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Article

Rehabilitation of Elderly Individuals with Frailty Syndrome

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Abstract

Introduction: Population aging, the prevalence of comorbidities, polypharmacy, dependence in the context of performing activities of daily living (ADL), and the progressive impoverishment of many citizens, among other factors, have rendered frailty syndrome a public health concern. A literature review was conducted with the goal of proposing recommendations regarding the design and implementation of rehabilitation programs that can control or mitigate this problem. **Objective:** Analyze the perceptions of rehabilitation programs for elderly people with frailty syndrome exhibited by nurses who specialize in rehabilitation nursing. **Method:** This research takes the form of a quantitative study rooted in the interpretivist paradigm. The participants in this research were nurses who specialized in rehabilitation nursing and had professional experience implementing rehabilitation programs for elderly people with frailty syndrome. Content analysis was performed to investigate the narratives provided by the participants, and semantic categorization was performed on the basis of the Bardin framework (2016). **Results:** The analysis of the narratives provided by the eleven participants in this research revealed three categories and corresponding indicators: “the meaning attributed to rehabilitation care for elderly individuals with frailty syndrome”, “professional intervention strategies” and “health gains resulting from the implementation of care strategies”. **Conclusion:** Rehabilitation interventions can improve the experiences of people with frailty syndrome because such interventions promote well-being and self-care. To mitigate frailty syndrome, rehabilitation programs should provide motor training, training in ADL, respiratory rehabilitation, and swallowing and elimination training. Nurses who specialize in rehabilitation nursing should pay attention to the tasks of stimulating and training clients to manage their rehabilitation programs as well as health education, the mobilization of the person and the goal of promoting adaptive capacities.

Keywords: elderly individuals; rehabilitation nursing; frailty syndrome; well-being; self-care

1. Introduction

Population aging is a current challenge in Portugal as well as in other European countries in general. This phenomenon reflects decreasing mortality rates, increasing average life expectancy, and, consequently, decreasing fertility rates [1].

In 1959, only 12% of the population was over the age of 65 years. According to the most recently collected data, this figure has increased to 19.2%. Projections have reported that by 2050, more than 36% of the European population will be over the age of 65 years [2].

A combination of increasing average life expectancy with technological development, advances in science and the availability of more differentiated health care has led to the emergence of a new paradigm that characterizes the responses of health professionals to health needs. People live longer, and the aging process has become an essential focus of efforts to develop strategies aimed at improving people's quality of life as well as delaying frailty and functional decline [3].

Frailty is a common geriatric syndrome that is associated with a set of signs and symptoms that occur simultaneously. It is characterized by high levels of susceptibility to adverse health consequences such as disability, dependence, falls and mortality. It becomes a syndrome when it includes multiple components [4,5].

Frailty syndrome involves unintentional weight loss, decreased muscle strength, decreased endurance and energy, a tendency to slow down and decreased physical activity. An individual is considered to be frail if they meet three or more criteria, prefrail if they meet one or two of these criteria, and nonfrail or robust if they do not meet any criteria [4,5].

Para, Faria et al. ⁽³⁾ reported that frailty extends beyond the criteria, suggesting that sociodemographic factors, traumatic/critical events, and physical, psychological and social factors can also lead to frailty.

Frailty syndrome is characterized by a physiological state that involves increased vulnerability to stress factors and results in a decrease in physiological reserves as well as in the deregulation of multiple systems [6]. The frailty associated with aging leads to increased susceptibility to the onset of multiple pathologies [1,7]. Frail elderly individuals are more likely to suffer from chronic comorbidities, insomnia, poor oral health, balance problems and falls. In addition, such individuals tend to use medications that increase their risk of falling and to exhibit dependence with regard to activities of daily living (ADL) [6].

A literature review revealed associations among frailty, gait and dynamic balance, thereby increasing the risk of falls among this population [7]. Both the risk of falls and the frailty exhibited by elderly individuals are phenomena that can be prevented, monitored and identified, thus revealing that this topic should be prioritized in both clinical practice and research [6,7].

Studies on frailty syndrome among elderly individuals have concluded that musculoskeletal disorders represent a serious problem that impacts the functionality of older people, thereby conditioning their physical activity and social participation and contributing to the onset of frailty syndrome [8,9].

In light of the impact of frailty on quality of life among older adults, the authors highlight the necessity of focusing on people-centered rehabilitation programs that can ensure continuity of care [10,11]. Rehabilitation programs offered by multidisciplinary teams must also take psychosocial components such as anxiety or loneliness into account [11].

Accordingly, the objective of this study was to analyze the perceptions of rehabilitation programs for elderly people with frailty syndrome exhibited by nurses who specialize in rehabilitation nursing.

2. Materials and Methods

The objectives of this study required it to be qualitative, exploratory and descriptive. According to Colorafi and Evans [12], this type of study is grounded in the general principles of naturalistic inquiry and facilitates the development of health-related knowledge because qualitative research focuses on with complex phenomena that allow researchers to understand people's experiences, beliefs, behaviors, attitudes, and interactions.

The participants in the present study were nurses in Portugal who specialized in rehabilitation and provided specialized care to elderly people with frailty syndrome in the community. The sample was intentional (i.e., nonprobabilistic), and participants were selected by the researchers on the basis of interviews with rehabilitation nurses with diverse experiences, thereby potentially offering rich information concerning the provision of specialized health care to the community; these interviews focused on health promotion and disease prevention in the community, particularly among elderly

individuals with frailty syndrome. The inclusion criteria focused on nurses who participated in rehabilitation programs for elderly people with frailty syndrome and who were motivated to participate in this study. The exclusion criteria focused on nurse managers who lacked direct involvement in the planning and implementation of such rehabilitation programs.

Narratives are among the most commonly used data collection procedures in social and health research, and this approach focuses on collecting meaning from experiences ⁽¹³⁾ in the context of clinical practice, in this case specifically from nurses who specialized in rehabilitation nursing. A guide for these narratives was developed and submitted to an evaluation by two judges with the goal of ensuring the content validity of the instrument.

The main goal of this process was to ensure that the questions guiding the narrative were framed in line with the defined objectives and allowed for the reorganization of nurses' experiences of caring for elderly individuals in a coherent and meaningful way, thereby giving meaning to these experiences and providing a narrative through a process that was integrated into the context of clinical practice [13].

The guiding script for the narratives aimed to provoke reflection and analysis on the practices involved in the provision of specialized rehabilitation care to elderly people with frailty syndrome from the perspective of rehabilitation nurses in the community. It included five questions that guided the reflection and are presented below.

On the basis of the care processes through which you, as a nurse, have intervened in the rehabilitation of elderly people with frailty syndrome, I would like to obtain your collaboration with this study:

- How was the experience of caring for elderly people with frailty syndrome?
- What meaning do you attribute to this care experience?
- What strategies were used in the rehabilitation of elderly people with frailty syndrome?
- What exercise program was implemented for these people?
- What significant gains in rehabilitation nursing care resulted from the implementation of these strategies?

In compliance with the ethical principles that should guide the preparation of a study of this nature, a request was made to the ethics committee at the relevant institution of higher education, and contact was established with nurses who specialized in rehabilitation nursing. At the institutional level, this study received a favorable opinion from the Ethics Committee of the Polytechnic Institute of Beja on February 27, 2024, under Case No. 4/2024. The nurses who participated in this research were assured that their participation in the study was strictly voluntary and that they could withdraw from this research at any time without being required to justify their decision or affecting their future treatment. The anonymity and confidentiality of the data they provided were guaranteed, and professional secrecy was viewed as an obligation and duty. In addition, the participants signed informed consent forms.

Contact with the participants was made by all the researchers at two time points. Initially, the participants were contacted by telephone to verify their interest in participating in this study. Interested participants were sent an interview guide, and they provided informed consent via e-mail.

All the nurses who participated in this research prepared their narratives and provided them to the researchers, who had noneditable participation; these nurses also provided signed informed consent forms.

The data processing was operationalized by the principal investigator with the objective of standardizing the procedure. The confidentiality and anonymity of the data obtained as part of this research were ensured throughout this process, and the identities of the participants were protected. The data were stored by the principal investigator in a specific encrypted device for the purpose of restricting access to people who were not affiliated with the study for a period of 5 (five) years.

The names of the participants are replaced by identification numbers (i.e., P1, P2, P3, ...) in both the registers and in the corresponding publications. In the assertions (registration units) included in the study results, measures were used to protect the identities of the participants. Data protection

extended from the selection of participants to the collection, analysis and dissemination of study results.

Narratives, as a research technique, represent a primary source of reflection on the part of study participants, especially in the areas of education and research ⁽¹³⁾.

