Revista Brasileira de Enfermagem
REBEn

SUPPLEMENTARY EDITION 4
GERONTOLOGICAL NURSING

ORIGINAL ARTICLE

Construction and validation of a rehabilitation nursing program for fragile elderly

Construção e validação de um programa de enfermagem de reabilitação para idosos fragilizados

Construcción y validación de un programa de enfermería de rehabilitación para ancianos frágiles

Ana da Conceição Alves Faria[I]
ORCID: 0000-0002-5838-0080

Maria Manuela Ferreira Pereira da Silva Martins[II]
ORCID: 0000-0003-1527-9940

José Alberto Laredo Aguilera[III]
ORCID: 0000-0002-3661-3584

Olga Maria Pimenta Lopes Ribeiro[II]
ORCID: 0000-0001-9982-9537

João Miguel Almeida Ventura da Silva[I]
ORCID: 0000-0002-8794-528X

[I] *Universidade do Porto, Instituto de Ciências Biomédicas Abel Salazar. Porto, Portugal.*
[II] *Escola Superior de Enfermagem do Porto. Porto, Portugal*
[III] *Universidad de Castilla-La Mancha. Toledo, España.*

How to cite this article:
Faria ACA, Martins MMFPS, Aguilera JAL, Ribeiro OMPL, Silva JMAV. Construction and validation of a rehabilitation nursing program for fragile elderly. Rev Bras Enferm. 2022; 75(Suppl 4):e20210562. https://doi.org/10.1590/0034-7167-2021-0562

Corresponding author:
Ana da Conceição Alves Faria
E-mail: acafaria@arsnorte.min-saude.pt

Submission: 08-25-2021 **Approval:** 12-15-2021

ABSTRACT

Objective: To build a rehabilitation nursing program to be implemented in the homes of frail elderly people and validate it by rehabilitation nurses. **Methods:** This is a qualitative, exploratory study, divided into two stages. The first corresponded to an integrative literature review that supported the construction of the program. The second consisted of the program content validity stage, through a focus group, in May 2021. **Results:** Nine experts participated in the construction and content validation of the rehabilitation nursing program for frail elderly. Two focus groups were carried out, and the final version of the program included training in life activities and particularly self-care, strength, balance, coordination and joint mobility. **Final considerations:** The program reached content validity, with a minimum set of characteristics that it must integrate, now requiring application in Primary Health Care for clinical validation.

Descriptors: Frail Elderly; Nursing; Rehabilitation; Exercise; Life Style.

RESUMO

Objetivo: Construir um programa de enfermagem de reabilitação para ser implementado no domicílio dos idosos fragilizados e validá-lo por enfermeiros de reabilitação. **Métodos:** Trata-se de um estudo qualitativo, exploratório, dividido em duas etapas. A primeira correspondeu a uma revisão integrativa da literatura que sustentou a construção do programa. A segunda consistiu na etapa de validade de conteúdo do programa, por meio de grupo focal, em maio de 2021. **Resultados:** Nove peritos participaram da construção e validação do conteúdo do programa de enfermagem de reabilitação para idosos fragilizados. Foram realizados dois grupos focais, e a versão final do programa integrou treino de atividades de vida e particularmente autocuidado, força, equilíbrio, coordenação e mobilidade articular. **Considerações finais:** O programa alcançou a validade de conteúdo, com um conjunto mínimo de características que deve integrar, necessitando agora de aplicação na Atenção Primária à Saúde para validação clínica.

Descritores: Idoso Fragilizado; Enfermagem; Reabilitação; Exercício; Estilo de Vida.

RESUMEN

Objetivo: Construir un programa de enfermería de rehabilitación para ser implementado en el domicilio de los ancianos frágiles y validarlo por enfermeros de rehabilitación. **Métodos:** Se trata de un estudio cualitativo, exploratorio, dividido en dos etapas. La primera correspondió a una revisión integrativa de la literatura que sustentó la construcción del programa. La segunda consistió en la etapa de validez de contenido del programa, por medio de grupo focal, en mayo de 2021. **Resultados:** Nueve peritos participaron de la construcción y validez del contenido del programa de enfermería de rehabilitación para ancianos frágiles. Fueron realizados dos grupos focales, y la versión final del programa integró entrenamiento de actividades de vida y particularmente autocuidado, fuerza, equilibrio, coordinación y movilidad articular. **Consideraciones finales:** El programa alcanzó la validez de contenido, con un conjunto mínimo de características que debe integrar, necesitando ahora de aplicación en la Atención Primaria de Salud para validación clínica.

Descriptores: Anciano Frágil; Enfermería; Rehabilitación; Ejercicio; Estilo de Vida.

ONLINE VERSION ISSN: 1984-0446

INTRODUCTION

Studies estimate that the population over 60 will double globally between 2015 and 2050. The estimate is that in 2080, in Portugal (the sixth oldest country in the world), people over the age of 80 represent 16.1% of the population, causing significant challenges for health and social policies[1-2].

