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Original Study

Physiotherapists' Perceived Motivators and Barriers for Organizing Physical Activity for Older Long-Term Care Facility Residents

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A B S T R A C T

Background: Information regarding factors that hinder or stimulate older adults in long-term care facilities (LTCF) for being physically active is available in the literature, but much less is known regarding perceived motivators and barriers among physiotherapists (PTs) to organize physical activity (PA) in LTCF.
Objective: The main purpose of this study was to examine factors influencing PTs to organize PA in LTCF for older adults. A secondary goal was to examine the PTs' knowledge about and their barriers at the PA guidelines for older adults of the World Health Organization (WHO).
Methods: A mixed qualitative and quantitative study was carried out using semistructured interviews (n = 24) followed by an online survey (n = 254). As a frame the social-ecological model (McLeroy) was used, distinguishing factors at the intrapersonal, interpersonal, and community level.
Results: In the qualitative component the PTs reported 41 motivators and 35 barriers for organizing PA in LTCF. The survey revealed that although the majority of the respondents (71%) are convinced of the usefulness of PA in LTCF, 84% are not familiar with the WHO-guidelines. Seventy-five percent of the respondents believe that the WHO-guidelines are not feasible for LTCF-residents. The strongest motivators on the intrapersonal level were maintaining the independence of the residents (98%), reducing the risk of falling (98%), and improving the physical (93%) and psychological (90%) wellbeing of LTCF-residents. The social interaction among LTCF-residents (91%) during PA was the strongest motivator on the interpersonal level. Motivators on the community level are the belief that PA is the basis of their physiotherapeutic work (89%) and that offering varied activities avoids PA becoming monotonous (71%). Barriers on the intra- and interpersonal level were of less influence. On the community level, they felt hindered to organize PA because of lack of time (38%) and the overload of paperwork (33%).
Conclusions: This study described different motivators and barriers for PTs to organize PA in LTCFs. The majority does not know the WHO guidelines regarding the amount of PA for adults aged 65 and over. Although they agree that the guidelines are useful, they believe the guidelines are not feasible. There is a need for a multifactorial strategy that acts on different determinants in order to stimulate PA in LTCF.

The advantages of physical activity (PA) on health, even at old age, are well documented. Regular PA has preventive effects on cardiovascular conditions, type 2 diabetes, and degenerative diseases such as osteoporosis and osteoarthritis.[1,2] The World Health Organization (WHO) recommends for older adults aged 65 years and older at least 150 minutes aerobic PA at moderate intensity (<6 metabolic equivalents) or 75 minutes aerobic PA at vigorous intensity (>6 metabolic equivalents) per week or an equivalent combination of aerobic PA at moderate and vigorous intensity. Aerobic PA has to be increased up to 300 minutes at moderate intensity or 150 minutes at vigorous intensity per week in order to obtain additional health benefit. In addition, muscle-strengthening of major muscle groups should be performed on 2 or more days a week. Older adults with poor mobility should also exercise balance on 3 or more days a week.[3]

Although PA is an important tool to counter frailty in older adults, few older adults engage in PA. Only 38% of the people ≥75 years attains the recommended level of PA, compared with 58 % of the

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younger adults (18–29 years). For older long-term care facility (LTCF) residents these rates are even lower.[4] Most of the LTCF residents spent at least 17 hours a day in bed.[4] A French study describing participation in exercise classes of 5402 LTCF residents, showed that only 35% were participating in exercise classes and that most of them had an exercise frequency of ×1/week or less.[5] Being physically inactive leads to the loss of muscle mass and muscle power and a reduction in mobility, which results in frailty, fractures, falls, loss of function, and immobility.[6,7]

In a Cochrane literature review, Forster et al[8] concluded that PA is feasible for older adults in LTCF, which can lead to significant improvements in mobility and in physical functioning. Stathi and Simey[9] showed a significant improvement of quality of life in older adults aged 85 years and over living in a LTCF following a physical exercise program. The LTCF residents followed a 1-hour group session (×1/week). This session included 10-minute warm-up, followed by 10 minutes of seated endurance exercise, 15 minutes of supported balance work, and 10 minutes of cooling down. Because of the exercise-induced amelioration of physical functioning and mobility, these older LTCF residents became more independent and increased their social interaction.[9] Also for older adults with dementia, a common condition in LTCF residents, PA has beneficial effects as documented in a literature review by Blankevoort et al.[10]

The factors that influence older adults to engage in PA are already well described for community dwelling older adults, but only a few studies examined motivators and barriers for PA in LTCF residents.[11–14] However, besides individual factors, different environmental and structural factors influence the amount of PA in LTCF residents.[15,16] For implementing PA, administrators of LTCFs are dealing with different challenges related to funding, such as human resources and infrastructure.[17] In fact, LTCF staff has a significant part in advocating for more PA.[16] Previously, Ingrid and Marcella[14] showed that nurses can play an important role in the engagement of LTCF residents in PA. However, a professional exercise instructor, such as a physiotherapist (PT), can be considered as a key person in organizing PA sessions in LTCFs.[5] Surprisingly, the perceived motivators and barriers of PT to organize PA in LTCFs are not yet documented. In the light of the limited available data a qualitative research was combined with a survey searching for PTs' motivators for and barriers to organize PA sessions in LTCFs. We also verified the PTs' knowledge of the WHO recommendations regarding PA in older persons and whether they adhered to them.