The results obtained from the narratives were analyzed via the content analysis technique on the basis of thematic category analysis [14]. In the first stage of this process, a general reading was performed to determine whether the information collected as part of this research was related to the objectives of the study. Therefore, the narratives received from nurses constituted the focus of this analysis and provided the material to be analyzed as part of this investigation [14]. In the second stage, the data were coded, including by providing specific definitions of the registration units and context units. Themes were defined as the unit of record, which, according to Bardin [14], represents a statement regarding a subject, to which a vast set of singular formulations can be attributed. The response of each participant to the questions guiding the narrative was considered to be the unit of context, which was used as a unit of understanding with the goal of encoding and understanding the exact meaning of each unit of record. In addition to the definitions of coding units, categories and indicators were defined. In the third stage, the results were considered, inferences were drawn, and meaning was assigned to the qualitative analysis of the identified categories.

Several procedures were developed to ensure the quality of this research:

- i. The study protocol was followed; this protocol included a rigorous description of the procedures extending from planning to data collection, including relevant personal assumptions and potential limitations [12].
- ii. The procedures for data collection and analysis were explained, as were the theoretical framework and justification for this study.
- iii. A review was conducted by peers/judges; the collaboration of two judges/experts on this subject was requested, and these individuals validated the content analysis and made suggestions for improvement.
- iv. A constant comparison between the findings and the coding process within the team made it possible to ensure the transparency of the inductive work. The team had prior experience conducting qualitative studies,
- v. In the definition of the categories, objectivity, exhaustiveness, representativeness, homogeneity, exclusivity and pertinence were ensured [15].

3. Results

This study focused on eleven nurses who had received postgraduate training in nursing. All these nurses specialized in one of the areas defined by the Order of Portuguese Nurses as constituting the field of rehabilitation nursing. In the sample investigated in this research, eight (8) nurses were female, while three were male. The eleven participants in this study worked in the Algarve (10) and Beja (1) regions of Portugal.

The content analysis process involved separating the text into recording units (themes) as well as into categories through a process of analogical regrouping, as advocated by Bardin [14]. A semantic categorization criterion was used for this purpose.

This study focused on three categories: “the meaning attributed to rehabilitation care for elderly individuals with frailty syndrome”, “professional intervention strategies” and “health gains resulting from the implementation of care strategies”. Table 1 presents the categories and indicators that emerged from this analysis.

Table 1. Categories and Indicators, 2024.

Category	Indicators
The meaning attributed to rehabilitation care for elderly individuals with frailty syndrome	– Experience that promotes well-being and self-care

Professional intervention strategies	intervention		<ul style="list-style-type: none">– Person-centered experience– Experience that is characterized by difficulties– Preventive experience– Experience that is characterized by a process of vulnerability			
			Strategies	<ul style="list-style-type: none">– Design of intervention plans– Stimulation of the person– Client training– Client empowerment– Health education– Mobilization of the person– Promotion of adaptive capabilities		
				Exercise programs	<ul style="list-style-type: none">– Motor training program– ADL training program– Respiratory training program– Swallowing training program– Elimination training program	
					Health gains resulting from the implementation of care strategies	<ul style="list-style-type: none">– Client satisfaction– Prevention of complications– Health promotion– Personal training– Well-being and self-care– Hospital admissions– Health costs

3.1. The Meaning Attributed to Rehabilitation Care for Elderly People with Frailty Syndrome

This category encompasses the indicators Experience that promotes well-being and self-care, Person-centered experience, Experience that is characterized by difficulties, Preventive experience and Experience that is characterized by a process of vulnerability.

Experience that promotes well-being and self-care.

The experience of care was highlighted as a promoter of comfort and well-being for elderly people with frailty syndrome, thereby enhancing their functional independence and preventing various complications associated with frailty.

The possibility of caring for the elderly person with frailty syndrome is an enriching experience that can improve their quality of life and promote greater comfort and well-being (...) (P1)

Rehabilitation nurses focus on promoting functional independence and preventing complications related to frailty as well as on returning to maximum functionality after an episode of exacerbation. (P4)

Person-centered experience

An approach that focused on elderly individuals with this problem, including by valuing their uniqueness and providing personalized care that was appropriately adjusted to their needs and preferences, was highlighted by one study participant.

Recognizing the uniqueness of each person, nurses adopt a patient-centered approach, working collaboratively with patients, caregivers and the rest of the multidisciplinary team to develop personalized care plans that take into account their individual preferences and current needs. (P4)

Experience that is characterized by difficulties

The care experience of these participants was characterized by several difficulties, such as those pertaining to client motivation and caregiver overload, in which context elderly people take care of other elderly people, despite a lack of the necessary material and human resources. The following statements highlight these aspects:

(...) it is still something difficult to achieve with rigor and with the desired regularity, strongly motivated by the lack of resources that the team has, but also often motivated by the manifest lack of will of the person himself and/or the weak involvement on the part of the team of caregivers (informal and/or formal) who can provide adequate support and continuity to the patient and by the representation of the overload that it may cause with regard to the basic routine of the user/caregiver dyad. (P1)

In primary health care, within the scope of the ECCI [Equipa de Care Continuados Integrados], in which context care is provided at the home of the sick person and/or caregiver, it is noteworthy that the majority are increasingly elderly patient, with multiple comorbidities and a high degree of dependence when performing their daily activities as well as their caregivers. In fact, we are dealing with elderly people taking care of elderly people. This makes the role of nurses, especially nurses who specialize in rehabilitation, difficult with regard to acting within the scope of the ECCI. (P3)

I am constantly faced with the socioeconomic difficulties on the part of patients and scarce resources, which lead to a lack of motivation on the part of the patients and the absence of life goals regarding the improvement of their performance on various life activities. I often hear "I'm no longer good for anything, what am I going to get out of bed for?" or "it is no longer worth coming here; now I only leave here in a box of boards". These are sad and demotivating expressions, both for the patient and the family as well as for the professional; in addition to the fact that these statements are related to the socioeconomic conditions in which they live, in addition to the poor health literacy of the population (...). (P3)

Regarding rehabilitation nursing care, the UCC (Community Care Unit) does not have the material/equipment necessary to provide rehabilitative nursing care. (P3)

These interventions are performed during the visits made to provide treatment because human resources are scarce at the CCU where I work, and while I provide care to treat wounds/PU, I mobilize the knowledge of the RE (rehabilitation nurse) in favor of the user. Therefore, the frequency of RE care for all ECCI users is not adequate. (P3)

If, in most situations, these family caregivers, given the impact, are not prepared to respond adequately to the needs of the sick/dependent family members, and they are, in the family context, also experiencing a process of transition that includes the need to play a new role. This fact – that an elderly person is caring for another elderly person – adds to the complexity of this transitional/transitional care process with regard to "role insufficiency" versus "role supplementation". (P8)

Preventive experience

For two participants, this experience of care was a determinant in the prevention of hospital admissions, in the reduction in the number of hospitalization days and in the prevention of complications. The following two statements reflect the meaning attributed by these participants to this experience:

The experience of caring for the elderly person with frailty syndrome is crucial with regard to the provision of rehabilitation nursing care to prevent complications associated with hospital admissions, reduce the number of hospitalization days as well as readmissions and the recurrence of emergency services. (P5)

It requires a great deal of knowledge, especially with respect to preventing complications as well as establishing a relationship between help and safety. (P7)

Experience that is characterized by a process of vulnerability

The care experience of these participants was characterized by a process that involved vulnerability on the part of the elderly person in light of their comorbidities as well as social and family support, in addition to the vulnerability that is often experienced by family members who provide care to the elderly person with frailty syndrome. The following statements highlight these aspects:

During hospitalization in the acute phase, there is increased vulnerability, so to speak. The elderly person is already vulnerable; however, with regard to the associated comorbidities, poor social and family support allows the elderly person to be exposed to potential and frankly drastic risks to a dignified quality of life. (P6)

(...) it is well known that during the aging process, the elderly person experiences a wide range of limitations, both physically and psychologically. All these limitations as well as the natural characteristics of the aging process tend to accumulate, leading to a state of vulnerability on the part of the person, which culminates in compromised independence and autonomy. (P9)

In the reality of my home clinical practice, in light of the sociodemographic factors that are evident in our society, the family caregiver appears to assume responsibility for, whether voluntarily or involuntarily, the arduous and increasingly complex task of caring for the dependent elderly person in terms of exercise. Regarding the role of the care provider, he is also elderly and, moreover, has physical, emotional and sometimes even cognitive limitations (P8).

3.2. Professional Intervention Strategies

Two subcategories are considered in this category: *Strategies and Exercise programs*.

