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The relationship between sensory impairment and home care client's received care time—A cross-sectional study

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Abstract

Aim: The aim of this study was to explore the relationship between sensory impairment and home care client's received care time.

Design: A cross-sectional multi-source study.

Methods: Data from a self-reported staff survey on care time allocation were merged with registry data from the Resident Assessment Instrument registry ($n = 1477$). The data were collected during 1 week from 17 home care units in Finland in October 2021. The relationship between sensory impairment and clients received care time was examined using linear regression analyses.

Results: The linear regression analyses showed that having vision impairment alone increased care time, while dual sensory impairment resulted in decreased received care time. Hearing impairment alone was not statistically significantly associated with care time.

Conclusion: The holistic care need of home care clients with dual sensory impairment may not be adequate. To ensure equality and the individually tailored care of clients, further attention must be paid to clients with sensory impairments, especially those with dual sensory impairment. Furthermore, the competence of home care workers to encounter and communicate with clients with sensory impairment must be developed to support the holistic care.

Implications for the patient care: The sensory impairments of home care clients must be identified in time and considered in care planning and encountering clients.

Impact: As there is a risk that clients with dual sensory impairment are not able to fully express themselves, it is imperative that further attention is paid to clients with sensory impairments, to better understand and support this vulnerable group. Increased awareness and continuous education are needed to better identify and support home care clients with sensory impairment.

Reporting Method: The study adheres to the STROBE reporting guidelines.

Patient or public contribution: No patient or public contribution.

The statistics were checked prior to submission by an expert statistician, Jokke Häsa, PhD, Finnish Institute for Health and Welfare, jokke.hasa@thl.fi

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KEYWORDS

care time, holistic care, home care, nursing, sensory impairment

1 | INTRODUCTION

The ageing of the population is a global trend. Finland's population is one of the oldest in Europe and is ageing rapidly, as the share of people over 65 years is currently 22%, and is expected to grow to 28% by 2050 (Eurostat, 2023). The number of people needing regular care and support is increasing, which affects the demand for regular care services for older people. In Finland, the ageing policy has shifted to emphasizing home care as the primary option for older care services (Ministry of Social Affairs and Health, 2020), while the provision of institutional care has reduced and been practically replaced by 24-h service housing during the recent decades (Rostgaard et al., 2022). A similar trend appears throughout Europe (European Commission & Social Protection Committee, 2021). In 2020, approximately 105,000 people over the age of 65 received regular home care and 50,000 received round-the-clock care in Finland, with decreasing functioning being the main reason for receiving regular home care services (Finnish Institute for Health and Welfare, 2023b, 2023c). Although sensory impairments may influence functional status, there currently is a lack of knowledge concerning how sensory impairment is associated with received care time. As policy documents, in addition to the World Health Organization, emphasize the importance of person-centred care and capacity-based approaches (WHO, 2015a), it is essential to ensure that older adults with sensory impairments are receiving the sufficient care time required for rehabilitative, holistic and equal care.

2 | BACKGROUND

Several studies have shown that sensory impairment has a multifaceted negative effect on functioning (Brennan et al., 2005; Burton et al., 2021; Strawbridge et al., 2000). The decline of vision decreases physical function, such as mobility, increases depression and loneliness and decreases quality of life (Burton et al., 2021). Similar negative consequences of hearing impairment have been identified in previous research. Results show associations between hearing impairment and impaired physical functioning, mental health and social functioning (Strawbridge et al., 2000). In addition, hearing impairment, vision impairment and dual sensory impairment are associated with cognitive impairment (Fuller-Thomson et al., 2022; Maharani et al., 2018).

The effects of dual sensory impairment on functioning have been revealed to be greater than the effects of a single sensory impairment (Keller et al., 1999). A previous study by Crews and Campbell (2004) has identified a hierarchical effect of sensory impairment on health, activity and social participation of older

people, where hearing impairment caused disparities, vision impairment caused greater disparities and dual sensory impairment caused the greatest disparities on health, activity and social participation. A similar hierarchical effect of sensory impairments has been observed in relation to cognition (Fuller-Thomson et al., 2022). However, in Brennan et al., 2005 study, the relationship of sensory impairments to instrumental activities of daily living (IADL) was not consistently supported. When engaging in some tasks, e.g., managing money, dual sensory impairment and vision impairment alone increased the risk for task difficulty by equal amounts (Brennan et al., 2005). These results indicate that the implications of sensory impairments are multifaceted and context specific, as a person may have individual ways of compensating for sensory impairment, resulting in varying effects on individual functioning (Verbrugge & Jette, 1994).

Age is a significant risk factor for hearing and vision impairment, and therefore sensory impairments are more common in older people (Burton et al., 2021). For example, the prevalence of the most common eye diseases that cause vision impairment, such as age-related macular degeneration, glaucoma and cataract, increase with age (WHO, 2019). However, it is important to note that sensory impairment is not an inevitable consequence of biological ageing, as many of these eye conditions are treatable with early detection and appropriate interventions. In addition, vision impairment appears to be more common among home care clients than among the general population of the same age (Pesonen et al., 2023). One explanation may be that home care clients have reduced access to health care specialists due to decreased independence in mobility and lack of adequate assistance and transport services, and sensory impairments therefore remain unrecognized and untreated.

The prevalence of sensory impairments varies between studies due to different definitions and assessments of impairments. In a previous study conducted on home care clients in 12 different countries, the prevalence of vision impairment ranged from 20% to 55% (Grue et al., 2010). In a Canadian study, 22% of home care clients had vision impairment and half had hearing impairment (Guthrie et al., 2022). The prevalence of dual sensory impairment has varied from 13% to 25% in previous home care studies (Guthrie, Declercq, et al., 2016; Guthrie, Thériault, & Davidson, 2016). It is noteworthy that sensory impairments are often assessed as *present sensory impairment*, meaning the assessment is made with current eyeglasses or hearing aids, but not necessarily with the best possible correction. Thereby, present sensory impairments include cases where the sensory impairment is caused by unsuitable sensory aids (including spectacles) or the person does not have aids, even if they are needed. For example, the leading cause of moderate and severe vision impairment globally, as well as in Europe, is uncorrected refractive error (Burton et al., 2021). Some of these cases could be

solved by updating the appropriate aids, while in the cases where impairment is caused by diseases, recognizing the sensory impairment and starting treatment early is crucial, along with hearing and/or low vision rehabilitation if needed.