Over the last decades, Portugal has seen the average life expectancy of its population increase. However, most of the extra years of life that the elderly live are disabled. In addition, a sedentary lifestyle, as well as the higher prevalence of chronic and degenerative diseases, continue to be the main risk factors for the loss of years of a healthy life, thus putting the elderly in situations of physical, psychological, and social fragility[1-2].

The elderly living in the community are prone to develop frailty[3]. It can be defined as a clinically recognizable state of greater vulnerability, resulting from the loss of functional reserve and changes in functions and multiple physiological mechanisms that compromise the ability to face daily or acute stressors, causing a high risk of fall, functional decline, hospitalization, and death[4].

Frailty has been a subject of study for several decades, being a priority in public health due to its high prevalence and consequences[5-6]. There is consensus on the importance of prevention and minimization of its effects for the elderly to remain autonomous as long as possible and with minimal restrictions on functionality in their home, their comfort zone, because poor health is not an inevitable consequence of aging[7].

According to evidence, frailty is a potentially modifiable dynamic process, and the application of specific health interventions and strategies focusing on symptoms can prevent, postpone or even reverse the phenomenon of frailty[8]. For this, health professionals, namely primary health care (PHC), may prescribe and implement rehabilitation programs that integrate non-pharmacological interventions for the frail elderly, delaying the consequences of frailty experienced with aging[9-10].

Studies highly recommend multicomponent exercise and gerontogeriatric rehabilitation for frailty in the elderly, especially during the pre-frail phase[8,10-12]. However, through a review of the literature, it was found that there are few individualized rehabilitation programs developed in the community, especially in the home context with the elderly in situations of frailty, making it difficult to access and adhere to these programs[13]. Despite this, few studies show that interventions such as home visits and supervised home physical exercise in frail elderly improve functional capacity and decrease the number of falls[14-16]. Most of the existing studies are promoted in groups through the practice of physical activity or cognitive stimulation and, individually, focus on disease management processes and functional readaptation[8,10-12].

The "Regulation of the competencies of the nurse specialist in Rehabilitation Nursing – Portugal (2019)," affirms that nurses specialists in rehabilitation have a fundamental role in early diagnosis of the health needs of the elderly, in designing and developing plans and programs that maximize their functional capacity, personal development, and social participation, and also in preventing complications arising from aging, as well as in cooperating with community structures to promote the inclusion of people in situations of fragility[17]. In PHC, nurses have a primary role in the implementation of health promotion programs, enabling the adoption of healthy lifestyles and preventing complications aiming to enhance the health conditions of the population[7,17].

To that end, in the light of the aforementioned studies, it is essential to validate the potential effects of gerontogeriatric rehabilitation in a home context. If this intervention is effective in preventing the progression of frailty, as well as in maintaining autonomy and functional independence, there can be a significant improvement in the quality of life of the elderly at home, as the maintenance of self-care capacity is essential for the well-being of this population[18].

Therefore, the study considered relevant the construction and validation of a rehabilitation nursing program to be applied in the homes of frail elderly. It followed the guidelines of the Medical Research Council for the development of complex interventions[19]. There was a literature review and expert consultation of the area to bring the components of the program to be prescribed closer to the reality of nursing care practice.

OBJECTIVE

To build a rehabilitation nursing program to be implemented in the home of the frail elderly and validate it by rehabilitation nurses.

METHODS

Ethical aspects

This study is part of the larger research project entitled "Frail elderly at home: sensitive gains in rehabilitation nursing care," and has approval from the Ethics Committee of the Regional Health Administration of the North, nº 24 2020, following all ethical precepts. All participants consented to participate in the study and voluntarily signed the Informed Consent. Anonymity and confidentiality were guaranteed, and participants were informed that they could leave the investigation at any time without prejudice.

Theoretical-methodological framework

Concerning the objectives of the study, it followed Craig's et al. guidelines (2008)[19] as well as Krueger and Casey's assumptions (2014) for the realization of the focus group[20]. With this technique, the study conducted group interviews in two sessions, with discussion and debate of ideas.

Type of study

A qualitative, exploratory study of the construct and content validation type of components of a rehabilitation nursing program. It was subdivided into two phases: construction of the rehabilitation nursing program, supported by literature review, and validation of the program content by experts using the focus

group technique. This research was conducted and structured based on the consolidation criteria for qualitative research reports (COREQ)[21].

Methodological procedures

Study setting

The present study was conducted in a video conferencing scenario due to the COVID-19 pandemic.

