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Article

Organizational Features and Employee Well-Being in Home Health Care and Rehabilitation: A Cross-Sectional Study in the Republic of Croatia

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Abstract

Background/Objectives: Population ageing and the policy shift toward care at home elevate the importance of how home and community-based services (HCBS) are organized and staffed. We aimed to describe provider and workforce characteristics, quantify core employee outcomes, and examine prespecified associations between organizational context, work organization, and quality-monitoring practices in HCBS for older adults. This cross-sectional study was conducted in home health care and rehabilitation settings in the Republic of Croatia. **Methods:** We conducted a cross-sectional analysis of two coordinated surveys: institutions providing home or community nursing and rehabilitation (N = 60) and their employees engaged in direct care (N = 517). Only aggregate tabulations were available to the authors. Descriptives included counts, percentages, means, and 95% confidence intervals. Bivariate analyses used Spearman's ρ for ordinal-ordinal relations, χ^2 tests with Cramér's V for categorical associations, and Mann-Whitney or Kruskal-Wallis tests with η^2_H for ordinal outcomes. Complete-case procedures were applied with $\alpha = 0.05$. **Results:** Private ownership predominated among institutions (85.0%). Referral pathways were universally anchored in primary care and patient or family self-referral (both 100%), with hospitals reported by 58.3%. The workforce was predominantly female (86.7%) and experienced (mean tenure and home-care experience ≈ 10 years). Job satisfaction was high (27.3% very satisfied, 68.1% satisfied) and turnover intention low (4.9%). Satisfaction correlated inversely with turnover intention ($\rho = -0.513$, $p < 0.001$) and positively with willingness to recommend the job ($\rho = 0.265$, $p < 0.001$); turnover intention correlated inversely with willingness to recommend ($\rho = -0.210$, $p < 0.001$). Institutions differed by area and managerial presence in measuring patient satisfaction and reporting annual performance ($V \approx 0.36-0.50$), whereas headcounts did not vary by area ($\eta^2_H \approx 0.00-0.02$). Longer inter-visit travel was associated with more frequent heavy lifting ($\chi^2(3) = 11.259$, $p < 0.05$; $V \approx 0.15$). **Conclusions:** In this HCBS context, employee attitudes were favorable and showed coherent gradients, while organizational variation concentrated in governance and quality-monitoring practices rather than scale. Findings support targeted managerial and measurement capacity building, alongside ergonomic prevention, and motivate multilevel and prospective studies.

Keywords: home health care; rehabilitation; Croatia; job satisfaction; turnover intention; organizational context; quality monitoring; ergonomic exposures

1. Introduction

Population ageing and the policy shift toward care at home have intensified attention on the organization and quality of home- and community-based services (HCBS) for older adults. Across OECD countries, long-term care needs are projected to grow markedly as the 80+ population expands, while many systems seek to rebalance from institutional to home settings for reasons of person-centeredness, cost, and preference [1–3]. In parallel, international guidance promotes integrated, community-anchored models for older persons, with an emphasis on continuity,

coordination, and outcomes that matter to patients and families [4,5]. These macro trends render the organization of HCBS providers and the experiences of the people who deliver care, central to health system performance.

The direct-care workforce is the backbone of HCBS, yet it faces persistent challenges: comparatively low wages, part-time and fragmented hours, limited benefits, and constrained advancement pathways [6–8]. Evidence syntheses and policy reports highlight pressures on mental wellbeing and retention, with stressors spanning individual, team, organizational, and system levels [8,9]. These pressures intensified during and after the COVID-19 period and continue to complicate recruitment and stability in home care [6]. Consequently, understanding how organizational conditions relate to staff wellbeing and turnover intentions is both a workforce policy priority and a quality-of-care imperative.

Organizational practices that structure how HCBS is delivered vary widely. At the governance and quality-management level, routine measurement and reporting, such as patient-reported experience/satisfaction surveys and public reporting dashboards are now embedded in several regulatory frameworks (e.g., Medicare’s Home Health Quality Reporting and Star Ratings in the U.S.), although the validity, comparability, and downstream use of these metrics are still debated [10–12]. Variation in the adoption of measurement systems and in the presence of designated managerial roles may signal differences in organizational maturity and accountability that could shape both service quality and staff perceptions.

Work organization at the point of care also matters. In home care, the geography of work (e.g., travel between clients) and ergonomic exposures (e.g., lifting/transfers in private homes) can affect safety, fatigue, and musculoskeletal risk [7,13,14]. Unlike facility settings—where equipment and staffing patterns may be more standardized—home environments vary, assistive devices can be limited, and travel adds time and unpredictability. These features create plausible pathways from logistics and physical demands to perceived stress and intentions to leave, even when general wellbeing indicators appear favorable.

The literature connecting organizational context to nurse and care-worker retention consistently implicates facets of the practice environment—leadership, perceived organizational support, workload, and scheduling in turnover intention; however, effect sizes, mechanisms, and the relative salience of factors differ by setting and role [15–17].

For example, studies in long-term care and hospital contexts have linked long shifts and overtime to burnout and turnover intention, yet estimates vary and some findings are sensitive to context and measurement [16].