In Finland, care for older people is based on a person-centred approach, meaning that the care is tailored to meet the client's needs (Finlex, 980/2012, 2012, 14§). Clients with higher care needs require more care time and according to previous study, higher received care time is strongly associated with lower physical functioning (Vähäkangas et al., 2008). Along with person-centred care, the World Health Organization (WHO) has introduced the concept of intrinsic capacity for healthy ageing (WHO, 2015b). Intrinsic capacity is defined as *"the composite of all the physical and mental capacities that an individual can draw on"* (WHO, 2015b) and it consists of five components: (1) cognition, (2) mobility, (3) psychological, (4) vitality and (5) sensory functions (vision and hearing). Together with the surrounding environment, intrinsic capacity determines functional ability. The WHO also emphasizes the importance of managing the decline in intrinsic capacity within the care of older people (WHO, 2017). The RAI instrument, which promotes person-centred care, is one tool to enable the identification of clients requiring interventions to manage the decline in intrinsic capacity. Therefore, since sensory impairments can affect intrinsic capacity and functional ability, it is important to explore sensory impairments when assessing the client's functioning and the need for care, as well as when planning person-centred care and sufficient care time. Furthermore, it is noteworthy that communication with a client with a sensory impairment often requires more time, and therefore sufficient time that enables a genuine and unhurried encounter is important to support holistic care.

Sensory functions play an essential role in the functional ability required for healthy and active living. Sensory impairment decreases functioning, which must be considered in care planning. It is imperative to ensure that the care time given meets the holistic and individual needs of home care clients with sensory impairment. Therefore, it is important to explore the relationship between sensory impairment and the clients' received care time in home care. This study provides new evidence on this vulnerable group of home care clients that has been scarcely studied, although their share of home care clients is considerable. For example, globally, macular degeneration affects the ageing population on the same scale as Alzheimer's disease, while hearing problems and age-related hearing impairment are even more common (World Health Organization & World Bank, 2011). In addition, as care time is important in terms of quality of care, the results of this study can be utilized in developing home care services and can ultimately help improve the quality of care.

3 | THE STUDY

The aim of this study was to explore the relationship between sensory impairment and home care client's received care time.

Using the research results of previous studies, we made the following hypothesis:

1. Home care clients with dual sensory impairment receive a higher amount of care time compared to those with single sensory impairment or no sensory impairment as dual sensory impairment has a greater debilitating effect on functioning, and care time is mainly driven by performance in activities of daily living.

4 | METHODS/METHODOLOGY

4.1 | Design

A cross-sectional multi-source study design was employed.

4.2 | Study setting and sampling

This study is part of the Staff Time Measurement study, which was conducted in October 2021. The time and motion method is useful for evaluating work time usage and measuring the time for each task when providing care to the client (Kalne & Mehendale, 2022). The Staff Time Measurement study was conducted in both home care units and assisted living facilities with 24-h assistance. In this study, only home care data were utilized. Units were invited to the Staff Time Measurement study by e-mail via directors of older people care in the well-being services counties. Participation was voluntary for the units. As the inclusion criterion for participation was the use of the Resident Assessment Instrument (RAI) in assessing the functioning and service needs of the clients, organizations were recruited from the RAI benchmarking network. The invited organizations were from 15 different well-being services counties (out of 22). In Finland, home care is mainly publicly funded and consists of home nursing and home help services. 74% of home care workers are practical nurses who primarily focus on assisting clients with their daily activities, while 12% are registered nurses who have more nursing-related tasks (Finnish Institute for Health and Welfare, 2023a). Of the invited units, 17 publicly funded home care organizations from four different well-being services counties with 1477 clients agreed to participate in this study.

4.3 | Data collection

The home care employees documented tasks and their duration during the workday on paper forms for a week between 11 and 17 October 2021. The forms contained the care tasks start and end times, and the category of the tasks, such as direct care time, indirect care time, and office-related work. If the task was

client-specific (direct or indirect care time), the client's name was also documented. Care time from external workers, such as physicians and therapists who did not work in the home care units, was retrieved from the Finnish Care Register for Health Care and added to the time allocation data. The total received care time per client was calculated from this data.

Family members and acquaintances voluntarily reported their visits with the client on paper forms during the week. The home care workers distributed the forms to the clients' homes and collected them after a week of data collection. Visits of the family members and acquaintances were interpreted as informal care in this study due to the nature of the visits, consisting mainly of social support.

The time allocation data were merged with the clients' RAI data from the database of the Finnish Institute for Health and Welfare. The RAI system is an international and standardized instrument for assessing the functioning and care needs of older people (InterRAI, 2023). RAI assessments also include information about the clients' health. Based on the RAI assessment, several indicators are formed for different areas, such as physical functioning and cognition, which were used in this study. Two different RAI instruments have been developed for home and community care settings: Minimum Data Set – Home Care (MDS-HC) and interRAI Home Care (interRAI-HC), which produce the corresponding RAI indicators. In this study, the majority of home care clients (63%, $n = 933$) were assessed with the interRAI-HC instrument. In Finland, RAI instrument has been used voluntarily in home care for 20 years, and in 2018, the coverage of RAI assessments in home care was over 50% of regular clients aged over 75 (Finnish Institute for Health and Welfare, 2022). From April 1st 2023 onwards, use of RAI instrument became mandatory for home care or other long-term care services in Finland (Finlex, 980/2012, 2012, 15 a §). The unit's employees, usually practical nurses, perform the RAI assessment twice a year or more often if there are changes in the client's condition. The client's most recent RAI assessment was used in this study.

4.4 | Data variables

Data from the Staff Time Measurement study (dependent variable and adjusting variable) and RAI data (independent and adjusting variables) were used. Typical factors such as age and gender were used as adjusting variables, along with variables related to care time as indicated by a previous study (Vossius et al., 2019). Some of the adjusting variables also encompassed domains of intrinsic capacity. For example, the Cognitive Performance Scale (CPS) measures cognition, while the Instrumental Activities of Daily Living (IADL) and Activities of Daily Living Hierarchy (ADL-H) measure physical functioning and thus locomotion. Additionally, depressive mood describes the psychological aspect of intrinsic capacity.

