

## Quality of life and frailty among hospitalized elderly patients

Pedro Martins Faria<sup>1</sup>, Flavia Aparecida Dias<sup>2</sup>, Nayara Paula Fernandes Martins Molina<sup>3</sup>,  
Janaína Santos Nascimento<sup>4</sup>, Darlene Mara dos Santos Tavares<sup>5</sup>

<sup>1</sup> Nurse. Nurse at Hospital São Francisco. Ribeirão Preto, SP, Brazil. E-mail: [pedromartinsfaria@hotmail.com](mailto:pedromartinsfaria@hotmail.com).

<sup>2</sup> Nurse, Master of Health Care. PhD student of the Graduate Program in Health Care – *Stricto sensu*, Federal University of Triângulo Mineiro. Uberaba, MG, Brazil. E-mail: [flaviadias\\_ura@yahoo.com.br](mailto:flaviadias_ura@yahoo.com.br).

<sup>3</sup> Nurse, Master of Health Care. PhD student of the Graduate Program in Health Care – *Stricto sensu*, Federal University of Triângulo Mineiro. Uberaba, MG, Brazil. E-mail: [nayara.pfmartins@gmail.com](mailto:nayara.pfmartins@gmail.com).

<sup>4</sup> Occupational Therapist, Master of Health Care. PhD student of the Graduate Program in Medical Sciences, State University of Rio de Janeiro. Assistant Professor of the Federal University of Rio de Janeiro. Rio de Janeiro, RJ, Brazil. E-mail: [jananascimento.to@gmail.com](mailto:jananascimento.to@gmail.com).

<sup>5</sup> Nurse, PhD in Nursing. Associate Professor of the Federal University of Triângulo Mineiro. Uberaba, MG, Brazil. E-mail: [darlenetavares@enfermagem.uftm.edu.br](mailto:darlenetavares@enfermagem.uftm.edu.br).

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### ABSTRACT

The aim of this study was to compare the quality of life of hospitalized elderly patients according to the frailty status. An observational, analytical, cross-sectional study was conducted with 255 elderly patients in a city in the state of Minas Gerais. Fried frailty phenotype, WHOQOL-BREF, WHOQOL-OLD, and a structured instrument were used for socioeconomic and clinical data. Descriptive analysis and ANOVA-F test ( $p < 0.05$ ) were conducted. Regardless of the frailty status, a prevalence of male patients, 60–70 years old, married, living with a partner, and with individual income of one minimum wage was observed. In relation to education, a prevalence of 1–4 years of education was observed among the frail patients; for pre-frail and non-frail patients this number increases to 4–8 years. Frail patients presented: significantly lower scores in the physical and environmental domains and social participation facet in comparison to the others, and significantly lower score in sensory functioning in relation to pre-frail patients. This study emphasizes the importance of directing actions in health to the most affected items among frail patients.

**Descriptors:** Quality of Life; Frail Elderly; Hospitalization.

### INTRODUCTION

The elderly population has been growing fast in Brazil over the last few years<sup>(1)</sup>. In this scenario, a series of conditions may generate adverse health events, including frailty, defined as “a biological

syndrome that leads to decreased reserve and resistance to stressors, resulting from cumulative declines

across multiple physiologic systems and causing vulnerability and adverse outcomes”<sup>(2)</sup>. There are few Brazilian studies approaching frailty in elderly patients in the hospital environment. A study conducted in a hospital in Passo Fundo, in the state of Rio Grande do Sul showed that the prevalence of frail elderly patients represented 46.5%, while pre-frail patients represented 49.5%<sup>(3)</sup>. A study conducted in Ribeirão Preto, in the state of São Paulo, evidenced that 95.0% of the hospitalized elderly patients were frail<sup>(4)</sup>. Abroad, a study conducted in India in accordance with the criteria proposed by Fried showed that 33.2% of the hospitalized elderly patients were frail and 66.8% were non-frail<sup>(5)</sup>.

The possible adverse outcomes resulting from frailty may impair the quality of life of elderly patients<sup>(6)</sup>. Furthermore, these outcomes may be aggravated and triggered by the hospitalization process. A study conducted in a hospital in the United States found that frail elderly patients presented low quality of life in the mental and physical domains of the Short Form-36 (SF-36) questionnaire in comparison to pre-frail and non-frail patients<sup>(6)</sup>.