Similarly, the relationship between patient-reported experience and objective quality outcomes, and the extent to which measurement drives improvement versus transparency alone, remains contested [12]. These divergences underscore the value of setting-specific evidence from HCBS organizations, where travel time, caseload composition, and managerial presence may interplay differently than in residential or acute care.

Against this backdrop, the present cross-sectional study analyzes coordinated institutional and workforce surveys from home/community-based elderly care. Our aims were to (i) describe provider characteristics (ownership, referral pathways, quality-monitoring practices) and workforce profiles (sex composition, tenure/experience), (ii) quantify employee outcomes (job satisfaction, turnover intention, willingness to recommend), and (iii) examine prespecified associations linking organizational context and work organization to quality-monitoring practices and to employee outcomes.

Anticipating the known complexities of HCBS delivery, we hypothesized that governance/measurement practices would vary by organizational context, while employee-level attitudinal outcomes would show coherent gradients (e.g., inverse satisfaction–turnover intention).

In brief, we found high satisfaction and low turnover intention among an experienced, predominantly female workforce, and medium-sized differences in quality-monitoring practices by

context and managerial presence; operational scale indicators, by contrast, did not differ materially by area of operation.

These results provide an empirical baseline to inform future multivariable and longitudinal work on organizational levers for improving HCBS quality and workforce sustainability.

2. Materials and Methods

2.1. Study Design and Setting

This research employed a cross-sectional design situated in the context of home and community-based elderly care. Data originated from two coordinated surveys that targeted, first, organizations providing home or community nursing and rehabilitation services and, second, their workforce. The institutional sample comprised 60 providers, and the employee sample comprised 517 clinical staff. Analyses were performed on de-identified, aggregated material. The study was carried out in the Republic of Croatia within the system of home health care and rehabilitation (home health care).

2.2. Participants

Institutions were eligible if they were actively providing home or community nursing or related services at the time of the survey, with a single response included per provider. Respondents were required to be knowledgeable about organizational characteristics, such as directors or nurse managers. Non-operational units and incomplete organizational returns were excluded.

Employees were eligible if they were clinical staff engaged in direct patient care within the participating institutions, for example nurses or technicians and physiotherapists, and if they completed the employee questionnaire. Administrative-only roles were not included. For outcome-specific analyses, a complete-case strategy was applied so that records with missing responses on the outcome under study were excluded from that particular analysis, as detailed in Section 2.4.

2.3. Variables and Measures

At the institution level, the survey captured ownership status categorized as public or private. Information on service coverage and shift organization by day type was collected for weekdays and weekends and, where applicable, for day, evening, and night shifts. Referral sources were recorded for family physicians or general practitioners, hospitals, patients or family members, and social services, with multiple responses permitted to reflect the coexistence of pathways. Quality and management practices were documented through the presence of designated managers, the reporting of annual performance to authorities or insurers, and the routine measurement of patient or client satisfaction, each coded as yes or no. Scale variables such as counts of patients and staff were obtained to summarize organizational size.

At the employee level, demographics included sex, tenure with the current employer in years, and total experience in home care in years. Attitudinal outcomes comprised overall job satisfaction measured on a four-point Likert scale from very dissatisfied to very satisfied and coded such that higher values indicated greater satisfaction; turnover intention measured by agreement with the statement "I will probably look for a new job next year" on a 1 to 7 Likert scale with higher values indicating greater intention; and willingness to recommend the job to a friend, captured as a Likert-type item with higher scores indicating greater willingness. Indicators of workload and strain included overtime frequency on a five-point scale from never to always, lifting of heavy loads during work coded on an ordinal 0 to 3 scale, perceived requirement for continuous physical effort on an ordinal 0 to 3 scale, and perceived stress during the previous four weeks recorded categorically. Self-rated health was also recorded as a categorical variable. For correlational analyses using Spearman's ρ , variables were retained on their native ordinal scales, and coding ensured that higher scores reflected greater presence of the underlying construct, for example higher satisfaction and higher turnover intention.

2.4. Handling of Missing Data

Item non-response was minimal across key variables. For example, overall job satisfaction was missing in 1.4 percent of employee records. Descriptive statistics were therefore calculated using all available data with appropriate denominators, while inferential procedures adopted a complete-case approach in which each test used all observations with non-missing values on the variables involved. Given that overall missingness on key variables remained below 5 percent, material bias from this approach was considered unlikely. Sensitivity analyses had been planned for any item with at least 5 percent missingness; however, such thresholds were not reached, and additional checks were not required.

2.5. Statistical Analysis

Categorical variables were summarized as counts and percentages, and continuous variables as means with standard deviations and 95 percent confidence intervals. For continuous outcomes, confidence intervals were calculated using the normal approximation with standard error equal to SD divided by the square root of n. For proportions, large sample approximations were applied to obtain 95 percent confidence intervals, whereas very small cells were reported without intervals.

