

Frailty in rural older adults: development of a care algorithm

Fragilidade em idosos da zona rural: proposta de algoritmo de cuidados

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Keywords

Aged; Aged, 80 and over; Elderly frail; Rural population

Descritores

Idoso; Idoso de 80 anos ou mais; Idoso fragilizado; População rural

Submitted

August 31, 2017

Accepted

October 24, 2017

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DOI

<http://dx.doi.org/10.1590/1982-0194201700075>



Abstract

Objective: To present a care algorithm for Frailty Syndrome in older adults.

Methods: A quantitative, descriptive, cross-sectional study with 820 people aged 60 years or more living in the rural area of the city of Pelotas in the state of Rio Grande do Sul, Brazil. Data was collected from July to October 2014, using a semi-structured form. To assess frailty a self-reported instrument was used to obtain information from the older adult or their assistant/substitution respondent. Multiple Poisson Regression was used to analyze the associated factors. Through the identification of the associated factors, the care algorithm for the Frailty Syndrome was constructed.

Results: 43.4% of the older adults presented frailty. The factors associated with the frailty syndrome were low education level (PR:1.45; $p<0.001$); obesity (PR: 1.89, $p=0.001$), no physical activity practice (PR: 1.93, $p<0.001$); presence of cognitive deficit (PR: 2.07; $p=0.002$); bad health self-perception (PR: 8.21; $p<0.001$); fall in the last 12 months (PR: 1.70; $p<0.001$) and presence of disease and morbidity (PR: 2.22, $p<0.014$). These factors led to the elaboration of the care algorithm, which was structured in care for the non-frail, pre-frail and frail older adults.

Conclusion: The importance of health professionals, especially nurses, in the identification of the profile and lifestyle of the older adults is highlighted. They are expected to intervene in the problems associated with frailty, using the frailty care algorithm as a guide to delay and prevent the progression of the syndrome.

Resumo

Objetivo: Apresentar algoritmo de cuidados para Síndrome de Fragilidade no Idoso.

Métodos: Estudo de abordagem quantitativa, descritiva, com delineamento de corte transversal, com 820 pessoas com idade igual ou superior a 60 anos, residentes na zona rural do Município de Pelotas/Rio Grande do Sul, Brasil. A coleta de dados ocorreu no período de julho a outubro de 2014, com uso de um formulário semiestruturado. Para avaliar a fragilidade utilizou-se o instrumento autorreferido obtido por meio de informações relatadas pelo idoso ou por seu respondente substituto/auxiliar. Utilizou-se Regressão de Poisson Múltipla para a análise dos fatores associados. Mediante a identificação dos fatores associados, elaborou-se o Algoritmo de cuidados para a Síndrome de Fragilidade.

Resultados: Constatou-se que 43,4% dos idosos apresentaram fragilidade. Os fatores associados à síndrome da fragilidade foram baixa escolaridade (RP: 1,45; $p<0,001$); obesidade (RP: 1,89; $p=0,001$), não realização de atividade física (RP: 1,93; $p<0,001$); apresentar déficit cognitivo (RP: 2,07; $p=0,002$); autopercepção de saúde ruim (RP: 8,21; $p<0,001$), queda nos últimos 12 meses (RP: 1,70; $p<0,001$) e presença de doença morbidade (RP: 2,22; $p<0,014$). Esses fatores direcionaram a elaboração do algoritmo de cuidados, que foi estruturado em cuidados para idosos não frágeis e pré-frágeis/frágeis.

Conclusão: Percebe-se a importância dos profissionais de saúde, em destaque os enfermeiros, na identificação do perfil e estilo de vida dos idosos, a fim de intervir nos problemas associados à fragilidade, tendo o algoritmo de cuidados à fragilidade como um guia para a tomada de decisão, visando postergar e prevenir a progressão da síndrome.

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Conflicts of interest: there are no conflicts to declare.

Introduction

Increasing life expectancy and an accelerated aging process are factors that affect the work of health professionals, especially nurses, when regarding health issues of older adults, such as the Frailty Syndrome (FS).