Received care time consists of the formal direct and indirect care time (e.g., care time from nurses, therapists and physicians) the client received per day (in minutes, daily average of the one week data

collection period). Direct time was time spent present with the client and indirect care was client-specific work where the client was not present, such as nursing documentation and arranging services for the client.

Vision impairment was measured using an individual RAI question which classifies vision into 5 categories from 0 to 4. Value 0 indicates adequate vision, 1 represents mild impairment (e.g., problems reading normal text from a book or newspaper with current eye-glasses, if used), 2 indicates moderate impairment (e.g., inability to see large print, such as newspaper headlines but able to see objects), 3 means highly impaired vision (e.g., problem identifying objects, but the eyes follow objects) and 4 indicates severe impairment (e.g., no vision or sees only light, colours or shapes, but eyes do not follow objects) (Morris et al., 2009). The question was used as a binary variable, where categories 1–4 were defined as vision impairment, because even mild vision impairment decreases the functioning (Daien et al., 2014).

Hearing impairment was measured using an individual RAI question, which classifies hearing into 4 categories from 0 to 3 by the MDS-HC instrument and into 5 categories from 0 to 4 by the interRAI-HC instrument. Value 0 coincides adequate hearing (e.g., no problems in normal conversation, interaction situations, or listening to television with current hearing aid, if used), 1 represent mild impairment (e.g., difficulties in some situations, such as when the other person speaks quietly), 2 indicates moderate impairment (e.g., difficulty hearing normal speech or the client needs a quiet environment to hear), 3 represent highly impaired hearing (e.g., difficulties in all situations) and 4 equals no hearing (Morris et al., 2009). The question was used as a binary variable, with categories 1–3/4 defined as hearing impairment.

Dual sensory impairment was calculated using the variables vision and hearing impairment. Dual sensory impairment was used as a binary variable (yes/no).

IADL (Instrumental Activities of Daily Living) is an RAI indicator describing physical functioning. The IADL-indicator (scale 0–6) measures performance in instrumental activities of daily living via three items: meal preparation, use of phone, housework (Morris et al., 2000). Lower value indicates better functioning.

ADL-H (Activities of Daily Living Hierarchy) is an RAI indicator describing physical functioning. The ADL-indicator (scale 0–6) measures performance in activities related to eating, personal hygiene, toilet use and locomotion (Morris et al., 1999). Lower value indicates better functioning.

CPS (Cognitive Performance Scale) is an RAI indicator (scale 0–6), which measures the level of cognitive function. Value 6 means comatose or not present (Morris et al., 1994).

Depressive mood was measured using the RAI indicator DRS (Depression Rating Scale, 0–14). The indicator was used as a binary variable, where values 3 or more were defined as depressive mood (Burrows et al., 2000).

Informal care was formed from the visit data of family members and acquaintances. Informal care was used as a binary variable, where 0 means that a family member and acquaintances did not visit

the client during the week and 1 means at least one visit during the week.

4.5 | Validity and reliability

The reliability and validity of RAI instruments have been shown to be good (Hirdes et al., 2008; Landi et al., 2000) when performed by trained nurses following recommended guidelines. In Finland, the RAI instrument has been used for years and most nurses are trained to use the instrument. Hearing and vision items of RAI instrument have also been found to be reliable (Dalby et al., 2009). Similar studies have used identical categorisations for the sensory items (e.g., Guthrie et al., 2022). The time and motion method is useful for measuring care time by activity (Kalne & Mehendale, 2022). The validity and reliability of time allocation data were improved by video tutorials and training sessions for employees. Employees also committed to documenting their work time, which was reflected in relatively low levels of unrecorded work time. In addition, the sample size increased the validity and reliability of this study.

4.6 | Data analysis

Descriptive analyses, such as frequencies, means and standard deviations, were conducted to provide an overview of the sample. The correlations between dependent, independent and adjusting variables were explored, and Pearson's *R* values varied between $-.203$ and $.507$, indicating low to moderate correlations. Differences between no sensory impairment group and independent sensory impairment groups (vision impairment only, hearing impairment only and dual sensory impairment) were explored by comparing the means and percentages. Homogeneity of variances of continuous variables (age, care time and home care visits) was checked with Levene's test ($p < .05$), which indicated differences in variances between groups in age and care time variables. Therefore Tamhane's *T2* test was used to explore significant differences in pairwise comparisons between the reference group and sensory impairment groups, while Tukey's test was used with the home care visits variable. Pairwise comparisons between the reference group and sensory impairment groups for variables ADL-H, IADL and CPS were done using Mann-Whitney *U*-test with Bonferroni adjustment, due to right skewed distributions. Chi-square test was used to compare percentage of women, depressive mood and informal care between groups. No sensory impairment was the reference group in the pairwise comparisons.

To explore the relationship between sensory impairment and the client's received care time, linear regression analysis was used. The relationship between the variables and care time was studied in two stages. First, the independent relationship between dependent and adjusting variables and care time was investigated using unadjusted univariate models. Second, the relationship between sensory impairment and care time was investigated in a multivariate model. The

dependent variable was client's received care time, and the independent variables were vision impairment only, hearing impairment only and dual sensory impairment. Vision impairment only, hearing impairment only and dual sensory impairment were dichotomous variables and were compared with those without sensory impairment. The multivariate model was adjusted for sex, age, instrumental activities of daily living (IADL), activities of daily living (ADL-H), cognition (CPS), depressive mood and informal care. The data were analysed using IBM SPSS version 28 for Windows 10. Statistical significance was defined at $p < .05$.

4.7 | Ethical considerations

The study was approved by Finnish Institute for Health and Welfare Ethical Review Board (THL/1447/6.02.01/2021). Participation in the study was voluntary for the units and employees of the units documented their work time as part of their regular work. Reporting of visits was voluntary for family members. Employees, clients and family members participating in the study were informed about the study before data collection in writing. Filling and returning the surveys was seen as informed consent to participation. The study was conducted according to the ethical principles of Declaration of Helsinki (World Medical Association, 2013).

