from 0 to 1 were observed for clients with less than 40 hr of care per week, while scores ranged from 0.09 to 1 for clients with 40 or more hours of care per week). Of note, there were clients with a perfect continuity score of 1.0 (i.e., the same home care worker provided all home care throughout the assessment period) among those receiving 20, 40, and even 60 hr of home care per week.

Factors Associated With Home Care Worker Continuity

Table 2 presents results from a generalized estimating equation in which home care worker continuity scores were regressed

Table 1. Client Characteristics by Weekly Home Care Hours Received

Paired UAS characteristic	Total sample (N = 3,864)	≤40 weekly home care hours (n = 2,483)	≥40 weekly home care hours (n = 2,481)	p Value
Sex, %				.04
Female	77.3	76.2	79.2	
Male	22.7	23.8	20.8	
Age, mean (SD)	81.8 (8.3)	80.4 (8.0)	84.5 (8.3)	<.001
Race/ethnicity, %				<.001
Non-Hispanic Black	29.9	29.8	30.0	
Hispanic	25.9	28.9	20.6	
Non-Hispanic White	17.4	14.7	22.2	
Asian/Pacific/Native American	14.4	14.3	14.6	
Missing/Unknown, %	12.4	12.2	12.7	
Living arrangement, %				.9
Lives alone	50.6	50.5	50.8	
Lives with others	49.4	49.5	49.2	
ADL impairment level, %				<.001
Limited	47.7	66.9	13.2	
Extensive/dependence	52.3	33.1	86.8	
Cognitive impairment level, %				<.001
None	70.8	84.3	46.5	
Minimal	17.2	12.0	26.4	
Moderate/severe	12.0	3.7	27.1	
Number of health conditions, mean (SD)	5.0 (2.0)	4.9 (1.9)	5.2 (2.0)	<.001

Notes: ADL = activities of daily living; SD = standard deviation; UAS = Uniform Assessment System. *T* tests were used to compare mean scores of numerical variables between groups; Chi-square tests of independence were used to evaluate associations between two nominal (categorical) variables.

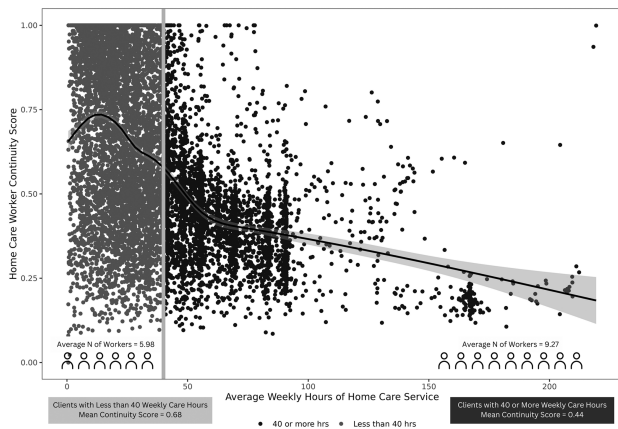


Figure 2. Home care worker continuity scores by average weekly home care hours (N = 9,452 paired assessment periods).

on client demographic, clinical, and functional characteristics and weekly home care hours; the unit of observation is paired UAS-NY assessments (N = 9,164). Results reveal that home care continuity was greater among female clients compared with their male counterparts (*p* < .001). Older age (*p* < .01), Asian/Pacific/Native American race/ethnicity (*p* < .05), cognitive impairment (*p* < .001), and ADL impairment (extensive/dependence; *p* < .001) were associated with lower continuity. For instance, clients with no cognitive impairment, minimal cognitive impairment, or moderate/severe cognitive impairment have average predicted continuity scores of 0.632, 0.526, and 0.437, respectively. Confirming the patterns shown in

the scatterplot, modeling results indicated a negative association between weekly home care hours and continuity scores (*p* < .001).

Associations of Client Outcomes With Home Care Worker Continuity

Table 3 presents results from five generalized estimating equations in which measures of client health in three domains were regressed on home care worker continuity scores and client demographic, clinical, and functional characteristics and weekly home care hours. These results reveal significant associations between home care worker continuity and three of the five client outcome measures assessed in our study: falls (*p* < .01), functional improvement/stabilization (*p* < .05), and depressive symptoms (*p* < .01).