Methods

Overview of Research Design

The main objective in this exploratory study was to identify factors that motivate or hinder PTs in the implementation of PA sessions in LTCFs. In this study, the "across method triangulation" was used.[18] Because of the lack of relevant literature data, first a qualitative study was conducted. The data obtained from in-depth interviews of 24 PTs working in LTCFs were used to develop the survey instrument that was used in the quantitative phase.[18,19] Figure 1 summarizes the sequential design.

Preliminary Phase

In this phase, the socio-ecological model (SEM) of Mc Leroy was selected as a framework to order the different motivators and barriers[20] in intrapersonal, interpersonal, community, and environmental factors.

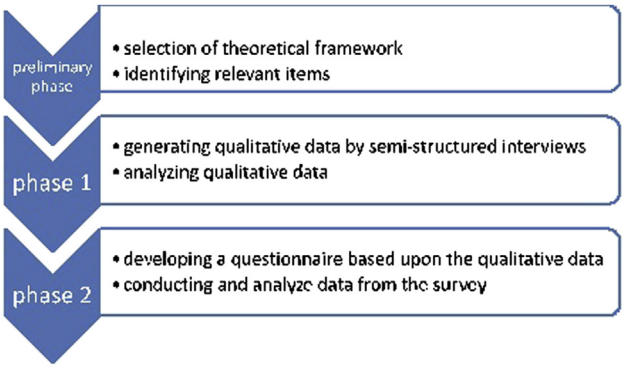

Fig. 1. Research design.

Phase 1: Qualitative Research

Respondents

Twenty-four PTs (9 male and 15 female) from Flanders (the Dutch-speaking region in Belgium) participated in this qualitative study (Table 1). PTs were eligible to participate if they have been working at least 50% of a full-time equivalent during the previous 6 months as a PT in a LTCF. PTs working only in a psychogeriatric department were excluded.

Recruitment

A public database from the Ministry of Welfare and Health (Flanders, Belgium) including all Flemish LTCFs was used to recruit PTs. A multistage stratified random sampling was performed. A priori we aimed to include 20 to 24 participants. Therefore, 49 LTCFs were randomly selected from the database (Figure 2). Twenty-four PTs from the remaining LTCFs were invited to participate in the interviews. Because no new aspects emerged during the last 4 interviews, theoretical saturation was reached and no further interviews were organized.

Interviews

A semistructured interview schedule was developed for this study by an interdisciplinary team (a geronto-psychologist, 2 experienced PTs, and a social gerontologist). The creation of the interview guide was based upon a systematic review that the researchers conducted

Table 1
Characteristics of the Participants

Variables	Semistructured Interviews (N = 24)		Survey (N = 254)	
Gender	Male	Female	Male	Female
N	9 (38%)	15 (62%)	80 (32%)	174 (68%)
Mean age (years)	47 ± 8	42 ± 8	44 ± 10	42 ± 9
Age range				
21–30 years	0	1 (4%)	7 (3%)	16 (6%)
31–40 years	3 (13%)	4 (17%)	25 (10%)	63 (25%)
41–50 years	5 (21%)	6 (25%)	23 (9%)	71 (28%)
51–60 years	2 (8%)	3 (13%)	22 (9%)	22 (9%)
>60 years	0	0	3 (1%)	2 (1%)
Degree				
Bachelor	6 (25%)	9 (38%)	55 (22%)	121 (48%)
Master	3 (13%)	6 (25%)	19 (7%)	44 (17%)
Other	0	0	6 (2%)	9 (4%)
Length of employment in the LTCF (years)	13 ± 5	8 ± 5	14 ± 9	10 ± 8
Years of working experience in geriatrics/LTCF	16 ± 12	11 ± 7	17 ± 10	13 ± 8
Employment status in the LTCF				
100%	1 (4%)	5 (21%)	42 (17%)	32 (13%)
<100%	8 (33%)	10 (42%)	38 (15%)	142 (56%)

District	Public LTCF	Private Not-for profit LTCF	Total	(Public+ Private not for profit)/457 [%]	x24
Vl.-Brabant	29	65	94	20,5	9,874 = 10
Limburg	22	41	63	13,8	6,618 = 7
Oost-Vl.	67	92	159	34,8	16,7 = 17
West-Vl.	60	81	141	30,9	14,8 = 15
Total	178	279	457	100	49

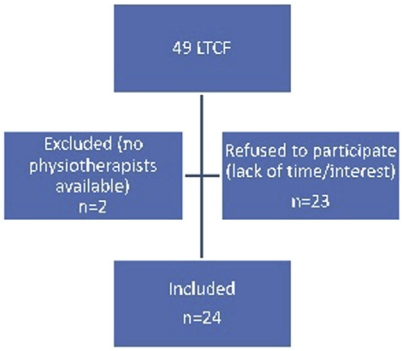

Fig. 2. Flow diagram displaying the selection of the LTCF in the qualitative part of the study.

on motivators and barriers for PA in the oldest old[11] and on the SEM as described by McLeroy et al.[20] The interview guide was pretested with PTs not included in the study sample.

The face-to-face interviews comprised 4 domains: characteristics of the respondent and the LTCF where he/she was working, an inventory of different physical activities offered in the LTCF, an inventory of the respondent's motivators and barriers for organizing PA, and the knowledge of and adherence to the recommendations of the WHO regarding PA for older persons.

Questions were open-ended. Each participant was interviewed separately at his/her work. The trained interviewer was neither privately nor professionally related to the respondents. The institute's Medical Ethics Committee (institutional review board 016) confirmed that this study was exempted from approval.