5 | RESULTS

The total sample of this study consisted of 1477 home care clients. The mean age of the participants was 81 years, and the majority (67%) of them were female (Table 1). Half of the participants had no sensory impairment, while one third of the home care clients had vision impairment. The prevalence of hearing impairment was one third as well. Home care clients received on average 38 min of care

TABLE 1 Characteristics of the participants ($n = 1477$).

	%	Mean (SD)	95% CI
Age		81.42 (10.23)	80.90–81.94
Women %	66.6		64.3–69.2
No Sensory impairment	52.3		29.8–54.8
Vision impairment*	28.7		26.5–31.1
Hearing impairment*	32.6		30.3–35.2
Dual sensory impairment*	13.7		12.2–15.6
IADL (0–6)		2.67 (1.89)	2.57–2.76
ADL-H (0–6)		0.75 (1.20)	0.69–0.81
CPS (0–6)		1.47 (1.22)	1.41–1.53
Depressive mood	11.9		10.3–13.5
Informal care	23.6		21.4–25.8
Care time min/day		38.08 (35.27)	36.28–39.88
Home care visits per week		9.09 (7.96)	8.71–9.50

*Groups not mutually exclusive.

time per day and had on average 9 visits by home care employees, mainly practical nurses, per week.

More specifically, sensory impairments were divided, with 15% of participants having visual impairment only, 19% having hearing impairment only and 14% having dual sensory impairment (Table 2). Vision impairment only group differed statistically significantly from no sensory impairment group in terms of age, IADL and care time, while hearing impairment only group differed in terms of age, IADL and cognition. The group with dual sensory impairment differed statistically significantly from the reference group on age, IADL, ADL-H, cognition and received informal care. The mean age and all RAI indicators were highest in the group of dual sensory impairment, followed by vision impairment only. Care time and number of visits were highest in the group of vision impairment only. While the mean ADL-H, IADL and CPS scores were higher in the dual sensory impairment group than in the single impairment groups, clients with dual sensory impairment received less care time. The share of informal care was the highest in the group of dual sensory impairment. In other words, based on the RAI indicators, dual sensory impairment was most highly associated with decreased functioning, including physical, and cognitive dimensions, followed by vision impairment only. Hearing impairment alone was the least associated with functioning, although the decline of physical (IADL) and cognitive functions was greater than without sensory impairment.

In the univariate model, the association between vision impairment alone and increased received care time was statistically significant (Table 3). All adjusting variables had statistically significant

relationships with client's received care time in the univariate model. Of the sensory impairments, only vision impairment was significantly associated with care time in the univariate models. In the adjusted multivariate model, vision impairment only remained statistically significantly associated with care time, and in addition, dual sensory impairment was statistically significantly associated with decreased care time. Of the adjusting variables, higher age, female sex, higher values in ADL-H and IADL, depressive mood and having received informal care were statistically significantly associated with increased received care time in the multivariate model.

6 | DISCUSSION AND IMPLICATIONS

The aim of this study was to explore the relationship between sensory impairment and client's received care time in home care. The results show that having only vision impairment was associated with increased care time, while dual sensory impairment was associated with decreased care time. Hearing impairment alone had no statistically significant relationship with received care time. The main finding of this study was that clients with dual sensory impairment experienced the most significant decrease in functioning, including physical and cognitive functions. Surprisingly, they received significantly less care time than the group without sensory impairments when confounding factors, such as age, sex, physical functioning, cognition, depressive mood and informal care were accounted for. These results were contrary to the hypothesis and raise major

TABLE 2 Characteristics of participants by independent sensory groups.

	No sensory impairment <i>n</i> = 773 (52.3%)		Vision impairment only <i>n</i> = 222 (15.0%)		Hearing impairment only <i>n</i> = 280 (19.0%)		Dual sensory impairment <i>n</i> = 202 (13.7%)	
	Mean (SD)	95% CI	Mean (SD)	95% CI	Mean (SD)	95% CI	Mean (SD)	95% CI
Age ^a	78.70 (10.95)	77.92–79.44	81.96*** (9.40)	80.65–83.10	84.39*** (7.80)	83.51–85.29	87.11*** (7.22)	86.07–88.08
Women ^b (%)	66.4%		67.6%		66.4%		66.3%	
IADL ^c	2.41 (1.86)	2.27–2.54	2.90** (1.92)	2.64–3.16	2.79* (1.84)	2.56–3.00	3.24*** (1.85)	2.99–3.50
ADL-H ^c	0.70 (1.18)	0.62–0.78	0.85 (1.36)	0.68–1.04	0.69 (1.08)	0.58–0.82	0.92* (1.25)	0.76–1.09
CPS ^c	1.34 (1.18)	1.26–1.42	1.57 (1.28)	1.42–1.76	1.55* (1.16)	1.42–1.68	1.74** (1.32)	1.55–1.93
Depressive mood ^b (%)	11.3%		12.6%		12.1%		13.4%	
Care time ^a	35.77 (34.19)	33.36–38.19	46.96** (44.86)	41.03–52.89	38.23 (31.88)	34.48–41.98	36.96 (30.21)	32.77–41.15
Home care visits per week ^d	8.70 (7.51)	8.17–9.23	10.15 (8.20)	9.05–11.26	9.62 (9.19)	8.62–10.79	8.73 (7.43)	7.71–9.84
Received informal care ^b (%)	20.7%		24.3%		23.9%		33.7%***	

Abbreviations: IADL = Instrumental Activities of Daily living, ADL-H = Activities of Daily Living for Hierarchy, CPS = Cognitive Performance Scale.

Note: * <0.05, ** <0.01, *** <0.001. Bold indicates a statistically significant difference between the group and the reference group (no sensory impairment).

^aSignificant differences in pairwise comparisons between reference group and sensory impairment groups using Tamhane's T2 test.

^bChi-Square test.

^cSignificant differences in pairwise comparisons between reference group and sensory impairment groups using Mann–Whitney U-test with Bonferroni adjustment.

^dSignificant differences in pairwise comparisons between reference group and sensory impairment groups using Tukey's test.