The literature also includes research describing the adverse influence of the frailty syndrome on the quality of life of elderly patients under primary health care<sup>(7)</sup> and on those hospitalized with specific conditions, such as acute coronary syndrome<sup>(8)</sup> and heart failure<sup>(9)</sup>. It is important to emphasize that frail elderly patients present higher risk of adverse health outcomes<sup>(2)</sup>, reinforcing the need for further investigations on the theme, enabling an increase in the knowledge on the relationship of frailty to quality of life in hospitalized elderly patients, regardless of their clinical condition. It is also necessary to support the process of implementation of the diagnosis and specific interventions with this population. The present study adopted the concept of quality of life of the World Health Organization, that is: “individual’s perceptions of their position in life in the context of the culture and value system where they live, and in relation to their goals, expectations, standards and concerns”<sup>(10)</sup>.

Thus, the aim of this study was to compare the quality of life of hospitalized elderly individuals according to their frailty status (frail, pre-frail, and non-frail).

## METHODS

Quantitative, cross-sectional research with an observational approach conducted in the medical and surgical clinics of a teaching hospital in a city of the state of Minas Gerais. The prevalence of 30% of frailty individuals among the elderly patients was considered for the sample size taking into account other studies with elderly patients in hospital environment (33.2%)<sup>(5)</sup> (37%)<sup>(11)</sup>. With accuracy of 5% and confidence interval of 95% for a finite population of 1,455 eligible elderly individuals, the sample included 255 elderly individuals. The recruitment process was performed by systematic random sampling with interval of  $k=2$ .

Elderly individuals aged 60 years or older presenting no cognitive impairment were included in the sample. Those presenting restrictions to walk after surgery were interviewed on the next day. Exclusion criteria included: elderly individuals presenting severe sequelae of cerebrovascular accident with localized loss of strength and aphasia; unstable or late stage Parkinson’s disease with association of severe impairment

of the motricity, speech, or affection that prevented the execution of the assessments; those in terminal stage and with severe deficit of vision and hearing, re-hospitalized patients who had already been interviewed during their first hospitalization, and those with restrictions to walk and talk.

Data were collected from April 2013 to March 2014, approaching 445 elderly individuals. A total of 255 elderly patients were interviewed; of these, 97 were hospitalized in the medical clinics and 158 in the surgical clinics. The others did not participate in the sample due to: refusal (75), cognitive impairment (101), and other reasons (14).

The selected interviewers had previous experience in data collection and were trained as regards the technical and ethical aspects of the research. A research assistant was also present; he was the responsible for the trial of the elderly patients and the supervision of the interviewers during data collection.

The Mini-Mental State Evaluation (MMSE)<sup>(12)</sup> was applied prior to the interview with the following cut-off point for cognitive impairment: 13 points for illiterates, 18 points or less for those with 1 to 11 years of formal education, and 26 points for more than 11 years of formal education<sup>(12)</sup>.

A structured instrument developed by the Collective Health Research Group of the Federal University of the Triângulo Mineiro was used for data collection and self-reported morbidities. Two instruments were used to assess quality of life: a generic questionnaire, named World Health Organization Quality of Life – BREF (WHOQOL-BREF) validated in Brazil, consisting in four domains (physical, psychological, social relationships, environment)<sup>(13)</sup>, and a specific one for elderly patients, named World Health Organization Quality of Life Assessment for Older Adults (WHOQOL-OLD) adapted to Brazil and consisting in six facets (sensory abilities; autonomy; past, present, and future activities; social participation; death and dying, and intimacy)<sup>(14)</sup>.

The frailty syndrome was identified by means of the five components of the phenotype of frailty proposed by Fried et al.<sup>(2)</sup>, as follows: unintentional weight loss; muscle strength: verified based on three measurements in the grip strength; self-reported exhaustion<sup>(15)</sup>; walking speed (in seconds) to walk 4.6 meters; level of physical activity<sup>(16)</sup>. The elderly were classified as active when they spent 150 minutes or more in physical activities per week, and as inactive when they performed between 0 and 149 minutes of physical activities per week according to the guidelines of the American Heart Association and American College of Sports Medicine<sup>(17)</sup>. Elderly patients were classified as frail when presenting three or more items; pre-frail when presenting one or two items; and non-frail or vigorous when they presented none of the items<sup>(2)</sup>. The studied variables were: sex, age group, marital status, home arrangement, education, monthly individual income, frailty, and quality of life.