Data analysis

All 24 interviews were recorded with full consent of the participants and transcribed entirely verbatim. Answers that revealed motivators and barriers for PA were independently identified, coded, and clustered by 2 researchers (V.B. and N.G.). Data were analyzed with the deductive approach of qualitative content analysis. The different motivators and barriers were assigned to the different level of the SEM. Conflicts were discussed with a third researcher (E.G.) and resolved by consensus.

Phase 2: Quantitative Research

Participants

PTs were eligible to participate if they have been working at least 50% of a full-time equivalent during the previous 6 months as a PT in a LTCF. PTs were excluded when unable to understand Dutch and/or working only in a psychogeriatric department.

Recruitment

All 754 Flemish LTCFs were contacted by e-mail. Because 49 e-mail-addresses were unreachable, 705 LTCFs were successfully invited to participate. Two LTCFs refused collaboration to the study because of lack of staff, and in 1 LTFC there was no PT employed. Ten LTCFs replied that they had no permission of their board to participate in scientific studies. Another LTCF was declared bankrupt and had to close at the moment of the study.

Questionnaire

The content of the questionnaire was based on the results of phase 1 of this study and comprised 4 domains: (1) questions related to general characteristics of the respondent and the LTFC; (2) questions related to the PA sessions organized in the LTCF; (3) questions related to motivators and barriers for organizing PA sessions in the LTCF which were presented as statements concerning motivators (n = 39) and barriers (n = 42) for organizing PA sessions; and (4) questions related to the PT's knowledge and feasibility in LTCF of the WHO recommendations for PA and statements regarding barriers (n = 15) for implementing the WHO recommendations for PAs.

Data analysis

Statistical analysis was performed using IBM SPSS statistics 22.0 software (SPSS Inc, Chicago, IL). Differences between 2 groups were analyzed by independent samples *t*-test or χ^2 test for continuous data and frequency of responses on the statements, respectively Cronbach's alpha was used as a coefficient of internal consistency (values >0.70 were considered as acceptable). *P* values of < .05 were considered to be statistically significant. For the interpretation of the statements the 5-point Likert scale was recoded to a 3-point scale as 'agree' (by merging 'strongly agree' and 'agree'), 'neutral,' and 'disagree' (by merging 'strongly disagree' and 'disagree). Motivators and barriers were considered as "strong," "medium strong," or "less strong" if scored as 'strongly agree' or 'agree' by 67%–100%, 34%–66%, and 0%–33% of the respondents, respectively The relationship between the number of PA sessions per week that were organized by the respondents and the Likert scores (0–5 scale) on the statements regarding the different motivators and barriers was assessed by Spearman's rank-order correlation.

Results

Phase 1: Qualitative Research

Participants' age ranged from 29 to 59 years (mean age 44 ± 8 years) and were working in a LTCF between 1 and 30 years (mean 11 ± 8 years). From the interviews, 41 different motivators for and 35 barriers to organize PA in LTCFs were identified (Table 2). None of respondents were familiar with the WHO guidelines for PA in older adults. PTs reported that the WHO guidelines were not feasible for LTCF residents "because of their frailty status." They reported 9 different barriers to implement the WHO guidelines in a LTCF (Table 3) and suggested that adapted guidelines are needed for this population.

Phase 2: Quantitative Research

Characteristics of the respondents of the survey

(Table 1) A total of 254 PTs completed the online questionnaire. As can be seen in Table 1, their age ranged from 23 to 63 years (mean age 42 ± 9 years), and the majority was female (69%). Most respondents (71%) had a bachelor's degree in physiotherapy, whereas 26% had a master's degree in physiotherapy and 3% had another degree such as an education in osteopathy. Forty percent of the PTs worked in a public LTCF, 51% in a LTCF owned by a private not-for-profit organization, and 9% in a private for profit-making LTCF.

Table 2
Motivators and Barriers According to PTs for organizing PA for LTCF Residents

Motivators	Barriers
Intrapersonal level	
To reduce pain in LTCF residents	LTCF residents experiencing pain during PA
To prevent falls in LTCF residents	Risk of falling
To increase the self-efficacy of the LTCF residents	Fear (to hurt the LTCF residents)
PA is a meaningful activity for LTCF residents	Forcing LTCF residents to perform PA while they don't want to
Physical health benefits	Physical health impairment
Psychological health benefits	LTCF residents with mental problems (eg, dementia)
Enjoyment/pleasure through organizing PA	The health condition of the PTs
Satisfaction through organizing PA	Lack of experience to organize PA
Confident to book results	Usefulness of organize PA for certain LTCF (eg, palliative patients)
Sportive in nature	It takes a lot of energy of me
Because I'm educated to organize PA	You don't have to make them better, you just have to maintain the current level of function
To maintain the current functional status of the LTCF residents	It doesn't matter what you do, it just has to be fun
To maintain the self-sustainability of the LTCF residents	
Negative impact of physical inactivity	
The effect of a successful experience	
To enhance the quality of life of the LTCF residents	
Interpersonal level	
Good interaction with older LTCF residents	Lack of appreciation
Not afraid of physical contact with LTCF residents	Criticism of other PTs
LTCF residents are grateful	Lack of support by other colleagues
The family of the LTCF residents is grateful	Lack of support by the management
Social interaction during PA sessions	Lack of support of the family of the LTCF residents
To avoid loneliness	Criticism of family members
Full attention for the LTCF residents during individual PA sessions	Lack of knowledge of the family members
LTCs are stimulated by seeing others performance	Lack of knowledge of the nurses/nursing aides
To reduce the care burden of the colleagues	Deviant behavior of the LTCF residents
Encouragement by other colleagues	Refusal of the LTCF resident to perform PA
Colleagues ask me to organize PA	(Bad) relation between the LTCF resident and the PTs
LTCF residents asks me to organize PA	Conflicts between LTCF residents
Interaction with the family of the LTCF residents	Interaction with older adults in general
It reminds me of my own parents	LTCF residents expect that they will be served, not activated
Community level	
Having appropriate material	Lack of material
Embedded in the management of the LTCF	Medication management
Practical organization in the LTCF	Lack of financial resources
It brings variation in the job	Lack of infrastructure
Having enough time to organize PA	Practical organization
Infrastructure of the LTCF	Lack of time
Working alone as a physiotherapist	Lack of staff
Working in a team of PTs	Too much paper work
Because it is obliged by the law to organize PA	Legal restrictions
Because I'm paid to organize PA	
Because PA is free of charge for LTCF residents	