Variable	Univariate models		Multivariate model	
	Estimate (95% CI)	p	Estimate (95% CI)	p
No sensory impairment (ref.)				
Vision impairment only	10.45 (5.44–15.46)	<.001	7.20 (2.45–11.94)	.003
Hearing impairment only	0.19 (–4.41–4.78)	.937	–0.31 (–4.73 to 4.11)	.891
Dual sensory impairment	–1.30 (–6.54 to 3.94)	.626	–6.43 (–11.56 to –1.31)	.014
Age ^a	0.36 (0.18–0.53)	<.001	0.23 (0.060–0.40)	.009
Sex (female) ^a	6.1 (2.30–9.90)	.002	5.80 (2.30–9.30)	.001
ADL-H (0–6) ^a	11.24 (9.85–12.62)	<.001	8.38 (6.78–10.00)	<.001
IADL (0–6) ^a	6.10 (5.20–7.01)	<.001	3.10 (2.04–4.15)	<.001
CPS (0–6) ^a	5.42 (3.96–6.87)	<.001	–0.05 (–1.56 to 1.46)	.950
Depressive mood ^a	13.18 (7.66–18.69)	<.001	7.02 (1.97–12.07)	.006
Received informal care ^a	13.43 (9.248–17.62)	<.001	9.33 (5.48–13.18)	<.001
Adjusted R ² = 0.205				

Values in bold are statistically significant ($p < .05$).

Abbreviations: IADL = Instrumental Activities of Daily Living, ADL-H = Activities of Daily Living for Hierarchy, CPS = Cognitive Performance Scale.

^aAdjusting variable.

TABLE 3 Univariate and multivariate linear regression analysis on the relationship between sensory impairment and client's received care time.

concerns as to whether home care clients with dual sensory impairment are receiving adequate, high-quality and person-centred care.

One explanation for lower care time could be communication challenges. According to a previous study, dual sensory impairment diminishes communication (Schneider et al., 2011). Dual sensory impairment may require carers to have special skills and competence to encounter and communicate with the client. Without special skills, carers may have fewer ways to guide the client in daily activities or interact with the client. Furthermore, communicating with a person with dual sensory impairment can be challenging, even for a person who has mastered different ways of communicating (Dammeyer, 2015). Therefore, it is possible that the nurse's time during the visit is mainly focused on performing the listed tasks, while only little or no time is spent on communication and social activities, which may be reflected in lower care time. Communication difficulties may also lead to doing things on behalf of the client, contrasting the principles of rehabilitative care. Doing things on behalf of the client often takes less time, and that could explain the lower proportion of care time found in this study. Consequently, it is possible that clients with dual sensory impairment receive less rehabilitative care, although more research is needed on this issue. The decreased care time among clients with dual sensory impairment raises questions about whether the clients are being heard and encountered as individuals, as sensory impairments, particularly dual sensory impairment, may lead to miscommunication or even a lack of communication.

One way to reduce the risk of miscommunication with a client with dual sensory impairment is to improve continuity of care. When a nurse becomes familiar with the client over time, they can better understand the client's communication preferences, needs and cues, which can enhance communication. Dammeyer (2015) points out that the communication manner and ability of communication can

vary between individuals with dual sensory impairment. With a familiar client, nurses can tailor their communication to suit the client's specific sensory impairment and individual way of communicating. People with dual sensory impairment also experience that communication is easier with a familiar person (Heine & Browning, 2004). A previous study has also shown that continuity of care is related to improved outcomes for clients and thereby better quality of care in home care (Russell et al., 2011). In addition, nurses can provide more individualized and high-quality care by improving their communication skills and understanding of the special needs of clients with sensory impairments. Therefore, continuity of care should be ensured, especially for clients with dual sensory impairment in home care, and home care nurses' abilities to encounter and communicate effectively with clients who have sensory impairments should be focused on.

Communication challenges can also lead to social isolation and depression (Schneider et al., 2011). Additionally, sensory impairments, especially dual impairment, have been associated with an increased prevalence of depressive symptoms (Capella McDonnell, 2009; Kiely et al., 2013). In this study, depressive mood was slightly more common among individuals with sensory impairment, particularly those with dual sensory impairment. Although the difference was not statistically significant in this study, the results are in line with previous studies. Based on the findings, female clients received more care time than male clients. Moreover, surprisingly, clients who received informal care also received more formal care. For some clients, informal care can enable living at home, and complements formal care. However, even when informal care was considered, clients with dual sensory impairment received significantly less care time than clients without sensory impairment. Thereby, when assessing the adequacy of holistic care, special attention should be paid to home care clients with dual sensory impairment

who do not have informal carers. Additionally, equal care between genders should be ensured.

The received care time was highest among the clients in the group with vision impairment only, and they also had the most home care visits per week. West et al. (2002) found that mobility, such as walking, and daily tasks, such as plug insertion and dialling a phone number, take longer if vision is reduced. Therefore, most likely, guiding and supporting the person with vision impairment in daily activities requires more time, which is reflected in higher care times. The results are encouraging, as they suggest that nurses have the potential to allocate more time to clients with vision impairment alone. Furthermore, it is possible that the lower care time for clients with dual sensory impairment is not due to a lack of resources but possibly due to communication challenges. It would therefore be essential for further research to explore the experiences of clients with dual sensory impairment regarding the adequacy of care time. Future research should also investigate what kind of knowledge health care professionals have on sensory impairments as well as competence of encountering and caring people with sensory impairments.

The results of this study also confirmed that sensory impairments are common among older people receiving home care, with almost half of the participants having some level of sensory impairment. Sensory impairments increase with age, and especially dual sensory impairment increases greatly among the oldest old. The prevalence of vision impairment and dual sensory impairment was consistent with previous studies, while the hearing impairment of home care clients was found to be somewhat lower than in the previous study (Guthrie et al., 2022; Guthrie, Declercq, et al., 2016; Guthrie, Thériault, & Davidson, 2016). The results of this study might highlight the results of previous studies showing the negative effect of sensory impairment on functioning (Brennan et al., 2005; Burton et al., 2021; Strawbridge et al., 2000). In addition, the previously identified hierarchical nature of sensory impairments on functioning (Brennan et al., 2005; Crews & Campbell, 2004; Fuller-Thomson et al., 2022) was also reflected in our findings. Based on the findings, it seems that sensory impairments have a negative relationship with functioning, including physical and cognitive functioning and other components of intrinsic capacity. Therefore, regular assessment of these sensory functions in home care is necessary, as it can enable the prevention of sensory impairments, which might support the functioning and maintaining of intrinsic capacity of older people.