Data were processed in the computer in a double-entry Excel<sup>®</sup> spreadsheet. At the end the consistency between both the databases was verified, followed by the correction based on the original interview, when necessary.

Frequency distribution was used for the descriptive analysis, and the ANOVA-F test was used for comparison of the variables of interest, with level of significance ( $\alpha$ ) of 5% and the tests deemed significant

when  $p < \alpha$ . Each domain of the WHOQOL-BREF and facet of the WHOQOL-OLD were separately analyzed with the respective syntaxes. The score ranges from 0 to 100; where higher numbers correspond to the best quality of life.

This project was approved by the Research Ethics Committee of the Federal University of the Triângulo Mineiro, under protocol number 2,511. The interview was conducted upon signature by the elderly of a free and informed consent form.

## RESULTS

The present study identified 26.3% of the elderly as frail, 53.3% as pre-frail, and 20.4% as non-frail.

Prevalence of male (50.7%, 64%, 67.3%), 60–70 years (52.2%, 61.8%, 73.1%), married or living with a partner (47.8%, 67.6%, 61.5%), co-habiting the same house with other person(s) (83.6%, 86.8%, 80.8%) and with individual income of one minimum wage (64.2%, 55.9%, 48.1%) was observed in all three groups (frail, pre-frail, and non-frail, respectively); for education, predominance of 1–4 years of formal education (32.8%) was verified among the frail, and 4–8 years among the pre-frail (37.5%) and non-frail (38.5%).

Either good or poor quality of life was reported by the frail elderly patients (43.3%); good quality of life was reported by pre-frail (48.5%) and non-frail (59.6%). In all three groups the elderly were found to be satisfied with their own health, representing 38.8% among the frail, 44.4% among the pre-frail, and 53.8% for non-frail patients.

Frail elderly patients presented significantly lower mean scores in the physical ( $p < 0.001$ ) and environmental ( $p = 0.001$ ) domains in comparison to pre-frail and non-frail patients (Table 1).

Although the ANOVA-F test was statistically significant ( $p = 0.044$ ) in the psychological domain, in which the frail obtained lower scores, multiple comparisons did not indicate differences among the mean scores of the groups defined in the study (Table 1).

Frail elderly patients presented a lower mean score in sensory abilities in comparison to pre-frail ( $p = 0.030$ ). In social participation, frail patients obtained significantly lower mean scores in comparison to pre-frail and non-frail ( $p < 0.001$ ) (Table 1).

**Table 1.** Distribution of the scores of the WHOQOL-BREF domains and the WHOQOL-OLD facets according to the frailty status of 255 elderly patients hospitalized in a public hospital. Uberaba, MG, Brazil, 2014.

Variables	Frail		Pre-frail		Non-frail		F	p
	Mean	SD	Mean	SD	Mean	SD		
<b>WHOQOL-BREF</b>								
Physical	47.55	16.54	59.69	14.97	62.16	12.64	18.639	<0.001
Psychological	63.12	18.05	67.37	13.59	69.55	11.68	3.167	0.044
Social relationships	70.02	18.12	74.45	15.29	71.47	13.03	1.981	0.140
Environmental	55.69	13.61	62.27	11.63	62.14	11.69	7.119	0.001
<b>WHOQOL-OLD</b>								
Sensory abilities	60.35	23.78	68.61	22.46	69.95	22.89	3.572	0.030
Autonomy	61.38	15.73	64.75	16.56	66.59	13.44	1.752	0.175
Past, present, and future activities	69.59	12.35	71.05	16.80	68.63	15.23	0.526	0.591
Social participation	57.00	16.87	66.08	15.55	67.31	12.04	9.525	<0.001
Death and dying	70.24	26.38	71.60	26.48	70.79	26.13	0.063	0.939
Intimacy	71.92	20.60	73.53	19.65	67.19	19.56	1.914	0.150

## DISCUSSION

The prevalence of the frailty status in this investigation was lower than the results found in a Brazilian hospital in Passo Fundo, in relation to frail (46.5%), and similar in relation to pre-frail (49.5%)<sup>(3)</sup>. One of the causes for the discrepancy in relation to frail patients may be related to the fact that the study in Passo Fundo approached elderly individuals aged 65 and above, as well as possible regional differences.

