



Original Study

An Administrator's Perspective on the Organization of Physical Activity for Older Adults in Long-Term Care Facilities



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ABSTRACT

Keywords:
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Background: The positive influence of physical activity (PA) on health is well documented. Even at old age, PA remains useful but participation in PA decreases with age. In long-term care facilities (LTCFs), PA appears to be reduced to a bare minimum. Because administrators have a key role in developing the care policy of LTCFs, it is important that they support the organization of PA in LTCFs.

Objective: The main objective of this mixed-method study was to identify motivators and barriers for organizing PA in LTCFs according to administrators. A secondary goal was to examine the knowledge of the World Health Organization (WHO) guidelines regarding PA and to reveal potential motivators and barriers for the implementation of the guidelines.

Methods: First, 24 administrators completed semistructured interviews. Data were analyzed using the deductive approach of qualitative content analysis. The obtained motivators and barriers were categorized on 3 different levels (intrapersonal, interpersonal, and community) according to the socioecological model by 2 independent reviewers; conflicts were resolved with a third researcher. Next, 127 administrators of Flemish (Belgium) LTCFs completed an online questionnaire survey containing open-ended, unique, and multiple choice questions regarding the LTCFs, PA, and the WHO guidelines, as well as statements (scored on a 5-point Likert scale) regarding perceived motivators and barriers for organizing PA sessions in the LTCF.

Results: In the qualitative component, the administrators reported 31 motivators and 24 barriers for organizing PA in the LTCF. In the survey, maintaining or enhancing general health of the residents (98%) and improving the psychological well-being of the residents were marked as key motivators at the intrapersonal level. The administrators (97%) were convinced that PA is a useful way to spend time for LTCF residents. Encouraging social contact (94%) and countering loneliness (86%) are the motivators cited at the interpersonal level. At the community level, the infrastructure of the facility (91%) and adequate and sufficient material (88%) are the main motivators. The barriers that were presented to the participants were scored as less important. The majority of the administrators (83%) are not familiar with the WHO guidelines for PA; 70% of the participants believe that the guidelines are useful, but only 40% is convinced that it is realistic to implement the guidelines in an LTCF.

Conclusions: This study described different motivators and barriers for administrators to organize PA in LTCFs. Contrary to other studies, lack of staff, lack of adequate equipment, and lack of financial resources were rejected as potential barriers for organizing PA. Despite the fact that administrators were not familiar with the WHO guidelines for PA, they believed that the guidelines are useful. The participants reported several barriers for implementation of the guidelines. Administrators of LTCFs are motivated to implement the guidelines if PA can be integrated in daily activities and education of LTCF staff regarding PA is provided.

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The authors declare no conflicts of interest.

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Although the advantages of physical activity (PA) on physical function and quality of life for residents in long-term care facilities (LTCFs) are well documented,¹ the level of PA in LTCFs is rather low.² A German study showed that residents in LTCFs barely meet the World Health Organization (WHO) recommendations regarding PA for older

adults.^{3,4} Moreover, the frequency, duration, and content of the PA sessions are often not sufficient to be effective.⁴ Sedentary behavior in older adults leads to a reduction of mobility, which can cause falls, fractures, and loss of function.⁵ PA can counter major geriatric conditions such as frailty^{6,7} and sarcopenia.⁸ The positive effects of PA on chronic conditions such as hypertension,⁹ osteoporosis, and type 2 diabetes¹⁰ are known. PA is beneficial in the primary and secondary prevention of coronary heart disease in older adults.¹⁰ Furthermore, PA has positive effects on mental conditions such as depression¹¹ and dementia.¹² A recent meta-analysis confirmed that physical rehabilitation improves activities of daily living in older people living in LTCFs, although a small overall effect was found, and the modalities of the best intervention remain unclear.¹³

PA can be defined as unstructured activities incorporated in daily life, while "physical exercise," which can be considered as a subcategory of PA, encompasses structured and planned activities.¹⁴ Here, the WHO guidelines are used as reference guidelines for PA because it is a part of the Global Strategy on Diet, Physical Activity, and Health (Resolution WHA57.17) and the Resolution on Prevention and Control of Noncommunicable Disease (Resolution WHA61.14). These resolutions urge governments to develop national PA action plans and policies.¹⁵ Although the WHO guidelines for PA in older adults are not specifically designed for nursing home residents, they correspond well with the PA recommendations as proposed in a comprehensive literature review by Weening-Dijksterhuis et al.¹

Barriers and motivators for PA for community-dwelling and institutionalized older adults are well described.^{16–18} A recent literature study of Benjamin et al¹⁹ enumerated various barriers to PA for residents, residents' family and/or friends, and staff members in LTCFs. In an earlier qualitative study of the same research group, administrators described staffing and funding constraints as major barriers for organizing PA in LTCFs, as well as challenges in the built physical environment of the LTCF²⁰ but did not focus on potential motivators. In a study by Kalinowski et al,⁴ barriers and motivators for PA in LTCFs were investigated in administrators of 40 nursing homes in Germany and their residents. The results of this study suggested mainly barriers and motivators to PA regarding structural characteristics (eg, the presence of a garden or an outdoor area with places to sit) of the LTCF and the PA services that were provided. Barriers and motivators for PA are not necessarily related to the physical environment of the LTCF but can also occur at the level of LTCF staff and/or the interaction between different disciplines. The socioecological model (SEM) of Mc Leroy is, therefore, an appropriate framework because it allows structuring the different barriers and motivators on 3 different levels: intrapersonal (eg, psychological factors), interpersonal (eg, social support), and community level (environmental and policy factors).²¹

The main objective of this mixed-method study was to identify barriers as well as motivators for organizing PA in LTCFs according to administrators on the different levels of the SEM. A secondary goal was examining their knowledge of the WHO guidelines regarding PA and to reveal potential motivators and barriers for the implementation of these guidelines.

Methods

Overview of Research Design

Because relevant literature data on motivators and barriers for PA perceived by administrators of LTCFs were scarce at the initiation of this project, a mixed- method study design using an across method triangulation²² (by combining qualitative and quantitative data collection) was adopted. First, a qualitative study was conducted by interviewing 24 administrators of LTCFs. In a second step, the results of this qualitative study were used to create a survey instrument for the quantitative phase. The purpose of this approach was to obtain motivators and

barriers for organizing PA from the viewpoint of administrators, who do not directly provide care to the residents, but have end-responsibility for the care that is delivered to and the well-being of their LTCF residents. This study was conducted between January 2012 and March 2014 in Flanders, the Dutch-speaking part of Belgium, where 58% of the Belgium population resides. The institute's Medical Ethics Committee (institutional review board 016) confirmed that this study was exempted from approval (decision number 2012/264).

Preliminary Phase

The SEM of Mc Leroy was chosen as a framework to categorize the obtained motivators and barriers at the different (intrapersonal, interpersonal, and community) levels.

Phase 1: Qualitative Research

Respondents

Twenty-four Flemish administrators of LTCFs (11 female and 13 male) participated in the qualitative part of this study (Table 1). Inclusion criteria were speaking Dutch and being employed for at least 50% of a full-time equivalent during the previous 6 months as an administrator (manager) of an LTCF in Flanders. Administrators of an LTCF exclusively for residents with dementia were excluded.