First, greater home care worker continuity was associated with fewer falls (*p* < .01). For every 0.1-point increase in home care worker continuity, there was a roughly 3% decrease in the probability of falls occurring (average marginal effect = -0.034 [95% confidence interval {CI} = -0.060, -0.007]). Higher average weekly home care hours (*p* < .001) were associated with fewer falls, while Hispanic or non-Hispanic White ethnicity (*p* < .05 and *p* < .001, respectively), living alone (*p* < .01), minimal cognitive impairment (*p* < .05), and extensive/dependence ADL impairment (*p* < .001) were all associated with more falls compared to clients who were non-Hispanic Black, lived with others, had no cognitive impairment, and had limited ADL impairment, respectively.

Second, greater home care worker continuity was associated with a greater likelihood of functional improvement or

Table 2. Generalized Estimating Equation Model of Home Care Worker Continuity Scores on Client Demographic, Clinical, Functional, and Service Characteristics

Independent variables	Home care worker continuity score (N = 9,452) Beta (SE)
Sex	
Female	0.028 (0.003)***
Male	Ref
Age	-0.001 (0.000)**
Race/ethnicity	
Non-Hispanic Black	Ref
Hispanic	0.004 (0.006)
Non-Hispanic White	0.001 (0.007)
Asian/Pacific/Native American	-0.025 (0.007)*
Missing/Unknown	-0.006 (0.008)
Living arrangement	
Lives with others	Ref
Lives alone	-0.008 (0.005)
Cognitive impairment level	
None	Ref
Minimal	-0.024 (0.006)***
Moderate/severe	-0.021 (0.007)**
Number health conditions	0.002 (0.001)*
ADL impairment level	
Limited	Ref
Extensive/dependence	-0.047 (0.006)***
Average weekly home care worker hours	-0.004 (0.000)***
Length of plan enrollment	-0.000 (0.000)
Intercept	-0.800 (0.024)***

Notes: ADL = activities of daily living; SE = standard error.
* $p < .05$. ** $p < .01$. *** $p < .001$.

stabilization ($p < .05$). An increase of 0.1 point in the home care worker continuity scores was associated with a 5% increase in the probability of functional improvement or stabilization (average marginal effect = 0.050 [95% CI = 0.009, 0.091]). Older age ($p < .001$), minimal or moderate/severe cognitive impairment (both $p < .001$), and greater average weekly home care hours ($p < .001$) were all associated with a lower likelihood of functional improvement or stabilization.

Finally, greater home care worker continuity scores were associated with fewer depressive symptoms compared to the baseline assessment ($p < .01$). Results from this model suggest that a 0.1-point increase in home care worker continuity scores was associated with a 3% decrease in the rate of frequent depressive symptoms between baseline and follow-up assessments (average marginal effect = -0.031 [95% CI = -0.053, -0.010]). Being female ($p < .001$) or being Hispanic or non-Hispanic White ($p < .05$ and $p < .001$, respectively) was associated with greater depressive symptoms compared to baseline while older age ($p < .001$) was associated with fewer depressive symptoms compared to baseline.

In contrast, neither of the health domain outcomes assessed (emergency department visits and self-rated health improvement/stabilization) were significantly associated with home care worker continuity scores.

Discussion and Implications

This study demonstrated that among older adults in New York City receiving home-based long-term care, greater home care worker continuity was associated with better client outcomes, including fewer falls, greater improvement or stabilization in daily functioning, and fewer depressive symptoms. These findings support our conceptualization of home care continuity as a vital marker of social relations that is associated with positive client outcomes. Our findings also underscore the importance of considering not only whether or not home care is *present*, but also how measurable aspects of the home care experience itself may affect client outcomes.

The clients cared for in our sample demonstrated high levels of cognitive impairment, functional impairment, and chronic disease burden. Those with the highest levels of impairment received the most home care hours and had the lowest home care worker continuity. In part, this pattern of findings reflects the logistics of providing high-intensity home care. When home care needs exceed 40 hr of paid care per week, multiple home care workers must work various shifts to provide care. With the addition of each unique home care worker, risk for discontinuity increases due to both routine worker absences (e.g., sick days, vacation days) and general worker turnover. Thus, additional work is needed to identify ways to minimize discontinuity and promote collaboration among multiple home care workers caring for clients with the highest care needs.