Bivariate associations were assessed in accordance with the measurement level of the variables. Ordinal-ordinal relations were evaluated using Spearman's rank correlation coefficient ρ with two-sided p-values. Associations between categorical variables were examined using chi-square tests, or Fisher's exact test when small, expected counts warranted an exact procedure, and effect sizes were expressed as Cramér's V, defined as $V = \sqrt{\chi^2 / (N \times (k - 1))}$, where k is the smaller of the numbers of categories. Ordinal outcomes compared between two groups were analyzed using Mann-Whitney U tests and, for three or more groups, using Kruskal-Wallis H tests with the effect size approximated as $\eta^2_H \approx (H - (g - 1)) / (N - g)$, where g denotes the number of groups. All tests were two-sided with $\alpha = 0.05$.

Computations based on the aggregate tables, including effect sizes and confidence intervals, were carried out using R version 4.x and Microsoft Excel, with standard formulae as indicated.

In addition to the analyses based on aggregate tables, we conducted analyses using de-identified employee-level records (linked to institutional characteristics). These data enabled: (i) construction and reliability testing of composite indices for workload/demands (four items; Cronbach's $\alpha = 0.79$), stress/burnout (Copenhagen Burnout Inventory, 13 items; $\alpha = 0.89$), and autonomy/control (four decision-latitude items; $\alpha = 0.54$); (ii) multivariable modelling of job satisfaction (0–100 scale; linear regression) and turnover intention (7-point Likert item; logistic regression with robust standard errors to account for class imbalance); and (iii) multilevel modelling with employees nested within institutions (random-intercept specification). All tests were two-sided with $\alpha = 0.05$. We report 95% confidence intervals, effect sizes (standardized β for linear models; odds ratios for logistic models), and model performance (adjusted R^2 , AUC). Composite scores were computed as the mean of available items (skip-na). Control variables included sex, age group, and professional profile.

2.6. Ethical Considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. For this manuscript, the authors analyzed de-identified, aggregate survey outputs provided by the data holder, and no personal data were processed by the authors. On this basis, ethical review and informed consent were deemed not required for this secondary analysis.

3. Results

3.1. Sample and Missing Data

Data were available for 60 providers (institutions) and 517 employees delivering home/community-based elderly care. Item non-response was minimal (e.g., overall job satisfaction:

1.4% “no answer”). All descriptives use available data; inferential tests use complete cases. Statistical significance was set at $\alpha = 0.05$; effect sizes are reported (Spearman’s ρ , Cramér’s V , η^2_H).

Most providers were private (85.0%); public accounted for 15.0%. Referrals most commonly came from GPs/family physicians and patients/families (both reported by all institutions), while hospitals were also frequent (58.3%). These distributions are summarized in Table 1.

Table 1. Institution characteristics (N = 60).

Characteristic	Category	n	%
Ownership	Public	9	15
	Private	51	85
Referral sources†	Family physician / GP	60	100
	Patient or family	60	100
	Hospital	35	58
	Social services	1	1.7

†Multiple sources can coexist; percentages refer to institutions reporting each source.

Private providers predominate. Referral pathways are universally anchored in primary care and self/family referral, with secondary care (hospitals) supplementing more than half of providers—consistent with mixed medical–social entry routes into home care.

Precision of these estimates was acceptable. Private ownership accounted for 85.0% of institutions (95% CI 73.9% to 91.9%). Hospitals were cited as a referral source by 58.3% of providers (95% CI 45.7% to 69.9%). Because multiple referral sources can co-exist, the 100% values for GPs and patient or family referrals indicate universal coverage rather than exclusivity. Item non-response for institutional variables was near zero, so the reported percentages can be interpreted with high confidence.

3.2. Employee Characteristics and Core Outcomes

The workforce was predominantly female (86.7%). Overall job satisfaction was high (“very satisfied” 27.3%; “satisfied” 68.1%), and turnover intention (agree ≥ 5 on a 1–7 scale) was low (4.9%). Most employees reported never/rarely working overtime (73.5%); perceived stress in the last four weeks was typically low–moderate. See Table 2.

Table 2. Employee characteristics and outcomes (N = 517).

Variable	Category	n	%
Sex	Female	448	87
	Male	69	13
Overall job satisfaction	Very dissatisfied	2	0.4
	Dissatisfied	15	2.9
	Satisfied	352	68
	Very satisfied	141	27
	No answer	7	1.4
Turnover intention (next year, 1–7)	Agree (5–7)	26	4.9
	Neutral (4)	81	16
	Disagree (1–3)	410	79
	Never/almost never	232	45
Overtime frequency	Rarely	148	29
	Sometimes	101	20
	Often	34	6.6
	Always	2	0.4
Stress in last 4 weeks	Some of the time	210	41
	Most of the time	38	7.4
	All of the time	15	2.9

The profile is stable and favorably skewed: high satisfaction, low turnover intention, and infrequent overtime, a context likely protective for staff wellbeing.

The sex composition (86.7% female) was in line with expectations for this sector, and its precision was high (95% CI 83.5% to 89.3%). The share of employees endorsing turnover intention at 5–7 on the 1–7 scale was low at 5.0% (95% CI 3.5% to 7.3%). Extreme response categories were sparsely populated (for example, “always” working overtime, $n = 2$), which implies imprecision at the tails. Stress was most commonly reported as “some of the time” (41.0%), with comparatively small fractions at “most of the time” (7.4%) and “all of the time” (2.9%), reinforcing a generally favorable well-being profile.