Recruitment

A multistage stratified random-sampling was performed on a public data base from the Flemish Ministry of Welfare and Health including all Flemish LTCFs in order to recruit the administrators (Figure 1). A priori 20 to 24 administrators were aimed to be included as recommended by Creswell.²³ For logistic reasons, 4 out of 5 Flemish provinces were selected to recruit LTCFs: Vlaams-Brabant, Limburg, Oost-Vlaanderen, and West-Vlaanderen (counting together 457 LTCFs in Flanders, excluding private for profit LTCFs). In the qualitative phase, only public and private not-for-profit LTCFs were selected because these represent the largest proportion of the LTCFs in Flanders. Forty-nine LTCFs were selected at random from the database, stratified according to the proportion of the different types of LTCFs in each province (Figure 1). After interviewing 24 administrators, we noticed that during the last 4 interviews, no new elements appeared. We, therefore, concluded that theoretical saturation was reached; no further interviews were conducted.

Table 1
Characteristics of the Participants

Variables	Semistructured Interviews (N = 24)		Survey (N = 127)	
	Male	Female	Male	Female
N	13 (54%)	11 (46%)	67 (53%)	60 (47%)
Mean age (years)	49 ± 7	43 ± 11	50 ± 7	44 ± 8
Education degree				
Bachelor	9 (37%)	7 (29%)	27 (21%)	22 (17%)
Master	4 (17%)	4 (17%)	36 (28%)	37 (30%)
Other	0	0	4 (3%)	1 (1%)
Length of employment in the LTCF (years)	9 ± 7	9 ± 9	8 ± 9	12 ± 8
Years of working experience in geriatrics or LTCF	17 ± 8	15 ± 11	18 ± 9	20 ± 9
FTE appointed in the LTCF				
100%	12 (50%)	10 (42%)	67 (53%)	56 (44%)
<100%	1 (4%)	1 (4%)	0	4 (3%)
LTCF type				
Public	3 (13%)	6 (25%)	33 (26%)	29 (23%)
Private not-for-profit	9 (38%)	6 (25%)	30 (24%)	26 (20%)
Private for profit	0	0	4 (3%)	5 (4%)

FTE, full-time equivalent.

District	Public LTCFs	Private Not-for-Profit LTCFs	Total	×24
Vlaams-Brabant	29	65	94 (20.5%)	10
Limburg	22	41	63 (13.8%)	7
Oost-Vlaanderen	67	92	159 (34.8%)	17
West-Vlaanderen	60	81	141 (30.9%)	15
Total	178	279	457 (100%)	49

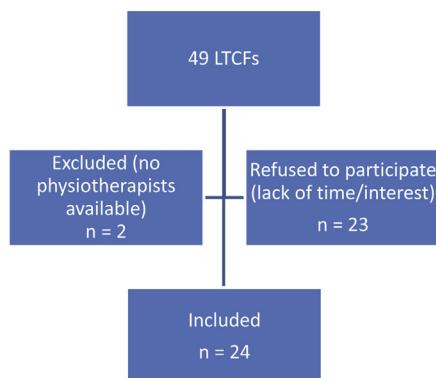


Fig. 1. Flow diagram displaying the selection of the LTCF in the qualitative part of the study.

Interviews

The results of a systematic review on motivators and barriers for PA in the oldest old,¹⁶ previously performed by our group, was used as the basis for the creation of the semistructured interview schedule. This interview schedule was developed by a multidisciplinary team: a gerontology psychologist, a social gerontologist, a physiotherapist, and an administrator of an LTCF. The interview guide was tested in advance with administrators who were not included in the study sample. All the participants were interviewed by an independent researcher, who had neither a professional nor personal link with the participants.

The interviews covered 4 areas. First, the primary characteristics of the respondents (including gender, age, education, working experience with older adults) and the LTCF were recorded. Second, in order to focus the interview on PA, the participants were asked for their own definition of PA. The third part of the interview contained questions on perceived motivators and barriers for organizing PA in the LTCF. In a last section of the interview, the knowledge of and adherence to the WHO recommendations regarding PA for older adults were questioned. All questions (except for the questions in the first part) were nonsuggestive and open-ended.

Data analysis

The interviews were performed at the administrator's LTCF. All interviews were audio-recorded with full consent of the participants and completed with written notes. Each interview was entirely transcribed verbatim. Meaningful text fragments were independently identified, coded, and clustered by 2 researchers (K.C. and V.B.). The deductive approach of qualitative content analysis was used to analyze the data. Motivators and barriers for PA were extracted and categorized by 2 independent reviewers, based

on the SEM by McLeroy et al²¹ as a theoretical framework. Conflicts were discussed with a third researcher (E.G.) and resolved by consensus.

Phase 2: Quantitative Research

Participants

Administrators were allowed to participate if they worked at least 50% of a full-time equivalent during at least 6 months as an administrator of an LTCF in Flanders.

Administrators of all Flemish LTCFs ($N = 761$) were invited by e-mail to participate in the survey. As 10 e-mail-addresses were unreachable, 751 LTCF were successfully invited to participate. Thirty-four LTCF who were part of a private for profit organization responded that they did not obtain the permission from their board to participate in scientific studies. Three administrators did not meet the inclusion criteria (less than 6 months in the LTCF). Most administrators refused to participate because of sickness ($N = 2$), being almost retired ($N = 1$), and lack of time ($N = 1$). Finally, 127 administrators completed the questionnaire. Administrators provided no reasons for not participating.

Questionnaire

The questions of the survey were based upon the results of phase 1 of this study and contained 4 parts: (1) open-ended and unique choice questions related to general characteristics of the respondent and the LTCF; (2) multiple choice and unique choice questions related to the PA organized in the LTCF; (3) questions presented as statements to the participants, regarding motivators ($N = 42$) and barriers ($N = 56$) for organizing PA sessions in the LTCF; and (4) unique choice questions related to the administrator's knowledge and feasibility in LTCF of the WHO guidelines for PA for older adults and statements regarding barriers ($N = 20$) for implementing the WHO recommendations for PA. For the statements regarding barriers and motivators (parts 3 and 4 of the questionnaire), respondents were invited to score on a 5-point Likert scale from "strongly agree" to "strongly disagree."

Data analysis

Statistical analysis was performed using IBM SPSS Inc statistics 22.0 software (Chicago, IL). Differences between 2 groups were analyzed by independent sample t -test or χ^2 test for continuous data and frequency of responses on the statements, respectively. Differences between male and female respondents regarding agreement with statements on motivators and barriers were assessed by Mann-Whitney U test. P values of $<.05$ were considered to be statistically significant. Spearman Rho was used to search for correlations between age and agreement with the statements. For facilitating the interpretation of the administrators' answers on 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.

Results

Phase 1: Qualitative Research

The participants' age ranged from 27 to 62 years (mean age 46 ± 9 years) and had between 1 and 26 years of experience (mean 9 ± 8 years) as an administrator in an LTCF. The interviews revealed 31 motivators and 24 barriers to organize PA in LTCFs (Table 2).