Frailty is a multifactorial clinical syndrome characterized by a decrease in energy reserves and an increase in vulnerability, reducing the capacity for homeostasis. Changes resulting from the aging process can lead to sarcopenia, neuroendocrine dysregulation and immune disorder, factors that predispose older adults to loss of muscle mass and chronic inflammatory state, which, along with diseases, immobility, and decreased food intake, lead to an energy reduction cycle.⁽¹⁾ This internal and progressive process can be manifested by a phenotype composed of five measurable components: unintentional weight loss, fatigue, decreased strength, decreased walking speed, and low physical activity level.

According to Fried et al., older adults with three or more of these components are considered frail and are more vulnerable to falls, functional impairment, dependence, hospitalizations, institutionalization and early death.⁽¹⁾

A study revealed that frail older adults were of older age, had lower educational level, chronic diseases, were under continuous medication, had suffered falls, had few social relationships and had been institutionalized. Therefore, it is necessary to develop guidelines for health promotion and disease prevention for these older adults, aiming to modify adverse outcomes, considering that FS is complex and requires isolated actions to prevent, delay or stop its progression.^(2, 3)

This issue has been more explored among urban older adults, leaving a gap regarding older adults living in rural areas, therefore, and once again in the history of society, this locality is underexplored. It is necessary to assess FS among people aged 60 years or more residing in rural areas, so that health professionals, in particular nurses, can act early and provide care to the elderly on frailty process.

It should be noted that rural older adults have some cultural, social and ethnic particularities. They usually have a healthier lifestyle, with a more

active behavior incorporated into their daily activities, such as farming, gardening, hiking and fishing. Sometimes they can have healthier eating habits, since they usually eat fruits and vegetables every day. However, they usually eat too much fat and sweet. In addition to life habits, rural older adults face difficulties to access health services, due to long distances and transport difficulties. Given this context, there is a need to offer greater effectiveness in the health care provided to this specific population.

Considering older adults in their multiple contexts is essential in order to properly manage care, improve their quality of life and promote active aging. Thus, a broader view of nursing is required, including measures such as frailty screening, which would help to identify and correct associated factors early and to prevent or minimize the occurrence of undesirable events, such as disability and worsening of health conditions.⁽⁴⁾

Nurses must seek strategies to promote autonomy and independence among older adults, providing an individualized care, especially to those who are frail or at risk of developing frailty.⁽⁵⁾ In order to systematize a care plan for frailty, an algorithm consisting of a finite sequence of well-defined instructions that can be performed in order and guide the nursing care is suggested.⁽⁶⁾

Within a broader approach to nursing work regarding frailty and aiming to guide the care provided to older adults in this process, an algorithm for the care of frail older adults was proposed. A systematic care that considers the particularities of rural older adults is aimed at preventing frailty and minimizing the worsening of preliminary stages of this syndrome, seeking to promote autonomy, functionality and improvements in the quality of life.

The objective of this study was to present a care algorithm for Frailty Syndrome in older adults.

Methods

A quantitative, descriptive, cross-sectional study with 820 people aged 60 years or more, registered in Basic Health Units (BHU) with Family Health

Strategy (FHS), living in the rural area of the city of Pelotas/Rio Grande do Sul, Brazil.

Inclusion criteria were: being 60 years old or older; living in the rural area of Pelotas/RS, Brazil; being selected in the draft made by the researchers; and agreeing to the disclosure of the data. Older adults who were traveling at the time of the interview, or who were deprived of liberty by judicial decision, living in Long-Term Institutions or hospitalized during the period of data collection were excluded from the study.

The referred city has 12 Basic Health Units located in the rural areas. Of these, ten have Family Health Strategy, and the older adults registered in it participated in the research. The selection of the participants was by random draw of their residences. After the randomization, the name, age and address of the older adults residing in rural areas were listed, in order to reach the required number of participants per FHS. The number of participants selected in each BHU was proportional to the number of older adults registered in the BHU. All the selected participants were contacted, informed about the study and, upon agreement, their consent was obtained in writing and signed in two copies.