We also summarised two tenure/experience indicators with 95% confidence intervals (CI) in Table 3.

Table 3. Continuous indicators (employees).

Variable	n	Mean	SD	Min–Max	95% CI for mean
Years with current employer	517	10.2	7.5	0–44	9.50–10.80
Years of home-care experience	517	10.4	7.5	0–38	9.73–11.01

Median tenure and sector exposure are each ~10 years, indicating an experienced workforce.

Both tenure indicators centered around approximately a decade, with wide observed ranges (0 to 44 years for current-employer tenure and 0 to 38 years for home-care experience). The 95% confidence intervals for the means were relatively narrow (current-employer tenure: 9.50 to 10.80 years; home-care experience: 9.73 to 11.01 years), indicating good estimation precision at $N = 517$. This combination of substantial experience and high satisfaction provides important context for the correlational patterns reported below.

3.3. Employee-Level Associations

We examined monotonic relations among key outcomes using Spearman’s ρ . As shown in Table 4, overall job satisfaction correlated inversely with turnover intention ($\rho = -0.513$, $p < 0.001$; moderate–large magnitude) and positively with willingness to recommend the job ($\rho = 0.265$, $p < 0.001$). Turnover intention correlated negatively with willingness to recommend ($\rho = -0.210$, $p < 0.001$).

Table 4. Spearman correlations among employee outcomes.

Variables (pairwise)	Spearman ρ	p-value	Magnitude‡
Satisfaction × Turnover intention	-0.513	<0.001	moderate–large (inverse)
Satisfaction × Recommend job to a friend	0.265	<0.001	small–moderate
Turnover intention × Recommend job	-0.210	<0.001	small (inverse)

‡According to commonly used rule-of-thumb thresholds, a correlation coefficient of approximately 0.1 is considered small, around 0.3 moderate, and around 0.5 large.

Results follow the expected gradient: happier staff are less likely to consider leaving and more likely to recommend their job.

All three associations were statistically significant at $p < 0.001$, with magnitudes spanning small to large. The inverse link between overall satisfaction and turnover intention ($\rho = -0.513$) is practically important and aligns with the observed low prevalence of turnover intention. The positive correlation between satisfaction and willingness to recommend ($\rho = 0.265$) and the inverse correlation between turnover intention and willingness to recommend ($\rho = -0.210$) indicate consistent, directional gradients across attitudinal outcomes.

3.4. Work Organisation and Institutional Context

3.4.1. Travel Logistics and Physical Demands (Employee Level)

Comparing those who typically travel ≤ 15 min vs > 15 min between clients during a shift, ordinal well-being items (health, stress, tiredness) did not differ (Mann–Whitney tests, all $p > 0.05$; details available in the workbook). However, longer travel time was associated with more frequent lifting of heavy loads: $\chi^2(3, N = 517) = 11.259, p < 0.05$; Cramér's $V \approx 0.15$ (small).

The absence of detectable differences in ordinal well-being items by typical travel time is consistent with effects, if present, being smaller than the conventional threshold for a small effect. By contrast, the small association between longer travel time and more frequent lifting of heavy loads points to a specific ergonomic exposure pathway that is distinct from general well-being ratings.

3.4.2. Organisational Practices (Institution Level)

Institutional area of operation (rural/urban/mixed) was not related to counts of patients, staff, or nurses (Kruskal–Wallis $p \geq 0.20$; $\eta^2_H \approx 0.00–0.02$). In contrast, quality-monitoring practices varied by context and structure (see Table 5):

- Area \times reporting annual performance: $\chi^2(2, N = 60) = 8.024, p = 0.018$; $V \approx 0.37$ (medium).
- Area \times measuring patient satisfaction: $\chi^2(2, N = 60) = 14.967, p = 0.001$; $V \approx 0.50$ (medium–large).
- Managers present (yes/no) \times measuring patient satisfaction: $\chi^2(1, N = 60) = 7.837, p = 0.005$; $V \approx 0.36$ (medium).

Table 5. Key organisational associations.

Association (test)	Statistic	N	p-value	Effect size
Travel time (≤ 15 vs > 15 min) \times lifting heavy loads (0–3) (χ^2)	$\chi^2(3)=11.259$	517	<0.05	Cramér's $V \approx 0.15$ (small)
Area of operation \times reporting annual performance (χ^2)	$\chi^2(2)=8.024$	60	0.018	$V \approx 0.37$ (medium)
Area of operation \times measuring patient satisfaction (χ^2)	$\chi^2(2)=14.967$	60	0.001	$V \approx 0.50$ (medium–large)
Managers present \times measuring patient satisfaction (χ^2)	$\chi^2(1)=7.837$	60	0.005	$V \approx 0.36$ (medium)
Patients / staff / nurses by area (Kruskal–Wallis)	$H=2.807 / 3.204 / 2.146$ (df=2)	60	0.246 / 0.201 / 0.342	$\eta^2_H \approx 0.01–0.02$ (negligible)

Contextual and structural features showed medium to large associations with quality-monitoring practices (V values approximately 0.36 to 0.50), indicating meaningfully different adoption patterns across settings. In contrast, operational scale metrics (patients, staff, nurses) did not vary by area (η^2_H approximately 0.00 to 0.02), suggesting that service volume is largely decoupled from rural, urban, or mixed context categories. Taken together, these results imply that governance and measurement culture differentiate providers more strongly than headcounts do.