On the intrapersonal level, 13 motivators and 6 barriers were identified. The participants were motivated to enhance the physical

Table 2

Motivators and Barriers According to Administrators for Organizing PA for LTCF Residents—Qualitative Study

Motivators	Barriers
Intrapersonal Domain	
(1) To improve the current functional status of the LTCF resident (2) I'm convinced that the positive effects of PA are evidenced based (3) To enhance the quality of life of the LTCF residents (4) PA is a meaningful activity for LTCF residents (5) Physical health benefits (6) Psychological health benefits (7) Organizing PA brings enjoyment/pleasure at the LTCF residents (8) Enhancing their own job satisfaction through organizing PA (9) I'm convinced that PA is important (10) PA improves self-esteem of LTCF residents (11) PA is a part of the services that LTCF have to offer (12) To maintain the current functional status of the LTCF resident (13) To maintain the self-sustainability of the LTCF	(1) LTCF residents experiencing pain during PA (2) Risk of falling (3) Forcing LTCFs F residents to perform PA while they do not want to (4) Lack of knowledge regarding PA (5) Physical health impairment (6) Lack of interest from the resident in PA
Interpersonal Level	
(14) LTCF residents are happy when PA is organized (15) The family of the LTCF resident is happy when PA is organized (16) The staff of the LTCF is happy when PA is organized (17) The family of the LTCF resident is grateful (18) Social interaction during PA sessions (19) To avoid loneliness (20) The staff encourages each other by to organize PA (21) LTCF residents are stimulated by seeing others performance (22) To reduce the care burden of the staff (23) Interaction with the family and the LTCF resident himself (24) The family of the LTCF resident asks to organize PA	(7) Lack of support of the staff to organize PA (8) The heterogeneity of the residents (9) The staff is not motivated to organize PA (10) Lack of support by the board of the LTCF (11) Lack of support of the family of the LTCF resident (12) Criticism on behalf of family members (13) Deviant behavior of the LTCF residents (14) Lack of knowledge of the staff to organize PA
Community Level	
(25) Having appropriate material (26) PA is embedded in the vision of the LTCF (27) Organizing PA improves the image of the LTCF (28) The location of the LTCF (eg, in a village) (29) Having enough financial resources for organizing PA (30) Appropriate infrastructure in and outside the LTCF (31) Contact with the world outside the LTCF	(15) Lack of material (16) Nature of offered PAs (17) Lack of financial resources (18) Lack of infrastructure (19) The size of the LTCF (20) Lack of time (21) Lack of staff (22) Too much paper work (23) Legal restrictions (24) The location of the LTCF (eg, outside a village, at the countryside)

and psychological well-being of the residents. “To maintain their level of function or even improve it, it is always a nice achievement for yourself ... it also about prevention... to delay contractures with bedridden residents ...” (female, 52 years). “For me, it's about health, but health in general, not only physical health, ... and it has to be fun, it has to contribute to their psychological well-being” (female, 27 years).

On the interpersonal level, 11 motivators and 8 barriers were identified. Social interaction was a frequent cited motivator on the interpersonal level during this part of the study. “But the most important reason is about contact, contact between people that occurs during any kind of activity... What kind of activity it is, is of no importance, but the ultimate goal is that people have contact with other people, with the staff...” (male, 51 years).

Seven motivators and 10 barriers on the community level were cited. Having an appropriate infrastructure and materials were frequently reported. “When the weather is good, I would sit with the residents on the porch, take a walk with them in the garden, well, above all it would be the garden that would motivate...” (female, 52 years). “What we have here is an attractive garden, with walking lanes. They invite people to go outside and take a walk” (male, 51 years). “The LTCF in X has a real fitness area where residents from the LTCF and elderly from the village gather and exercise. Some of the equipment is appropriate for the LTCF residents while other fitness equipment is more challenging” (male, 62 years).

The administrators were not familiar with the WHO guidelines. They identified 14 different barriers to implement the guidelines (Table 3).

Phase 2: Quantitative Research

Characteristics of the respondents of the survey

The response rate was 17% (127/751) (Table 1). Their age ranged from 27 to 64 years; 78% of the respondents were between 41 and

Table 3

Barriers for Implementing the WHO Guidelines in LTCFs According to Administrators—Qualitative Study

Intrapersonal Level	(1) The guidelines are not feasible for LTCF residents (eg, PA is too intensive, frequency too high) (2) The residents are too old (3) The residents are not interested in changing their health behavior (4) The poor physical condition of the residents (5) These guidelines are going to have a negative impact on the psychological well-being of the residents (6) These guidelines are not going to have a positive impact on the general well-being of the residents
Interpersonal Level	(7) Residents will demotivate each other
Community Level	(8) Lack of time (9) Other topics are more urgent (eg, recruitment of new nurses, administrative work)
	(10) Lack of material (11) Lack of infrastructure (12) Lack of staff (13) Lack of financial resources (14) These guidelines are optional

Table 4

Motivators According to Administrators for Organizing PA for LTCF Residents (N = 127)