Physical activities organized in the LTCF

Most PTs (84%) agreed that organized PA implies that there is a coach who assists the residents during the PA session. They also strongly agreed (79%) that PA had to be organized on a regular basis but agreed less strongly with the statement that PA needs to be performed for at least 10 minutes (57%). Eighty-five percent of the respondents indicated that they organize PA sessions in their LTCF; 45% of them do this more than twice a week. The average duration of a PA session was 37 ± 29 minutes. As shown in Table 4, the most frequently reported forms of organized PA were seated gymnastics (81%), gymnastics (45%), cycle-ergometer (45%), ball games (21%), and dancing (17%).

Table 3
Barriers for Implementing the WHO Guidelines in LTCFs According to PTs—Qualitative Study

Barriers
Intrapersonal Level
The guidelines are not feasible for LTCF residents
The guidelines are not necessary for LTCF residents
The guidelines do not provide custom care
Interpersonal Level
Lack of support from other colleagues in the LTCF
Community Level
Lack of time
Practical obstacles
Lack of material
Lack of infrastructure
Lack of staff

Motivators for organizing PA

Motivators are presented in Table 5 on each level of the SEM in descending order of frequency.

Motivators at intrapersonal level. Seventeen motivators on the intrapersonal level were presented to the participants (Cronbach's alpha = 0.83). Fifteen statements were marked as a strong motivator on this level, and 2 were marked as medium strong. The motivation 'to make residents better' seems of great importance because the top 10 motivators within this domain all refer to gain improvement through PA. The PTs are motivated because they want to maintain the independence of the residents (98%) or to reduce the risk of falling (98%). Almost all the respondents are motivated to organize PA because they recognize the physical (93%) and/or psychological (90%) benefits of PA. This corresponds to the data obtained in phase 1: "You know that it helps to remain

Table 4
PAs Offered in the LTCF

Parameter	Duration/Type	Proportion*
The amount of PA sessions a week	<2 sessions a week	55%
	>2 sessions a week	45%
Duration of the PA sessions	<10 minutes	1%
	10–30 minutes	52%
	>30 minutes	47%
Kind of activities	Cycle-ergometer	45%
	Gymnastics	45%
	Swimming	7%
	Seated gymnastics	81%
	Dancing	17%
	Gymnastics with prescholars	10%
	Ball games	21%

*Proportion of the PTs who reported that they organize PA sessions in their LTCF (n = 216).

independent and that it can reduce pain. You know that the pain will decrease. And you know that is good for the mental wellbeing of the resident… Maintaining their strength as long as possible." (female, 29 years) "I'm motivated by the fact that the resident gets better from it (PA) and keeps his mobility or that he can keep doing the things he does." (female, 48 years).

Motivators at interpersonal level. Ten different statements concerning motivators for organizing PA were presented to the participants (Cronbach's alpha = 0.71). Five of these statements can be indicated as strong. Social interaction is a key factor on this level. PTs are motivated because PA initiates social interaction among the residents (91%) as well as between the residents and the PT (76%). This corresponds to the data obtained in phase 1: "The social contact… Here, I work on the ground floor, they can meet the residents from the second floor. A lot of people know each other, all of our residents lived in the neighborhood. And sometimes it was a long time that they saw each other. They find it great…. And in the physiotherapy room they laugh a lot. It's not dull there…" (female, 37 years).

The respondents were also motivated because they received appreciation from the LTCF residents (85%). The PTs are also stimulated to organize PA to reduce the burden of care for their colleagues (89%). This corresponds to the data obtained in phase 1: "For the nursing aides, when they, the residents, are in a good physical condition, the burden for the nursing aides goes down. As long as somebody stays mobile, they don't have to sit in a wheelchair and they can do everything by themselves?" (female, 48 years).

Motivators at community level. Twelve different statements concerning motivators for organizing PA were presented to the

Table 5
Motivators According to PTs for Organizing PA for LTCF Residents (N = 254)