Data source

Initially, the research conducted a literature review to identify the most effective rehabilitation nursing interventions in preventing the progression of the frailty of elderly residents at home. After reviewing the literature and identifying the essential components, the study built a rehabilitation nursing program to be implemented in the home of the frail elderly, and it was presented and discussed in two focus groups with the participation of nine experts. In Focus Group 1, the study explored the contents of the program, and in Focus Group 2, it validated the relevance of maintaining, modifying, and/or adding the contents already explored in the first phase. The content discussed was recorded for later analysis. In addition to the validation of content in the focus groups, it was possible to know the limitations or difficulties in the implementation of the program and analyze different perspectives through the expert reports, as some authors argue[20].

The study used non-probabilistic enrichment to select the experts who participated in the focus group. The inclusion criteria used to define the participants of this stage were: to be a nurse for at least ten years; be the holder of the title of nurse specialist in rehabilitation nursing; to exercise professional activity as a specialist for at least five years, and to exercise professional activity with the elderly in the community for at least two years.

Collection and organization of data

The data was collected through video conference in two group sessions of 120 minutes (totaling 240 minutes) in May 2021. Each of the focus groups had: the principal investigator (master's in nursing, with thirteen years of professional experience, and three years of professional work in the community with the elderly), who conducted the group, and the research assistant (Ph.D. in nursing science), a specialist in the field of nursing and rehabilitation, with forty-two years of professional experience and extensive professional practice with the elderly, who made the recording, observation, and registered the pertinent information, as well as the dynamics of the group, so that, to analyze the data.

The recruitment of participants took place in three moments. In the first, which took place four weeks before the meeting, the study invited the professionals to participate via email. After the acceptance, participants received the information on the essential aspects (framework, objectives, and purpose) of the research, informed consent, and a questionnaire for professional characterization. The second moment (confirmation) took place two weeks before the meeting of the focus group when participants were asked to confirm their attendance. Finally, the third moment (validation of participation) occurred the week before the meeting, in which the participants were contacted via e-mail to validate their attendance. Of the 14 invitations, 9 participants accepted and were present until the end of the meeting, and the remaining 5 claimed personal reasons for the impossibility of participating. There was no presence of other parties, apart from the principal investigator, assistant investigator, and participants.

Before the start of the discussion, all participants received given a guiding script for the session. The data collection tool included questions concerning the characterization of the experts and an evaluation tool of the program consisting of objective questions. The questions presented were organized according to four topics: I) inclusion and exclusion criteria in the rehabilitation nursing program; II) objectives of the rehabilitation nursing program; III) content of the rehabilitation nursing program; IV) operationalization of the rehabilitation nursing program. The questions asked to the experts aimed to identify the key elements to consider in a rehabilitation nursing program to prevent the progression of the frailty of elderly residents at home.

To assess the agreement concerning the contents proposed in the program, the experts answered "agree" or "disagree", and at the end of each category there was a space for suggestions related to removal, addition or modifications. Previously, the questions had been submitted to a pre-test, having been applied to three elements external to the research team, with the same characteristics as the experts, to realize their applicability and the need for reformulation.

Before the focus group meeting, there was no relationship between the participants.

Data analysis

For the analysis of the content of the program, the study proceeded to decode, interpret and analyze the data using Bardin's discourse data analysis technique[22]. Thus, the first component consisted of the full transcript of the session recording, which was supplemented with small notes collected by the researchers during the sessions. Software for qualitative data analysis, the Qualitative Research and Solutions (Atlas.ti) assisted the organization and coding of the data, and the expert reports were identified by the letter P, followed by a number representing the order in which the information was collected.

The experts calculated and agreed on the degree of relevance of the interventions and their inclusion/maintenance in the program regarding the theme. The content selected for the program achieved greater than 80% agreement, with positive feedback from the experts on the findings, resulting in simultaneous data saturation.

RESULTS

The nine participants in the focus group had an average age of 40.44 years, most of them had a master's degree (67%),

were male (55.6%), and exercised their professional activity as specialist nurses in rehabilitation nursing in the community (100%). The average professional exercise time was 17.89 years, and as a specialist, it was 9.44; and in the community, 7.89 years.

The first questions of the focus group concentrated on the content of the program and the importance of balance, strength, and joint mobility training was agreed.

However, the participants emphasized that postural awareness strategies and safety precautions should be taught at the beginning of the program.

> […] *it is important to teach care for the prevention of falls, as well as correct incorrect postures, if possible, in front of a mirror.* (P1)

They also highlighted the importance of respiratory pattern training, as well as effective energy management without advancing to fatigue or cardiorespiratory decompensation processes.

> *Respiratory awareness and energy conservation techniques should be taught before the start of the program.* (P2)

It was unanimous that, in addition to preventing the progression of frailty, the program should, above all, enhance the ability of the elderly to be autonomous in life activities. To that end, they reinforced that the balance training, coordination, and strength is essential not only for the advanced activities of daily life but also for the instrumental and basic activities of daily life.