Statements	Agree	Neutral	Disagree	Spearman's Rho*
Motivators at the Intrapersonal Level				
I feel motivated to organize PA in an LTCF because...				
(1) PA maintains and/or enhances the physical functions of the residents	125 (98%)	1 (1%)	1 (1%)	0.03
(2) I'm convinced that PA is a useful way to spend time for the residents	123 (97%)	4 (3%)	0	0.13
(3) I believe that PA can improve the physical well-being of the older residents	118 (93%)	9 (7%)	0	-0.07
(4) I believe that PA is part of daily activities in an LTCF	118 (93%)	8 (6%)	1 (1%)	0.12
(5) I believe that PA can improve the psychological well-being of the older residents	116 (91%)	11 (9%)	0	-0.08
(6) I believe PA contributes to the idea of 'mens sana in corpore sano'	116 (91%)	10 (8%)	1 (1%)	0.14
(7) I am aware of the negative consequences for the general well-being of the older residents if they are not physically active [†]	113 (89%)	14 (11%)	0	0.23 [‡]
(8) I believe that organizing PA in an LTCF stimulates the self-esteem of the residents	111 (87%)	15 (12%)	1 (1%)	-0.02
(9) Scientific studies show that PA is good for the health of LTCF residents	110 (87%)	16 (13%)	1 (1%)	0.14
(10) Residents of LTCF want to maintain their self-sustainability or their independence from caregivers as long as possible	110 (87%)	13 (10%)	4 (3%)	0.08
(11) It improves the self-image of the residents	109 (86%)	18 (14%)	0	-0.02
(12) By organizing PA, caregivers look to the possibilities of the residents instead of their limitations	108 (85%)	14 (11%)	5 (4%)	0.01
(13) Residents are having fun when they are physically active	93 (73%)	33 (26%)	1 (1%)	-0.02
(14) Residents like doing PA	80 (63%)	42 (33%)	5 (4%)	0.04
(15) Residents demand to organize PA	66 (52%)	47 (37%)	14 (11%)	0.11
Motivators at the Interpersonal Level				
I feel motivated to organize PA in an LTCF because...				
(16) Social interaction arises between the residents during PA sessions	120 (94%)	6 (5%)	1 (1%)	0.07
(17) PA counteracts loneliness of the residents	109 (86%)	16 (13%)	2 (2%)	0.02
(18) The family of the residents demands a varied offer of activities	108 (85%)	16 (13%)	3 (2%)	0.01
(19) PA has a positive influence on the interaction between residents and professional caregivers	102 (80%)	24 (19%)	1 (1%)	0.06
(20) You can involve family with PA	91 (72%)	31 (24%)	5 (4%)	0.11
(21) PA enhances the satisfaction of residents, family and professional caregivers and that contributes to my job satisfaction	91 (72%)	31 (24%)	5 (4%)	0.04
(22) Residents like to be part of a group. PA stimulates this process	86 (68%)	36 (28%)	5 (4%)	0.04
(23) PA makes the residents more fit, thus, reducing the care burden of the staff	85 (67%)	34 (27%)	8 (6%)	0.09
(24) If residents are physically active in group, they perform better because of peer pressure	79 (72%)	42 (33%)	6 (5%)	0.03
(25) The staff can cooperate better	70 (55%)	47 (37%)	10 (8%)	0.09
(26) Residents and family are motivating each other for performing PA	67 (53%)	49 (39%)	11 (9%)	0.09
(27) Residents and staff are motivating each other for performing PA	67 (53%)	48 (38%)	12 (9%)	0.16
(28) Feedback on PA brings staff, management, residents and their family closer together	64 (50%)	54 (43%)	9 (7%)	0.11
Motivators at the Community Level				
I feel motivated to organize PA in an LTCF because...				
(29) A garden with walking lanes stimulates residents to perform PA	116 (91%)	9 (7%)	2 (2%)	0.02
(30) Having adapted and enough material stimulates residents to perform PA	112 (88%)	12 (9%)	3 (2%)	0.03
(31) All areas in an LTCF can be used for PA	109 (86%)	13 (10%)	5 (4%)	0.12
(32) Well-organized PA contributes to a positive image of the LTCF [†]	107 (84%)	17 (13%)	3 (2%)	-0.20 [‡]
(33) Having enough financial resources stimulates more organized PA	86 (68%)	33 (26%)	8 (6%)	-0.07
(34) Having a vision on PA stimulates residents to perform PA	84 (66%)	33 (26%)	10 (8%)	0.06
(35) Integration in the local community leads to more organized PA	79 (62%)	39 (31%)	9 (7%)	0.11
(36) Cooperation with elderly organizations stimulates residents to perform PA	78 (61%)	41 (32%)	8 (6%)	0.02
(37) A well-equipped physical therapy room stimulates residents to perform PA	75 (59%)	36 (28%)	16 (13%)	0.08
(38) A cozy room stimulates PA	73 (57%)	48 (38%)	6 (5%)	-0.07
(39) If residents are involved in the realization of the vision of the LTCF, they are stimulated to perform PA	69 (54%)	45 (35%)	13 (10%)	0.10
(40) The central location of the LTCF in the local community stimulates residents to perform PA	60 (47%)	47 (37%)	20 (16%)	0.01
(41) A newly built LTCF stimulates residents to perform PA	43 (34%)	60 (47%)	24 (19%)	-0.11
(42) Collective areas stimulate residents to get out of their rooms	31 (24%)	58 (46%)	38 (30%)	0.04

*Relationship with age (positive correlation means that older respondents agree more).

[†]P < .05.

60 years old; and 53% of the respondents were male. Most respondents (43%) had a postgraduate academic master's degree, 39% had a postgraduate nonacademic master's degree, 14% had a bachelor's degree, and 4% mentioned other degrees. Furthermore, 49% of the respondents worked in a public LTCF, 44% in an LTCF owned by a private not-for-profit organization, and 7% in a private for profit LTCF. Forty percent of the respondents were working less than 5 years in their current position as an administrator.

Physical activities organized in the LTCF

Most of the administrators (98%) stated that PA is organized in their LTCF; 81% agreed that PA requires a coach who can assist the residents during the sessions. They confirmed that there is a need for continuity (72%) in the offered PAs and that it has to be organized on a regular basis (65%). The administrators agreed less with the statements that PA sessions need to be performed during at least

10 minutes (26%) and that it needs to be offered more than once a week (24%). According to the respondents, physiotherapists (98%), occupational therapists (97%), and professionals responsible for developing socializing activities (animators) (93%) are the most appropriate disciplines to organize PA. Nurses (43%) and nursing aids (46%) are seen as less appropriate to organize PA; 53% of the administrators believe that volunteers can organize PA sessions in an LTCF.

Forty-three percent of the respondents confirmed that there are aspects of PA mentioned in the vision statement of the LTCF. In 54% of the LTCFs, training regarding PA was offered to the staff in the last 2 years, and 77% bought new equipment for organizing PA in the last 2 years.

Motivators for organizing PA

Motivators (N = 42) are presented in Table 4 on each level of the SEM in descending order of frequency.

Motivators at intrapersonal level. Fifteen motivators on the intrapersonal level were presented to participants. Thirteen statements were marked as a strong motivator on this level, and 2 were marked as medium strong by the respondents. "Improving the well-being of the residents" can function as an umbrella motivator on this level as 12 of these strong motivators are linked to themes as "improving physical function" and "psychological benefits." The administrators agreed quasi unanimously (98%) that PA improves or maintains the physical functions of the residents; 91% believed that PA can improve the psychological well-being of the older residents. Another theme on this level was that the respondents are convinced that PA is part of daily living in the LTCF (93%) and that PA is a useful way to spend time for the residents (97%).

No significant gender difference was found for motivators at the intrapersonal level. There was a significant positive correlation between the administrators' age and agreement with the statement "I am aware of the negative consequences for the general well-being of the older residents if they are not physically active" ($\rho = 0.23, P = .01$).

Motivators at interpersonal level. Thirteen different statements concerning motivators on the interpersonal level for organizing PA were presented to the administrators. Seven of the statements were marked by the respondents as strong. The statements "initiating social contact" (94%) and preventing loneliness (86%) can be considered as key motivators on this level.

The respondents (80%) agreed that PA has a positive influence on the interaction between residents and professional caregivers. Family is seen as another stimulating factor for organizing PA; 85% of the respondents agreed with the statement that the family of the residents demands various activities and that family can be involved in the organization of PA (72%). No significant gender differences or significant correlations were found between age and motivators at the interpersonal level.

Motivators at community level. On the community level, 14 different statements were presented to the participants. Having a garden with walking lanes (91%) and adapted and sufficient material (88%) stimulates residents to perform PA according to the administrators. Eighty-six percent of the respondents agreed that all areas in an LTCF can be used for PA. According to 84% of the respondents, a well-organized PA contributes to a positive image of the LTCF.

No significant difference was found between gender and motivators at the community level. A negative correlation was found between the administrators' age and agreement with the statement that "well-organized PA contributes to a positive image of the LTCF" ($\rho = -0.20, P = .03$).

Barriers for organizing PA

Barriers (N = 56) are presented in Table 5 on each level of the SEM in descending order of frequency.

Barriers at intrapersonal level. Seventeen different possible barriers were presented to the participants. The statement 'Forcing LTCF residents to perform PA while they don't want to' (76%) was the only statement indicated as a strong barrier.

Moreover, 84%, 82% and 76% of the administrators disagreed with the statements "fear that the residents could fall while performing PA," "I'm not being appreciated for organizing PA," and "the residents would have pain while performing PA" are a barrier for organizing PA, respectively. No significant gender differences or significant correlations were found between age and barriers at the intrapersonal level.

