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Exercise and physiotherapy for nursing home residents with dementia: practices and preferences

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Chapter 3:

The structure and process of physiotherapy services for nursing home residents with dementia in the Netherlands

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Introduction

In addition to memory loss, dementia poses significant healthcare challenges, including diminished physical function and increased care dependency.[1] As care dependency grows, the transition from residential to nursing home care may become inevitable.[2] Physiotherapy services are frequently employed to maintain or improve the physical functioning of nursing home residents with dementia.[3]

Although physiotherapy is a prevalent therapeutic modality, previous literature indicates significant variation in its employment.[4] This variation can potentially result in suboptimal treatment. To reduce this variation, calls for guidelines on physiotherapy for nursing home residents with dementia have been made.[5,6] Before guidelines can be developed, more knowledge about factors that cause variation is necessary. The aim of this study was therefore to explore the presence of practice variation in physiotherapy services for nursing home residents with dementia in the Netherlands.

Methods

We used a cross-sectional study design utilizing an online survey to collect data from physiotherapists working with nursing home residents with dementia. We aimed to include 10% of the approximately 830 Dutch nursing homes which have facilities for people with dementia, with one responding physiotherapist per nursing home. In the Netherlands, nursing home care is integrated into the national insurance scheme. The costs associated with physiotherapy treatment are encompassed within standardized care packages, which are uniform across care providers in the country. Physiotherapists were recruited from November 2022 to March 2023. To prevent repetitive submissions from the same nursing home, the four digits from the postal code were gathered. In case of repetitive submissions, either the survey with the largest number of completed questions, or in case completion was similar, the last survey received was included.

The survey was based on the healthcare framework by Donabedian,[7] describing the quality of care by its "structure", "process" and "outcome", and was created by two authors experienced in physiotherapy for nursing home residents with dementia. Survey data output was analyzed in SPSS version 25 (Armonk, NY: IBM Corp.). Descriptive statistics were calculated for all variables. The practice variation thresholds were set in a consensus meeting at >75% and <25% for data presented in percentages. For data expressed as mean and standard deviation the coefficient of variation was calculated, and the thresholds COV >0.8 as variation, COV >0.5 and ≤0.8 as possible variation, and <0.5 as no variation were used.[8]

Results

A total of 109 physiotherapists representing 109 nursing homes participated with a median age of 36 years (range 30-53) and a median working experience 10 years (range 5-19).

In terms of structure (Table 1), nursing homes offered an average of 24 hours of physiotherapy per week for an average of 60 residents with dementia. A physician's referral was required to start treatment in 43% of cases. Multidisciplinary team meetings were attended regularly by 93% of participants, with occupational therapists, psychologists and specialized geriatric physicians being the most frequently involved professionals.

Table 1: Reported structure of physiotherapy services for nursing home residents with dementia in nursing homes in the Netherlands

Characteristics of the nursing home	***N respondents***	**Results**
Number of residents with dementia in the nursing home; mean (SD)	109	60.1 (31.4)
Availability of physiotherapy (hours/week) for residents with dementia per nursing home; mean (SD)	109	24.4 (21.2)
Availability of PT (hours/week) per resident; mean (SD)	109	0.3 (0.2)
Number of PT's providing therapy; mean (SD)	109	2.4 (1.4)
Availability of physiotherapy is related to the residents' care package; *n* respondents (%)	109	45 (41.3%)
Protocols or regulations in PT; *n* respondents (%)		
Referral needed to start PT	108	46 (42.6%)
Protocols or regulations in place regarding starting PT	108	49 (45.4%)
Formal regulations for starting PT	49	29 (59.2%)
Protocols or regulations in place regarding stopping PT	108	38 (35.2%)
Formal regulations for stopping PT	38	27 (71.1%)
Protocols or regulations in place regarding evaluating PT	108	46 (42.6%)
Formal regulations for evaluating PT	46	21 (45.7%)
Multidisciplinary team; *n* respondents (%)		
Physician	108	77 (71%)
Specialized geriatric physician	108	102 (94%)
Nurse practitioner	107	72 (67%)
Occupational therapist	108	106 (98%)
Psychologist	108	106 (98%)
Social worker	107	66 (62%)
Speech therapist	108	96 (89%)
Dietician	108	97 (90%)
Exercise therapist	108	63 (58%)
Creative therapist	107	62 (58%)