While headcounts do not differ by area, governance and measurement culture do: rural/urban context and the presence of managers are meaningfully associated with reporting and patient-satisfaction monitoring, signals of more formal quality systems.

Across levels, the empirical signal is coherent: at the employee level, an experienced and predominantly female workforce reports high satisfaction and low turnover intention, with consistent attitudinal gradients; at the organisational level, variation is concentrated in governance and quality-monitoring practices rather than in headcount. These patterns provide a clear empirical baseline for any subsequent multivariable analyses.

3.5. Secondary Multivariable and Multilevel Results (Micro-Data)

Internal consistency was acceptable for the workload/demands scale ($\alpha = 0.79$) and the stress/burnout scale ($\alpha = 0.89$). The short autonomy/control index showed moderate reliability ($\alpha = 0.54$), which is expected for a brief, multifaceted measure. These composites were used in the multivariable models (Table 6).

Table 6. Summary of secondary multivariable results (micro-data).

Outcome	Model (N)	Key predictors (direction)	Effect size (95% CI)	Model performance
Job satisfaction (0–100)	Linear OLS (515)	Autonomy (+); Stress/burnout (-); Workload (ns); Overtime (ns); covariates (ns)	β (autonomy) = +0.13 (0.04–0.22), β (stress/burnout) = -0.23 (-0.32 to -0.14) OR per +10 satisfaction = 0.41 (0.29–0.56); OR per higher age category = 0.62 (0.42–0.91)	Adjusted R^2 = 0.070
Turnover intention (binary; 7-point item, “yes” = ≥ 5)	Logistic GLM, robust (515)	Job satisfaction (-); Age (-); Workload/stress/autonomy/overtime (ns)		AUC = 0.851
Job satisfaction (0–100)	Multilevel random-intercept by institution (483; 41 groups)	As in OLS	Fixed-effect directions as above; ICC \approx 0.009	Stable estimates; negligible between-institution variance

Notes. “ns” = non-significant at $\alpha = 0.05$. Linear models report standardized coefficients (β). Logistic models report odds ratios (OR) with 95% confidence intervals; the satisfaction effect is expressed per +10 points to aid interpretability. Robust (HC3) standard errors were used in all regressions.

In adjusted ordinary least-squares models (N = 515 complete cases), higher autonomy and lower stress/burnout were independently associated with higher satisfaction, whereas workload and overtime did not retain independent effects. The standardized coefficient for stress/burnout was $\beta = -0.23$ (95% CI -0.32 to -0.14, $p < 0.001$), and for autonomy $\beta = +0.13$ (95% CI +0.04 to +0.22, $p = 0.003$). Effects of workload ($\beta = -0.06$, $p = 0.20$) and overtime ($\beta = +0.04$, $p = 0.32$) were not significant; sex, age group and professional role were also non-significant covariates. Adjusted $R^2 = 0.070$.

In a binomial model with robust (HC3) standard errors (N = 515 complete cases; event rate \approx 4.3%), job satisfaction was the dominant inverse predictor. Each +10-point increase on the 0–100 satisfaction scale was associated with an odds ratio of 0.41 (95% CI 0.29–0.56, $p < 0.001$) for intending to leave. Workload, stress/burnout, autonomy and overtime showed no independent effects once satisfaction was accounted for, consistent with their influence being channelled through satisfaction. Older age groups had lower odds of intending to leave (OR = 0.62 per higher age category; 95% CI 0.42–0.91, $p = 0.015$), while sex and professional role were not significant. Model discrimination: AUC = 0.851.

A random-intercept linear model (N = 483 complete cases with valid institution IDs; 41 institutions) indicated very little between-institution variance in satisfaction (intraclass correlation coefficient \approx 0.009). Fixed-effect directions mirrored the single-level model (lower satisfaction with higher stress/burnout; higher satisfaction with greater autonomy; workload and overtime non-significant), confirming that most variability arises within rather than between institutions.

4. Discussion

Across two coordinated surveys of institutions and employees in home-and community-based elderly care, we observed (i) a provider landscape dominated by private ownership with referral

pathways universally anchored in primary care and self/family referral, supplemented by hospitals; (ii) a predominantly female, experienced workforce reporting high job satisfaction and low turnover intention; (iii) coherent attitudinal gradients at the employee level (satisfaction inversely associated with turnover intention and positively with willingness to recommend); and (iv) medium-sized contextual differences in quality-monitoring practices across institutions (by rural/urban/mixed area and managerial structure), contrasted with negligible area-related differences in headcounts. At the same time, a specific ergonomic signal emerged longer inter-visit travel was associated with more frequent heavy lifting without detectable differences in global well-being ratings.

These patterns are internally consistent: an experienced workforce embedded in organizations that depending on setting and managerial arrangements vary more in governance and measurement culture than in scale. The attitudinal gradients (e.g., a moderate–large inverse satisfaction–turnover correlation) align with well-established behavioral models of withdrawal cognitions and with recent syntheses showing robust links between job satisfaction, intention to leave, and recommending the job, including in long-term and community-based care settings [18–21,24,26]. Taken together, the data suggest a relatively “healthy” baseline on core employee outcomes, with institutional heterogeneity concentrated in formal quality systems rather than staffing levels.