While the pattern of lower provider continuity when more providers are involved in care is common across a variety of healthcare settings, factors unique to the home care workforce may make home care clients particularly vulnerable to discontinuity as home care hours and needs increase. Turnover in the home care profession is high, with agencies reporting typical annual home care worker turnover around 65% (Home Care Association of America, 2021). Many factors contribute to turnover including low wages, few or no benefits, a high proportion of part-time workers, and the overall precarity in the lives of home care workers who tend to be women of color and immigrants, frequently experience poverty, and work multiple jobs (Gleason & Miller, 2021; R. Stone et al., 2017). Additional research that directly assesses the link between home care worker turnover and client care experiences including home care worker continuity is needed to better understand the extent to which workforce factors affect client outcomes.

At the same time, our results demonstrate that home care worker continuity is not solely a function of hours of care received. The association between cognitive impairment and lower continuity is particularly concerning. Clients with cognitive impairment may be both less able to direct home care workers to perform needed tasks and more susceptible to negative outcomes when usual routines are altered (Goh et al., 2022; Polacsek et al., 2020; Reckrey, Perez, et al., 2022). At the same time, caring for people with dementia is made more challenging given frequent behavioral symptoms (Feast et al., 2016), the need for thoughtful collaboration with family caregivers (Reckrey, Li, et al., 2022; Shaw et al., 2021), and limited dementia-specific training (Goh et al., 2018; Polacsek et al., 2020). Focused interventions to facilitate and improve home care worker continuity when clients have cognitive impairment may be particularly important.

The fact that higher home care worker continuity was significantly associated with better client outcomes underscores

Table 3. Generalized Estimating Equation Model of Client Outcomes on Home Care Worker Continuity Scores

Domain	Function		Health		Psychosocial
Independent variables	Falls (N = 9,452)	Functional improvement/ stabilization (N = 9,452)	Emergency department visits (N = 9,452)	Self-rated health improvement/ stabilization (N = 8,293) ^a	Depressive symptoms (N = 8,293) ^a
	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
Continuity score	-0.040 (0.106)**	0.249 (0.106)*	0.090 (0.180)	0.173 (0.242)	-0.032 (0.011)**
Sex					
Female	-0.046 (0.085)	0.055 (0.057)	0.119 (0.180)	-0.020 (0.131)	0.022 (0.005)***
Male	Ref	Ref	Ref	Ref	Ref
Age	-0.003 (0.005)	-0.017 (0.003)***	-0.014 (0.005)**	-0.008 (0.007)	-0.001 (0.000)***
Race/ethnicity:					
Non-Hispanic Black	Ref	Ref	Ref	Ref	Ref
Hispanic	0.224 (0.097)*	-0.038 (0.006)	0.148 (0.104)	-0.107 (0.141)	0.015 (0.006)*
Non-Hispanic White	0.525 (0.102)***	0.009 (0.071)	-0.066 (0.124)	-0.227 (0.168)	0.047 (0.009)***
Asian/Pacific/Native American	0.162 (0.125)	0.077 (0.080)	-0.571 (0.168)***	-0.346 (0.183)	0.015 (0.007)*
Missing/Unknown	-0.009 (0.133)	0.051 (0.080)	0.049 (0.134)	0.078 (0.185)	0.007 (0.007)
Living arrangement					
Lives with others	Ref	Ref	Ref	Ref	Ref
Lives alone	0.263 (0.075)***	0.025 (0.049)	-0.099 (0.084)	-0.061 (0.113)	-0.002 (0.005)
Cognitive impairment					
None	Ref	Ref	Ref	—	—
Minimal	0.214 (0.101)*	-0.520 (0.066)***	-0.104 (0.121)	—	—
Moderate/severe	0.024 (0.136)	-0.401 (0.092)***	-0.027 (0.138)	—	—
Number of conditions	0.026 (0.018)	-0.028 (0.012)*	0.029 (0.022)	-0.053 (0.028)	-0.001 (0.001)
ADL impairment level					
Limited	Ref	Ref	Ref	Ref	Ref
Extensive/dependence	0.319 (0.88)***	—	0.104 (0.094)	-0.573 (0.132)***	0.005 (0.006)
Weekly home care hours	-0.010 (0.002)***	-0.004 (0.001)**	0.001 (0.002)	0.002 (0.574)	-0.000 (0.000)
Length of plan enrollment	-0.001 (0.000)	0.001 (0.000)**	0.001 (0.000)	0.001 (0.001)	0.001 (0.001)*
Intercept	-2.160 (0.390)***	-0.031 (0.276)	-2.080 (0.454)***	-1.430 (0.670)	0.133 (0.0287)***
Baseline measure	1.280 (0.089)***	0.074 (0.004)***	2.050 (0.092)***	2.950 (0.132)***	-0.607 (0.024)***