> [Even before] *lifting, which is a complex exercise that requires a lot of training, and gait, muscle strengthening exercises of the anterior and posterior chain should be performed, as well as balance training... the bearings, the load on the elbow, and the bridge are very important.* (P3)

Regarding the teaching and training for joint mobilization, it was evident that daily tasks such as self-care, feeding, hygiene, dressing, and getting ready are paramount, in which reach, grip, and fine motor skills are necessary.

It is also true that mobilization prevents joint stiffness, which, according to experts, should be carried out.

> […] *following the joint chains, it is important to mobilize the head and neck, shoulders, elbows, forearms, wrists, fingers, knees, feet, toes and trunk, in the position of sitting and standing.* (P4)

In the daily routines of the elderly, strategies promoting self-care should be instructed and trained.

> *For example, the elevation of the trunk with a load on the elbow and sitting balance training should be trained for sitting.* (P5)

For safe walking, it must be trained

> […] *flexion of the hip and knee, rotation and pelvic inclination, and then walking* [with or without walking aid] *on a stable surface inside the house and, subsequently, overcoming obstacles on the floor, on unstable surfaces outside the house, such as Portuguese style/stone pavement. Initially for a few meters, and after achieving this goal, for a greater distance.* (P6)

Among the most debated strategies, the negotiation and definition of goals and objectives, i.e.:

> […] *leave a mark on the ground for the person to realize how far he has managed*. (P7)

The importance of nursing interventions focusing on the awareness and involvement of the elderly, as well as the attribution of meaning to these habits that promote functionality, was intensified because this is the only way for the elderly to maintain exercise habits with a focus on independence in self-care.

The study found the importance to realize the change relative to sedentary habits, often due to the fear of falling. For this, it is necessary to demonstrate that, even with difficulties, it is possible to move and that any activity or movement is essential for the health of the elderly. Support strategies are fundamental to the motivation and continuity of adherence to the program.

It also reinforced the idea that,

> […] *although there may be a standard program, interventions must be individualized and adapted to the needs and preferences of frail elderly*. (P8)

Among the strategies to be used, there was the dialogue to include the family caregiver/significant person as a crucial part in the process, not only as a motivating element of the family member but also as one who cares for the safety of the elderly person.

As regards the opinion of the experts on the operationalization of the program, they mentioned that the program should have a frequency of at least two days a week and that, as its development, the intensity and time of each session should be increased to a maximum of 60 minutes. Support materials should also be introduced progressively, increasing the load according to evolution; and the selection of these materials should be according to the preferences and individuality of the elderly.

Regarding the inclusion criteria, participants considered that this program should include the elderly in a situation of mild to moderate frailty, thus slowing the condition of dependence.

Regarding the development of the rehabilitation program in question, it was unanimous among the participants that this would make a significant contribution to clinical practice since

> […] *there are few structured rehabilitation programs in the community for the elderly in situations of frailty, especially at home.* (P9)

The fact that the program is implemented in the elderly's home would be an advantage because there would be no traveling for its execution.

Following expert consensus, after the focus groups, changes were made to the first version of the Rehabilitation Nursing Program, which are explained in Figure 1.

In conclusion, from the meeting of the focus group, six categories related to the program emerged: inclusion criteria; objectives and purpose; content; adhesion strategies; operationalization/organization (frequency, intensity, time, type of exercise), and dynamics of the progressive implementation of the program.

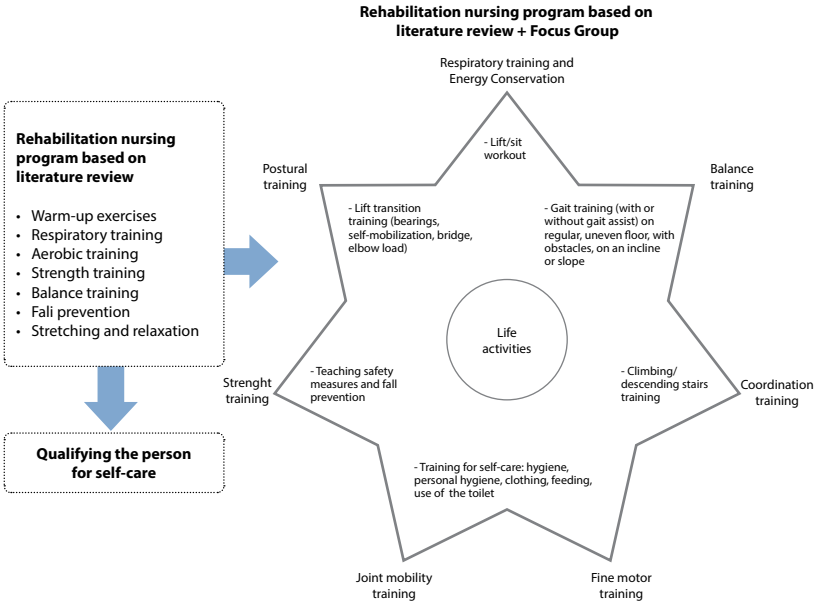

Figure 1 - Rehabilitation nursing program: from literature review to content validation by experts

DISCUSSION

The initiative to build and validate a rehabilitation program in a home context for frail elderly originated from the need to slow the progression of this syndrome during the aging process.