Barriers at interpersonal level. Fifteen different statements concerning barriers for organizing PA were presented to the

participants. None of the statements were marked as strong barriers. Only 1 statement "The staff is too much focused on care, not on PA" is indicated as a medium strong barrier (48% of the respondents). The lack of support from occupational therapists (0%), physiotherapists (5%), nurses/nursing aids (10%), or the LTCF's board (3%) to organize PA, were not marked as strong barriers. Administrators (80%) strongly disagreed with the statement that the family of the older resident feels ashamed if they are walking with their parents, and 61% of the participants disagreed with the statement that the staff does not have time to organize PA.

There was a significant positive correlation between the administrators' age and agreement with the statement "the staff is too much focused on care, not on PA" ($\rho = 0.18, P = .05$). A negative correlation was found between age and the statements "the deviant behavior of some residents during PA" ($\rho = -0.25, P < .01$) and "the groups of residents is heterogeneous" ($\rho = -0.21, P = .02$). Female administrators agreed more with the statements "there is a lack of support by nurses and nursing aides" ($P < .05$) and "the group of residents is heterogeneous" ($P = .02$).

Barriers at community level. Twenty-four statements concerning barriers for organizing PA at community level were presented to the participants. There are no strong barriers on this level. Eight barriers were marked as medium strong. Sixty-six percent of the administrators are hindered to organize PA because of the fact that residents participate less at PA when it is organized outside the LTCF. Barriers concerning infrastructure such as lack of a garden (53%), stairs (44%), lack of space (42%), and old fashioned infrastructure (40%) were marked as medium strong.

A significant negative correlation was found between the administrators' age and agreement with the statements "the absence of a garden in the LTCF has a negative impact on the level of PA" ($\rho = -0.25, P < .01$), "large wards are working like a brake on the enrollment of the PA plan" ($\rho = -0.22, P = .01$), "you can't offer qualitative PA due to a shortage of appropriate staff on the labor market and sick staff" ($\rho = -0.20, P = .03$) and "the larger the LTCF, the more difficult the organization of PA becomes" ($\rho = -0.18, P = .04$). Female administrators agreed more with the statement "large wards are working like a brake on the enrollment of the PA plan" ($P = .02$).

Implementation of the WHO guidelines

The majority of the administrators (83%) were not familiar with the WHO guidelines for PA. Older administrators were less familiar with the guidelines than their younger colleagues ($P = .025$); 70% of the respondents agreed that the guidelines are useful. Only 40% believed implementing these guidelines in the LTCF is realistic.

Interestingly, 44% of the respondents who are in charge of a private LTCF are familiar with the guidelines, compared with 20% of the respondents who are in charge of a not-for-profit LTCF and 11% of the administrators of public LTCFs ($P = .04$).

Barriers for implementing WHO guidelines regarding PA

Twenty different statements regarding barriers for implementing the WHO guidelines were presented to the administrators. These barriers are shown in Table 6 in descending order of frequency. Only 1 statement was marked as strong; 80% of the participants agreed that the guidelines are not suitable for all residents of an LTCF because the frequency of the guidelines is too high (54%) whereas 48% believed that the intensity of the program is too high.

There was a significant negative correlation between age and following barriers for implementing the WHO guidelines on PA: "the guidelines don't contribute to the mental well-being of the residents" ($\rho = -0.20, P = .02$); "residents of LTCF don't want to change" ($\rho = -0.29, P < .01$); "the guidelines don't contribute to the mental

Table 5

Barriers According to Administrators for Organizing PA for LTCF Residents (N = 127)

Statements	Agree	Neutral	Disagree	Spearman's Rho*
Barriers at the Intrapersonal Level				
I feel hindered to organize PA in an LTCF because...				
(1) Forcing LTCF residents to perform PA while they don't want to	96 (76%)	18 (14%)	13 (10%)	-0.07
(2) Contraindications for PA in the LTCF residents	54 (42%)	16 (13%)	57 (45%)	0.02
(3) You cannot offer all kind of therapy and activities. You have to make a selection	49 (39%)	31 (24%)	47 (37%)	0.01
(4) Illness impedes residents for being physically active	49 (39%)	26 (20%)	52 (41%)	-0.03
(5) Lack of knowledge regarding PA of the residents hinders them for being physically active	40 (32%)	28 (22%)	59 (46%)	0.03
(6) The general condition of the residents hinders them for being physically active	37 (29%)	24 (19%)	66 (52%)	-0.08
(7) The previous experience with PA of the residents hinders them for being physically active	33 (26%)	28 (22%)	66 (52%)	0.04
(8) The high level for care of the residents hinders them for being physically active	32 (25%)	19 (15%)	76 (60%)	0.01
(9) Residents do not want to participate at PA	30 (24%)	23 (18%)	74 (58%)	-0.10
(10) The implementation of exercise programs is difficult	25 (20%)	29 (23%)	83 (65%)	0.06
(11) The residents are not interested in PA	21 (17%)	29 (23%)	77 (61%)	-0.17
(12) Residents do not know how they can perform PA independently	20 (16%)	26 (20%)	81 (64%)	-0.03
(13) I don't want to make the residents look foolish while performing PA	19 (15%)	26 (20%)	74 (58%)	<0.00
(14) Residents don't have realistic expectations from PA	12 (10%)	37 (29%)	78 (61%)	0.06
(15) I'm concerned that resident are experiencing pain during PA	8 (6%)	23 (18%)	96 (76%)	-0.10
(16) I'm not being appreciated for organizing PA	6 (5%)	17 (13%)	104 (82%)	-0.02
(17) I'm afraid that the residents are at risk for falling during PA	6 (5%)	14 (11%)	107 (84%)	-0.09
Barriers at the Interpersonal Level				
I feel hindered to organize PA in an LTCF because...				
(18) The staff is too much focused on care, not on PA	61 (48%)	22 (17%)	44 (35%)	0.18†
(19) The staff takes activities over from the residents too quickly	40 (32%)	26 (20%)	61 (48%)	0.08
(20) The family of the residents are putting a brake on the participation of PA	18 (14%)	32 (25%)	77 (60%)	-0.02
(21) The staff doesn't have time to organize PA	16 (13%)	33 (26%)	78 (61%)	0.01
(22) The deviant behavior of some of the residents during PA	15 (12%)	39 (31%)	73 (57%)	-0.25†
(23) The individualization of the residents	14 (11%)	22 (17%)	91 (72%)	-0.09
(24) Lack of support by nurses or nursing aides‡	13 (10%)	26 (20%)	88 (69%)	-0.17
(25) The group of residents is heterogeneous‡	13 (10%)	22 (17%)	92 (72%)	-0.21†
(26) The family criticizes that PA is organized	12 (9%)	26 (20%)	89 (70%)	<0.01
(27) Residents with a good health condition reject residents with a poor health condition during PA	12 (9%)	14 (11%)	101 (80%)	-0.03
(28) The staff is not empathic towards residents during PA	10 (8%)	16 (13%)	101 (80%)	-0.13
(29) The family of the resident feel ashamed if they are walking with their parents	7 (6%)	18 (14%)	102 (80%)	-0.01
(30) Lack of support by the physiotherapists	6 (5%)	14 (11%)	107 (84%)	-0.06
(31) Lack of support by the board of the LTCF	4 (3%)	13 (17%)	110 (87%)	0.10
(32) Lack of support by the occupational therapists	0	12 (9%)	115 (91%)	-0.09
Barriers at the Community Level				
I feel hindered to organize PA in an LTCF because...				
(33) Residents participate less at PA when the PA is organized outside the LTCF	84 (66%)	17 (13%)	26 (20%)	-0.05
(34) The absence of a garden in the LTCF has a negative impact on the level of PA	67 (53%)	26 (20%)	34 (27%)	-0.25
(35) Stairs are barriers for participation at PA	56 (44%)	25 (20%)	46 (36%)	0.09
(36) Lack of space hinders residents for being physically active	53 (42%)	31 (25%)	43 (34%)	-0.01
(37) An old (fashioned) infrastructure is less attractive for participating in PA	50 (39%)	32 (25%)	45 (35%)	-0.02
(38) PA organized for large groups hinders residents for being physically active	48 (38%)	39 (31%)	40 (32%)	-0.04
(39) In LTCF there is a shortage of PA offered to the residents	46 (36%)	34 (27%)	47 (37%)	0.07
(40) Lack of appropriate infrastructure hinders residents for being physically active	46 (36%)	18 (14%)	63 (50%)	0.04
(41) Material for being PA is too expensive. That's why the material isn't available	42 (33%)	33 (26%)	52 (41%)	0.02
(42) Lack of financial resources works like a brake on the organization of PA	41 (32%)	22 (17%)	64 (50%)	-0.09
(43) High workload of the staff works like a barrier for organizing PA	39 (31%)	29 (23%)	59 (46%)	0.10
(44) Residents who need less care need to pay extra for physiotherapy and stop performing PA	36 (28%)	38 (30%)	53 (42%)	0.02
(45) The high staff cost works like a brake for organizing PA	32 (25%)	22 (17%)	64 (50%)	-0.10
(46) When staff spends extra time on 1 resident, he/she spends less time with another resident	27 (21%)	27 (21%)	73 (57%)	<0.01
(47) While making a policy for the LTCF it is difficult to find enough resources to make a PA plan	24 (19%)	40 (32%)	63 (50%)	-0.34
(48) Large wards are working like a brake on PA for the residents‡	24 (19%)	36 (28%)	67 (53%)	-0.22
(49) A shortage of physiotherapists works like a brake on the enrollment of a PA plan	21 (17%)	22 (17%)	84 (66%)	-0.08
(50) If the LTCF is not situated in the center of a city/village, it has an negative impact on PA	20 (16%)	31 (24%)	76 (60%)	-0.12
(51) You can't offer qualitative PA due to a shortage of appropriate staff on the labor market and sick staff	15 (12%)	27 (21%)	85 (67%)	-0.20
(52) Administrators of LTCF don't have time to feel what's going on in the ward regarding PA	15 (12%)	25 (20%)	87 (69%)	-0.13
(53) Financial restrictions (score on the Katz scale determines the allowances)	12 (9%)	13 (10%)	102 (80%)	-0.11
(54) Lack of material to organize PA	11 (9%)	22 (17%)	94 (74%)	-0.05
(55) The larger the LTCF, the more difficult the organization of PA becomes	6 (5%)	19 (15%)	102 (80%)	-0.18†
(56) Organized PA doesn't meet the needs of the residents	4 (3%)	14 (11%)	109 (85%)	-0.11