Although sensory impairments increase with age, they can also be partly prevented. The WHO recommends that older people are offered routine screening for vision and hearing, and timely identification and management of vision and hearing impairments, as well as appropriate sensory aids (WHO, 2017). The results of this study highlight the importance of the WHO guidelines, which should be implemented in home care for older people as soon as possible. Screening vision and hearing is crucial among home care clients, as adequate vision and hearing can help maintain the independence of home-dwelling older people and thus enable healthy and active

ageing, potentially also reducing costs associated with care of older people. Furthermore, sensory impairments, and especially dual sensory impairment, have been shown to significantly increase the risk of falling among older people (Gopinath et al., 2016), further highlighting the importance of addressing sensory impairment. The RAI instrument is one tool for identifying sensory impairment in home care, and RAI's hearing and vision items have been found to be reliable (Dalby et al., 2009), as long as the assessment is done according to the guidelines (Pesonen et al., 2023). In addition to identification, it is important to manage vision and hearing impairment. Especially when sensory impairment is caused by an illness, starting treatment and rehabilitation early is important to help maintain sensory abilities. Furthermore, it must be ensured that the used sensory aids are up-to-date, or are used if needed because according to the previous study, the majority of present vision impairment is due to uncorrected refractive errors (Burton et al., 2021).

The results of this study have revealed potential inequalities among vulnerable home care clients. Based on this study, the holistic and individual needs of home care clients with dual sensory impairment may not currently be met. Therefore, more attention should be paid to this group, and it should be ensured that enough care time is given to meet their complex care needs. Furthermore, continuity of care should be further enabled. In the current situation, where home care is dealing with a labour shortage throughout Europe (Lapr   et al., 2019), the increased turnover of nurses can affect the continuity of care and therefore make it even more difficult for clients with dual sensory impairment to be seen, heard and understood. Home care workers should be trained to encounter and communicate with clients with sensory impairments, and they should gain knowledge about sensory impairments and their effects on the client's daily life, as well as competence to implement holistic care to this group of patients with special needs. In addition, some sensory impairments could be prevented by regular screening, and home care clients should be referred for more comprehensive examinations if necessary. Therefore, access to an eye care professional, such as ophthalmologist or optometrist, must be ensured for home care clients, for example by arranging adequate assistance and transportation services. These suggested interventions may potentially reduce costs associated with care of older people, by pre-emptively addressing treatable conditions, as well as by improving the quality of care and quality of life of clients experiencing sensory impairments.

6.1 | Strength and limitations

As the staff time data was collected using self-report surveys, the subjective nature of the data may influence the results, meaning the actual care times may somewhat vary from the times presented here (Lopetegui et al., 2014). However, the large sample size may reduce the risk of potential inaccuracies. RAI instruments are standardized, and data derived from the RAI registers mainly represent evaluations made by trained nurses, increasing the

validity of this data. In addition, the RAI's hearing and vision items are rated as reliable although they are not objective measurements. However, reliable RAI information, including assessment of vision and hearing, requires that the assessment has been performed according to guidelines, which could not be ensured in this study. In this study, vision and hearing impairments included mild impairments, and using alternative cut-off values could have given different results. However, a sensitivity analysis of the binary sensory impairment items with varying cut-off points did not result in significant qualitative differences in effect sizes and directions, except for a stricter hearing impairment categorization resulting in a significant association with reduced care time. More severe hearing impairments can cause more communication challenges, which reinforces the results that communication challenges negatively affect the client's received care time. In addition, since participation in the study was voluntary, selection bias is likely, and the results do not necessarily represent the entire home care sector in Finland. The cross-sectional nature of this study limits causal interpretations of the results. However, the findings of this study indicate that further attention should be paid to clients with sensory impairment, providing valuable knowledge on a growing, yet previously understudied, population.

7 | CONCLUSION

The results of this study imply that the holistic needs of older people with dual sensory impairment are not being met. While vision impairment alone was associated with increased care time, dual sensory impairment was associated with decreased care time. It is possible that communicative challenges lead nurses to doing things on behalf of clients with dual sensory impairment, which raises concerns about the adequacy and comprehensiveness of care. Further research should therefore seek to explore the adequacy of holistic care, including social activity and rehabilitative care among clients with dual sensory impairment. Practical suggestions on how to assist clients with dual sensory impairment include supporting employee skills and competence by providing education and training focusing on recognizing arising sensory impairment, as well as training on the communication skills necessary to work with people with sensory impairment. Regular screening and increased access to eye care professionals could also help in ensuring that older people with sensory impairment are recognized and that their individual needs are met early on. These interventions could potentially reduce costs associated with care of older people, as well as increase the quality of care, functioning and independent living, and quality of life of older people with sensory impairment.

AUTHOR CONTRIBUTIONS

Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data: Tiina Pesonen, Laura Corneliusson, Visa Väisänen and Timo Sinervo. *Involved in drafting the manuscript or revising it critically for important intellectual content:*

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

- Brennan, M., Horowitz, A., & Su, Y. (2005). Dual sensory loss and its impact on everyday competence. *The Gerontologist*, 45(3), 337–346. <https://doi.org/10.1093/geront/45.3.337>
- Burrows, A. B., Morris, J. N., Simon, S. E., Hirdes, J. P., & Phillips, C. (2000). Development of a minimum data set-based depression rating scale for use in nursing homes. *Age and Ageing*, 29(2), 165–172. <https://doi.org/10.1093/ageing/29.2.165>
- Burton, M. J., Ramke, J., Marques, A. P., Bourne, R. R. A., Congdon, N., Jones, I., Tong, B. A. M. A., Arunga, S., Bachani, D., Bascaran, C., Bastawrous, A., Blanchet, K., Braithwaite, T., Buchan, J. C., Cairns, J., Cama, A., Chagunda, M., Chuluunkhuu, C., Cooper, A., ... Faal, H. B. (2021). The lancet Global Health Commission on global