3.2.1. Strategies

The *Strategies* subcategory includes the indicators *Design of intervention plans, Stimulation of the person, Client training, Client empowerment, Health education, Individual mobilization and The promotion of adaptive capacities*.

Design of intervention plans

For these participants, the design of intervention plans should focus on the elderly person and their caregiver with the goal of responding to their care needs. This process involves teamwork. This indicator was highlighted by three rehabilitation nurses.

(...) during the first home visit, a survey of the patient's needs and the performance of other elements of the multidisciplinary team (the social worker or nutritionist) is performed, and an individual intervention plan for nursing care and rehabilitation nursing is prepared and adjusted. Given the real goals of the user and/or caregiver, teamwork is key. (P3)

First, we perform an initial functional assessment of the person; then, an individualized care plan is developed and focused on the user, which involves collaboration with the other professionals on the team and caregivers (...) (P4).

Stimulation of the person

Cognitive, social and physical stimulation of the person was highlighted in the narratives provided by three participants. This strategy was identified as a determinant of the reduction of the adverse effects of the aging process and the improvement of the functional capacity and quality of life of the elderly person with this problem.

The strategies used include cognitive, social and physical stimulation. (P2)

(...) my intervention, in the service where I perform functions, ends up being much more evident in a preventive phase than in an operational one, where it is extremely important, since prevention is a fundamental basis for the maintenance and promotion of the physical and psychological capacities of elderly individuals. Prevention, which is based on the stimulation of physical and mental health, may thus lead to a reduction in the adverse effects of the aging process, which is considered to be a

synonym of improvement in functional capacity and increased quality of life for elderly individuals.
(P9)

Client training

The training of clients and caregivers as a professional intervention strategy was highlighted by six participants. This process should be person-centered, and it presupposes the definition of goals alongside the people who are involved in the care of elderly individuals. The importance attributed by one of the participants to training aimed at the prevention of falls is highlighted by the following:

The strategies, as far as possible, include training caregivers to care for patients with frailty syndrome, raising awareness on the part of the patient to prevent complications, and demystifying the threshold of patient replacement in the performance of care activities pertaining to daily living (whether total or partial) and supervision. (P1)

(...) As a rehabilitation nurse, my work at ECCI is concerned with the prevention of falls, such as by training patients and the community in fall prevention strategies (...) (P3)

(...) it is important for nurses to know the individual characteristics of the elderly person, to remind them of the benefits that the rehabilitation program will bring them with regard to their health in the short and long term as well as with respect to their quality of life, to establish goals jointly with the elderly person and direct their exercises to improve their functional capacity so that they see daily progress and thus remain motivated. (P9)

Client empowerment

The empowerment of elderly people, their families and their caregivers is crucial during the rehabilitation process. This strategy was notably highlighted by one of the participants as an initial condition for the success of rehabilitation nursing care.

As the person/family/caregiver is (or should be) central to the act of caring, the first strategy is the involvement of the person/family as an integral part of care, creating jointly with them a rehabilitative care plan based on tangible goals from multiple interdisciplinary perspectives but that they (i.e., the person/family/caregiver) can also understand. They are usually asked what do you want? What are your goals? I often tell them that "50% of the success of the rehabilitation process is theirs, while the other 50% is ours, the health professionals". (P8)

Health education

Health education was identified as a key strategy for encouraging physical exercise with the aim of preventing functional decline and falls among elderly people with frailty. These aspects are evident in the following statements:

It is here, within the scope of health literacy, that rehabilitation nurses play an important role, especially in the prevention of falls among elderly individuals. And why should we focus on the prevention of falls ? Due to the high number of patients referred by the hospital and admitted to the ECCI due to a transtrochanteric fracture after a fall in the community (at home or on the street). (P3)

(...) with regard to the frailty of elderly individuals, it is essential to act to prevent this, namely, to encourage the practice of physical exercise, including exercises aimed at mobilize the lower and upper limbs, to preserve mobility, thus preventing the functional decline associated with obesity and the aging process. (P9)

Mobilization of the person

The development of motor training programs that are in line with the capabilities of elderly people represents another strategy that was implemented by these rehabilitation nurses with the aim of ensuring elderly individuals' functional capacity. The following statements highlight these strategies:

Within the realm of possibility, lifting the patient, transfers, mobilization in bed, and sometimes passive exercises, active assisted, active resistance, active, (...) (P1)

We implemented exercises that were appropriate for the capabilities and limitations of elderly individuals, with the goal of improving their muscle strength, balance, and mobility, among others. (P4)

The promotion of adaptive capabilities

Rehabilitation nurses should promote adaptation strategies for elderly individuals and their families. Stakeholder involvement in this process is essential to ensure that adaptive capacities are developed in line with elderly individuals' capacities and limitations. This aspect was highlighted by the following assertion:

In the home context, the strategies to be used are immense. I am in the patient's environment and outside the hospital context or that of any other health unit. Above all, I have to respect their will and their space. For example, I cannot want the user to remove a rug in the hallway (which caused him to trip) because it has been part of the decoration of the house all his life, or I want him to use a walking aid from one day to the next, because there are changes in gait and balance. Behaviors do not change overnight. It is necessary to negotiate patient care and reach a consensus that is agreeable to both parties. (P3)

3.2.2. Exercise Programs

The Exercise programs subcategory involves the indicators Motor training program, Respiratory training program, ADL training program, Swallowing training program and Elimination training program.

Motor training program

Motor training programs were highlighted in the narratives provided by eight participants. None of the participants identified the intensity of the program. Regarding the frequency and duration of the program, one statement referred to the frequency, albeit without allusion to the duration of the program. With respect to the type of program, most assertions emphasized balance and muscle strengthening exercises. With respect to volume, one statement referred to the fact that the program normally involved 3 sets featuring 10 repetitions each. Notably, one rehabilitation nurse used adaptive strategies in the process of developing the program. The following statements demonstrate this indicator:

Usually 3 sets with 10 repetitions.

Warm-up: *Breathing exercises [dissociation of respiratory times, diaphragmatic reinforcement and opening of the rib cage]; isometric contraction of the glutes; ankle dorsiflexion exercises; supported by the back of the chair while standing on tiptoes and heels.*

Strengthening and balance: *Supported on the back: hip abduction-adduction, hip flexion-extension, and knee flexion-extension; lifting and sitting exercises without support; sitting flexion-extension of the upper limbs with 0.5 kg dumbbells; walking with the support of a walker; training for going up and down stairs.*

Cooling: *Breathing exercises (dissociation of breathing times) and associated stretches. (P2)*

Patients who do not need treatment but who need RE care are scheduled according to my availability at least 3 times per week. In the exercise program I implemented, priority is given to balance training, muscle strengthening training (...) (P3)

Most of the time, the strategies involve the objects that people have in their homes. For example,

- *In muscle training with weights, a full 0.50 l water bottle or a pack of rice is used.*
- *In balance training involving obstacles, objects that the user has at home and placed on the floor are used.*

- In joint mobility training (after PTJ), if you have family members with children, a skateboard is used to perform knee flexion and extension in the sitting position (...)
- In fine motor skills training, the user is asked to put the laces on their shoes in a container to separate the raw beans from the rice. (P3)

The exercise program I implemented for elderly people with frailty syndrome (...) includes balance exercises, muscle strengthening of the lower and upper limbs, increased resistance, and range of motion, with a constant focus on independence in self-care. (P4)

Respiratory training program

Respiratory reeducation exercises represented one strategy that was implemented in the rehabilitation of elderly people with this problem. In the following statements, a set of rehabilitation nursing care strategies that can be used in this context is evident, as are some adaptive strategies that can be used in the home context:

The exercise program I implemented for these people may include (...) respiratory rehabilitation, the promotion of effort management, (...) Respiratory rehabilitation programs may include awareness and control and dissociation of respiratory times, respiratory exercises aimed at increasing lung volume and expelling secretions (guided and assisted coughing), chest expansion exercises with the goal of improving chest mobility, facilitating deep breaths and even exercises targeting effort management and muscle strengthening. (P5)

Most of the time, the strategies used involve the objects that people have in their homes. For example (...) In respiratory training, a broom handle is used as a stick and a straw in a bottle (P3)

In the exercise program I implemented, priority is given to (...) respiratory training. (P3)

ADL training program

This strategy was used by rehabilitation nurses to care for elderly people with frailty syndrome; it also involves caregivers. The following statement expresses the implementation of this form of care in the training of the clients involved in this process:

In the exercise program I implemented, priority is given to (...) ADL training: the ability to walk; and the ability to use the toilet for disposal. (P3)

Swallowing training program

Swallowing training is a care strategy that was used for some elderly people who exhibited difficulty swallowing. The following statement expresses the implementation of these precautions:

Swallowing training (in cases involving the risk of impaired swallowing). (P6)

Elimination training program

In situations in which elderly people with frailty syndrome experience problems with sphincter control, rehabilitation nurses intervene by providing specific care for these situations. The following statement highlights the implementation of this care strategy:

Training of sphincters for elimination (P8)

3.3. Health Gains Resulting from the Implementation of Care Strategies

This category encompasses the indicators *Client satisfaction*, *Prevention of complications*, *Health promotion*, *Personnel training*, *Well-being and self-care*, *Hospital admissions* and *Health costs*.