The results that emerged from the literature review and expert opinion suggest that the construction of the rehabilitation nursing program for frail elderly should include a varied range of interventions. The elderly needs in situations of frailty are diverse, so the components to be addressed in a rehabilitation program can be equally comprehensive. It corroborates several authors: according to them, aging, even without associated pathological conditions, the result of a transition in development and the consequence of physiological and psychosocial processes, makes older people fragile due to the decline of some physical capacities, such as flexibility, agility, coordination, joint mobility, and balance[23].

According to the literature and experts opinion, the frailty of the elderly challenges PHC professionals to implement intervention programs for them and their caregivers[24].

Although the implementation of these community programs is highly recommended, and physical activity of all types and combinations as well as rehabilitation significantly reduce the number or prevalence of markers of frailty[25], the truth is that most programs focus on group activities of physical exercise, cognitive training and even emotional management[8] rehabilitation programs that individually meet the specific needs of each frail elderly are scarce[13].

Due to the importance of maintaining the functional capacity for the quality of life of the elderly, the nurse, and precisely the nurse specialist in rehabilitation nursing, has a fundamental role in preventing the progression of frailty in the elderly[18,26].

The experts agreed that strength and balance training is crucial in the rehabilitation program, both in the mobility of the frail elderly and the performance of self-care and daily life instrumental activities. The recommendations of international studies indicate that the elderly should practice multicomponent physical activity, incorporating balance and strength training on three or more days a week to increase functional capacity and to prevent falls[27].

During the discussion with the expert group, postural training was sustained, even before lifting, for the person to move safely. Changes in the nervous, locomotor and sensory systems decrease the compensatory capacity of the system, increase instability in activities of daily living, such as standing and walking[28]. Thus, the load on the elbow, as well as the bridge, are essential in the transition to lifting and static postural control.

The aging process also influences other motor elements that are fundamental for performance in daily living activities (DLAs), such as coordination. Motor responses to proprioceptive, visual, and auditory stimuli are slower, as are responsiveness, compromising essential coordination in several DLAs. Therefore, during the discussion, the experts suggested that coordination training and training directed to DLAs are crucial for the elderly, as some authors recommend[29].

As the balance and strength of the elderly are often compromised, their fear of falling increases constantly, limiting socialization and performance of DLAs, which generates a snowball effect of disuse and decreased function, muscle mass, balance, posture, coordination, and flexibility[30]. In addition to all the physical phenomena inherent in falls, these have psychic and social repercussions. When feeling fear of falling, the person loses self-confidence, isolates himself, becomes more dependent on the performance of daily life activities, leading to greater dependence on third parties[30-32].

Grip and fine motor skills, as well as flexibility and joint mobility, are also indispensable for the tasks of daily life: not only concerning primary self-care but also to actions that need scope, such as cooking, taking care of the house, and various household tasks, which must be trained as recommended by experts. Recent studies consider that the integration of these exercises into daily life has been a promising alternative to conventional programs, with indisputable health gains[33].

Also, the effects of aging on the respiratory system are similar to those that occur in other organs. Age-related changes in the lungs include a decrease in peak airflow and gas exchange, a decrease in measures of lung function as vital capacity, a weakening of respiratory muscles, and a decline in the effectiveness of lung defense mechanisms. For this reason, experts advise training the respiratory pattern and identifying signs of fatigue, preventing complications[34].

Experts agreed that training a specific activity is the best way to maximize its performance and, for this reason, the closer the program is to the DLAs, that is, in movement patterns similar to how people perform daily tasks, the better the result will be. If the program targets only one essential motor element of the body and ignores others, the effect of training on DLAs can be compromised, as some authors argue[35-36].

To that end, it is essential to train movement patterns similar to self-care, hygiene, clothing, feeding, toilet use, walking (with or without walking aid) on regular, irregular floors, with obstacles, in incline or slope, going up and down the stairs as people need in their daily life. According to experts, in line with the literature[37-38], this training will favor independence and social participation for a successful aging.

The experts agreed that rehabilitation programs should be attractive to avoid abandonment. Therefore, they should be adapted to the personal condition and specific needs of the elderly by readjusting the volume and intensity[39]. It was evident that empowering the elderly to incorporate exercises in their day to day is a strategy for the elderly to know how to self-manage their fragility, slow dependence, and institutionalization, as described by some authors[40].

For many seniors, involvement in structured sports is not attractive generally due to lack of transportation, limited access to facilities, time commitments, and even unwillingness to join a group[41]. Recent studies highlight the preference of the elderly for lifestyle activities such as cleaning or gardening rather than performing specific exercises[42]. Exercise training focused on DLAs promotes behavioral change and greater long-term adherence compared to community sports programs[37]. As pointed out by one of the experts during the discussion, an international study highlights motivation as an incredibly relevant key mechanism for change and developing and maintaining new behaviors[43].