*Relationship with age (positive correlation means that older respondents agree more).

†P < .05.

‡Female respondents agree significantly more compared with male (Mann-Whitney U test P < .05).

well-being of the residents" ($\rho = -0.20$, $P = .02$); "residents will demotivate each other" ($\rho = -0.27$, $P < .01$). Male administrators agreed more with the statement that "residents of a LTCF do not want to participate at such PA program" ($P = .03$).

Motivators for implementing WHO guidelines regarding PA

Twelve different statements regarding motivators for implementing the WHO guidelines were presented to the administrators (Table 7). "Staff that is stimulating the self-sustainability of the

Table 6

Barriers for Implementing the WHO Guidelines on PA (N = 127)

Barrier	Agree	Neutral	Disagree	Spearman's Rho*
(1) The guidelines are not suitable for all the residents of a LTCF	101 (80%)	18 (14%)	8 (6%)	0.06
(2) Nurses are focused on care not on PA	72 (57%)	32 (25%)	24 (19%)	0.02
(3) The frequency of the program is too high	69 (54%)	44 (35%)	14 (11%)	-0.03
(4) There is a lack of staff to implement the guidelines	69 (54%)	28 (22%)	30 (24%)	-0.04
(5) There is a lack of time to implement the guidelines	65 (51%)	32 (25%)	30 (24%)	-0.07
(6) The guidelines are not feasible for LTCF residents who need care	64 (50%)	37 (29%)	26 (20%)	-0.07
(7) The intensity of the program is too high	61 (48%)	42 (33%)	24 (19%)	-0.03
(8) The guidelines are not feasible for residents who are 80 years old and over	52 (41%)	40 (32%)	35 (28%)	-0.04
(9) Implementing these guidelines is unaffordable	44 (35%)	56 (44%)	27 (21%)	-0.11
(10) The management can't give enough support to these guidelines due to an overload of administrative tasks	42 (33%)	46 (36%)	39 (31%)	-0.05
(11) The equipment for PA in the LTCF is insufficient	32 (25%)	21 (17%)	74 (58%)	-0.14
(12) There is a lack of infrastructure to implement these guidelines	29 (23%)	31 (24%)	67 (53%)	-0.16
(13) These guidelines are not appropriate for LTCF	28 (22%)	31 (24%)	68 (54%)	-0.07
(14) Residents of a LTCF do not want to participate at such a PA program [†]	27 (21%)	49 (39%)	51 (40%)	<0.01
(15) These guidelines don't contribute to the general well-being of the resident	23 (18%)	36 (28%)	68 (54%)	-0.07
(16) These guidelines are not going to be implemented, unless the government obliges	19 (15%)	37 (29%)	71 (56%)	-0.20 [‡]
(17) Residents of LTCF don't want to change	18 (14%)	43 (34%)	66 (52%)	-0.29 [‡]
(18) Allowances need to be used to pay the staff, not for organizing PA	17 (13%)	40 (32%)	70 (55%)	-0.06
(19) These guidelines don't contribute to the mental well-being of the residents [†]	14 (11%)	38 (30%)	75 (59%)	-0.20 [‡]
(20) Residents will demotivate each other	10 (8%)	39 (31%)	78 (61%)	-0.27 [‡]

*Relationship with age (positive correlation means that older respondents agree more).

[†]P < .05.[‡]Male respondents agree significantly more compared with female (Mann-Whitney U test P < .05).

residents" (94%), "educating staff regarding PA" (93%), "a motivated administrator who supports the PA guidelines" (91%), "the implementation of PA in daily activities" (91%), "family and staff agree on PA" (89%), "a multidisciplinary approach" (87%), "a government that supports the WHO guidelines regarding PA" (85%), "the support of family and volunteers" (78%), "additional financial resources" (78%), and "additional staff" (73%) are marked as strong motivators. "Extra material to perform PA" (66%) and "more space to perform PA" (43%) were indicated as medium motivators.

No significant gender differences or significant correlations were found between age and motivators for implementing the WHO guidelines.