Table 1: Reported structure of physiotherapy services for nursing home residents with dementia in nursing homes in the Netherlands (*continued*)

Characteristics of the nursing home	***N respondents***	**Results**
Spiritual counselor	108	17 (16%)
Recreational worker	108	10 (9%)
Therapy assistant	108	4 (4%)
Multidisciplinary meetings		
Periodic multidisciplinary meetings; *n* respondents (%)	108	100 (93%)
Yearly frequency of multidisciplinary meetings; mean (SD)	95	2.0 (0.61)
Presence of specialized PT's; *n* respondents (%)		
Geriatric PT	107	50 (47%)
Manual PT	107	3 (3%)
Pelvic floor PT	107	0 (0%)
Psychomotor PT	107	2 (2%)
Pediatric PT	107	1 (1%)
Oncology PT	107	2 (2%)
Sport PT	107	2 (2%)
Master degree not recognized by the Royal Dutch Physiotherapy Association (Musculoskeletal echography, Healthy Aging, Physiotherapy sciences, Movement sciences, Neuro-rehabilitation)	107	11 (10%)
Non-treatment related activities		
Providing training; *n* respondents (%)	107	79 (74%)
Providing training; hours spent monthly (SD)	107	6.0 (16.3)
Physiotherapy meetings; *n* respondents (%)	104	102 (98%)
Physiotherapy meetings; hours spent monthly (SD)	104	3.7 (6.6)
Multidisciplinary team meetings (resident care); *n* respondents (%)	105	100 (95%)
Multidisciplinary team meetings (resident care); hours spent monthly (SD)	105	5.8 (13.6)
Multidisciplinary team meetings (non-resident care); *n* respondents (%)	106	99 (93%)
Multidisciplinary team meetings (non-resident care); hours spent monthly (SD)	106	4.7 (8.7)
Topics of trainings; *n* respondents (%)		
Transfers	79	73 (92%)
Risk of falls	79	35 (44%)
Compression materials	79	31 (39%)
Pressure ulcers	79	23 (29%)
Occupational health and safety	79	49 (62%)
Sensory Integration	79	6 (8%)
Geriatric syndromes education (Parkinsons. dementia)	79	6 (8%)
Passive mobility techniques	79	5 (6%)
Movement and exercise	79	4 (5%)

Regarding the process (Table 2), an average of 24% of residents received physiotherapy with a mean frequency of 1.7 times per week. Assessment instruments were used by 70% of respondents, with the POMA Tinetti test being the most prevalent instrument. All respondents reported employing individual exercise therapy sessions. Besides exercise therapy, therapeutic advice to nursing home staff (95% of respondents) and family (57% of respondents) was reported.

Table 2: Survey results on the process of physiotherapy services for nursing home residents with dementia in nursing homes in the Netherlands

Treatment frequency; mean (SD)	***N respondents***	**Results**
Number of individual residents treated in the last month	105	12.3 (8.4)
Weekly treatment frequency	97	1.7 (0.8)
% of residents receiving physiotherapy		23.6 (18.4)
Utilization of assessments and measurements; *n* respondents (%)		
Number of respondents that used a test or measurement in the last month	105	70 (67%)
Type of assessment or measurement; *n* respondents (%)		
Visual Analog Scale – functioning	68	13 (19%)
Numeric Pain Rating Scale	69	28 (41%)
Visual Analog Scale – Pain	68	18 (26%)
Barthel Index	68	10 (15%)
Six minute walk test	69	29 (42%)
Berg Balance Scale	69	23 (33%)
Functional Ambulatory Categories	70	48 (69%)
Range of motion by goniometer	68	9 (13%)
Modified Ashworth Scale	68	6 (9%)
Handheld dynamometer	68	26 (38%)
Medical Research Council - strength scale	70	43 (61%)
Timed Chair Stand Test (variations of)	69	30 (43%)
Timed Up and Go test	69	38 (55%)
Performance Oriented Mobility Assessment (Tinetti Test)	68	53 (78%)
Short Physical Performance Battery	67	19 (28%)
Motricity Index, Figure 8 walk test, Two Minute Step test	67	2 (3%)
Ten meter walk test, Ficsit 4	67	3 (4%)
Elderly Mobility Scale	67	5 (7%)
One Repetition Maximum, PACSLAC-D, Nijmegen Orthopedic Gait Analysis, Paratonia Assessment Scale, Trunc Control Test,	67	1 (1%)
Therapy outcomes; *n* respondents (%)		
Mobility	104	94 (90%)
Pain	104	41 (39%)