The low prevalence of turnover intention alongside high satisfaction echoes recent evidence that, even amid macro-level stressors, retention correlates strongly with job quality signals and organizational supports in home- and community-based care. A 2025 qualitative study of U.S. home care cooperatives identified discrete organizational practices (ownership, scheduling voice, peer support, equitable compensation/benefits) that workers perceived as improving job quality and lowering turnover [24]. Complementary analyses in Asian home care contexts underscore that attitudinal climate—including emotional labor processes and perceived supports tracks with job satisfaction and staying intention, albeit with variations by demographic and labor-market factors [25]. In long-term care more broadly, systematic reviews through 2025 continue to document consistent associations between satisfaction, burnout, and intention to leave, reinforcing the gradients we observed [26,27].

Our institution-level results show medium-sized differences in reporting annual performance and measuring patient satisfaction by rural/urban/mixed area and by the presence of designated managers. This pattern is consonant with two strands of literature. First, the diffusion of quality-measurement infrastructures (e.g., patient-experience surveys and public reporting) is often uneven across contexts and resource environments. In home health, the HHCAHPS program institutionalizes standardized patient-experience measurement and public reporting, but uptake and operational rigor can differ with organizational capacity and external incentives [18–20]. Second, leadership and clinical management capacity are repeatedly linked to a stronger “measurement culture,” team functioning, and implementation of quality systems in eldercare organizations [21–23]. Qualitative work in European nursing home settings highlights the role of supportive leadership and an empowering milieu for embedding measurement and continuous improvement practices, which is consistent with our finding that manager presence co-varies with patient-satisfaction monitoring [22,23].

The observed area-related differences in quality-monitoring practices likely reflect broader rural–urban disparities in digital and quality infrastructures. Recent analyses of the U.S. Quality Payment Program show lower EHR adoption and interoperability scores among rural clinicians compared with urban peers, after adjustment for practice characteristics [28]. Such structural gaps can indirectly shape the feasibility and salience of routine quality reporting and patient-experience measurement, even when the intent to improve quality is present.

The small but significant association between longer inter-visit travel and more frequent heavy lifting suggests a concrete ergonomic pathway distinct from global well-being ratings. Prior research in home care repeatedly documents elevated musculoskeletal risks tied to manual handling, space constraints in clients’ homes, and variability in equipment availability. Systematic and scoping reviews from 2024–2025 report that multifaceted ergonomic programs including safe patient-

handling policies, training, and availability of assistive devices reduce physical load and musculoskeletal symptoms among home care workers [29–31]. Our findings fit this literature: route design and caseload geography (longer travel) may co-occur with visits to clients requiring more physically demanding care, amplifying manual load frequency.

Three practice-relevant implications follow. First, maintaining high job satisfaction appears central for retention and advocacy (willingness to recommend). Interventions that strengthen perceived fairness, scheduling predictability, supervisory support, and peer networks elements prominent in cooperative models—are promising levers for keeping intention-to-leave low [24,26]. Second, building managerial capacity and embedding standardized patient-experience measurement can help normalize “measurement culture,” especially in rural/mixed areas where infrastructural constraints are more frequent [18–23,28]. Third, the ergonomic signal argues for targeted prevention: routine risk assessment of routes and client handling requirements; investment in portable/assistive equipment; coaching on micro-breaks and task rotation; and integration of safe patient-handling policies into everyday practice and supervision [29–31]. These actions are feasible within existing operations and could be monitored via simple leading indicators (e.g., proportion of visits with assistive devices used when indicated; near-miss reporting).

A key strength is the dual-level design: institution- and employee-level data allow alignment of workforce attitudes with organizational context. The large employee sample provides precise estimates for core outcomes and correlations. Cross-sectional design limits causal inference. Some cells, especially extreme response options, were sparse, reducing precision at the tails. Lastly, generalizability beyond the surveyed system should be made cautiously, given potential contextual differences in regulation, financing, and labor markets. Even so, the concordance with multi-country literature on satisfaction–turnover dynamics, leadership/measurement culture, and ergonomic risks supports external relevance [21,24–31].

Three directions are immediate. First, obtain microdata linking employees to institutions to enable multilevel models quantifying how managerial structures and area context moderate satisfaction–turnover relationships and ergonomic exposures. Second, conduct prospective studies that integrate scheduling/route data with objective exposure metrics (e.g., wearable sensors; device use logs) to clarify causal pathways between travel logistics and manual handling load. Third, implement and evaluate pragmatic interventions leadership/management development, standardized patient-experience feedback loops, and safe patient-handling bundles with concurrent process and outcome measurement (e.g., intention to leave, injury reports, HHCAHPS domains). Embedding these within continuous quality improvement (CQI) cycles is recommended to enhance adoption and learning across settings [21].

