

## Research Article

# Fragility Syndrome in the Elderly, Integrating Knowledge about Diagnostic Methods

**Renata Clemente dos Santos**

Department of Nursing, Federal University of Rio Grande do Norte – UFRN, Natal, Rio Grande do Norte, Brazil

**Jank Landy Simôa Almeida**

Department of Nursing, Federal University of Rio Grande do Norte – UFRN, Natal, Rio Grande do Norte, Brazil

**Rejane Maria de Paiva Menezes**

Health Care of the Federal University of Rio Grande do Norte UFRN/PPGENF, Brazil

**Ana Elisa Pereira Chaves**

Department of Nursing, Federal University of Rio Grande do Norte – UFRN, Natal, Rio Grande do Norte, Brazil

**Yanna Gomes de Sousa**

Department of Nursing, Federal University of Rio Grande do Norte – UFRN, Natal, Rio Grande do Norte, Brazil

**Soraya Maria de Medeiros**

Health Care of the Federal University of Rio Grande do Norte UFRN/PPGENF, Brazil

**Heloiza Talita Adriano da Silva**

Department of Nursing, Federal University of Rio Grande do Norte – UFRN, Natal, Rio Grande do Norte, Brazil

**Andrezza Oliveira Barros**

State University of Paraíba – UEPB, Campina Grande, Paraíba, Brazil

**Marcio Henrique Torquato**

Municipal Healthcare Service of Campina Grande, Campina Grande, Paraíba, Brazil

## ABSTRACT

**Objective:** Integrating knowledge on the diagnosis of the fragility syndrome in elderly, based on the scientific literature.

**Method:** Integrative review, carried out with documents of the Virtual Health Library database, using these keywords: "old", "weakness" and "syndrome"; and as selection criteria: full text available, study object limit: elderly and language: Portuguese.

**Results:** We count on 10 journals between 2008 and 2012. The prevalence of the method for diagnosis of Fragility Syndrome

is proposed by Linda Fied, written by physiotherapists and the most frequent subjects of study pointed out the rehabilitation of the elderly with the already installed syndrome.

**Conclusion:** The phenotype of Linda Fied is recognized as the most viable for the recognition of the fragility syndrome. Despite being an emerging theme, there was little interest of the areas beyond physiotherapy on the subject, as well as the search for prevention.

**Keywords:** Elderly; Fragility syndrome; Diagnosis

## Introduction

Aging is a fairly common phenomenon in reality that shapes our society; so for achieving comprehensive care for the elderly population, it is necessary that health care professionals are able to develop a more complete and holistic observation regarding some of this human being found in various process changes, whether physical, biological, social and psychological.

Currently in Brazil there are 20 million people aged over 60 years, equivalent to 10% of the population, and according to projections by the World Health Organization (WHO), between 1950 to 2025, there will be an increase of five times the total population and fifteen times the elderly population, and Brazil in 2025 will present about 32 million people aged over 60 years [1].

This stage of life can be understood as a natural process, in which there is a progressive decrease of the functional reserve of the individual, which is called senescence. Under normal conditions, this process develops without problems. However, some somatic conditions, such as chronic illness, injury and emotional stress can result in a pathological condition in the aging process, known as senility. It is worth noting that the process of senescence may have its effects minimized if the individual develops a more active lifestyle [2].

The Brazilian demographic profile develops faster and faster, resulting in a more aged population, which points to the need for adjustments in targeted social policies for this population, their health, welfare and social assistance [1].

It is shown a growing number of elderly in the three healthcare spheres, which have fragile features, prompting the

need for trained and qualified professionals for comprehensive care assistance. However it is a complex service, since most of the time it is necessary to have the presence of a family member to take responsibility for the care of the elderly, especially in the home environment [3].

The population aged above 80 years is classified as very old, and is presented in greater growth rate. This fact favors the possibility of arise of new health problems, and among these, one of the common conditions perceived is the fragility syndrome, which is presented with multidimensional causes (involving biological, psychological and social aspects), rendering the individual more vulnerable to the development of pathologies [4].