Statements	Agree	Neutral	Disagree
Motivators Intrapersonal Level			
1) I recognize the benefits of PA*.	249 (98%)	4 (2%)	1 (0%)
2) to maintain the independence of the residents*	248 (98%)	4 (2%)	2 (1%)
3) to reduce the risk of falling*.	248 (98%)	4 (2%)	2 (1%)
4) I am aware of the negative consequences for the wellbeing of the older residents if they are not physically active*.	241 (95%)	10 (4%)	3 (1%)
5) I believe that the level of PA by older residents is low*.	240 (95%)	12 (5%)	2 (1%)
6) I feel satisfied when older residents indicate that they benefit from PA*.	239 (94%)	12 (5%)	3 (1%)
7) I can enhance the physical wellbeing of the older residents*.	236 (93%)	16 (6%)	2 (1%)
8) I'm educated to maintain or enhance the physical capacity of patients*.	233 (92%)	18 (7%)	3 (1%)
9) I can enhance the psychological wellbeing of the older residents*.	228 (90%)	22 (9%)	4 (2%)
10) I'm convinced that it is a use full way to spend time for older residents*.	227 (89%)	25 (10%)	2 (1%)
11) I believe that older residents can experience success*	221 (87%)	29 (11%)	4 (2%)
12) PA gives older residents insight in what things they still can do*.	208 (82%)	41 (16%)	5 (2%)
13) PA gives me the feeling that I'm doing a useful job*.	202 (80%)	44 (17%)	8 (3%)
14) I like the social intercourse with older adults*.	199 (78%)	49 (19%)	6 (2%)
15) I know that PA can reduce pain*.	183 (72%)	66 (26%)	5 (2%)
16) I am determined to achieve the preconceived goals*.	133 (52%)	102 (40%)	19 (7%)
17) I am sportive in nature*.	131 (52%)	81 (32%)	42 (17%)
Motivators Interpersonal Level			
18) Social interaction between the residents during PA sessions*	231 (91%)	21 (8%)	2 (1%)
19) I make the residents more fit so the care burden of the colleagues can be reduced*	225 (89%)	27 (11%)	2 (1%)
20) The residents appreciate it*	217 (85%)	35 (14%)	2 (1%)
21) good interaction with the residents*	194 (76%)	55 (22%)	5 (2%)
22) I'm not afraid of physical contact with residents*	173 (68%)	72 (28%)	9 (4%)
23) The residents are stimulated by seeing others performance*	154 (61%)	81 (32%)	19 (7%)
24) The family of the residents is appreciate it*	138 (54%)	104 (41%)	12 (5%)
25) The residents asks me to organize PA*	136 (54%)	90 (35%)	28 (11%)
26) I receive support from other colleagues*	103 (41%)	109 (43%)	42 (17%)
27) Colleagues ask me to organize PA*	50 (20%)	110 (43%)	94 (37%)
Motivators Community Level			
28) PA is the base of my profession*	226 (89%)	23 (9%)	5 (2%)
29) I bring variation in the PA activities so PA is not boring*	181 (71%)	66 (26%)	7 (3%)
30) The way PA is organized (eg, not too many residents in a group session) shifts,*	162 (64%)	76 (30%)	16 (6%)
31) Infrastructure of the LTCF is appropriate*	141 (56%)	65 (26%)	48 (19%)
32) Having enough time to organize PA*	140 (55%)	83 (33%)	31 (12%)
33) Working in a team of PTs*	133 (52%)	68 (27%)	53 (21%)
34) I know from my colleagues what the LTCF is interested in and I can adapt my activities to it*	125 (49%)	94 (37%)	35 (14%)
35) I am having the appropriate material to organize PA*	110 (43%)	93 (37%)	51 (20%)
36) The management of the LTCF orders me to organize it*	81 (32%)	131 (52%)	42 (17%)
37) It is obliged by the law to organize PA*	41 (16%)	106 (42%)	107 (42%)
38) Working alone as a PT and I can do what I want*	40 (16%)	66 (26%)	148 (58%)
39) Because I'm paid to organize PA*	28 (11%)	95 (37%)	131 (52%)

*$P < .05$.

Table 6
Barriers According to PTs for Organizing PA for LTCF Residents (N = 254)

Statements	Agree	Neutral	Disagree
Barriers intrapersonal level			
1) Forcing LTCF resident to perform PA while they don't want to*	153 (60%)	70 (28%)	31 (12%)
2) Contraindication in the LTCF resident*	70 (28%)	65 (26%)	119 (47%)
3) LTCF resident with dementia*	53 (21%)	42 (17%)	159 (63%)
4) It is not useful to organize PA for palliative LTCF residents*	42 (17%)	75 (30%)	137 (54%)
5) I find it difficult to organize PA for LTCF residents with mental problems*	33 (13%)	37 (15%)	184 (72%)
6) Residents are experiencing pain during PA*	28 (11%)	44 (17%)	182 (72%)
7) The resident must determinate the duration of the PA session himself*	22 (9%)	61 (24%)	171 (67%)
8) Risk of falling*	18 (7%)	22 (9%)	214 (84%)
9) I do know how to accord the intensity of the PA activities*	18 (7%)	33 (13%)	203 (80%)
10) Being a PT is a hard job, it takes a lot of energy of me*	15 (6%)	39 (15%)	200 (79%)
11) It is difficult for me to cope with older adults who have physical health problems*	12 (5%)	28 (11%)	214 (84%)
12) Fear to overburden the resident*	9 (44%)	29 (11%)	216 (85%)
13) Lack of experience to organize PA*	8 (3%)	19 (7%)	227 (89%)
14) I believe that PA is not useful for residents who are physically fit.*	8 (3%)	6 (2%)	240 (94%)
15) The offer of PA activities has to be limited.*	7 (3%)	13 (5%)	234 (92%)
16) You don't have to make them better, you just have to maintain the current level of function*	6 (2%)	18 (7%)	230 (91%)
17) The health condition of the PTs*	3 (1%)	12 (5%)	239 (94%)
18) PA is unnecessary*	2 (1%)	8 (3%)	244 (96%)
Barriers interpersonal level			
19) Deviant behavior of the resident*	64 (25%)	58 (23%)	132 (52%)
20) The passive attitude of the resident (resident expect that they will be served, not activated)*	52 (20%)	37 (15%)	165 (65%)
21) Lack of support by nurses or nursing aides*	33 (13%)	55 (22%)	166 (65%)
22) Lack of support by the management*	19 (7%)	37 (15%)	198 (78%)
23) Conflicts between residents*	19 (7%)	64 (25%)	171 (67%)
24) Family don't want to buy adapted shoes and clothing*	16 (6%)	68 (27%)	170 (67%)
25) Bad relation between some residents and the PTs*	14 (6%)	36 (14%)	204 (80%)
26) Lack of appreciation*	13 (5%)	42 (17%)	199 (78%)
27) Criticism of other PTs who are not working in a LTCF*	12 (5%)	29 (11%)	213 (84%)
28) Colleagues say it is useless*	6 (2.%)	31 (12%)	217 (85%)
29) Criticism of family members*	4 (2%)	26 (10%)	224 (88%)
30) I'm too close with the resident and I've lost my authority as a therapist*	3 (1%)	12 (5%)	239 (94%)
Barriers community level			
31) Lack of time*	96 (38%)	44 (17%)	114 (45%)
32) I have other jobs besides physiotherapeutic acting (eg, paperwork)*	85 (33%)	67 (26%)	102 (40%)
33) Sick or colleagues who are on leave are not replaced adequately*	65 (26%)	66 (26%)	123 (48%)
34) Practical reasons*	61 (24%)	41 (16%)	152 (60%)
35) Lack of appropriate infrastructure*	59 (23%)	38 (15%)	157 (62%)
36) Financial restrictions (score on the Katz scale determines the allowances)*	58 (23%)	48 (19%)	148 (58%)
37) Lack of staff*	55 (22%)	73 (29%)	126 (50%)
38) Lack of material*	41 (16%)	44 (17%)	169 (67%)
39) The management does not invest in PA*	38 (15%)	37 (15%)	179 (70%)
40) Restrictions in nomenclature*	37 (15%)	72 (28%)	145 (57%)