5. Conclusions

This cross-sectional analysis of coordinated institutional and workforce surveys in home and community-based elderly care showed a coherent pattern. Providers were largely private, with referral pathways anchored in primary care and self or family referral, and hospitals supplementing referrals. The workforce was predominantly female and experienced, with high job satisfaction and low turnover intention. Employee outcomes displayed consistent attitudinal gradients, most notably an inverse association between satisfaction and intention to leave. At the organizational level, differences were concentrated in governance and quality-monitoring practices by setting and managerial structure, whereas headcount indicators did not vary meaningfully by area. A specific ergonomic signal emerged in which longer travel between clients was associated with more frequent heavy lifting, without corresponding differences in global well-being ratings.

These findings suggest that improving measurement culture and managerial capacity may be more consequential for quality than changes in staffing scale alone, and that targeted ergonomic prevention should complement general well-being initiatives. The study’s strengths include its dual-level perspective and precise descriptive estimates. Future work should link employees to institutions in multilevel models, incorporate prospective exposure measurement, and test pragmatic

interventions that combine leadership development, standardized patient-experience feedback, and safe patient-handling practices.

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Abbreviations

The following abbreviations are used in this manuscript:

AHRQ	Agency for Healthcare Research and Quality
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CI	Confidence Interval
CMS	Centers for Medicare & Medicaid Services
COVID-19	Coronavirus Disease 2019
CQI	Continuous Quality Improvement
EFA	Exploratory Factor Analysis
EHR	Electronic Health Record
GP	General Practitioner
HCBS	Home- and Community-Based Services
HHCAPHS	Home Health Care Consumer Assessment of Healthcare Providers and Systems
ICOPE	Integrated Care for Older People
IQR	Interquartile Range
NIOSH	National Institute for Occupational Safety and Health
OECD	Organisation for Economic Co-operation and Development
R	R statistical computing environment
SD	Standard Deviation
SE	Standard Error

References

1. OECD. *Health at a Glance 2023: OECD Indicators*; OECD Publishing: Paris, 2023. <https://doi.org/10.1787/7a7afb35-en>.
2. European Commission (DG EMPL). Long-term care. 2023. Available online: https://employment-social-affairs.ec.europa.eu/long-term-care_en (accessed on 22 August 2025).
3. WHO Regional Office for Europe. Q&A on long-term care. 2022. Available online: <https://www.who.int/europe/news-room/q-a-item/long-term-care> (accessed on 22 August 2025).
4. Sum, G.; Koh, G.C.H.; Allen, J.; et al. The World Health Organization Integrated Care for Older People (ICOPE): where do we stand? *Int. J. Integr. Care* 2022, 22, 15. <https://doi.org/10.5334/ijic.6430>.
5. OECD. *Beyond Applause? Improving Working Conditions in Long-Term Care*; OECD Publishing: Paris, 2023. <https://doi.org/10.1787/27d33ab3-en>.