Client satisfaction

When older adults and their caregivers adhere to rehabilitation nursing care, they are more satisfied and confident. Nurses seek to elicit high levels of satisfaction from the clients involved in this process, and when this happens, we observe excellence in terms of professional strategies. The following statement highlights this demand on the part of rehabilitation nurses:

(...) user and family caregiver satisfaction (...) (P1)

Prevention of complications

Nurses prevent complications with regard to the health of elderly people in situations involving frailty. Several assertions defended the importance of rehabilitation nursing strategies in the process of preventing multiple complications that may arise in this context:

Gains in the prevention of complications (...) (P1)

(...) and prevent sequelae resulting from comorbidities (...) (P3)

The significant gains are a reflection of outcome indicators such as a decreased incidence of falls, pressure ulcers, respiratory disorders such as aspiration pneumonia, (...) and a decrease in exacerbations and hospitalizations. (P6)

Prevent immobility in bed. Prevent cutaneous complications. Maintain skin integrity. Stimulate blood circulation. Prevent circulatory stasis. Prevent thromboembolism (P8)

Health promotion

The strategies implemented by the nurses who participated in this research led to health gains, which resulted in increased health literacy on the part of elderly individuals and their caregivers, improved self-management of the disease and complications, and improved knowledge of adaptive techniques for self-care and corresponding security measures. The following statements highlight participants' recognition of the gains associated with the quality of the strategies that were implemented by rehabilitation nurses in the task of caring for elderly people with frailty syndrome.

(...) increase the health literacy of elderly people and their caregivers (...) (P1)

Knowledge capacity - promotion of teaching, education and health literacy, contributing to autonomy. Improved self-management of the disease and the corresponding complications, improved knowledge of adaptive techniques for self-care performance and decreased caregiver burden. (P2)

Develop knowledge regarding security measures (P8)

Well-being and self-care

Well-being and self-care are among the health gains resulting from nursing rehabilitation interventions for elderly people with frailty syndrome. Such improvements in self-care performance, functional capacity, balance, muscle strength, flexibility, gait and effort tolerance with regard to the factor of well-being and self-care are evident in the following statements:

(...) to improve self-care performance, either by the elderly person or by the family caregiver when they have to replace, either fully or partially. (P1)

In general, rehabilitation nursing care has the potential to provide a series of tangible benefits to users, helping maximize their functionality, independence and quality of life to a greater or lesser extent. (P4)

Eliminate/minimize musculoskeletal pain (P8)

The gains are focused mainly on functional training, self-care (...)

- *Functional and self-care training - rehabilitation interventions aimed at motor, cardiorespiratory, neurological and cognitive, nutritional and social functions;*
- *Improved self-care performance, functional independence and mobility; and*
- *Improved static and dynamic balance, muscle strength and flexibility (P2)*

Recover the patient's gait (P8)

Improve effort tolerance and fatigue resistance. (P8)

Hospital admissions

The reductions observed in hospital visits, in the number of hospitalization days and in readmission episodes represent health gains that resulted from the implementation of rehabilitation strategies for elderly individuals with frailty syndrome. The following statements reflect these gains:

(...) reduce hospital visits (...) P3)

(...) decrease in the number of hospitalization days and/or reduction in the number of readmission episodes. (P5)

Health costs

The reduction in health care costs is a gain that cannot be ignored due to the strategies implemented in the rehabilitation of elderly people with frailty syndrome. The following assertion reflects this gain:

(...) and lower costs in the SNS (P7)

The content analysis of the participants' narratives highlighted the meaning that they attributed to rehabilitation care for elderly individuals with frailty syndrome; namely, the specialist nurses included in this research viewed this situation as representing an experience that, although it focused on the person and the correspond efforts to promote well-being and self-care, was characterized by difficulties and the process of vulnerability. Motor training, ADL training, respiratory rehabilitation, and swallowing and elimination training were valued during the process of designing intervention plans. In designing such plans, the professionals identified as central concerns the need to stimulate and train the clients to manage their rehabilitation programs, health education, the mobilization of the person and the promotion of adaptive capacities.

4. Discussion

The participants in this research viewed rehabilitation care for the person with frailty syndrome as an experience that can promote people's well-being and self-care and encourage the adoption of a person-centered experience; this experience was also characterized by difficulties, a preventive experience and a care experience that involved vulnerability.

As an experience that promotes well-being and self-care, such rehabilitation care should contribute to the functional independence of elderly individuals and to the prevention of complications. Accordingly, it is essential to ensure that elderly individuals receive high-quality nursing care that is properly coordinated with the goal of promoting their well-being. An approach that focuses on a community context was viewed as offering the greatest benefits to these elderly people [16], thereby helping improve their self-confidence and self-care skills [17].

The person-centered care experience values the uniqueness of the elderly person with this problem and seeks to adapt care to their needs [3,18]. This process presupposes an offer of integrated care, in which context the home and community context is the most comfortable for the person in question and their caregivers, thereby promoting their adherence to care [16] and encouraging them to engage in self-care behaviors and participate in shared decision-making, in line with the claim that person-centered care increases the effectiveness of nursing interventions [17]. The experience of person-centered care facilitates the establishment of empathic and trusting relationships between elderly individuals and nurses, in line with previously reported evidence [17,18].

From the perspective of these rehabilitation nurses, the experience of person-centered care is in line with the fundamental principles of the person-centered care model that has been presented by Healthcare Global [19] and highlighted in the intervention project conducted by Fialho [20]: namely, all team members are viewed as caregivers;

Care is based on ongoing restoration-related relationships; the person receiving the care is the source of control. The care is personalized and reflects the needs, values and choices of the person receiving the care. The families and friends of the person receiving the care are viewed as essential members of the care team. Care is provided in an environment that focuses on restoration, comfort and support. Knowledge and information are freely shared between the health team and the person

receiving the care. Transparency is a norm in the process of providing care to the person in question. The safety of the person receiving is a visible priority. Finally, all caregivers cooperate with one another through a common focus on the best interests and personal goals of the person receiving the care.

For some nurses, this experience of care was viewed as preventive because of its importance with respect to the prevention of complications and hospital admissions. The provision of continuous and comprehensive quality nursing care, i.e., care that is responsive to the fundamental needs of elderly people with frailty syndrome, was viewed as a form of preventive care because of its importance with regard to preventing complications and hospital admissions as well as reducing costs and mortality [21]. Given the importance of physical exercise programs in the rehabilitation of elderly individuals, the participants claimed that the experience of care, which involved personalized exercise programs prescribed for elderly people with this problem, is fundamental with regard to the prevention of functional disability and cognitive impairments as well as the deterioration of muscle function, locomotion capacity and vitality [22].

The provision of nursing care to elderly people with frailty syndrome was viewed as an experience that was characterized by several difficulties, such as a lack of material and human resources as well as issue pertaining to client motivation and caregiver overload. Some of these factors are associated with the fragmentary provision of services that characterizes the coordination and quality of health care [23].

The experience of caring for these elderly people was also characterized by a process of vulnerability on the part of the elderly person in light of their comorbidities and social and family support, in addition to their caregivers. Comorbidities and advanced age give rise to the view that elderly people have complex needs [21]. We cannot separate the cumulative influence of the physical, psychological and social dimensions on their health process from this situation [3]. These factors, among other clinical factors, such as malnutrition, cognitive changes, depressive symptoms, and a lifestyle that is characterized by physical inactivity and low protein intake as well as other problems such as smoking and alcohol consumption, are notable with respect to the process of vulnerability associated with elderly individuals [24]. Elderly people who face socioeconomic problems, namely, those for whom financial resources are precarious or who exhibit low levels of education, live alone and without family support [3,25] are particularly likely to face such vulnerability. All these factors that promote vulnerability among elderly individuals increase the risks of falls, bone fractures, functional disability, dementia, hospitalization and death [26].

The implementation of nursing intervention strategies presupposes the design of intervention plans, which should focus on elderly individuals and be responsive to their needs and preferences with regard to care. This process presupposes the existence of structured and regular evaluations with the goal of helping the nursing team provide quality nursing care in a continuous manner that can be adapted to the elderly person in question [21].