In this context, it is necessary to state that the weakness is understood as a syndrome resulting from decreased energy reserves and minimizing stress resilience. It is characterized by the presence of up to five components of a phenotype. The identification of two characteristics is indicative of high risk of fragility development and when a person has three or more characteristics, he/she is classified as elderly person with fragile syndrome already installed [2].

A coherent understanding of frailty in the elderly involves a wide thematic vision, since the physical and physiological changes concerning the theme promote modifications to this being within the family, causing them repercussions in their daily activities, as well as major impacts on their emotional and social relations. Therefore, it is of fundamental importance that this fragility and its representation is well understood by the healthcare professional, but mainly by the elderly who experience this process of embrittlement [5].

It is relevant, given what has been described, the development of criteria for establishing the diagnosis of frailty syndrome, then seeking prevention, postponement and mitigation of its consequences in the elderly.

Thus, the present study proposes to integrate knowledge about the diagnosis of the frailty syndrome in the elderly, based on scientific literature and characterization of journals that include the subject and professional researchers.

## Method

This is an integrative review study with a quantitative approach, developed from an online guiding protocol search for documents indexed in the Virtual Health Library (VHL), covering the six steps that comprise: elaboration of guiding question, design of the inclusion and exclusion criteria, election of databases and search of production, data analysis, results and discussion of the data and finally the presentation of the review [6].

The study presented as guiding question: What are the means presented in the literature for the diagnosis of the elderly fragility syndrome?

A search was performed in controlled pairs of articles indexed in the VHL in July 2014, using as descriptors and Boolean operators: "Senior" and "Frailty" and "Syndrome". The

population of the study was composed of 325 articles, resulting in 10 periodic samples from the applicability of inclusive criteria: Full text: Available (129); Threshold: Elderly (120) and Language: Portuguese (12); repeated documents and those not dealt directly on the object of study were also excluded from the sample (02). The journals that were not directly related to the present study objectives and whose reading of the titles and abstracts did not denote relationship between the research and the elected object, were excluded from the sample.

For data collection, it was elaborated an instrument to ensure the characterization of the journals with the following items: Year and magazine publishing periodicals, study subjects of each research, graduate researchers and the fragility diagnostic method adopted by each journal.

For the analysis of the sample methodology, an instrument was used seeking to reduce possible bias of the survey, offering greater reliability in the data, since it includes data evaluation of methodological rigor with the level of evidence for each item of the sample [6]. Thus, screened journals were classified according to these levels, ranging from I to VI in our sample, indicating higher frequency for level IV (non-experimental design as correlational and descriptive qualitative research or case studies), thus denoting different scientific methods to search for the 'Fragility Syndrome' object.

To the object discussion and analysis, it was chosen the scientific-descriptive inference based on the description of the data in tables: diagnosis; object of study and correlation of the journal, year of publication and professional researchers.

## Results and Discussion

Periodicals were coded and described in Table 1 according to the title, journal and year of publication, authors and formation of these.

Through the data presented, we can infer the existence of a rise in the number of publications on the theme proposed over the years, since only one paper was drafted in 2008, one in 2009, two in 2010, three in 2011 and three in 2012.

It is worth mentioning that the document selection method did not consider the time frame and the sample refers to articles that were published between 2008 and 2012. It encourages the understanding that the issue of fragility is new in the national scientific production and of great relevance to Public Health, since it identifies characteristics that can be recognized early, contributing to planning quality improvement actions of life for the population studied.

It shows that even the professionals who have proposed to study the issue of fragility in the elderly were physiotherapists (90%), with the highest number of publications targeted to specific magazines of their vocational training (20%). Such information may be directly related to the fact that the phenotypes of weakness are associated with the motor function of the individual, the field of physical therapy practice area for the prevention, treatment and rehabilitation [7].