For the sample size calculation, the following parameters and estimates were used: population of 328,275 people in the city of Pelotas (IBGE, 2010), 95% confidence level, estimated prevalence of frailty in older adults of 19.9%, and acceptable error of 3%. With these parameters, the initial calculation basis for the older adults was 680, then including 10% for losses and refusals and 10% for control of confounding factors, which totaled 823 older adults. For this research, 834 older adults were randomly selected, of whom nine refused to participate and five were not found after three attempts on different days and times. Therefore, 820 older adults were effectively interviewed. The nurses and community agents helped organizing the list by areas in order to facilitate the visits and accompanied the visits to residences that were difficult to access. These mediators were essential in this process.

Data was collected from July to October 2014, through the application of a standardized form in the participant's home or in group meetings at the BHU. In order to collect the data, a team of ten people (undergraduate and graduate students of the School of Nursing/UFPel) was trained and guided by an instruction manual for each question of the instrument. After that, a pilot test was conducted with ten older adults from the rural area of Pelotas, who were not part of the final sample for data collection.

The time spent to apply the questionnaire ranged from 40 minutes to one hour and 15 minutes. The instrument contained questions regarding socio-demographic variables such as age, gender, skin color, living conditions (living alone, living in small space), income, level of education, cognitive decline and FS and followed the theoretical framework proposed by Llano 2015.⁽⁷⁾

To assess frailty, a self-reported instrument⁽³⁾ was used to obtain information from the older adults or their substitution respondents. The questions assessed were: unintentional weight loss, low physical activity level, decreased walking speed, decreased strength and fatigue (Chart 1). Older adults who did not present any component were classified as robust; those with 1 or 2 components were classified as pre-frail; and those with 3 or more components as frail. The frailty process was also assessed among those classified as pre-frail or frail (Nunes et al., 2015).⁽³⁾

The data were double-typed by independent researchers in the Epi Info[®] 7.0 software and then transferred to STATA[®] 11.1. The variables were described through simple or mean frequencies and standard deviation. The Pearson's chi-squared test of homogeneity was used for nominal data and the trend test was used for ordinal data. A multiple Poisson analysis was used to analyze the factors associated with frailty.

The research followed Resolution 466/2012 and was approved by the Research Ethics Committee of the Federal University of Pelotas under number 649.802, from May 19, 2014.

Chart 1. Components of FS self-reported assessment

Frailty component	Questions and answers
Weight loss (In this component, older adults who reported a loss of > 3 kg received a positive score)	In the last 12 months, did you lose weight without going on any diet? If yes, how many kilograms did you lose? Between 1 kg and 3 kg More than 3 kg No
Decreased strength	In the last 12 months (last year), do you feel weaker or think your strength has decreased? Yes No
Decreased walking speed	Do you think that you are walking more slowly than you did 12 months ago (a year ago)? Yes No
Low physical activity level	Do you think that you are currently performing less physical activity than you did 12 months ago (a year ago)? Yes No
Fatigue reported (Older adults who responded "sometimes" or "most of the time" to at least one of these questions received a positive score)	In the past week, how often did you feel that you could not perform daily activities (you started something but could not finish)? Never or rarely (less than 1 day) A few times (1 - 2 days) Sometimes (3 - 4 days) Most of the time
	In the past week, how often did the performance of your routine activities require a major effort? Never or rarely (less than 1 day) A few times (1 - 2 days) Sometimes (3 - 4 days) Most of the time

Source: Nunes et al., 2015

Results

Of the 820 older adults interviewed, the majority answered their own questionnaire (95.5%) and a minority required an assistant or substitution respondent (3.8% and 0.7%, respectively). The majority of the older adults were female (56.1%), were between 60 and 69 years old (54.9%), lived with other people (90.9%), earned up to 2 minimum wages (80.7%), were classified as overweight (40%) and reported a chronic disease (95.2%).

Regarding frailty, 19.5% (n=160) were robust, 37.1% (n=304) were pre-frail and 43.4% (n=356) were frail. Regarding the "frailty process", that is, the elderly classified as pre-frail and frail, they represented 80.5% (n=660). The highest proportions of frailty were found among older adults who did not perform physical activity (55.5%), were obese (51.0%), had low education level (52.2%), presented cognitive decline (46.1%), self-assessed their health as poor or bad (78.2%), suffered a fall (52.8%) and had a chronic disease (44.2%) (Table 1).