Thus, it is relevant that the elderly, when completing the various motor patterns in the achievement of the different tasks, have a behavioral perception and positive self-efficacy about themselves to continue the rehabilitation program[44].

During the validation process, the program could go through changes that respected the particularities of the target population so that PHC providers could easily understand and use the final version. The participation of the experts in the process of validating the program's contents promoted its improvement. The experts said they understood the program, but some suggestions enriched it, also making evident the essence of rehabilitation nursing.

The assessment and guidance of experts with recognized experience in the thematic area ensured that its construction always considered the needs of the elderly in fragile situations. The validation process resulted in a structured program, consisting of self-care training, balance, strength, coordination, joint mobility, endurance, posture, and respiratory exercise in two sessions per week of 60 minutes, for 12 weeks. In the future, another study will be necessary to evaluate the effectiveness of the final version of the built program by conducting a pilot study. Such a challenge is the next step. The program is expected to be implemented by rehabilitation nurses that work in the care units in the community and be inserted in projects to promote active aging, adapted to the specific needs of the elderly population to which the care is intended.

Limitations of the Study

The study was limited because it was conducted with experts from only one country. It is necessary to extend it to a larger number of experts from different countries.

Contributions to the Field

In recent years, several international studies of prevalence and analysis of the correlation of frailty with various risk factors are under development. To that end, they recommend programs to promote active aging, physical exercise, and gerontogeriatric rehabilitation. However, group programs are not always accessible to the elderly, and the need arises to promote individualized programs in the home of the elderly. The results of this study demonstrate the advantages of this program not only in the functional capacity and independence of frail elderly but also in the quality of life and well-being.

FINAL CONSIDERATIONS

The literature review and meeting with a group of experts resulted in a program adapted to the individual needs of the frail elderly, and it recommended the implementation of two sessions per week of 60 minutes for 12 weeks. The program should not only integrate balance training, strength, coordination, joint mobility, endurance, posture, and respiratory exercise but, above all, training for self-care to promote the autonomy and independence of the elderly. The next stage aims at the realization of a pilot study through the implementation of the program in the home of the frail elderly.

REFERENCES

1. Jarzebski MP, Elmqvist T, Gasparatos A, Fukushi K, Eckersten S, Haase D, et al. Ageing and population shrinking: implications for sustainability in the urban century. npj Urban Sustain. 2021;1(1):17. https://doi.org/10.1038/s42949-021-00023-z
2. Instituto Nacional de Estatística (PT). Projeções de população residente em Portugal[Internet]. Lisboa: Instituto Nacional de Estatística; 2020 [cited 2020 Jul 20]. Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_%20boui=406534255&DESTAQUESmodo=2&xlang=pt.
3. Lourenço RA, Moreira VG, Banhato EFC, Guedes DV, Silva KCA, Delgado FEF, et al. Prevalência e fatores associados à fragilidade em uma amostra de idosos que vivem na comunidade da cidade de Juiz de Fora, Minas Gerais, Brasil: estudo FIBRA-JF. Ciênc Saúde Colet. 2019;24(1):35-44. https://doi.org/10.1590/1413-81232018241.29542016
4. Gobbens RJ, Luijkx KG, Wijnen-Sponselee MT, Schols JM. Toward a conceptual definition of frail community dwelling older people. Nurs Outlook. 2010;58(2):76-86. https://doi.org/10.1016/j.outlook.2009.09.005

5. Kwak D, Thompson LV. Frailty: Past, present, and future? Sports Medicine and Health Science. 2021;3(1):1-10. https://doi.org/10.1016/j.smhs.2020.11.005

6. Carneiro JA, Ramos GCF, Barbosa ATF, Mendonça JMG, Costa FM, Caldeira AP. Prevalence and factors associated with frailty in non-institutionalized older adults. Rev Bras Enferm. 2016;69(3):435-42. https://doi.org/10.1590/0034-7167.2016690304i

7. Llano PMP, Lange C, Nunes DP, Pastore CA, Pinto AH, Casagranda LP. Frailty in rural older adults: development of a care algorithm Acta Paul Enferm. 2017;30:520-30. https://doi.org/10.1590/1982-0194201700075

8. Racey M, Ali MU, Sherifali D, Fitzpatrick-Lewis D, Lewis R, Jovkovic M, et al. Effectiveness of physical activity interventions in older adults with frailty or prefrailty: a systematic review and meta-analysis. CMAJ Open. 2021;9(3):E728. https://doi.org/10.9778/cmajo.20200222

9. Pillatt AP, Nielsson J, Schneider RH. Efeitos do exercício físico em idosos fragilizados: uma revisão sistemática. Fisioterapia e Pesquisa. 2019;26:210-7. doi: 10.1590/1809-2950/18004826022019. https://doi.org/10.1590/1809-2950/18004826022019.