Discussion

This is one of the first mixed methods studies that reports motivators and barriers for organizing PA according to LTCF administrators

and investigates their knowledge and their perceptions of the WHO guidelines regarding PA for people aged 65 years and over.

PA Offered in LTCFs

Although almost all administrators declared that PA is organized in their LTCF and believed that PA should be organized on regular, continuous basis, only a minority agreed that PA should be organized in bouts of at least 10 minutes and at least twice a week. This is consistent with the results of a previous study where we found that most of the physiotherapists declared that they organize PA less than twice a week²⁴ and with a study of de Souto Barreto et al² who showed that LTCF residents exercise only once a week or less.

Administrators believed that physiotherapists, occupational therapists, and professionals responsible for developing socializing activities (animators) are the most appropriate disciplines to organize PA. It has been shown by others that the presence of an exercise instructor (such as a physiotherapist) in an LTCF is associated with higher volumes of exercise.² Nurses and nursing aides are seen as less appropriate by the participants to organize PA than volunteers. Exercise sessions organized by nonspecialist staff of the LTCF (such as "animators" or nursing aides) are linked with poorer exercise behavior among LTCF residents.² Nevertheless, in our survey, the administrators strongly agreed with the fact that PA should be integrated in daily life. Volunteers, nurses, and nursing aides can be integrated as support for the paramedics' PA plan. Also, Kalinowski et al⁴ found that although PA education for LTCF staff was widely implemented, there is room for improvement in the PA instruction courses and advice provided for residents and their peers. Benjamin et al¹⁹ concluded in their systematic review on barriers to PA and restorative care that a multiple intervention approach is warranted when implementing PA in LTCFs. In fact, the implementation of PA in an LTCF needs an interdisciplinary and a multilevel approach. Not only should every member of the staff be involved, but volunteers, family and residents have to be informed and motivated for being physically active. All these players are important because they belong to the different dimensions of the SEM.¹⁹

A majority of the administrators bought new PA equipment for their LTCF in the past 2 years, and they agree that they have sufficient

Table 7

Motivators for the Implementation of the WHO Guidelines on PA (N = 127)

Statements	Agree	Neutral	Disagree	Spearman's Rho*
(1) Staff that is stimulating the self-sustainability of the residents	120 (94%)	7 (6%)	0	0.08
(2) Educating staff (regarding PA)	118 (93%)	8 (6%)	1 (1%)	-0.08
(3) A motivated administrator who supports the PA guidelines	116 (91%)	9 (7%)	2 (2%)	-0.05
(4) Implementation of PA in daily activities	115 (91%)	9 (7%)	3 (2%)	-0.05
(5) Family and staff agree on PA	113 (89%)	21 (17%)	3 (2%)	-0.04
(6) Multidisciplinary approach	111 (87%)	12 (9%)	4 (3%)	-0.06
(7) A government that supports the WHO guidelines regarding PA	108 (85%)	14 (11%)	5 (4%)	0.03
(8) Additional financial resources	99 (78%)	22 (17%)	6 (5%)	0.08
(9) The support of family and volunteers	99 (78%)	21 (17%)	7 (6%)	0.15
(10) Additional staff	93 (73%)	27 (21%)	7 (6%)	-0.02
(11) Extra material to perform PA	84 (66%)	34 (27%)	9 (7%)	-0.10
(12) More space to perform PA	54 (43%)	47 (37%)	26 (20%)	-0.14

*Relationship with age (positive correlation means that older respondents agree more).

material in the LTCF to organize PA. This is in contradiction with previous studies where lack of appropriate material came up as a barrier as indicated by residents, staff, and administrators of LTCFs.^{4,18,25} In our survey, 54% of the administrators reported that they organized education on PA for their staff in the past 2 years. In a German study, training for PA promotion was provided for nursing employees in 85% of the participating LTCFs.⁴

Motivators and Barriers for Organizing PA

Intrapersonal level

In our survey study, the participants reported to be strongly motivated to organize PA to improve the physical and psychological health condition of the residents. This confirms previous qualitative research with administrators of LTCFs on factors influencing PA.²⁰ In our study, PA is seen as a useful way to spend time for the residents, which is consistent with the Canadian study where administrators believe that PA could help to enhance the quality of life of the residents²⁰ and with findings in a systematic review by Van Malderen et al²⁶ that showed that PA can positively affect the quality of life of older adults in LTCFs.

Contrary to other research,¹⁹ administrators in our study did not think that fear of falling or fear that the residents would experience pain during PA are barriers for organizing PA. However, fear of falling in older adults is associated with inadequate PA levels and should be addressed by health care workers, especially in the oldest old.¹⁶

Interpersonal level

Social interaction arising between residents during PA sessions was shown to be a motivator for administrators to organize PA, especially because they believe that this counteracts loneliness among their residents. Social interaction has previously also been indicated as a strong motivator by physiotherapists to organize PA in LTCFs.²⁴ The interaction between the residents and the professional caregivers during PA sessions was also marked as a strong motivator by our respondents. Administrators were motivated to organize PA because they believed that PA makes the residents stronger and more mobile, which will have a positive influence on the burden of care for their staff. In contrast with other research,^{19,20} administrators in our study reported to receive sufficient support from their staff and/or board members to organize PA in their LTCF. This might be explained by the fact that our study took place in Belgium, where the presence of occupational therapists and physiotherapists in LTCF is required by law. In previous studies, funding limitations and staffing constraints were frequently reported.¹⁹ However, our participants disagreed that lack of time is a barrier, which is in contradiction with previous qualitative research on factors influencing PA in LTCFs according to administrators.²⁰

Community level

Barriers regarding the infrastructure inside and outside an LTCF were reported by administrators,²⁰ staff members, and residents in other studies.²⁵ This was partly confirmed by the administrators in our study, but infrastructure in open air (eg, having a garden with walking lanes) showed to be of greater importance than inside infrastructure (eg, a cozy room, a newly built LTCF). Stairs, lack of space, lack of appropriate infrastructure, and an old-fashioned infrastructure showed to be medium- strong barriers. The administrators agree that the availability of appropriate equipment motivates to organize PA and that a lack of it acts as a barrier. This is consistent with the results of a study by Kalinowski et al⁴ where they showed that the availability of appropriate equipment was insufficient.

The majority of the administrators felt that having sufficient financial resources stimulates the organization of PA, but, remarkably, when the statement was presented inversely as a barrier ("lack of

financial resources impedes the organization of PA"), one-half of them disagreed on this item. According to a literature review of Benjamin et al,¹⁹ funding limitations were frequently reported as barriers in the literature. Our results suggest that administrators might realize that stimulating and organizing PA is not necessarily expensive or time consuming.

Relationships Between Age/Gender and the Motivators and Barriers

For 13 statements, a correlation was found between age and the motivators and barriers for organizing PA and implementing the WHO guidelines for PA. Although the strength of all these correlations could be interpreted as very weak (0–0.19) and weak (0.20–0.39),²⁷ There were only 4 statements (out of 130) that showed gender differences. According to our knowledge, this is one of the first studies that investigated correlations between age/gender and the motivators and barriers for organizing PA in LTCFs. Because of the weakness of the correlations and the extremely few gender differences, we can conclude that administrators' gender or age does not have a major influence on motivators and barriers for organizing PA.