- eye health: Vision beyond 2020. *The Lancet Global Health*, 9(4), e489–e551. [https://doi.org/10.1016/S2214-109X\(20\)30488-5](https://doi.org/10.1016/S2214-109X(20)30488-5)
- Capella McDonnell, M. (2009). The effects of developing a dual sensory loss on depression in older adults: A longitudinal study. *Journal of Aging and Health*, 21(8), 1179–1199. <https://doi.org/10.1177/0898264309350077>
- Crews, J. E., & Campbell, V. A. (2004). Vision impairment and hearing loss among community-dwelling older Americans: Implications for health and functioning. *American Journal of Public Health*, 94(5), 823–829.
- Daien, V., Peres, K., Villain, M., Colvez, A., Carriere, I., & Delcourt, C. (2014). Visual acuity thresholds associated with activity limitations in the elderly. The pathologies Oculaires Liées à l'Age study. *Acta Ophthalmologica*, 92(7), e500–e506. <https://doi.org/10.1111/aos.12335>
- Dalby, D. M., Hirdes, J. P., Stolee, P., Strong, J. G., Poss, J., Tjam, E. Y., Bowman, L., & Ashworth, M. (2009). Development and psychometric properties of a standardized assessment for adults who are deaf-blind. *Journal of Visual Impairment & Blindness*, 103(1), 7–16. <https://doi.org/10.1177/0145482X0910300103>
- Dammeyer, J. (2015). Deafblindness and dual sensory loss research: Current status and future directions. *World Journal of Otorhinolaryngology*, 5(2), 37–40. <https://doi.org/10.5319/wjo.v5.i2.37>
- European Commission, & Social Protection Committee. (2021). *2021 Long-Term Care Report Trends, challenges and opportunities in an ageing society* (1; p. 147). European Union. <https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8396>
- Eurostat. (2023). *Ageing Europe—Statistics on population developments*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Ageing_Europe_-_statistics_on_population_developments
- Finlex, 980/2012. (2012). Act on Supporting the Functional Capacity of the Older Population and on Social and Health Services for Older Persons. <https://www.finlex.fi/en/laki/kaannokset/2012/en20120980>
- Finnish Institute for Health and Welfare. (2022). Information on the RAI assessment system. *Ageing - Information on the RAI Assessment System*. <https://thl.fi/en/web/ageing/assessment-of-service-needs-with-the-rai-system/information-on-the-rai-assessment-system>
- Finnish Institute for Health and Welfare. (2023a). Home care. *Ageing - Home Care*. <https://thl.fi/en/web/ageing/older-people-services-undergoing-a-change/home-care>
- Finnish Institute for Health and Welfare. (2023b). Older people services undergoing a change—THL. *Finnish Institute for Health and Welfare*. <https://thl.fi/en/web/ageing/older-people-services-undergoing-a-change>
- Finnish Institute for Health and Welfare. (2023c). *Sotkanet.fi Statistics and Indicator Bank*. <https://sotkanet.fi/sotkanet/en/haku?g=358>
- Fuller-Thomson, E., Nowaczynski, A., & MacNeil, A. (2022). The association between hearing impairment, vision impairment, dual sensory impairment, and serious cognitive impairment: Findings from a population-based study of 5.4 million older adults. *Journal of Alzheimer's Disease Reports*, 6(1), 211–222. <https://doi.org/10.3233/ADR-220005>
- Gopinath, B., McMahon, C. M., Burlutsky, G., & Mitchell, P. (2016). Hearing and vision impairment and the 5-year incidence of falls in older adults. *Age and Ageing*, 45(3), 409–414. <https://doi.org/10.1093/ageing/afw022>
- Grue, E. V., Finne-Soveri, H., Stolee, P., Poss, J., Sörbye, L. W., Noro, A., Hirdes, J. P., & Ranhoff, A. H. (2010). Recent visual decline—A health Hazard with consequences for social life: A study of home care clients in 12 countries. *Current Gerontology and Geriatrics Research*, 2010, 1–9. <https://doi.org/10.1155/2010/503817>
- Guthrie, D. M., Declercq, A., Finne-Soveri, H., Fries, B. E., & Hirdes, J. P. (2016). The health and well-being of older adults with dual sensory impairment (DSI) in four countries. *PLoS One*, 11(5), e0155073. <https://doi.org/10.1371/journal.pone.0155073>
- Guthrie, D. M., Thériault, É. R., & Davidson, J. G. S. (2016). Self-rated health, cognition, and dual sensory impairment are important predictors of depression among home care clients in Ontario. *Home Health Care Management & Practice*, 28(1), 35–43. <https://doi.org/10.1177/1084822315591812>
- Guthrie, D. M., Williams, N., Jaiswal, A., Mick, P., O'Rourke, H. M., Pichora-Fuller, M. K., Wittich, W., & Sutradhar, R. (2022). Prevalence of sensory impairments in home care and long-term care using interRAI data from across Canada. *BMC Geriatrics*, 22(1), 944. <https://doi.org/10.1186/s12877-022-03671-7>
- Heine, C., & Browning, C. J. (2004). The communication and psychosocial perceptions of older adults with sensory loss: A qualitative study. *Ageing & Society*, 24(1), 113–130. <https://doi.org/10.1017/S0144686X03001491>
- Hirdes, J. P., Ljunggren, G., Morris, J. N., Frijters, D. H., Finne Soveri, H., Gray, L., Björkgren, M., & Gilgen, R. (2008). Reliability of the interRAI suite of assessment instruments: A 12-country study of an integrated health information system. *BMC Health Services Research*, 8, 277. <https://doi.org/10.1186/1472-6963-8-277>
- InterRAI. (2023). *InterRAI improving health care across the globe*. InterRAI Organisation. <https://interrai.org/>
- Kalne, P. S., & Mehendale, A. M. (2022). The purpose of time-motion studies (TMSs) in healthcare: A literature review. *Cureus*, 14(10), e29869. <https://doi.org/10.7759/cureus.29869>
- Keller, B. K., Morton, J. L., Thomas, V. S., & Potter, J. F. (1999). The effect of visual and hearing impairments on functional status. *Journal of the American Geriatrics Society*, 47(11), 1319–1325. <https://doi.org/10.1111/j.1532-5415.1999.tb07432.x>
- Kiely, K., Anstey, K., & Luszcz, M. (2013). Dual sensory loss and depressive symptoms: The importance of hearing, daily functioning, and activity engagement. *Frontiers in Human Neuroscience*, 7, 1–13. <https://doi.org/10.3389/fnhum.2013.00837>
- Landi, F., Tua, E., Onder, G., Carrara, B., Sgadari, A., Rinaldi, C., Gambassi, G., Lattanzio, F., & Bernabei, R. (2000). Minimum data set for home care: A valid instrument to assess frail older people living in the community. *Medical Care*, 38(12), 1184–1190.
- Lapré, F., Stevenson, D., Leser, M., Horecký, J., Kaserer, B., & Mattersberger, M. (2019). LONG-TERM CARE 2030. *European Ageing Network*, 2019, 1–57.
- Lopetegui, M., Yen, P.-Y., Lai, A., Jeffries, J., Embi, P., & Payne, P. (2014). Time motion studies in healthcare: What are we talking about? *Journal of Biomedical Informatics*, 49, 292–299. <https://doi.org/10.1016/j.jbi.2014.02.017>
- Maharani, A., Dawes, P., Nazroo, J., Tampubolon, G., Pendleton, N., & Sense-Cog WP1 group. (2018). Visual and hearing impairments are associated with cognitive decline in older people. *Age and Ageing*, 47(4), 575–581. <https://doi.org/10.1093/ageing/afy061>
- Ministry of Social Affairs and Health. (2020). *National Programme on Ageing 2030: For an age-competent Finland*. <https://julkaisut.valtioneuvosto.fi/handle/10024/162596>
- Morris, J. N., Carpenter, I., Berg, K., & Jones, R. N. (2000). Outcome measures for use with home care clients. *Canadian Journal on Aging / La Revue Canadienne Du Vieillessement*, 19(S2), 87–105. <https://doi.org/10.1017/S071498080001391X>
- Morris, J. N., Fries, B. E., Bernabei, R., Steel, K., Ikegami, N., Carpenter, I., Gilgen, R., DuPasquier, J.-N., Frijters, D., Henrard, J.-C., Hirdes, J. P., & Belleville-Taylor, P. (2009). *InterRAI home care (HC) assessment form and User's manual* (version 9.1). interRAI.
- Morris, J. N., Fries, B. E., Mehr, D. R., Hawes, C., Phillips, C., Mor, V., & Lipsitz, L. A. (1994). MDS cognitive performance scale. *Journal of Gerontology*, 49(4), M174–M182. <https://doi.org/10.1093/geronj/49.4.m174>
- Morris, J. N., Fries, B. E., & Morris, S. A. (1999). Scaling ADLs within the MDS. *The Journals of Gerontology: Series A*, 54(11), M546–M553. <https://doi.org/10.1093/gerona/54.11.M546>