*$P < .05$.

participants (Cronbach's alpha = 0.71). PTs felt motivated to organize PA because they agree that PA is one of the fundaments of their profession (89%). Seventy-one percent of the PTs agreed that bringing variation in the PA activities so that the PA does not become boring and helps them to keep motivated to organize PA. This corresponds to the data obtained in phase 1: "Well, it (organizing PA) is also a bit like a job experience, it gives you a good feeling, it makes you feel useful… You're not just walking around here… and you want to achieve things… you can reach goals…" (male, 44 years).

A higher frequency of PA sessions was significantly related to higher agreement with the following statements: 'the internal management of the LTCF regarding the organization of PA ($r_s = 0.18$, $P \leq .01$), 'I know from my colleagues what the LTCF resident is interested in and I can adapt my activities to it' ($r_s = 0.13$, $P = .03$) and 'having enough time to organize PA' ($r_s = 0.35$, $P < .01$).

Barriers for organizing PA

Barriers (N = 40) for organizing PA are presented in descending order of frequency (Table 6).

Barriers at intrapersonal level. Eighteen different statements concerning barriers for organizing PA were presented to the participants (Cronbach's alpha = 0.84). A low frequency of PA sessions was significantly related to higher agreement with the statements: 'I find it difficult to organize PA for LTCF residents with dementia'($r_s = -0.14$, $P = .03$), 'being a physiotherapists is a hard job, it takes a lot of energy of me' ($r_s = -0.15$, $P = .02$), 'lack of experience' ($r_s = -0.14$, $P = .03$), 'difficulties how to accord the intensity of PA levels' ($r_s = -0.14$, $P = .02$), and 'you don't have to make them better, you just have to maintain the current level of function' ($r_s = -0.16$, $P = .01$).

Barriers at interpersonal level. Twelve different statements concerning barriers for organizing PA were presented to the participants (Cronbach's alpha = 0.78). For the respondents most of the presented barriers were of no importance. Older LTCF residents who are showing inconvenient behavior (eg, laughing with or railing at other residents, spitting …) (25%) and older residents who are acting passively (20%) were mentioned as barriers on this level.

There was a negative correlation between the amount of PA organized in the LTCF and the barriers 'lack of appreciation' ($r_s = -0.14$, $P = .03$), 'lack of support of the management' ($r_s = -0.15$, $P = .02$), 'I'm too close with the LTCR,' and I've lost my authority as a physiotherapist' ($r_s = -0.14$, $P = .03$).

Table 7
Barriers for Implementing the WHO Guidelines (N = 254)

Statements	Agree	Neutral	Disagree
1) There is a significant difference between older adults in general (aged 65 years and over) and the mean age of residents in LTCF*.	203 (80%)	28 (11%)	23 (9%)
2) The guidelines are not realistic for older adults who live in LTCF*.	186 (73%)	45 (18%)	23 (9%)
3) PTs have to offer tailored care and not work according a fixed exercise program*.	186 (73%)	41 (16%)	27 (11%)
4) Without individual support and succession implementing the guidelines will not work out*.	176 (69%)	50 (20%)	28 (11%)
5) It will take a lot of time*.	162 (64%)	55 (22%)	37 (15%)
6) The guidelines are not suitable for LTCF residents with a complex co-morbidity*.	155 (61%)	67 (26%)	32 (13%)
7) There is to less time to implement the guidelines*.	154 (61%)	64 (25%)	36 (14%)
8) The guidelines are not feasible for residents aged 80 and over*.	153 (60%)	52 (20%)	49 (19%)
9) It is practically impossible*.	143 (56%)	59 (23%)	52 (20%)
10) There is a lack of staff to implement the guidelines*.	142 (56%)	73 (29%)	39 (15%)
11) It would cause problems in the multidisciplinary day planning*.	118 (46%)	83 (33%)	53 (21%)
12) It is only applicable for residents with the same physical capacities*.	102 (40%)	82 (32%)	70 (28%)
13) The equipment for PA in the LTCF is insufficient.	89 (35%)	80 (32%)	85 (33%)
14) Other disciplines will not be supportive*.	79 (31%)	105 (41%)	70 (28%)
15) The guidelines are not useful for older LTCF residents*.	68 (27%)	86 (34%)	100 (39%)

*$P < .05$.