Notes: ADL = activities of daily living; SE = standard error.
^aExcludes clients with moderate to severe cognitive impairment.
 ****p* < .001. ***p* < .01. **p* < .05.

the critical role that home care workers play in enabling their clients to successfully age in place. Previous research examining associations between home care and client function has been limited by cross-sectional designs, small samples, and binary measures. Our findings advance this literature by demonstrating that measurable aspects of the home care experience (i.e., continuity) are associated with positive outcomes for clients. This finding calls for a reconceptualization of home care workers not as interchangeable paraprofessionals, but instead as key members of the care convoy whose support directly affects the clients they serve.

Furthermore, the finding that greater home care worker continuity was associated not only with functional outcomes but also with improved psychosocial outcomes among clients provides foundational, quantitative evidence to complement qualitative findings that home care workers play a key role in supporting the mental health and well-being of their clients. While both home care companies and home care workers themselves acknowledge that provision of psychosocial

support is a key component of their job (Franzosa & Tsui, 2020), training in this type of support and explicit acknowledgment of its importance in formal home care plans are rare (Reckrey et al., 2019). Specific attention to psychosocial care both in home care research and practice is essential to adequately support home care workers in this key element of their job and maximize the potentially positive impact of home care workers on the health and well-being of care recipients.

We did not find significant associations between home care worker continuity and emergency department visits or client's self-reported health. This may reflect the limits of how home care can affect health when clients experience high disease burden. Alternatively, this may reflect a gap in the current care systems in which home care workers are neither trained to support client health nor meaningfully included in the health-care team (R. I. Stone & Bryant, 2019). Simply having a home care worker providing care (even if it is the same home care worker over time) may be insufficient to affect client health

absent of appropriate mechanisms for the home care worker to engage with the healthcare team and/or provision of training on how to directly support client health (e.g., chronic disease self-management education, motivational interviewing techniques). While evidence from pilot programs supports the potential of home care workers to affect the health of their clients (Dean et al. 2016; Russell et al., 2017; Veyron et al. 2019), future work should specifically examine under which conditions home care workers can make the most positive contribution to client health.

This study has several limitations. First, while our pragmatic approach leveraged the use of existing data from multiple sources, we did not have data on all factors (e.g., severity of health conditions, presence of family caregivers) that potentially contribute to home care worker continuity and client outcomes and could not assess if these associations between continuity and outcomes were causal. In particular, we were unable to evaluate characteristics of home care workers themselves (e.g., age, gender, previous experience as a home care worker, full-time vs part-time employment, race and ethnicity and racial/ethnic concordance with the client, language and language concordance with the client), which may affect the relationship between home care workers and their client and should be directly explored in future work. Second, our approach does not take into account endogeneity (i.e., that home care workers may choose not to take care of clients at risk for poor outcomes). However, evidence suggests that home care workers have little choice when assigned clients to care for and when possible, may seek out clients who need a greater number of care hours so that the home care worker can secure full-time employment. Third, gaps in home care services during the assessment period (e.g., hospitalization) were not taken into account due to lack of documentation in existing data sources. Finally, our study took place in New York, which is unique not only in its urban, racially and ethnically diverse environment, but also the high prevalence of Medicaid-funded home care in general and high Medicaid-funded home care hours in particular. While this may not reflect the experiences of clients receiving Medicaid-funded care in other parts of the country, insights from New York about meaningful aspects of the home care experience can provide actionable information for other states as Medicaid-funded home- and community-based services expand nationally.

Overall, our study demonstrated that among older adults receiving Medicaid-funded home-based long-term, greater home care worker continuity was associated with better client functional and psychosocial outcomes. The significance of home care continuity underscores the importance of relationships between home care workers and their clients. Beyond the mere presence of a home care worker, aspects of the home care experience like continuity can make a clinically meaningful difference in care recipient outcomes. Our foundational findings reinforce the essential role of home care workers in the home-based long-term care team and set the stage for future work that identifies ways to maximize the potentially positive impact of home care workers in the health and well-being of their clients.

Supplementary Material

Supplementary data are available at *Innovation in Aging* online.

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Conflict of Interest

None.

Data Availability

While the individual-level data included in this study is not available due to Institutional Review Board restrictions regarding the confidentiality of protected health information, additional information about analytic methods and analytic code is available upon request to the authors. The study was not preregistered.

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