Paradoxically we see the lack of studies on this theme,

**Table 1:** Characterization of the sample according to the title, journal, year and graduation.

Code	Article Title	Journals	Graduation
A1	Fragility syndrome in the Community Elderly with Osteoarthritis	Brazilian Journal of Rheumatology	Physiotherapist and Radiologist
A2	Biological Frailty Syndrome in the elderly: A systematic review	Salud pública Journal	Physical Educator
A3	Does Fragility Syndrome increase the susceptibility to mechanical ventilation?	Medicine (Ribeirão Preto)	Physiotherapist and Pulmonologist
A4	Fragility syndrome related to functional disability in the elderly	Acta Paul Enferm	Physiotherapist and Pulmonologist
A5	Resisted exercise in frail elderly people: A literature review	Fisioter Mov	Physiotherapist, Medical and Biomedical
A6	Assessment of the level of frailty in the elderly participants of a social group	Physiotherapy and Research	Physiotherapist
A7	Effect of a muscular endurance program on functional capacity and muscle strength of knee extensors in Community pre-frail elderly: Randomized clinical trial of cross-over type	Brazilian Journal of Physiotherapy	Physiotherapist
A8	Evaluation of fragility, functionality and fear of falling in elderly in an outpatient service of Geriatrics and Gerontology	Physiotherapy and research	Physiotherapist
A9	Factors associated with changes in speed and manual grip strength for institutionalized elderly	Brazilian Journal of Geriatrics and Gerontology	Physiotherapist
A10	Fragility syndrome in the elderly: Importance of Physical therapy	Brazilian Archives of Health Science	Physiotherapist

Source: Research data, 2014

**Table 2:** Diagnostic methods for the Fragility syndrome and study objects of the sample.

Codes	Diagnostics	Object
A1	Linda Fried Method	Community Elderly with Osteoarthritis
A2	Linda Fried Method	Biological fragility in the elderly
A3	Linda Fried Method	Fragility and mechanical ventilation
A4	Linda Fried Method	Fragility and functional disability in the elderly
A5	Linda Fried Method	Resisted exercise in elderly
A6	Linda Fried Method	Level of frailty in the elderly participants of a social group
A7	Linda Fried Method	Muscular endurance program on functional capacity and muscle strength of knee extensors in community pre-frail elderly
A8	Linda Fried Method	Evaluation of fragility, functionality and elderly's fear of falling
A9	Linda Fried Method	Changes in speed and manual grip strength for institutionalized elderly
A10	Linda Fried Method	Physiotherapy importance in fragile elderly

Source: Research data, 2014

developed by other professionals from other fields of knowledge in the health sector. It denotes the need for research on the care of not frail elderly, aimed at preventing the onset of the syndrome; as well as in relation to the pre-frail and already fragile elderly, aimed at minimizing the harmful impacts of the health condition of them. So it is possible to identify the need for enhancement of health educator, protagonist in providing proposals which are aimed at preventing the process of weakening of the elderly.

Frailty is not derived exclusively from aging, but is directly related to advancing age, since it is associated with the presence of chronic diseases that are common with aging, but that does not present great lethality [8]. From this assumption, it is necessary to consider the importance of defining the diagnosis of such syndrome. Table 2 shows the main diagnostic methods demonstrated in the sample articles and their subjects.

It is noteworthy that in all periodicals (100%) of the sample, the preferred method for characterizing the diagnosis of frailty syndrome is proposed by Linda Fried. This indicates the fragility through rapid tests using features in its phenotype: decreased pinch strength in the dominant hand, decreased walking speed, loss of unintentional weight, self-reported fatigue and reduced physical activity. Older people classified as vulnerable are those with three or more phenotypes; pre-brittle have two or one of them; and those who do not show weakness presents none of the mentioned phenotypes.

A greater number of journals were observed having as theme to research the elderly and the installed fragility. Table 1 reports such evidence, with a predominant profile of physiotherapists who wrote journals related to the frailty syndrome in the elderly and bone-joint / muscle conditions. This fact can be explained

considering that the science of physical therapy focuses its analysis on the assessment of movement and posture of an individual according to his/her structure and physiology, using education and specific therapies, seeking to achieve maximum functionality of the patient, improving his/her quality of life [7].

Only 10% (one) of the periodic had as object of study the functional capacity of the elderly muscles related to pre-frail elderly. Whereas all items described brittleness according to the phenotype proposed by Linda Fried, she considers pre-fragile elderly those who do not have already installed fragility syndrome, but present potential risk of developing it, since it is classified as pre-brittle when she/he presents one or two of the five previously described phenotypes [9].