The factors associated with the frailty syndrome were low education level (PR: 1.45; $p<0.001$); obesity (PR: 1.89, $p=0.001$), no physical activity (RP: 1.93; $p<0.001$); presence of cognitive deficit (PR: 2.07; $p=0.002$); bad health self-perception (PR:

8.21, $p<0.001$), fall in the last 12 months (PR: 1.70, $p<0.001$) and presence of disease (PR: 2.22, $p<0.014$).

Discussion

The prevalence of frailty found in this study was 43%, higher than that reported in the literature. A study conducted in São Paulo found a 37% rate of frail older adults. Another study, carried out with 240 older adults living in the city of Ribeirão Preto/São Paulo, found that 39.1% of them had different levels of frailty: 18.3% presented mild frail, 11.3% moderate frail and 9.6% severe frail.⁽⁸⁾ And a study carried out with 139 older adults enrolled in a Family Health Strategy of the Municipality of Jequié/BA found the rates of 16.9% frail older adults, 61.8% pre-frail and 21.3% not frail.⁽⁹⁾

The increase in FS rates can be explained by the fact that the older adults in this study were still involved in productive activities, were mostly in the age group between 60 and 69 years and worked in agriculture, with an active lifestyle; however, they were already suffering the effects of the physiological changes of aging. Because it is a self-reported

Table 1. Distribution (%) of older adults living in rural areas according to socioeconomic, demographic, health and frailty conditions. Pelotas, RS, 2014(n=820).

Variables	Frailty			Total	p-value
	Robust (n=160)	Pre-frail(n=304)	Frail (n=356)		
Age*					0.147
60-69 years	86(19.1)	157(34.9)	207(46.0)	450	
70-79 years	57(21.2)	97(36.1)	115(42.7)	269	
80 years or more	16(16.0)	50(50.0)	34(34.0)	100	
Gender					0.313
Male	76(21.1)	138(38.3)	146(40.6)	360	
Female	84(18.3)	166(36.1)	210(45.6)	460	
Skin color					0.918
Caucasian	157(19.6)	296(37.1)	346(43.3)	799	
Non-Caucasian	3(14.3)	8(38.1)	10(47.6)	21	
Lives alone					0,232
No	140(18.8)	279(37.4)	327(43.8)	746	
Yes	20(27.0)	25(33.8)	29(39.2)	74	
Lives in small space					0.860
No	152(19.7)	287(37.1)	334(43.2)	773	
Yes	8(17.0)	17(36.2)	22(46.8)	47	
Income**					0.461
Up to 2 MW	127(19.2)	251(37.9)	284(42.9)	662	
More than 2 MW	33(21.6)	50(32.7)	70(45.7)	153	
Low education level*					<0.001
No	95(22.0)	181(41.9)	156(36.1)	432	
Yes	60(15.8)	122(32.0)	199(52.2)	381	
Nutritional status					0.001
Low weight*	4(33.3)	4(33.3)	4(33.4)	12	
Normal weight	47(17.9)	122(46.6)	93(35.5)	262	
Overweight	73(22.3)	103(31.4)	152(46.3)	328	
Obesity	33(17.0)	62(32.0)	99(51.0)	194	
Physical activity*					<0.001
No	24(11.6)	68(32.9)	115(55.5)	207	
Yes	135(22.1)	236(38.6)	240(39.3)	611	
Cognitive deficit					0.002
No	30(23.1)	62(47.7)	38(29.2)	130	
Yes	130(18.8)	242(35.1)	318(46.1)	690	
Health self-assessment*					<0.001
Poor or bad	3(3.3)	17(18.5)	72(78.2)	92	
Regular	30(9.6)	124(39.7)	158(50.7)	312	
Good or great	124(30.2)	161(39.3)	125(30.5)	410	
Basic activities of daily living					0.139
Independent	126(18.8)	244(36.4)	301(44.8)	671	
Partially dependent	32(25.4)	50(39.7)	44(34.9)	126	
Totally dependent	2(8.7)	10(43.5)	11(47.8)	23	
Instrumental activities of daily living					0.161
Independent	90(20.1)	161(35.9)	197(44.0)	448	
Partially dependent	58(18.7)	112(36.0)	141(45.3)	311	
Totally dependent	12(19.7)	31(50.8)	18(29.5)	61	
Falls in the past 12 months					0.002
No	128(21.7)	228(38.6)	235(39.7)	591	
Yes	32(14.0)	76(33.2)	121(52.8)	229	
Presence of disease*					0.014
No	16(42.1)	12(31.6)	10(26.3)	38	
Yes	144(19.5)	291(37.3)	346(44.2)	781	
Total	19.5	37.1	43.4		