- Pesonen, T., Saarela, K.-M., Falck, A., Edgren, J., Kyngäs, H., & Siira, H. (2023). Visual impairment and the need for vision care services amongst older Finnish people receiving home care. *Nursing Open*, 10(4), 2519–2529. <https://doi.org/10.1002/nop2.1510>
- Rostgaard, T., Jacobsen, F., Kröger, T., & Peterson, E. (2022). Revisiting the Nordic long-term care model for older people—Still equal? *European Journal of Ageing*, 19(2), 201–210. <https://doi.org/10.1007/s10433-022-00703-4>
- Russell, D., Rosati, R. J., Rosenfeld, P., & Marren, J. M. (2011). Continuity in home health care: Is consistency in nursing personnel associated with better patient outcomes? *Journal for Healthcare Quality*, 33(6), 33–39. <https://doi.org/10.1111/j.1945-1474.2011.00131.x>
- Schneider, J. M., Gopinath, B., McMahon, C. M., Leeder, S. R., Mitchell, P., & Wang, J. J. (2011). Dual sensory impairment in older age. *Journal of Aging and Health*, 23(8), 1309–1324. <https://doi.org/10.1177/0898264311408418>
- Strawbridge, W. J., Wallhagen, M. I., Shema, S. J., & Kaplan, G. A. (2000). Negative consequences of hearing impairment in old age: A longitudinal analysis. *The Gerontologist*, 40(3), 320–326. <https://doi.org/10.1093/geront/40.3.320>
- Vähäkangas, P., Noro, A., & Finne-Soveri, H. (2008). Daily rehabilitation nursing increases the nursing time spent on residents. *International Journal of Nursing Practice*, 14(2), 157–164. <https://doi.org/10.1111/j.1440-172X.2008.00679.x>
- Verbrugge, L. M., & Jette, A. M. (1994). The disablement process. *Social Science & Medicine* (1982), 38(1), 1–14. [https://doi.org/10.1016/0277-9536\(94\)90294-1](https://doi.org/10.1016/0277-9536(94)90294-1)
- Vossius, C., Selbæk, G., Šaltytė Benth, J., Wimo, A., & Bergh, S. (2019). The use of direct care in nursing home residents: A longitudinal cohort study over 3 years. *International Journal of Geriatric Psychiatry*, 34(2), 337–351. <https://doi.org/10.1002/gps.5026>
- West, S. K., Rubin, G. S., Broman, A. T., Muñoz, B., Bandeen-Roche, K., Turano, K., & SEE Project Team. (2002). How does visual impairment affect performance on tasks of everyday life?: The SEE project. *Archives of Ophthalmology*, 120(6), 774–780. <https://doi.org/10.1001/archophth.120.6.774>
- WHO. (2015a). *WHO global strategy on integrated people-centred health services 2016–2026*. World Health Organization. <https://interprofessional.global/wp-content/uploads/2019/11/WHO-2015-Global-strategy-on-integrated-people-centred-health-services-2016-2026.pdf>
- WHO. (2015b). *World report on ageing and health* (p. 267). World Health Organization. <https://www.who.int/publications-detail-redirect/9789241565042>
- WHO. (2017). *Integrated care for older people: Guidelines on community-level interventions to manage declines in intrinsic capacity* (p. 54). World Health Organization. <https://www.who.int/publications-detail-redirect/9789241550109>
- WHO. (2019). *World report on vision*. World Health Organization.
- World Health Organization, & World Bank. (2011). *World report on disability 2011*. World Health Organization. <https://apps.who.int/iris/handle/10665/44575>
- World Medical Association. (2013). *World medical association declaration of Helsinki: Ethical principles for medical research involving human subjects*. *JAMA*, 310(20), 2191. <https://doi.org/10.1001/jama.2013.281053>

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