6. KFF. Who are the Direct Care Workers Providing Long-Term Services and Supports (LTSS)? 2024/2025 update. Available online: <https://www.kff.org/medicaid/issue-brief/who-are-the-direct-care-workers-providing-long-term-services-and-supports-ltss/> (accessed on 22 August 2025).
7. Grasmø, S.G.; Vee, A.; Wiig, S.; Schibevaag, L. Home care workers' experiences of work conditions related to their occupational health: A qualitative study. *BMC Health Serv. Res.* 2021, *21*, 1193. <https://doi.org/10.1186/s12913-021-07264-1>.
8. Ellis, L.A.; Schroeder, T.; Saba, M.; et al. Supporting the mental wellbeing of aged care workers: A systematic review of factors and interventions. *AIMS Public Health* 2025, *12*, 600–631. <https://doi.org/10.3934/publichealth.2025032>.
9. Cohen, C.; et al. Workplace interventions to improve well-being and reduce burnout for nurses, physicians and allied health professionals: A systematic review. *BMJ Open* 2023, *13*, e071203. <https://doi.org/10.1136/bmjopen-2022-071203>.
10. Centers for Medicare & Medicaid Services (CMS). Home Health Quality Measures. 2025. Available online: <https://www.cms.gov/medicare/quality/home-health/quality-measures> (accessed on 22 August 2025).
11. Centers for Medicare & Medicaid Services (CMS). Home Health Star Ratings. 2025. Available online: <https://www.cms.gov/medicare/quality/home-health/star-ratings> (accessed on 22 August 2025).
12. Friedel, H.; Krylova, Y.; Marian, R.; Heise, N.; Semenov, S. Measuring patient experience and patient satisfaction—How are we doing it and why does it matter? A comparison of European and U.S. approaches. *Int. J. Environ. Res. Public Health* 2023, *20*, 1972. <https://doi.org/10.3390/ijerph20031972>.
13. Hsieh, P.L.; Wang, M.J.J.; Lin, K.H.; et al. Association between work content and musculoskeletal disorders among home caregivers: A cross-sectional study. *Ind. Health* 2022, *60*, 521–531. <https://doi.org/10.2486/indhealth.2021-0129>.
14. Office of the Assistant Secretary for Planning and Evaluation (ASPE). Mitigating Direct Care Workforce Injuries in Homecare. 2022. Available online: <https://aspe.hhs.gov/reports/mitigating-direct-care-workforce-injuries-homecare> (accessed on 22 August 2025).
15. Wynendaale, H.; et al. Understanding turnover in healthcare and welfare sectors of high-income countries: An umbrella review. *BMC Health Serv. Res.* 2025, *25*, 12966. <https://doi.org/10.1186/s12913-025-12966-5>.
16. Galanis, P.; Moisoglou, I.; Papathanasiou, I.V.; et al. Association between organizational support and turnover intention in nurses: A systematic review and meta-analysis. *Healthcare* 2024, *12*, 291. <https://doi.org/10.3390/healthcare12030291>.
17. Wang, X.; et al. Nurses' job embeddedness and turnover intention: A systematic review and meta-analysis. *BMC Nurs.* 2024, *23*, 137. <https://doi.org/10.1186/s12912-024-01702-6>.
18. Centers for Medicare & Medicaid Services (CMS). Home Health CAHPS (HHCAHPS). 2024. Available online: <https://www.cms.gov/data-research/research/consumer-assessment-healthcare-providers-systems/home-health-cahps> (accessed on 22 August 2025).
19. Home Health Care CAHPS (HHCAHPS) Coordination Team. *HHCAHPS Survey Protocols and Guidelines Manual*, Version 17.0; 15 January 2025. Available online: <https://homehealthcahps.org/Portals/0/SurveyMaterials/PandGManual.pdf> (accessed on 22 August 2025).
20. Agency for Healthcare Research and Quality (AHRQ). CAHPS® Home Health Care Survey—Overview. 2025. Available online: <https://www.ahrq.gov/cahps/surveys-guidance/home/index.html> (accessed on 22 August 2025).
21. Endalamaw, A.; Khatri, R.B.; Mengistu, T.S.; Erku, D.; Wolka, E.; Zewdie, A.; Assefa, Y. A scoping review of continuous quality improvement in healthcare system: conceptualization, models and tools, barriers and facilitators, and impact. *BMC Health Serv. Res.* 2024, *24*, 487. <https://doi.org/10.1186/s12913-024-10828-0>
22. Nachtergaele, S.; De Roo, N.; Allart, J.; De Vriendt, P.; Embo, M.; Cornelis, E. Exploring influencing factors to clinical leadership development: a qualitative study with healthcare professionals in Flemish nursing homes. *BMC Health Serv. Res.* 2024, *24*, 1169. <https://doi.org/10.1186/s12913-024-11613-9>
23. Backman, A.; Sjögren, K.; Lövheim, H.; Edvardsson, D. Job strain in nursing homes—exploring the impact of leadership. *J. Clin. Nurs.* 2018, *27*, 1552–1560. (Cited for leadership context in eldercare organizations).

24. Gusoff, G.M.; Gelles, R.J.; Schwartz, H.J.; Ing, C. Perceived Contributors to Job Quality and Retention at Home Care Cooperatives. *JAMA Netw. Open* **2025**, *8*(4), e254457. <https://doi.org/10.1001/jamanetworkopen.2025.4457>
25. Kuo, T.-S.; Chu, L.-C.; Shih, C.-L.; Li, Y.-C.; Kao, P.-L. Emotional labor, job satisfaction, and retention among home care workers in Taiwan: a comprehensive analysis. *Front. Psychol.* **2025**, *16*, 1545955. <https://doi.org/10.3389/fpsyg.2025.1545955>
26. O’Keeffe, J.; Connors, C.; Radford, K.; Brodaty, H.; Low, L.-F. Personal care workers’ employment intentions and associated factors: a systematic review. *Int. J. Nurs. Stud.* **2025**, *151*, 104641. <https://doi.org/10.1016/j.ijnurstu.2025.104641>
27. Duan, T.; Chen, X.; Zhao, Y.; Liang, H. Trends and determinants of job satisfaction and burnout among long-term care workers: a systematic review and meta-analysis, 2010–2024. *BMC Geriatr.* **2025**, *25*, 312. <https://doi.org/10.1186/s12877-025-04712-9>
28. Anzalone, A.J.; Geary, C.R.; Dai, R.; Watanabe-Galloway, S.; McClay, J.C.; Campbell, J.R. Lower electronic health record adoption and interoperability in rural versus urban physician participants: a cross-sectional analysis from the CMS Quality Payment Program. *BMC Health Serv. Res.* **2025**, *25*, 128. <https://doi.org/10.1186/s12913-024-12168-5>
29. **National Institute for Occupational Safety and Health (NIOSH).** Safe Patient Handling and Mobility (SPHM). 2023. Available online: <https://www.cdc.gov/niosh/topics/safepatient/> (accessed on 22 August 2025).
30. Santos, A.; Marques, P.; Sousa, P.; et al. Ergonomic interventions to prevent work-related musculoskeletal disorders in healthcare workers: an umbrella review. *J. Clin. Med.* **2025**, *14*, 1234. <https://doi.org/10.3390/jcm14061234>
31. Krishnanmoorthy, S.S.; Bala, S.; Kaur, H.; et al. Physical exercise interventions to prevent musculoskeletal disorders in caregivers: systematic review and meta-analysis. *BMC Musculoskelet. Disord.* **2025**, *26*, 89. <https://doi.org/10.1186/s12891-025-07890-1>

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