WHO Guidelines Regarding PA

A minority of the directors is familiar with the WHO guidelines regarding PA for older adults. Although they believed that the implementation of the guidelines would be useful, they agreed less on the feasibility of the guidelines and believed that the implementation is unrealistic. These findings are in line with our previous research where we showed that even in physiotherapists working in LTCFs, the knowledge of the WHO guidelines was very poor.²⁴

Limitations

Our study has some limitations. First, although all Flemish LTCF were invited to participate, most of the respondents of the survey worked in a public or in a not-for-profit LTCF, and only a minority of the respondents worked in a private LTCF. This is not in proportion with the current distribution in Belgium where 29% of the LTCF is public, 53% is not-for-profit, and 18% is private. Although we did not identify any significant difference in the responses between the 3 settings, it cannot be ignored that this might have had an influence on the results.

A second limitation is that our study excluded administrators who worked in LTCFs exclusively for people with dementia. Although the number of this type of LTCF is limited in Belgium, this could have had an influence on the participation rate to this study.

A final limitation is the relatively low response rate of the quantitative part, despite several reminders sent to all LTCFs and despite the fact that 2 umbrella organizations of the Flemish long-term care mentioned the study in their newsletters and urged their members to participate. Unfortunately, administrators provided no reason for not participating, and, therefore, we have no explanation for this relatively low participation rate.

Conclusions

This multimethod study yielded motivators and barriers for administrators for organizing PA in LTCFs. Based on our results, we can conclude that administrators of LTCFs believe in the importance of PA, and they are mainly motivated to organize PA for the improvement or maintenance of health status and/or the general well-being of their residents. Encouraging social contact, involving family members, and countering isolation are the main motivators cited at the interpersonal level. At the community level, the infrastructure in and around the facility, adequate material, and sufficient financial resources are the

main motivators. Contrary to other studies, lack of staff, lack of adequate equipment, and lack of financial resources were rejected as potential barriers for organizing PA.

They are convinced that physiotherapists and occupational and recreational therapists are the most appropriate disciplines to organize PA in their LTCF. A multilevel education program regarding PA for all LTCF staff members, residents, their relatives, and volunteers is recommended. Our study shows that administrators are not familiar with the WHO guidelines regarding PA. Although they believe that these guidelines are useful, most administrators consider them not be feasible for their LTCF residents. However, they are motivated to implement the guidelines if the guidelines can be implemented in daily activities.

References

- Weening-Dijksterhuis E, de Greef MH, Scherder EJ, et al. Frail institutionalized older persons: A comprehensive review on physical exercise, physical fitness, activities of daily living, and quality-of-life. *Am J Phys Med Rehabil* 2011;90:156–168.
- De Souto Barreto P, Demougeot L, Vellas B, Rolland Y. How much exercise are older adults living in nursing homes doing in daily life? A cross-sectional study. *J Sports Sci* 2015;33:116–124.
- Organization WH. Global recommendations on physical activity for health. 2010; Available at: http://whqlibdoc.who.int/publications/2010/9789241599799_eng.pdf?ua=1. Accessed April 25, 2015.
- Kalinowski S, Wulff I, Kolzsch M, et al. Physical activity in nursing homes—Barriers and facilitators: A cross-sectional study. *J Aging Phys Act* 2012;20:421–441.
- Nelson ME, Rejeski WJ, Blair SN, et al. Physical activity and public health in older adults: Recommendation from the American College of Sports Medicine and the American Heart Association. *Med Sci Sports Exerc* 2007;39:1435–1445.
- Cesari M, Vellas B, Hsu FC, et al. A physical activity intervention to treat the frailty syndrome in older persons—Results from the LIFE-P Study. *J Gerontol A Biol Sci Med Sci* 2015;70:216–222.
- Landi F, Abbatecola AM, Provinciali M, et al. Moving against frailty: Does physical activity matter? *Biogerontology* 2010;11:537–545.
- Freiberger E, Sieber C, Pfeifer K. Physical activity, exercise, and sarcopenia—Future challenges. *Wien Med Wochenschr* 2011;161:416–425.
- Dickinson HO, Mason JM, Nicolson DJ, et al. Lifestyle interventions to reduce raised blood pressure: A systematic review of randomized controlled trials. *J Hypertens* 2006;24:215–233.
- Vogel T, Brechat PH, Lepretre PM, et al. Health benefits of physical activity in older patients: A review. *Int J Clin Pract* 2009;63:303–320.
- Bastone Ade C, Jacob Filho W. Effect of an exercise program on functional performance of institutionalized elderly. *J Rehabil Res Dev* 2004;41:659–668.
- Blankevoort CG, van Heuvelen MJ, Boersma F, et al. Review of effects of physical activity on strength, balance, mobility and ADL performance in elderly subjects with dementia. *Dement Geriatr Cogn Disord* 2010;30:392–402.
- Crocker T, Young J, Forster A, et al. The effect of physical rehabilitation on activities of daily living in older residents of long-term care facilities: Systematic review with meta-analysis. *Age Ageing* 2013;42:682–688.
- Koeneman MA, Verheijden MW, Chinapaw MJ, Hopman-Rock M. Determinants of physical activity and exercise in healthy older adults: A systematic review. *Int J Behav Nutr Phys Act* 2011;8:142.
- Biddle S, Mutrie N, Gorely T. *Psychology of Physical Activity: Determinants, Well-being, and Interventions*. New York, NY: Routledge; 2015.
- Baert V, Gorus E, Mets T, et al. Motivators and barriers for physical activity in the oldest old: A systematic review. *Ageing Res Rev* 2011;10:464–474.
- Weeks LE, Profit S, Campbell B, et al. Participation in physical activity: Influences reported by seniors in the community and in long-term care facilities. *J Gerontol Nurs* 2008;34:36–43.
- Chen YM. Perceived barriers to physical activity among older adults residing in long-term care institutions. *J Clin Nurs* 2010;19:432–439.
- Benjamin K, Edwards N, Ploeg J, Legault F. Barriers to physical activity and restorative care for residents in long-term care: A review of the literature. *J Aging Phys Act* 2014;22:154–165.
- Benjamin K, Edwards N, Caswell W. Factors influencing the physical activity of older adults in long-term care: Administrators perspectives. *J Aging Phys Act* 2009;17:181–195.
- McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Educ Q* 1988;15:351–377.
- Casey D, Murphy K. Issues in using methodological triangulation in research. *Nurse Res* 2009;16:40–55.
- Creswell JW. Research design: Qualitative, quantitative, and mixed methods approaches. Thousand Oaks: Sage Publications; 2009.
- Baert V, Gorus E, Guldemont N, et al. Physiotherapists' perceived motivators and barriers for organizing physical activity for older long-term care facility residents. *J Am Med Dir Assoc* 2015;16:371–379.
- Benjamin K, Edwards N, Guitard P, et al. Factors that influence physical activity in long-term care: Perspectives of residents, staff, and significant others. *Can J Aging* 2011;30:247–258.
- Van Malderen L, Mets T, Gorus E. Interventions to enhance the quality of life of older people in residential long-term care: A systematic review. *Ageing Res Rev* 2013;12:141–150.
- Evans J. *Straightforward Statistics for the Behavioral Sciences*. Pacific Grove, CA: Brooks/Cole Publishing; 1996.