It is also evident that none of the periodic highlights the importance of the fragility theme as a syndrome that can be prevented; a fact that reveals data of great importance, considering that the prevention of the problem is considered more effective than the reversal of its situation, once installed [10,11].

### Conclusion

The research elucidated through literature the national scientific production of health professionals about the fragility syndrome diagnosis for elderly, featuring the professional researchers, the study objects and describing the periodicals that have appreciated the publication of information on the subject.

Screening documents for research has not involved a time frame after the use of descriptors, and yet the sample presented was small, which denotes the lack of studies that value the relationship between elderly people/fragility and methods that work with the diagnosis of this syndrome.

Regarding the diagnostic form of the fragility syndrome, all journals highlight the method proposed by Linda Fried, which proposes five phenotypic characterization of the embrittlement process in order to sort the elderly as non-fragile - when they do not present any of the five phenotypes- as pre-fragile - when they present one or two phenotypes - and with the syndrome (fragile) already installed - when they develop three or more characteristics in their phenotype.

We stress that the professionals who most showed interest in studies with the proposed theme were physiotherapists, and this fact can be associated with the activities developed by this class of professionals, considering that much of the phenotype that is associated with embrittlement is correlated with the synergism of the body. This description refers to the lack of interest of other professionals in relation to studies related to the theme, emphasizing prevention, promotion and rehabilitation of the health of elderly people, when already compromised.

It was evident that most research sought to enhance strategies for minimizing the impacts of frailty in the elderly person, at the expense of concept that this syndrome is a physiological dysfunction process that can be prevented through actions that have the focus on preventive health education.

It is believed that this research can stimulate other healthcare professionals in the development of studies on the process of weakening of the elderly population, aimed at early detection of phenotypes that characterize it.

### REFERENCES

1. Ministério da Saúde. Envelhecimento e Saúde da Pessoa Idosa. Cadernos de Atenção Básica. Ministério da Saúde, Brasília 2007; 192.
2. Ministério da Saúde. Atenção à Saúde da Pessoa Idosa e Envelhecimento. Pactos pela Saúde. Ministério da Saúde, Brasília 2006; 46.
3. Oliveira LPBA, Menezes RMP. Representações da fragilidade para idosos no contexto da estratégia saúde da família. *Texto contexto-enferm* 2011; 20: 301-309.
4. Camarano AA. Envelhecimento da população brasileira: Uma contribuição demográfica. *Tratado de Geriatria e Gerontologia*. Guanabara Koogan, Rio de Janeiro 2006.
5. Oliveira RCC de, Sá LD de, Silva AO, Vianna RPTV de, Lima ASL, et al. Representações sociais sobre saúde doença construídas por índios potiguaras. *J Nurs UFPE online* 2014; 8: 273-245.
6. Souza MT, Silva MD, Carvalho R. Revisão integrativa: O que é e como fazer. *Einstein* 2010; 8: 102-106.
7. Soba F. *Mexa-se: Atividade física, saúde e bem-estar*. Phorte editora, São Paulo 2008.
8. Macedo C, Gazzola JM, Najas M. Síndrome da fragilidade no idoso: Importância da fisioterapia. *Arquivos Brasileiros de Ciências da Saúde* 2008; 33: 177-184.
9. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, et al. Frailty in older adults: Evidence of a Phenotype. *J Gerontol Med Sci* 2001; 56: 146-156.
10. Fried LP, Ferrucci L, Darer J, Williamson JD, Anderson G. Untangling the concepts of disability, frailty and comorbidity: Implications for improved targeting and care. *J Gerontol A Biol Sci Med Sci* 2004; 59: 255-263.
11. Batista FS, Gomes GAO, Neri AL, Guariento ME, Cintra FA, et al. Relationship between lower-limb muscle strength and frailty among elderly people. *São Paulo Med J* 2012; 130: 102-108.

### ADDRESS FOR CORRESPONDENCE:

Yanna Gomes de Sousa, Department of Nursing, Federal University of Rio Grande do Norte – UFRN, Natal, Rio Grande do Norte, Brazil; Tel: (83) 9904-7686; E-mail: yanna\_gomes@yahoo.com.br