10. Merchant RA, Morley JE, Izquierdo M. Exercise, Aging and Frailty: Guidelines for Increasing Function. J Nutr Health Aging. 2021;25(4):405-9. https://doi.org/10.1007/s12603-021-1590-x

11. Macdonald SH, Travers J, Shé ÉN, Bailey J, Romero-Ortuno R, Keyes M, O'Shea D, Cooney MT. Primary care interventions to address physical frailty among community-dwelling adults aged 60 years or older: a meta-analysis. PLoS One. 2020;15(2):e0228821. https://doi.org/10.1371/journal.pone.0228821

12. Santos SSC, Barlem ELD, Silva BTd, Cestari ME, Lunardi VL. Promoção da saúde da pessoa idosa: compromisso da enfermagem gerontogeriátrica. Acta Paul Enferm. 2008;21:649-53. https://doi.org/10.1590/S0103-21002008000400018

13. Stookey AD, Katzel LI. Home exercise interventions in frail older adults. Curr Geri Rep. 2020;9:163–75. https://doi.org/10.1007/s13670-020-00326-6

14. Favela J, Castro LA, Franco-Marina F, Sánchez-García S, Juárez-Cedillo T, Espinel Bermudez C. Nurse home visits with or without alert buttons versus usual care in the frail elderly: a randomized controlled trial. Clin Interv Aging. 2013;8:85-95. https://doi.org/10.2147/CIA.S38618

15. Henwood T, Hetherington S, Purss M, Rouse K, Morrow J, Smith M. active@home: Investigating the Value of a Home Care Worker-Led Exercise Program for Older Adults With Complex Care Needs. J Aging Phys Act. 2019;27(2):284-9. https://doi.org/10.1123/japa.2017-0443

16. Suikkanen S, Soukkio P, Aartolahti E, Kääriä S, Kautiainen H, Hupli MT. Effect of 12-month supervised, home-based physical exercise on functioning among persons with signs of frailty: randomized controlled trial. Arch Phys Med Rehabil. 2021;17:S0003-9993(21)00508-6. https://doi.org/10.1016/j.apmr.2021.06.017

17. Presidência do Conselho de Ministros (PT). Regulamento n.º 392/2019. Regulamento das Competências do Enfermeiro Especialista em Enfermagem de Reabilitação[Internet]. Diário da República, Série II, n.º 85/2019, 3 maio 2019. [cited 2021 Jul 20]. Available from: https://dre.pt/web/guest/pesquisa/-/search/122216893/details/normal?l=1

18. Aguiar VVF, Santos BSC, Gomes DCN, Tavares TCA. Assessment of the functional capacity and quality of life of Brazilian elderly people living in a community. Rev Enferm Ref. 2019;IV(21):59-65. https://doi.org/10.12707/RIV19011

19. Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. BMJ. 2008;337:a1655. https://doi.org/10.1136/bmj.a1655

20. Krueger R, Casey M. Focus groups: a practical guide for applied research (5th ed.). Sage Publications Asia-Pacific; 2014.

21. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19(6):349-57. https://doi.org/10.1093/intqhc/mzm042

22. Bardin L. Análise de conteúdo. 7ª ed. Lisboa Portugal: Edições 70; 2011.

23. Cadore EL, Rodríguez-Mañas L, Sinclair A, Izquierdo M. Effects of different exercise interventions on risk of falls, gait ability, and balance in physically frail older adults: a systematic review. Rejuven Res. 2013;16(2):105-14. https://doi.org/10.1089/rej.2012.1397

24. Andrew MK, Dupuis-Blanchard S, Maxwell C, Giguere A, Keefe J, Rockwood K, et al. Social and societal implications of frailty, including impact on canadian healthcare systems. J Frailt Aging. 2018;7(4):217-23. https://doi.org/10.14283/jfa.2018.30

25. Puts MTE, Toubasi S, Andrew MK, Ashe MC, Ploeg J, Atkinson E, et al. Interventions to prevent or reduce the level of frailty in community-dwelling older adults: a scoping review of the literature and international policies. Age Ageing. 2017;46(3):383-92. https://doi.org/10.1093/ageing/afw247

26. Faria A, Martins MMFPS, Aguilera JAL, Ribeiro OMPL, Fonseca EF, Flores JM. Fragilidade em pessoas idosas residentes no domicílio inscritas numa Unidade de Saúde do Norte de Portugal. Rev Port Enferm Reabil. 2021;4(1):6-14. https://doi.org/10.33194/rper.2021.v4.n1.46

27. World Health Organization (WHO). Guidelines on physical activity and sedentary behaviour [Internet]. Geneva: World Health Organization; 2020[cited 2020 Jul 2]. 104 p. Available from: https://www.who.int/publications-detail-redirect/9789240015128