The design of intervention plans should consider the intervention scenario, which is usually rooted in the home of an elderly person with frailty syndrome [27].

Among the professional intervention strategies used by rehabilitation nurses, physical, cognitive and social stimulation represents a fundamental strategy with regard to the task of providing care to elderly people with this problem. The use of personalized strategies in the home context can promote motivation among elderly people and lead to changes in inappropriate health behaviors, thereby helping mitigate the adverse effects of the aging process [17]. The findings of this study are in line with previously reported evidence [17] that has indicated that home visitation programs encourage elderly individuals to exhibit greater social participation, to feel useful and to experience improvements in terms of their health and well-being as well as to exhibit more autonomy and independence in their ADL.

Nurses play a key role in the process of empowering elderly people with frailty syndrome. The implementation of health promotion strategies and the empowerment of individuals to take responsibility for their own health care and ADL with greater independence and autonomy [17]

represent a component of the daily lives of these nurses. These strategies presuppose the definition of goals alongside those who are involved in the care process with the goals of promoting their involvement and enhancing the understanding of the person in question and their caregiver regarding their conditions and therapeutic regimen, including by encouraging them to take greater responsibility and participate effectively in ADL [17].

Client empowerment was identified by the participants in this research as a key strategy in the rehabilitation process. This task involves helping elderly individuals become aware of their decision-making capacity and providing them with support for decision-making with respect to self-care [17]. In the definition of progressive and achievable goals of change, the involvement of elderly individuals in care is essential with regard to efforts to education them in self-care behaviors and improve their quality of life [17].

Elderly people should be educated regarding the importance of physical exercise [28] for the purpose of preventing functional decline and falls. The existence of health education programs that respond to the needs of elderly individuals who are at risk of falling is crucial due to the association between the fear of falling and frailty [25]. The fear of falling increases the risk of frailty among older adults living in the community due to their concerns about falling and the corresponding restrictions on their ADL as well as the resulting functional decline, including in terms of reduced muscle strength and deficits in balance and mobility in addition to other negative health conditions [25].

The mobilization of the person was identified by the nurses as a relevant strategy in this context. Reductions in functional decline and improvements in mobility are central objectives of the interventions developed by rehabilitation nurses for elderly people with frailty [29]. Exercise programs should include exercises that are safe, correct and in line with the needs, resources and preferences of older adults [28,30]. Accordingly, these older adults should be encouraged to participate in programs and engage in regular physical exercise. Their participation can take place in a group context, in a community context, or at home, i.e., in a domestic environment. The possibility of using digital health technology should be considered. These technologies are expected to produce lasting and ideal results with respect to the prevention of functional decline among elderly individuals [28].

Evidence has revealed that mobility training can improve mobility among elderly people with frailty following the development of intervention programs, although improvements in mobility are not necessarily accompanied by improvements in function within six months [29].

The use of rehabilitation nursing strategies presupposes efforts to promote adaptive skills among elderly individuals and their families. It is necessary to be able to negotiate the care that is to be developed with the goal of facilitating their participation.

Among physical exercise programs, motor training programs were highlighted most frequently by the rehabilitation nurses included in this research as a professional intervention strategy. For elderly people with frailty syndrome, these programs are a fundamental strategy aimed at preventing complications, improving mobility and enhancing functional independence and quality of life [31,32].

Motor training programs must be planned and structured. They should respond and adapt to the needs of elderly people with this problem, with the goal of promoting their rehabilitation. Accordingly, such programs should consider elderly people's musculoskeletal limitations, functional capacity and effort tolerance in addition to their preferences [31]. Physical exercise programs should consider several parameters, such as the frequency, intensity, time (duration), typology, volume and progression of the training [33]. The frequency refers to the number of times for which the program is performed per day and/or week, and the intensity is determined either by the person's subjective perceptions of exertion and by objective parameters such as heart rate; this information is key to performing the exercise program or motor training safely. The time corresponds to the duration of each session, and the typology refers to the type of training performed. The volume is related to the total amount of exercise that is performed (e.g., speed in the cases of gait training or running and the total number of repetitions in the case of strength training) and the progression of trainees' efforts to reach the defined training volume [33].

The participants in this study did not report the intensity of the motor training programs. The frequency of such programs was mentioned, but no allusions were made to their durations. Regarding the type of programs identified in this research, balance and muscle strengthening exercises were highlighted. With respect to volume, one of the participants alluded to performing 3 sets featuring 10 repetitions each. The limited information regarding these motor training programs highlights the fact that these professional intervention strategies are not systematically developed and that this care experience is characterized by some difficulties.

A multicomponent physical exercise program consists of flexibility, strength, endurance and balance training. These forms of training are essential components in the task of promoting healthy aging, including with regard to the maintenance of functional capacity, mobility and quality of life [34]. Flexibility training helps maintain or improve the range of motion of joints. Such training consists of dynamic stretches that involve active movements throughout the range of motion of the joint or static stretches that are maintained for some period. Strength training requires muscle contraction against a weight or other form of resistance with the goal of maintaining or improving muscle strength and endurance. Resistance training, which is also known as aerobic training, involves the continuous movement of major muscle groups with the aim of maintaining an elevated heart rate for a defined period of time. It includes walking, cycling, climbing stairs, dancing or swimming. Balance training involves exercises aimed at improving bodily stability and maintaining a given posture through the use of unstable surfaces, the narrowing of the support bases or the removal of assistance in the upper part of the trunk [34].

The development of multicomponent physical exercise programs involving resistance exercises, muscle strength training, and balance and flexibility exercises has been the subject of several studies that have investigated elderly people with physical frailty [22,35–38]. These exercise programs have often been implemented in the home context as part of the daily health care of elderly people in the community who exhibit frailty [35]. Scientific evidence [32] has demonstrated the importance of avoiding the use of a single type of physical exercise alone to improve the physical performance of elderly individuals. Physical exercise programs should combine aerobic activity with resistance and balance training, strength and postural control; in addition, they should be appropriately personalized and adapted to individual elderly people with this problem.

For some authors [39], elderly people may exhibit improvement as a result of resistance exercises, especially in the initial stages. Mixed activities (i.e., aerobic and muscle strengthening), muscle strengthening, mobilization and rehabilitation or aerobic activities have all been reported to improve indicators of mobility, function and cognition among prefrail and frail individuals.

Mulasso et al. [38], conducted a study with the goal of verifying the efficacy of an exercise program that aimed to improve and reverse the physical frailty exhibited by elderly people living in the community. This study involved a sample of 123 elderly people; the experimental group ($n = 62$) was subjected to a multicomponent exercise program that involved resistance exercises, muscle strength exercises, balance exercises and flexibility exercises and was conducted over a period of 16 weeks, whereas the control group ($n = 61$) maintained their existing care routine. The effects of training were greater among frail and prefrail people (leading to reductions in frailty of 0.67 and 0.76 points, respectively) than among robust individuals (whose levels of frailty increased by 0.23 points; $F = 11.32$, $p < 0.001$).

A secondary study conducted by Haider et al. [36] involved 14 randomized controlled trials that highlighted various types of interventions, such as aerobic activity, strength and balance training, stretching and a combination of these methods, among frail or prefrail elderly people residing in the community. In this narrative review, the studies analyzed differed in terms of various aspects of the exercise program used as well as in the intervention method employed (i.e., health professionals, volunteers, at home, or health institutions). The results highlighted the effectiveness of interventions aimed at reducing frailty as well as increasing muscle strength and physical performance [36].

Makizako et al. [37] conducted a randomized, blinded, controlled clinical trial involving a sample of 72 elderly people with sarcopenia with the aim of verifying the effects of a multicomponent

exercise program on the physical function of elderly people with sarcopenia and presarcopenia. The participants were randomly assigned to the experimental and control groups. The program lasted 12 weeks, and each session lasted 60 minutes; these sessions included structured resistance, balance, flexibility and aerobic training exercises. The evaluation focused on physical function and muscle mass, and it revealed that the multicomponent exercise program essentially improved physical function among the experimental group, although it was unclear whether the program could effectively increase muscle mass [37].

A multicenter controlled clinical trial was conducted by Casas-Herrero et al. [22] with the goal of evaluating the effects of an intervention that involved a multicomponent exercise program that included resistance, balance, flexibility, and gait training and took place over a period of three months. This exercise program significantly improved functional capacity in the experimental group ($n = 88$) in comparison with the control group ($n = 100$); it also improved cognitive function, muscle function and mental health after three months. The findings of this study support the claim that personalized physical exercise at home should be prescribed to elderly individuals, as a form of first-line treatment in the prevention of functional decline, the deterioration of muscle function and cognitive impairment.