Barriers at community level. Ten different statements concerning barriers for organizing PA were presented to the participants (Cronbach's alpha = 0.87). Lack of time appears as a less strong barrier for the respondents (38%). There was a negative correlation between the amount of PA organized in the LTCF and the barriers 'financial restrictions' ($r_s = -0.14$, $P = .03$), 'practical reasons' ($r_s = -0.21$, $P \leq .01$), and 'lack of time' ($r_s = -0.23$, $P < .01$).

Implementation of the WHO guidelines regarding PA

Most of the PTs (84%) are not familiar with the WHO guidelines for PA. Although the majority of the respondents is convinced that the guidelines are useful (71%), only 25% believe it is realistic to implement the guidelines in their LTCF. There is a significant gender inequality for the implementation of the guidelines: 72% of the respondents who find it unrealistic to implement the guidelines were female ($P = .05$).

Ninety-one percent of the respondents who are working in a private LTCF find it useful to implement the guideline compared with 75% of the respondents who are working in a public LTCF and 64% of the respondents who are working in a not-for-profit LTCF ($P = .05$).

Although more PTs with a master's degree (83%) were convinced of the usefulness of the guidelines than PTs with a bachelor's degree (66%) ($P = .05$), 85% of them think it is unrealistic to implement the guidelines (vs 77% of the PTs with a bachelor's degree) ($P = .01$).

Barriers for implementing the WHO guidelines

Fifteen different statements concerning barriers for implementing the WHO guidelines were presented to the participants (Cronbach's alpha = 0.85). Barriers are presented in descending order of frequency (Table 7); 80% of the respondents indicate that there is a significant difference between older adults in general (aged 65 years and over) and residents of LTCFs, who are usually older. This corresponds to the data obtained in phase 1: "We have hardly people that are 65 years old. The mean age here is over 80. We even have 7 residents who are older than 100…. For me there is a big difference between someone who is just retired and someone who is retired for more than 20 years." (male, 49 years).

Most respondents indicate that the guidelines are not appropriate for older adults who need care on a long-term basis (73%). This corresponds to the data obtained in phase 1: "Residents are not only here to work on their physical capacity and health. They come here to live. This program would attack their functioning, I guess." (male, 38 years) More participants with a bachelor's degree (30%) than participants with a master's degree (20%) disagree with the statement that the WHO guidelines are not useful for older residents in LTCFs ($P = .041$). According to 70% of the PTs, implementing the guidelines will fail without individual support and guidance of the LTCF residents. This corresponds to the data obtained in phase 1: "For more than a year we installed an exercise circuit (fitometer) in the LTCF. In reality the circuit is not used by the LTCF residents. We (the PTs) have to assist the residents or they don't use it." (female, 42 years).

Seventy-seven percent of PTs with a master's degree agree with the statement that there is a lack of time to implement the WHO guidelines, compared with 54% PTs with a bachelor's degree ($P \leq .01$). Thirty-five percent of the respondents felt hindered to implement the WHO guidelines because of insufficient equipment. There were more respondents in profit making LTCFs (65%) who agreed upon this than respondents from public LTCFs (31%) or not-for-profit LTCFs (33%) ($P = .04$).

Sixty-four percent of the respondents who were not familiar with the guidelines felt hindered to implement them because they think the guidelines are not suitable for older adults aged 80 and over ($P \leq .01$). Sixty-two percent of the respondents who were not familiar with the guidelines felt hindered to implement them because of the complex morbidity of the LTCF resident ($P = .03$); there was a tendency for the conviction that they are not realistic for older adults who live in LTCFs ($P = .05$).

A lower frequency of PA organized in the LTCF was significantly related to the barriers 'the guidelines are not feasible for residents aged 80 and over' ($r_s = -0.202$, $P \leq .01$), 'the guidelines are not feasible for LTCR with a complex comorbidity' ($r_s = -0.135$, $P = .03$), 'the guidelines are not useful for older LTCF residents' ($r_s = -0.13$, $P = .04$), 'it takes a lot of time' ($r_s = -0.19$, $P \leq .01$), 'lack of time' ($r_s = -0.23$, $P \leq .01$), 'lack of staff' ($r_s = -0.24$, $P \leq .01$), 'it would cause problems in the multidisciplinary day planning' ($r_s = -0.20$, $P \leq .01$), 'it is practically impossible' ($r_s = -0.22$, $P \leq .01$).

This corresponds to the data obtained in phase 1: "We have 42 residents here, if I want to give them 3 PA sessions a week, well, than you need 3 or 4 PTs instead of 1 full-time equivalent." (male, 38 years).

Discussion

This is one of the first studies reporting motivators and barriers to organize PA in LTCFs according to PTs, and exploring their knowledge and their constraints of the WHO guidelines regarding PA for older adults.