*Variables containing Missing (lack of data of some participants); **Low education level defined as zero to 3 years of study; ***Nutritional status according to the World Health Organization Body Mass Index (BMI): Low weight >18.5 Kg/m², normal weight 18.5 a 24.9 Kg/m², overweight 25.0 a 29.9 Kg/m² and obesity ≥30.0 Kg/m²; *Minimum wage¹ in July 2014: R\$ 724,00 (Source: Ministry of Labour, 2014).

The minimum wage, payed per month in Brazil, corresponds, nowadays, to R\$ 937,00 reais or US 286,23 American dollars according to the Central Bank of Brazil on November 1st, 2017.

frailty instrument, it can be inferred that these older adults perceived the changes more easily, since agricultural activities are more demanding and require more strength and movement in the daily activities.

These results indicate the importance and need for interventions aimed at preventing that pre-frail conditions evolve to frail, thus avoiding adverse outcomes and providing a more active life for older adults in different contexts.

The prevalence of low education levels was above 50.0% among frail older adults, while the majority of the robust older adult (22.0%) did not have a low education level. This fact indicates that low education is a predisposing factor to FS, as evidenced in others studies.⁽¹⁰⁻¹²⁾ Education is an accurate indicator of the socioeconomic level of a population, since it is related to access to jobs, income, use of health services and receptivity to educational and health programs.

The conditions of frailty and pre-frailty should be highlighted in the preventive and intervention-al measures implemented to delay and attenuate functional decline, aiming to promote an active aging and improve quality of life.⁽⁹⁾ The education of this population is a factor that must be considered, since this may contribute to targeting strategies to be used for health education. In this perspective, the nurse becomes an essential professional to guide the orientation on FS and the preventive measures, aiming to avoid the progression of the syndrome, as well as to stimulate the older adults to participate in their health care and engage in educational and preventive programs.

Regarding the nutritional status, the association of frailty with overweight and obesity can be highlighted. In this issue, it is possible to identify the role of sarcopenic obesity in the frailty process. Sarcopenic obesity is characterized by the combination of excess body fat and reduction of lean body mass, including muscles and bones. There is a decrease in the quantity and quality of muscles, with reduction in the number and size of muscle fibers, mitochondrial function and muscle protein synthesis.^(13,14) All these changes in body composition have clinical importance in the functionality of the older adult, since they lead to a significant muscle reduction and

increase of total body fat, making the older adult more susceptible to mobility limitations.⁽¹³⁾

The problems associated with the nutritional status can accelerate the development of frailty and vulnerabilities, hindering the recovery and significantly reducing life span, especially in the presence of chronic diseases. Thus, the nutritional status should be assessed on the nursing consultation, aiming to prevent problems related to nutritional deficiencies.⁽¹⁴⁾

Considering that the nutritional problems that affect the elderly population can accelerate the development of frailty and vulnerabilities, nurses need to assess the context in which the older adults are inserted, evaluating their physical and socioeconomic conditions in order to provide education on healthy eating habits and the possible complications that inappropriate eating habits can cause. With the increase in population aging, it is essential to plan and develop healthcare measures that can improve quality of life for older adults, such as emphasizing the recommendations of the Brazilian Ministry of Health healthy eating manual for the older adults, refer them for nutritional counseling, provide information on public health policies and the several professionals who can assist in the care of the FS.

Regarding the subject of physical activity, the older adults who did not engage in any physical activity were more frail. However, this data may contain a reverse causality bias, since the older adult may be more frail because of not performing physical activity or they might not be able to perform physical activity for being frail. Physical activity is also seen as a protective factor, good for health; among the older adults who performed physical activity, the number of robust participants doubled. Several factors could lead to the reduction in physical activity practices. Frailty components included are reduced mobility, muscle weakness, abnormal walking, decreased exercise tolerance, balance instability, and sarcopenia.⁽¹⁾

In addition, the study points to the importance of maintaining an adequate level of muscular strength during the aging process, which helps completing daily activities and, consequently, can increase functional autonomy of older adults.