Additionally, Faria et al. [35] performed a randomized, controlled, two-group clinical trial involving 30 frail elderly patients who were enrolled in a health care unit located in Portugal between 2021 and 2022. This study aimed to evaluate the effects of a nursing rehabilitation program on the functional capacity and lifestyles of frail elderly people. The exercise program lasted 12 weeks (i.e., 2 sessions per week, each of which lasted 60 minutes), and the sessions were hosted in the participants' homes. The results highlighted improvements in both multidimensional and physical frailty as well as functional capacity, balance and perceptions of effort for the experimental group. Significant improvements were also observed in the physical activity habits, relational behavior and stress management of these elderly people.

Respiratory reeducation exercises represent another strategy that was used by the participants in relation to elderly individuals with frailty. In the context of respiratory functional reeducation, nurses must evaluate and define areas of focus related to the commitment exhibited by the elderly person, identify nursing diagnoses, prescribe and implement nursing interventions that are appropriate with regard to these diagnoses and, on the basis of the results thus obtained, redefine the care plan [40]. The interventions highlighted by the participants are linked to symptomatic control and the clinical stability of the people involved, and they often focused on the knowledge and ability of the elderly person and their caregiver with respect to the task of managing the elderly person's chronic respiratory problems [40].

Training in ADL includes the professional intervention strategies used by these nurses. Rehabilitation focuses on the person and their disability with the goal of promoting their independence. It also involves teaching, demonstrating and training, in which context the use of adaptive strategies focuses on promoting self-care, and such care is tailored to elderly individuals and their families [41,42]. The ability to walk and the ability to use the toilet were highlighted with regard to ADL. With respect to the ability to walk, relevant interventions include assisting the person in the walking process as well as teaching, instructing and training the person in the techniques required to adapt to walking [43,44]. With respect to using the toilet, it is essential to educate elderly people and their caregivers regarding support devices for using the toilet as well as to teach, instruct and train them in ways of preventing complications when using the toilet and the need for adaptations at home [45].

Swallowing training was identified as one strategy that these nurses used when caring for elderly people with this problem in a community context. The nursing rehabilitation program targeting the reeducation of feeding function involve an evaluation of swallowing as well as compensatory and therapeutic interventions ⁽⁴⁶⁾. Compensatory interventions involve postural techniques, sensory stimulation, alterations in the consistency and presentation of foods and control over the environment. Therapeutic interventions include swallowing maneuvers (supraglottic

maneuvers, forced swallowing, the Mendelson maneuver, the Masako maneuver, the double swallowing maneuver and *lip pursing*) as well as neuromuscular exercises that aim to improve the strength and coordination of the muscles involved in swallowing [46].

Elimination programs for elderly people who exhibit sphincter problems represented one strategy that was highlighted by the nurses who participated in this research. The elimination process is a domain of intervention for nurses who specialize in rehabilitation nursing. Among people who exhibit urinary incontinence, rehabilitation involves the use of specific exercises to improve their control over and the function of the pelvic floor muscles. Training involves the repetitive and selective voluntary contraction and relaxation of these muscles, and the teaching and training of these exercises by nurses should help improve the strength, endurance and coordination of these muscles [47].

Several health gains resulted from the implementation of rehabilitation nursing strategies. Adequate case management, including adequate coordination of care and nursing strategies that can promote functional independence, can elicit satisfaction from both elderly individuals and their caregivers [23]. These reactions reflect their adherence to care as well as the trust established among the different actors involved in the care process and the gains that le-u/n from the implementation of professional intervention strategies. It is essential to develop strategies that can promote the motivation of elderly individuals to participate in and adhere to rehabilitation programs [35].

The prevention of complications is assumed to be a goal of nurses' interventions in the rehabilitation of these people, as indicated by their narratives. Suikkanen et al. [48] demonstrated that the implementation of a rehabilitation program that involved individualized exercises in the homes of elderly people for a period of 12 months contributed to better physical performance and a decrease in the number of falls, although it did not counteract the dependence exhibited by elderly people in terms of ADL. Other studies [49] have highlighted the fact that a continuous multicomponent physical exercise program for community-dwelling older adults can improve their walking speed and cognitive function and eliminate their frailty.

The strategies implemented by these rehabilitation nurses resulted in gains related to efforts to promote the health of these elderly people, as expressed in the increases observed in health literacy, in their self-management of their health situation and their ADL capabilities. The care provided by these nurses in the community, which involved individualized exercise programs in the home context, is highly important for elderly people with frailty syndrome. These programs comply with international recommendations for exercise on the part of older adults for disease prevention at all three levels of prevention [31]. Participation in structured physical exercise programs offers gains that can counteract the wide range of diseases and disabilities that are associated with aging. These programs can be individualized and controlled to achieve the desired results, including by making the necessary adaptations in various components of the programs [31]. Nurses are the primary agents who are involved in the process of promoting active and healthy aging, and their role in advising and educating these populations in pursuit of a better quality of life has been recognized [35].

Scientific evidence [17] has highlighted the importance of the development of home visitation programs by nurses to support the training of community-dwelling elderly people with chronic multimorbidity. Such programs can enable elderly individuals to implement health promotion interventions and engage in self-care behaviors in addition to improving their autonomy and functional independence.

Professional intervention strategies promote well-being and self-care among elderly people with this problem; they are often developed at home, but they can also be developed in a community context in accordance with people's needs. Evidence has supported the importance of exercise and physical activity programs with regard to self-care performance, the reduction of falls, and improvements in muscle strength, balance and gait in addition to their importance in terms of cognitive health, mental health and well-being, including emotional well-being [22,50–54].

Health costs are lower in light of the gains that rehabilitation programs offer to the elderly population, thus decreasing the burden on health and social systems. This finding is in line with the results reported by Hsieh et al. [55], who evaluated the efficacy of physical exercise and a nutritional

plan with regard to improving frailty and health-related quality of life in terms of the physical and mental aspects of older adults. A total of 319 people from Taiwan participated in that study, which was conducted over a period of 6 months. A control group and three intervention groups were used in that research. The physical exercise intervention group participated in a muscle strengthening exercise program, and received progressive and personalized training in balance, flexibility and resistance that was provided in accordance with the capabilities of each participant, while the nutrition intervention group received a meal plan, personalized dishes and nutritional supplements. The combined intervention group received the same interventions as the exercise group and the nutrition group. Notably, all 3 intervention groups received educational material. Individualized exercise and nutritional interventions at home were revealed to decrease frailty among elderly individuals, improve their physical performance, and encourage them to adopt better eating habits and engage in regular exercise. The nutritional intervention is useful with respect to improving the mental health of elderly people with frailty. The participants in the intervention groups clearly did not face added health costs [55].

These findings of this research can support the development of health policies aimed at promoting active and successful aging. These programs can include person-centered care, health education, the mitigation or prevention of the effects of frailty, and the pursuit of relevant gains. In addition, the findings of this research may facilitate the design of undergraduate and graduate nursing curricula, as various themes emerged that could be addressed in the training of new nurses and those specializing in rehabilitation nursing.

This study has certain limitations related to the methodology employed, the intentional selection of participants and the data collection technique used. The choice to conduct a qualitative study in a specific context limits the transferability of the findings of this research. The script used for the narratives allows some degree of flexibility and increases the richness and depth of the findings but influences the diversity of the responses. The use of a researcher who had previous experience in conducting qualitative analyses of the content of narratives and in developing qualitative studies may have been an important way of minimizing this risk of bias. Future studies that can focus on a larger number of participants should be conducted to deepen our understanding of the strategies that can be used to facilitate the development of rehabilitation programs for elderly people with frailty syndrome in a community context.

5. Conclusions

In this study, the perceptions of nurses who specialized in rehabilitation nursing for elderly people with frailty syndrome were explored as resources that can promote people-centered approaches as well as well-being and self-care and prevent complications. Rehabilitation nursing programs involve multiple components, and they are designed to suit the specific needs of people in terms of motor training, ADL, breathing, swallowing and elimination. The results obtained in this research regarding the implementation of such programs are in line with relevant quality standards for nursing care, such as client satisfaction, the prevention of complications, health promotion, personal training, well-being and self-care, thus leading to reductions in hospital admissions and health care costs.

The design and implementation of multicomponent programs that are structured on the basis of and adapted to the preferences and expectations of elderly people with frailty offer various benefits during the rehabilitation process and the maintenance of active aging, including gains in well-being and functionality, the prevention of complications and the improvement of the client's satisfaction; this process thereby results in improved quality of life.