Physical Activities Offered in the LTCFs

Although PTs do organize PA in their work environment, the amount of PA is often insufficient to be effective.[21] Most of the PTs

reported that they only organize PA once a week or a month. Only a minority organizes PA more than 2 times a week. The literature about the amount of PA of LTCF residents is rather scarce. A study of de Souto Barreto et al[5] showed that French LTCF residents exercise once a week or less. When they do organize PA sessions, the duration of the sessions is long enough taking into account that the minimum duration as suggested by the WHO is 10 minutes.

In our study, the most frequently proposed PA activities in LTCFs were seated gymnastics. However, seated range of motion exercises have been shown to be less beneficial than functional fitness programs for institutionalized older adults.[22]

Motivators and Barriers for Organizing PA

In the qualitative part of our study, the PTs reported different motivators and barriers for PA. Interestingly, these factors are in general very similar to the motivators for and barriers to PA as reported by LTCF residents themselves.[12]

In our survey, the participants agreed more with the motivators on the intrapersonal level than with the motivators on the interpersonal and community level. Both men and women are strongly motivated to organize PA because they like to have interaction with older adults and because they feel that they can enhance the psychological wellbeing of the LTCF resident. They recognize the physical and psychological health benefits of PA for the LTCF resident, and they believe that they can help the residents to maintain their independency. These findings are consistent with other studies that have shown that residents' quality of life is significantly related to more physical ability.[23,24]

The PTs are motivated to organize PA by various factors on the intrapersonal level as they agreed that the actual level of PA by LTCF residents is low. They are also motivated to reduce the risk of falling. On the interpersonal level, the respondents are strongly motivated by the social interaction between LTCF residents during PA sessions. They agreed that if LTCF residents become more mobile and stronger, the burden of care will decline for the other disciplines. Appreciation by the LTCF residents, having the skills for social interaction with older adults, and not being afraid of physical contact were other strong motivators. Organizing PA because it is requested by other disciplines is a less strong motivator for PTs.

The PTs are strongly motivated to organize PA because they agree that PA is the basis of their physiotherapeutic work. Offering varied activities to avoid monotonous PA keeps PTs motivated. The PTs were less motivated by following arguments: 'I'm paid to organize PA,' 'I can organize my tasks by myself,' or 'I'm forced by the law to organize PA.' In general, the respondents feel motivated because they have enough time to organize PA.

For the respondents most of the barriers on the interpersonal level were less strong. They agreed that older residents cannot be forced to participate in PA activities and that this acts as a barrier for them. The respondents reported that they were not hindered to organize PA for older residents with mental problems although 21% of the respondents agreed that they find it difficult to organize PA for residents who are suffering from dementia. Literature data have shown that PA is beneficial in all stages of dementia.[10] Therefore, it is important that all barriers regarding organizing PA for people with dementia are countered and resolved.

WHO Guidelines

Most Flemish PTs working in LTCFs for older adults are not familiar with the WHO guidelines regarding the amount of PA for adults aged 65 and over. Although the majority of the respondents are convinced that the guidelines are useful for LTCF residents, they hardly believe it is feasible to implement the guidelines in the LTCF. This is in contradiction with various studies showing that frail older adults in LTCFs are capable of responding to a challenging exercise program.[21,22] Female respondents are the least familiar with the guidelines, and they also find it is unrealistic to implement them. The respondents are convinced that there is a difference between older adults in general—for whom they think the WHO guidelines are designed—and older adults living in LTCFs. They agree that these guidelines are not realistic for the LTCF residents, who often show complex comorbidity. Lack of time and lack of staff are significant barriers to implement these guidelines. These barriers are similar to what administrators of LTCFs mentioned in a previous study regarding factors that are influencing the level of PA of LTCF residents. Lack of funding, which implicates staff shortage, were the most common barriers for administrators of LTCFs to create a PA-friendly facility.[17]

It is worrying that the PTs' knowledge about the WHO guidelines regarding PA is so poor. Their role in establishing a PA policy in a LTCF is crucial. A previous study showed that exercise classes supervised by a nonspecialist member of a LTCF (eg, nursing aides or occupational assistants) were associated with lower exercise levels.[5] It seems, therefore, important that a PT supervises the PA policy in the LTCF, but his knowledge about the appropriate frequency, type, intensity, and duration of PA sessions has to be ameliorated. Other disciplines within the LTCF can be helpful to assist the PT with organizing PA sessions.

Conclusions

This study described different motivators and barriers for PTs to organize PA in LTCFs. The PTs tend to agree more with motivators on the intra- and interpersonal level and are strongly motivated for organizing PA to enhance the physical and psychological wellbeing of the LTCF residents. The social interaction that arises between residents during PA sessions and the fact that the positive effect of PA helps to reduce the care burden of the colleagues are strong motivators on the interpersonal level. Motivators on the community level are the agreement that PA is the basis of their physiotherapeutic work and offering varied activities avoids PA becoming monotonous.

Barriers on the intra- and interpersonal level were of less influence. On the community level, they felt hindered to organize PA because of the lack of time and the overload of paperwork. Belgian PTs working in LTCFs for older adults do not know the WHO guidelines regarding the amount of PA for adults aged 65 and over. Although they agree that the guidelines are useful, they are not convinced they are feasible for residents in LTCFs.

Based upon the results of this research specific guidelines regarding PA for LTCF residents are requested. PTs in LTCFs need to be informed about the WHO guidelines and which PA activities can be done with the residents. A multidisciplinary approach to stimulate PA in LTCFs is needed.

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