Therefore, physical activity programs for older adults including resistance training are an interesting intervention, not only because they can increase strength, but also because they can have positive effects on risk factors for loss of autonomy. The data presented indicated that the evaluation of muscle strength is a measure that should be incorporated into routine clinical evaluations of older adults.⁽¹⁵⁾ In addition, it is necessary to invest in strategies to increase the levels of physical activity among older adults, as well as in public policies (improvement of sidewalks, lighting, security and others) and in actions to raise awareness on the health benefits of being active.⁽¹⁶⁾

Exercise prescription can be an important intervention to minimize the loss of muscle strength, which commonly occurs with advancing age. The exercises should be directed to the changes caused by aging, aiming to avoid, minimize or reverse many of the physical, psychological and/or social declines.

The FS also had a significant association with a subsequent cognitive decline. Cognitive deficit is negative for frailty, since age-related decline of cognitive functions is associated with external, behavioral, environmental and social factors. These factors are responsible for the onset of several pathological processes, increasing disability and predisposing to Frailty Syndrome.⁽¹⁷⁾ Another Brazilian study found the interesting fact that a considerable number of frail and pre-frail older adults remained active and participative throughout their life, even with the losses resulting from the aging process, such as functional and cognitive impairment.⁽¹⁸⁾

Nurses have an important role, since they can assess and stimulate cognitive function and encourage active participation of the older adults in economic activities, in order to reduce their decline and predisposition to the syndrome. The older adult with cognitive deficit lacks the mental capacity needed to understand and solve daily problems and faces difficulties to perform basic activities of daily living (BADLs) and instrumental activities of daily living (IADLs). Thus, it is necessary to stimulate older adults to perform BADLs and IADLs in order to achieve a greater physical and cognitive

performance. In addition, it is necessary to advise the family/caregiver on the importance of functionality and cognition to maintain autonomy and a more active life.

This study found that half of the older adult had good or excellent health perception, but those who were frailer perceived themselves in worse health condition. Self-perception of health worsens according to the prevalence of frailty. Also, it was possible to observe that in the rural population the younger elderly considered any natural alteration of the aging process as negative, especially the indicators of frailty associated with physiological aging, such as weak handgrip strength and slow walking speed. These older adults had a negative perception of their current performance when comparing with their status a few years before, even while still remaining active.

The fact that the older adults consider themselves frail is also related to the assessment through a self-reported instrument. They could perceive the alterations more easily because they were still performing their productive activities, and some changes compromised their daily tasks, especially the components such as decreased walking speed, decreased strength and fatigue.

The health self-assessment can be used as a tool to improve health conditions and increase access to health services regardless of social status. Actions that address the main determinant factors of self-perceived health can significantly contribute to the promotion of health, well-being and quality of life to the older adult.⁽¹⁹⁾

Regarding the occurrence of falls, there is a possibility of reverse causality bias, since it is possible that those who are frail fall more often or that the fall had an influence in the frailty process. On the other hand, the occurrence of falls can be explained by the fact that frailty gradually increases with age, and aging leads to a reduction of visual acuity, body balance, muscular strength, mobility and physical function, which all predispose to falls and immobility among frail older adults.^(17,20) Thus, fall prevention measures are indispensable and fall screening tools are useful measures to predict the future risk of falls and to coordinate clinical and community

fall prevention initiatives.⁽²¹⁾ Therefore, the nurse must be prepared to assist in the prevention of falls, to use fall screening tools and to orient the patient to maintain a safe environment and correctly take their medications.