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References

- Correia ALFD. Síndrome de Fragilidade no Idoso. [master's thesis]. Coimbra (Portugal): Universidade de Coimbra, Faculdade de Medicina; 2017.
- Manfredi G, Midão L, Paúl C, Cena C, Duarte M, Costa E. Prevalence of frailty status among the European elderly population: Findings from the Survey of Health, Aging and Retirement in Europe. *Geriatr. Gerontol. Int.* 2019; 19(8): 723-729. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/ggi.13689>
- Faria A, Martins MMFSL, Aguilera JA, Ribeiro OMPL, Fonseca EF, Flores JM. Fragilidade em pessoas idosas residentes no domicílio inscritas numa Unidade de Saúde do norte de Portugal. *Rev Port Enf Reab.* 2021; 4(1), 6-14. <https://rper.aper.pt/index.php/rper/article/view/46/293>
- Oliveira FMRL, Barbosa KTF, Rodrigues MMP, Fernandes MGM. Frailty syndrome in the elderly: conceptual analysis according to Walker and Avant. *Rev Bras Enferm.* 2020;73(Suppl 3):e20190601. <http://dx.doi.org/10.1590/0034-7167-2019-0601>
- Fried, L.P., Cohen, A.A., Xue, QL. et al. The physical frailty syndrome as a transition from homeostatic symphony to cacophony. *Nat Aging.* 2021;1, 36–46. <https://doi.org/10.1038/s43587-020-00017-z>
- Dias AL, Pereira FA, Barbosa CP, Araújo-Monteiro GK, Santos-Rodrigues RC, Souto RQ. Fall risk and the frailty syndrome in older adults. *Acta Paul Enferm.* 2023;36:eAPE006731. <http://dx.doi.org/10.37689>
- Taguchi CK, Menezes PL, Melo ACS, Santana LS, Conceição WRS, Souza GF, Araújo BCL, Silva ARD. Frailty syndrome and risks for falling in the elderly community. *Codas.* 2022 Aug 8;34(6):e20210025. <https://dx.doi.org/10.1590/2317-1782/20212021025pt>. PMID: 35946721; PMCID: PMC9886293.
- Cattaneo F, Buondonno I, Cravero D, Sassi F, D'Amelio P. Musculoskeletal Diseases Role in the Frailty Syndrome: A Case-Control Study. *Int J Environ Res Public Health.* 2022 Sep 20;19(19):11897. <https://dx.doi.org/10.3390/ijerph191911897>. PMID: 36231199; PMCID: PMC9565922.
- Tembo, M.C., Mohebbi, M., Holloway-Kew, K.L. et al. The contribution of musculoskeletal factors to physical frailty: a cross-sectional study. *BMC Musculoskelet Disord* 22, 921 (2021). <https://doi.org/10.1186/s12891-021-04795-4>
- Zak M, Sikorski T, Wasik M, Courteix D, Dutheil F, Brola W. Frailty Syndrome-Fall Risk and Rehabilitation Management Aided by Virtual Reality (VR) Technology Solutions: A Narrative Review of the Current Literature. *Int J Environ Res Public Health.* 2022 Mar 3;19(5):2985. <https://doi.org/10.3390/ijerph19052985>. PMID: 35270677; PMCID: PMC8910391.
- Skoumal M, Honegger M, Roller-Wirnsberger R. Frailty and innovative participatory rehabilitation. *J Nutr Health Aging.* 2024 Mar;28(3):100012. <https://doi.org/10.1016/j.jnha.2023.100012>. Epub 2024 Jan 1. PMID: 38492946.
- Colorafi KJ, Evans B. Qualitative descriptive methods in health science research. *HERD.* 2016;9(4), 16–25. <https://doi.org/10.1177/1937586715614171>
- Silva IB, Amendoeira J. O uso da narrativa no paradigma da investigação qualitativa. *Revista UIIPS – Unidade de Investigação do Instituto Politécnico de Santarém.* 2018; Vol. VI. Nº 2, 29-40. <https://revistas.rcaap.pt/uiips/>

14. Bardin L. *Análise de conteúdo: edição revista e ampliada*. São Paulo: Edições 70; 2016.
15. Belotto MJ. Data Analysis Methods for Qualitative Research: Managing the Challenges of Coding, Interrater Reliability, and Thematic Analysis. *Qual. Rep.* 23, 2622–2633; 2018.
16. Balqis-Ali NZ, Jawahir S, Chan YM, Lim AW, Azlan UW, Shaffie SSM, et al. The impact of long-term care interventions on healthcare utilisation among older persons: a scoping review of reviews. *BMC Geriatr.* 2024;24(1), 484. <https://doi.org/10.1186/s12877-024-05097-9>
17. Dobarrío-Sanz I, Chica-Pérez A, López-Entrambasaguas OM, Martínez-Linares JM, Granero-Molina J, Hernández-Padilla JM. Promoting the empowerment and emancipation of community-dwelling older adults with chronic multimorbidity through a home visiting programme: a hermeneutical study. *BMC Nurs.* 2024;23(1), 444. <https://doi.org/10.1186/s12912-024-02117-2>
18. Håkansson Eklund J, Holmström IK, Kumlin T, Kaminsky E, Skoglund K, Högländer J, et al. "Same same or different?" A review of reviews of person-centered and patient-centered care. *Patient Educ Couns.* 2019;102(1), 3-11. <https://doi.org/10.1016/j.pec.2018.08.029>
19. Healthcare Global. Top 10 Patient-Centered Care Guiding Principles. 2020. Retrieved from <https://healthcareglobal.com/hospitals/top-10-patient-centered-care-guiding-principles>
20. Fialho, JMSX. Capacitação do cuidador informal da pessoa em processo de reabilitação com compromisso do autocuidado. [Relatório de Estágio, Mestrado em Enfermagem, Área de Especialização de Enfermagem de Reabilitação]. Évora (Portugal): Universidade de Évora; 2022.
21. Nordaunet OM, Gjevjon ER, Olsson C, Aagaard H, Borglin G. Fundamental nursing care focusing on older people's needs and continuity of long-term care: a scoping review protocol. *BMJ open.* 2023;13(3),e069798. <https://doi.org/10.1136/bmjopen-2022-069798>
22. Casas-Herrero Á, Sáez de Asteasu ML, Antón-Rodrigo I, Sánchez-Sánchez JL, Montero-Odasso M, Marín-Epelde I, et al. Effects of Vivifrail multicomponent intervention on functional capacity: a multicentre, randomized controlled trial. *J Cachexia Sarcopenia Muscle.* 2022;13(2), 884–893. <https://doi.org/10.1002/jcsm.12925>
23. Sadler E, Khadjesari Z, Zieman A, Sheehan KJ, Whitney J, Wilson D, et al. Case management for integrated care of older people with frailty in community settings *Cochrane Database Syst Rev.* 2023; 5(5), CD013088. <https://doi.org/10.1002/14651858.CD013088.pub2>
24. Hoogendijk EO, Afilalo J, Ensrud KE, Kowal P, Onder G, Fried LP. Frailty: implications for clinical practice and public health. *Lancet.* 2019;394(10206):1365–1375. [https://doi.org/10.1016/S0140-6736\(19\)31786-6](https://doi.org/10.1016/S0140-6736(19)31786-6)
25. Souza LF, Canevar JB, Moreira BS, Danielewicz AL, de Avelar NCP. Association Between Fear of Falling and Frailty in Community-Dwelling Older Adults: A Systematic Review. *Clin Interv Aging.* 2022;17, 129–140. <https://doi.org/10.2147/CIA.S328423>
26. Chu W, Chang S-F, Ho H-Y. Adverse health effects of frailty: systematic review and meta-analysis of middle-aged and older adults with implications for evidence-based practice. *Worldviews Evid Based Nurs.* 2021;18(4):282–289. <https://doi.org/10.1111/wvn.12508>
27. Faria AC, Martins MMFP, Aguilera JAL, Ribeiro OMPL, Silva JMAV, Fonseca EF, et al. A fatores relacionados à fragilidade multidimensional em pessoas idosas. Olhar sobre os fatores preditores. *Rev Baiana Enferm.* 2022;36. <https://doi.org/10.18471/rbe.v36.46531>
28. Lim JY, Yu H, Kwon YE, Do JG, Hwang JH. Feasibility of digital technology-supported home exercise intervention for health promotion in community-dwelling older adults: A pilot randomized controlled trial. *Heliyon.* 2024;10(3), e24933. <https://doi.org/10.1016/j.heliyon.2024.e24933>
29. Treacy D, Hassett L, Schurr K, Fairhall NJ, Cameron ID, Sherrington C. Mobility training for increasing mobility and functioning in older people with frailty. *Cochrane Database Syst Rev.* 2022;6(6), CD010494. <https://doi.org/10.1002/14651858.CD010494.pub2>
30. Ferreira R, Fernandes N, Bico C, Bonito A, Moura C, Sousa L, et al. The Perspective of Rehabilitation Nurses on Physical Exercise in the Rehabilitation of Older People in the Community: A Qualitative Study. *J. Funct. Morphol. Kinesiol.* 2023, 8, 163. <https://doi.org/10.3390/jfkm8040163>
31. Izquierdo, R.A. Merchant, J.E. Morley, et al. International Exercise Recommendations in Older Adults (ICFSR): Expert Consensus Guidelines. *J Nutr Health Aging.* 2021;25(7):824-853. <http://dx.doi.org/10.1007/s12603-021-1665-8>