28. Seidler RD, Bernard JA, Burutolu TB, Fling BW, Gordon MT, Gwin JT, et al. Motor control and aging: links to age-related brain structural, functional, and biochemical effects. Neurosci Biobehav Rev. 2010;34(5):721-33. https://doi.org/10.1016/j.neubiorev.2009.10.005

29. Hairi NN, Cumming RG, Naganathan V, Handelsman DJ, Le Couteur DG, Creasey H, et al. Loss of muscle strength, mass (sarcopenia), and quality (specific force) and its relationship with functional limitation and physical disability: the Concord Health and Ageing in Men Project. J Am Geriatr Soc. 2010;58(11):2055-62. https://doi.org/10.1111/j.1532-5415.2010.03145.x

30. Fioritto AP, Cruz DT, Leite ICG. Correlation of functional mobility with handgrip strength, functional capacity for instrumental activities of daily living, fear of falling and number of falls in community-dwelling elderly. Fisioter Mov. 2020;33. https://doi.org/10.1590/1980-5918.033.AO35

31. Utida KAM, Budib MB, Batiston AP. Fear of falling associated with sociodemographic and lifestyle variables and clinical conditions in elderly people registered with the Family Health Strategy in Campo Grande, Mato Grosso do Sul. Rev Bras Geriatr Gerontol. 2016;19(03):441-52. https://doi.org/10.1590/1809-98232016019.150069

32. Santos SCA, Figueiredo DMP. Preditores do medo de cair em idosos portugueses na comunidade: um estudo exploratório. Ciênc Saúde Colet. 2019;24(1):77-88. https://doi.org/10.1590/1413-81232018241.29932016

33. Schwenk M, Bergquist R, Boulton E, Van Ancum JM, Nerz C, Weber M, et al. The adapted lifestyle-integrated functional exercise program for preventing functional decline in young seniors: development and initial evaluation. Gerontol. 2019;65(4):362-74. https://doi.org/10.1159/000499962

34. Ruivo S, Viana P, Martins C, Baeta C. Efeito do envelhecimento cronológico na função pulmonar: comparação da função respiratória entre adultos e idosos saudáveis. Rev Port Pneumol. 2009;15:629-53. https://doi.org/10.1016/S0873-2159(15)30161-6

35. Hawley JA. Specificity of training adaptation: time for a rethink? J Physiol. 2008;586(1):1-2. https://doi.org/10.1113/jphysiol.2007.147397

36. Reilly T, Morris T, Whyte G. The specificity of training prescription and physiological assessment: a review. J Sports Sci. 2009;27(6):575-89. https://doi.org/10.1080/02640410902729741

37. Reicherzer L, Kramer-Gmeiner F, Labudek S. Group or individual lifestyle-integrated functional exercise (LiFE)? A qualitative analysis of acceptability. BMC Geriatrics. 2021;21(1):93. https://doi.org/10.1186/s12877-020-01991-0

38. Weber M, Belala N, Clemson L, Boulton E, Hawley-Hague H, Becker C, et al. Feasibility and effectiveness of intervention programmes integrating functional exercise into daily life of older adults: a systematic review. Gerontol. 2018;64(2):172-87. https://doi.org/10.1186/s12877-020-01991-0

39. American College of Sports Medicine, Chodzko-Zajko WJ, Proctor DN, Fiatarone Singh MA, et al. American College of Sports Medicine position stand: exercise and physical activity for older adults. Med Sci Sports Exerc. 2009;41(7):1510-30. https://doi.org/10.1249/MSS.0b013e3181a0c95c

40. Lacroix A, Hortobágyi T, Beurskens R, Granacher U. Effects of Supervised vs. Unsupervised training programs on balance and muscle strength in older adults: a systematic review and meta-analysis. Sports Med. 2017;47(11):2341-61. https://doi.org/10.1007/s40279-017-0747-6

41. Burton NW, Khan A, Brown WJ. How, where and with whom? Physical activity context preferences of three adult groups at risk of inactivity. Br J Sports Med. 2012;46(16):1125-31. https://doi.org/10.1136/bjsports-2011-090554

42. Burton E, Lewin G, Boldy D. Physical activity levels of older adults receiving a home care service. J Aging Phys Act. 2013;21(2):140-54. https://doi.org/10.1123/japa.21.2.140

43. Seifert CM, Chapman LS, Hart JK, Perez P. Enhancing intrinsic motivation in health promotion and wellness. Am J Health Promot. 2012;26(3):TAHP1-12. https://doi.org/10.4278/ajhp.26.3.tahp

44. Hawley-Hague H, Horne M, Skelton DA, Todd C. Older adults' uptake and adherence to exercise classes: instructors' perspectives. J Aging Phys Act. 2016;24(1):119-28. https://doi.org/10.1123/japa.2014-0108