The sample in the present study also showed association between frailty and presence of disease. The pathological processes already cause damages and difficulties on their own, however, the greatest losses are in functional limitations and inability to perform social daily activities. This set of aspects, which involves several aging processes, leads to the frailty syndrome and the consequent weight loss, decreased strength, fatigue, anorexia and low physical activity level, as well as sarcopenia, osteopenia, balance abnormalities, malnutrition and low walking speed.^(22,23)

A study conducted with older adults in China demonstrated a relationship between sarcopenia and cardiovascular risk factors and concluded that the prevention and treatment of these factors, mainly diabetes and hypertension, may be useful to prevent and delay the onset of sarcopenia.⁽²²⁾ Another relevant fact is the significant increase in Chronic Noncommunicable Diseases (NCDs), which affect mainly the older adults population. The association of NCDs with the aging process can affect the functional capacity of the older adults, leaving them vulnerable and dependent on care, and consequently making them frail.⁽¹⁴⁾

The evaluation of the health status of older adults has the main objective of developing intervention strategies to prevent, treat or rehabilitate the patient.⁽¹⁴⁾ In this context, preventive measures should be taken, as well as early detection of signs and symptoms of chronic noncommunicable diseases, in order to prevent the Frailty Syndrome in older adults.

Besides that, the occurrence of diseases leads to an increase in the use of medication, and the supervision of medication is the responsibility of nursing professionals, even for functionally independent older adults. This reinforces the need to prevent worsening and aggravations of existing diseases, which can lead to permanent functional disabilities. The nurse must have knowledge of pharmacology and be able to detect iatrogenic complications and use of polypharmacy in the elderly population through multidimensional evaluations.⁽¹⁴⁾

It is worth highlighting the high prevalence of the FS in the female population. Women are associated with an intrinsic frailty, due to the fact that they have lower lean mass and less muscular strength than men, and also because they are more vulnerable to the effects of frailty, such as sarcopenia.⁽¹⁾ Furthermore, the fact that women live longer than men increases their predisposition to chronic diseases, since the physiological and functional modifications inherent to the aging process make the elderly more susceptible to these diseases. It is also important to highlight the need to include the family in the context of frailty and the importance of the nursing professionals in giving the support necessary for the family to provide an effective care.

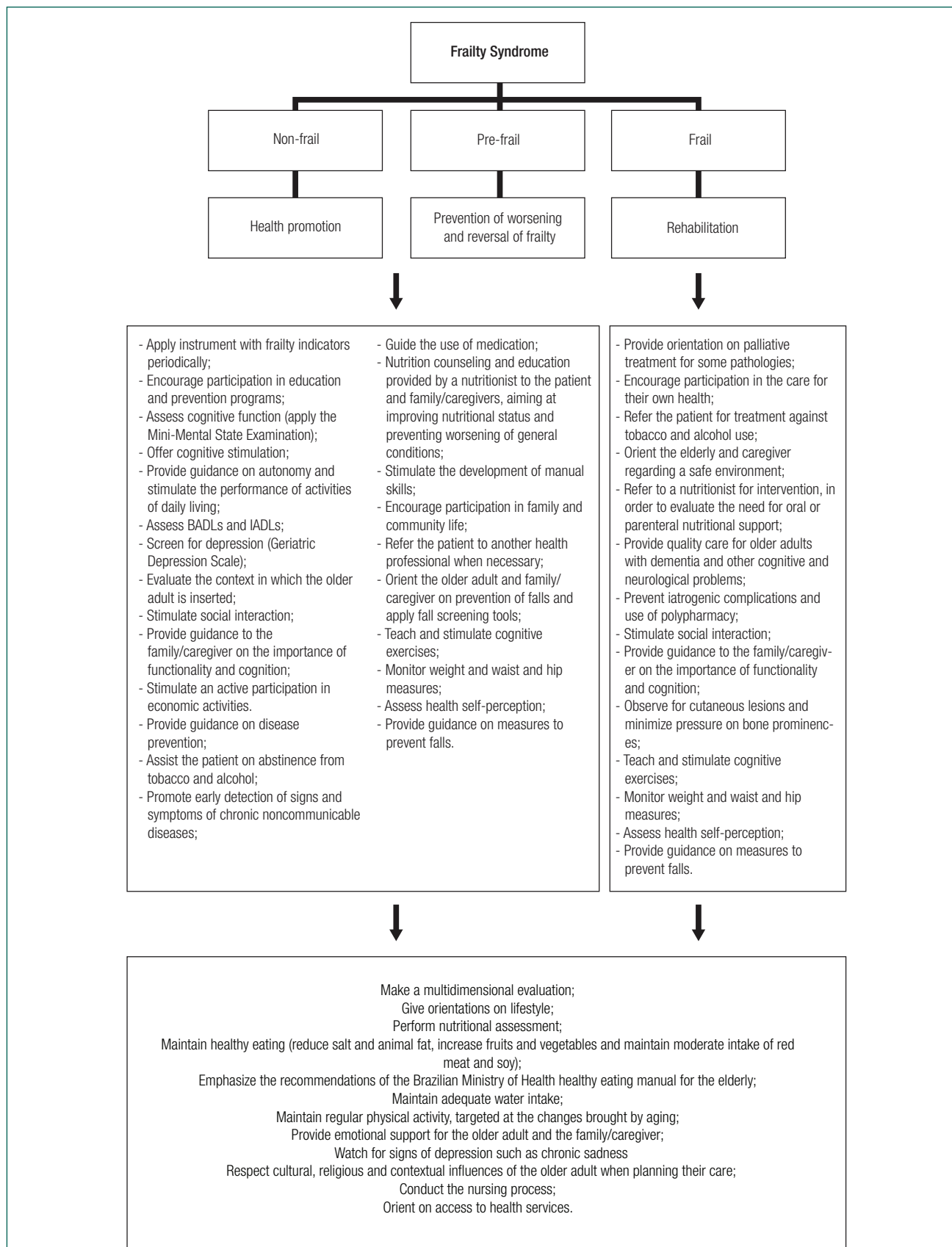
In possession of the knowledge of the profile of the older adults and the variables associated with FS, a more specific planning can be developed to attend to their real needs, providing a care to older adults with FS focused on preventive aspects and immediate assistance after the occurrence of the syndrome.