32. Flores-Bello C, Correa-Muñoz E, Sánchez-Rodríguez MA, Mendoza-Núñez VM. Effect of Exercise Programs on Physical Performance in Community-Dwelling Older Adults with and without Frailty: Systematic Review and Meta-Analysis. *Geriatr.* 2024;9(1), 8. <https://doi.org/10.3390/geriatrics9010008>
33. Novo A, Mendes E, Lopes I, Preto L, Loureiro M, Delgado B. A atividade física e o exercício físico. In O. Ribeiro (Ed.) *Enfermagem de Reabilitação. Conceções e Práticas.* (1ª edição) Lisboa: Lidel – Edições Técnicas, Lda, 2021. p. 76-81.
34. Panton LB, Artese AL. Types of Exercise: Flexibility, Strengthening, Endurance, Balance. In G. M. Sullivan & A. K. Pomidor (Eds.) *Exercise for Aging Adults. A Guide for Practitioners.* (Second Edition), Springer. 2024, p.47-69. <https://doi.org/10.1007/978-3-031-52928-3>
35. Faria ACAF, Martins MMFPS, Ribeiro OMPL, Silva JMAV, Fonseca EF, Ferreira LJM. Et al. Effect of the Active Aging-in-Place-Rehabilitation Nursing Program: A Randomized Controlled Trial". *Healthcare.* 2023;11(2), 276. <https://doi.org/10.3390/healthcare11020276>
36. Haider S, Grabovac I, Dorner TE. Effects of physical activity interventions in frail and prefrail community-dwelling people on frailty status, muscle strength, physical performance and muscle mass-a narrative review. *Wiener klinische Wochenschrift*, 2019;131(11-12), 244–254. <https://doi.org/10.1007/s00508-019-1484-7>
37. Makizako H, Nakai Y, Tomioka K, Taniguchi Y, Sato N, Wada A. et al. Effects of a Multicomponent Exercise Program in Physical Function and Muscle Mass in Sarcopenic/Pre-Sarcopenic Adults. *J. Clin. Med.* 2020;9(5), 1386. <https://doi.org/10.3390/jcm9051386>
38. Mulasso A, Roppolo M, Rainoldi A, Rabaglietti E. Effects of a Multicomponent Exercise Program on Prevalence and Severity of the Frailty Syndrome in a Sample of Italian Community-Dwelling Older Adults. *Healthcare.* 2022;10(5), 911. <https://doi.org/10.3390/healthcare10050911>
39. Sullivan GM. Benefits of Exercise for Older Adults. In G. M. Sullivan & A. K. Pomidor (Eds.) *Exercise for Aging Adults. A Guide for Practitioners.* (Second Edition), Springer. 2024, p.15-28. <https://doi.org/10.1007/978-3-031-52928-3>
40. Couto G, Silva RP, Mar MJ., Gomes B. (2021). Processo de cuidados de enfermagem de reabilitação à pessoa adulta/idosa com compromisso do sistema cardiorrespiratório. In O. Ribeiro (Ed.) *Enfermagem de Reabilitação. Conceções e Práticas.* (1ª edição) Lisboa: Lidel – Edições Técnicas, Lda; 2021. p.234-280.
41. Galheto RAS. (2022). Promoção do autocuidado na pessoa com 65 e mais anos de idade, com alterações neurológicas: Ganhos sensíveis dos cuidados de enfermagem de reabilitação. [Relatório de Estágio, Mestrado em Enfermagem, Área de Especialização de Enfermagem de Reabilitação]. Évora (Portugal): Universidade de Évora; 2022.
42. World Health Organization [WHO]. *Rehabilitation in Health Systems: Guide for Action.* 2019. Obtido de <https://apps.who.int/iris/bitstream/handle/10665/325607/9789241515986-eng.pdf?ua=1>
43. Hassett LV. Digitally enabled aged care and neurological rehabilitation to enhance outcomes with Activity and MObility UsiNg Technology [AMOUNT] in Australia: A randomised controlled trial. *PLoS Med.* 2021;1–24. <https://doi.org/10.1371/journal.pmed.1003029>
44. Yin XJ, Wang YJ, Ding XD, Shi TM. Effects of motor imagery training on lower limb motor function of patients with chronic stroke: A pilot single-blind randomized controlled trial. *Int J Nurs Pract.* 2022;28(3):e12933. <https://doi.org/10.1111/ijn.12933>
45. Lourenço M, Faria A, Ribeiro R, Ribeiro O. Processo de cuidados de enfermagem de reabilitação à pessoa adulta/idosa com compromisso do sistema musculoesquelético. In O. Ribeiro (Ed.) *Enfermagem de Reabilitação. Conceções e Práticas.* (1ª edição) Lisboa: Lidel – Edições Técnicas, Lda; 2021. p.281-328.
46. Moreira A, Neves H, Lucas N, Silva RA, Galante S. Programa de reeducação da função alimentação. In O. Ribeiro (Ed.) *Enfermagem de Reabilitação. Conceções e Práticas.* (1ª edição) Lisboa: Lidel – Edições Técnicas, Lda.; 2021. p. 550-563.
47. Cunha M, Garcia S, Novo A. Programa de enfermagem de reabilitação à mulher idosa com incontinência urinária. In O. Ribeiro (Ed.) *Enfermagem de Reabilitação. Conceções e Práticas.* (1ª edição) Lisboa: Lidel – Edições Técnicas, Lda; 2021. p. 627-639.
48. Suikkanen S, Soukkio P, Aartolahti E, Kääriä S, Kautiainen H, Hupli M T. et al. Effect of 12-Month Supervised, Home-Based Physical Exercise on Functioning Among Persons with Signs of Frailty: A

- Randomized Controlled Trial. *Arch. Phys. Med. Rehabil.* 2021;102(12), 2283–2290. <https://doi.org/10.1016/j.apmr.2021.06.017>
49. Wakida M, Asai T, Kubota R, Kuwabara T, Fukumoto Y, Sato H. et al. Efeitos longitudinais do exercício físico nos resultados relacionados à saúde com base no estado de fragilidade em idosos residentes na comunidade. *Geriatr gerontol intern.* 2022;22(3), 213–218. <https://doi.org/10.1111/ggi.14346>
 50. Adekpedjou R, Léon P, Dewidar O, Al-Zubaidi A, Jbilou J, Kaczorowski J. et al. Effectiveness of interventions to address different types of vulnerabilities in community-dwelling older adults: An umbrella review. *Campbell Syst. Rev.* 2023;19(2), e1323. <https://doi.org/10.1002/cl2.1323>
 51. Brady S, D'Ambrosio LA, Felts A, Rula EY, Kell KP, Coughlin JF. Reducing isolation and loneliness through membership in a fitness program for older adults: Implications for health. *J. Appl. Gerontol.* 2020;39(3), 301–310. <https://doi.org/10.1177/0733464818807820>
 52. Di Lorito C, Long A, Byrne A, Harwood RH, Gladman JRF, Schneider S. et al. Exercise interventions for older adults: A systematic review of metaanalyses. *J Sport Health Sci.* 2021;10(1), 29–47. <https://doi.org/10.1016/j.jshs.2020.06.003>
 53. Fain RS, Hayat SA, Luben R, Abdul Pari AA, Yip JLY. Effects of social participation and physical activity on all-cause mortality among older adults in Norfolk, England: An investigation of the EPIC-Norfolk study. *Public Health.* 2022;202, 58–64. <https://doi.org/10.1016/j.puhe.2021.10.017>
 54. Larsen RT, Turcotte LA, Westendorp R, Langberg H, Hirdes JP. Frailty Index Status of Canadian Home Care Clients Improves with Exercise Therapy and Declines in the Presence of Polypharmacy. *J Am Med Dir Assoc.* 2020;21(6), 766–771.e1. <https://doi.org/10.1016/j.jamda.2020.01.004>
 55. Hsieh TH, Su SC, Chen CW, Kang YW, Hu MH, Hsu LL. et al. Individualized home-based exercise and nutrition interventions improve frailty in older adults: A randomized controlled trial. *Int J Behav Nutr Phys Act.* 2019;16, 119–134. <https://doi.org/10.1186/s12966-019-0855-9>

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