Table 2: Survey results on the process of physiotherapy services for nursing home residents with dementia in nursing homes in the Netherlands (*continued*)

Treatment frequency; mean (SD)	***N respondents***	**Results**
Risk of falls	104	76 (73%)
Transfers	104	86 (83%)
Pressure ulcers	104	7 (7%)
Sarcopenia/muscle strength	104	13 (13%)
Paratonia	104	9 (9%)
Behavioural symptoms	104	17 (16%)
Oedema	104	11 (11%)
Wound management, pelvic funtion, weight control	104	0 (0%)
Composition of exercise therapy; *n* respondents (%)		
Individual exercise therapy	104	104 (100%)
Group exercise therapy	104	37 (36%)
Therapeutic modalities; *n* respondents (%)		
Exercise	104	104 (100%)
Therapeutic modalities (cold/heat/electro/light), dry needling, acupuncture	104	(< 5%)
Medical taping	104	17 (16%)
Manual therapy (manipulations/passive mobilisations/massage)	104	42 (40%)
Relaxation and breathing exercises	104	34 (33%)
Prescribing unsupervised exercises	104	40 (38%)
Recommendations on mobility and walking aids	104	97 (94%)
Advice/coaching	104	97 (94%)
Location of treatment; *n* respondents (%)		
Gymnasium	104	83 (80%)
Examination room	104	24 (23%)
Residents' room	104	95 (91%)
Common room	104	84 (82%)
Garden from the nursing home	104	30 (29%)
Public outdoors	104	27 (26%)
Advisory role; *n* respondents (%)		
Advice to healthcare staff	104	99 (95%)
Advice to informal caregivers	104	59 (57%)
Involvement of informal caregivers in decision making		
Involved informal caregiver in decision making last month; *n* respondents (%)	104	79 (76%)
Frequency of involvement per month; mean (SD)	104	4.0 (4.1)
Involvement of residents in decision making		
Involved resident in decision making last month; *n* respondents (%)	104	81 (78%)
Frequency of involvement per month; mean (SD)	104	5.9 (7.6)

Table 2: Survey results on the process of physiotherapy services for nursing home residents with dementia in nursing homes in the Netherlands (*continued*)

Treatment frequency; mean (SD)	***N respondents***	**Results**
Method of communication with informal caregivers; *n* respondents (%)		
Phone	104	69 (68%)
Face to face	104	83 (81%)
Digital patient file	104	42 (41%)
E-mail	104	26 (25%)
Whatsapp	104	10 (10%)
Via nursing staff	104	3 (3%)
Initiative of communication with informal caregivers; *n* respondents (%)		
Physiotherapist	104	90 (88%)
Physician	104	23 (22%)
Nursing staff	104	46 (45%)
Informal caregiver	104	58 (57%)
Residents	104	13 (12%)

Practice variation was detected in 44% of the structure elements and 36% of the process elements of the survey.

Discussion

The findings highlight both similarities and variations in the delivery of physiotherapy services for nursing home residents with dementia. Variation in the availability of physiotherapy services aligns with the findings of previous studies.[4] Consensus was present regarding multidisciplinary collaboration, which can be perceived as beneficial, since many geriatric syndromes like sarcopenia, depression and risk of falls require a multidisciplinary approach.[9,10] Besides exercise therapy, physiotherapists have a large advisory role on mobility, risk of falls, waking aids and occupational health and safety. This is new information, since physiotherapy services in previous reviews were limited to pain management and treating pressure ulcers.[4] Our study answers previous research questions, namely which factors attribute to practice variation.[4,5] Future research could explore which elements are favorable and should be incorporated into daily physiotherapy practice.

Despite the diverse characteristics within the population of nursing home residents with dementia, we emphasize the importance of defining physiotherapy and nursing home standards. Future studies should focus on examining which elements of the structural and procedural framework are favorable and should be integrated into daily practice.

Author contributions

DB, CS, SS and TVV conceptualized the study. DB and SS developed the survey. DB, CS, SS and TVV drafted the manuscript. DB and SS performed the data analysis. All authors read, provided feedback and approved the final manuscript.

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Conflict of interest statement

The authors have no conflicts.

Sponsor's role

None

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