The development and implementation of protocols/algorithms is consistent with the perspective of life promotion, comfort, and dialogue, considering the subject as an active collaborator in the health/disease process. Those protocols aim to improve assistance, since they are theoretical-practical support tools that enhance care planning and, consequently, contribute to the quality of individual and collective care.⁽⁶⁾

Thus, it is necessary to have a broader view of nursing, using instruments capable of recognizing FS and tools that guide the care provided to the frail older adult. A care algorithm for FS is suggested, which allows a better decision-making process that considers the particularities of each older adult, preventing frailty or progression of the syndrome already installed.

From the results, a care algorithm for FS was developed (Figure 1).

One possible limitation of the study is the fact that the participants are enrolled in a FHS. This situation can influence a different health condition than of those who are not enrolled in a FHS, both



Source: Llano, Patricia Mirapalheta Pereira "Prevalence and factors associated with the frailty syndrome in the elderly." [thesis]. Pelotas; Universidade Federal de Pelotas. 2014.

Figure 1. FS care algorithm

due to the inverse care law and to the priority of implementation of Basic Health Units in areas of greatest vulnerability. Another limitation of the study is related to the cross-sectional design, which does not allow grasping the temporal and causal relationship between the independent variables and the outcome.

However, in the various contexts, the care for the frail older adult, as well as for those in pre-frail or robust condition, lacks nurses capable of identifying the profile and lifestyle of these patients. In order to early intervene in the problems associated with frailty, the FS care algorithm can be applied, aiming at seeking for autonomy, functionality and contributing to the improvement of health conditions.

Conclusion

It was revealed that 43.4% of the participants presented FS. When studying the profile of frail, pre-frail and robust older adults, the variables that were associated with FS were low education level, obesity, lack of physical activity, cognitive deficit, poor health self-perception, falls in the prior 12 months and morbidity, which guided the construction of the FS care algorithm.

This study contributes to nursing since it indicates the need to make a multidimensional evaluation of older adults and to implement specific care actions to minimize the effects of frailty and prevent the consequences of the syndrome.

Finally, it is expected that the care algorithm for the treatment of frailty in older adults can support a nursing care planning focused on the new demands related to aging, contributing to the promotion, prevention, treatment and rehabilitation of older adults and aiming to achieve their physical, mental and social well-being.

Collaborations

Llano PMP, Lange C, Nunes DP, Pastore CA, Pinto AH and Casagrande LP contributed with the design of the project, data analysis and interpretation, article writing, critical review of intellectual content and final approval of the version to be published.

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