In comparison to international studies, the percentages were similar in studies with frail and pre-frail individuals in a hospital in Belgium (32.3% and 52%, respectively)<sup>(18)</sup> and United States (21.5% and 54.7%, respectively)<sup>(6)</sup>. This fact may be expressing the similarity in the profile of the elderly and/or methods of inclusion of the present study with international investigations. Thus, this condition must be monitored in health services in the several levels of care and preventive activities must be developed.

In view of these data, multidisciplinary health teams need to coordinate efforts in all levels of care in order to enable the early detection of the signs of frailty and design interventions to minimize its incidence.

Regardless of their frailty status, there was a prevalence of men in the sample, similarly to a study with hospitalized elderly patients in Ribeirão Preto (60.7%)<sup>(4)</sup>. However, an investigation conducted with elderly patients in Passo Fundo pointed out the prevalence of women (50.5%)<sup>(3)</sup>. The prevalence of male patients may be related to the fact that men tend to be more careless about their own health<sup>(19)</sup>, becoming more susceptible to hospitalizations due to possible complications in their health condition.

Prevalence of younger elderly patients was observed in relation to age, regardless of the frailty status. A national study with hospitalized elderly individuals pointed out the prevalence of the age group between 70 – 79 years for mild frailty and 80 years or more for severe frailty<sup>(4)</sup>. However, a higher percentage of frail elderly patients was observed in the older age groups.

It is known that over the years the elderly present physiological changes due to aging, which make them more susceptible to the development of comorbidities and impairment of physical abilities<sup>(5-6)</sup>; this has been associated with the frailty syndrome<sup>(2)</sup>, and may explain the data of the present study. Thus, during the hospitalization process nurses should work in the identification and prevention of clinical manifestations and

possible injuries among the elderly, especially among the youngest ones.

The prevalence of married patients, regardless of the frailty status, corroborates a hospital study conducted in Ribeirão Preto<sup>(4)</sup>. The relevant percentage of widowed subjects among the frail group also consists in an important fact in the present study. The death of the spouse often creates stress and affliction to the elderly<sup>(20)</sup>, enabling the appearance of negative consequences to their physical aspect and leading to a higher propensity to morbidities. This could favor the frailty process<sup>(3,21)</sup>. Given this scenario, the present study points out the importance of social support by family, friends or groups, and the multidisciplinary health team. In this sense, it is important that health professionals be able to identify the elderly support network, especially for those without a partner.

In relation to household arrangements, although most of them lived with someone, it is important to highlight the percentage of elderly patients that lived alone and were in frailty or pre-frailty situation. This scenario may impose greater difficulties to the elderly in the performance of their daily activities and in the care of their health. Therefore, the present study emphasizes the need for tracking by the health units in order to perform activities directed to follow-ups, as well as the search for strategies of social support.

In relation to education, the data of the present study are consistent with the investigation conducted with elderly patients hospitalized in Passo Fundo, where regardless of the level of frailty, a prevalence of literate elderly patients was observed<sup>(3)</sup>. It is important to mention that this study points out a higher percentage of frail patients among illiterate elderly patients. Although this does not explain the result, it is expected that elderly patients with higher educational levels have more access to information and health services, items that may contribute in the maintenance of their health, possibly minimizing the incidence of frailty.

Higher incomes among the non-frailty group is not consistent with the study conducted in a hospital of Passo Fundo, which found higher incomes among the frail patients<sup>(3)</sup>. Higher incomes may propitiate a better perception for preventive care and self-care<sup>(3)</sup>. On the other hand, lower incomes may undermine access of the elderly to health services, contributing to the maximization of injuries and consequent frailty process.

The prevalence of the report of either good or poor quality of life among the frail, and good among pre-frail and non-frail, may be related to the fact that frail elderly presented worst levels of health, income, nutrition, less positive feelings, and poor health self-assessment<sup>(22)</sup>.

The lower level of satisfaction of frail patients with their own health is consistent with the investigation conducted in Ribeirão Preto, in which the elderly patients reported their health condition to be poor<sup>(4)</sup>. The lower rate of satisfaction with their own health among the frail in comparison to pre-frail and non-frail may be associated with a higher level of impairment of body functions<sup>(2)</sup>, with a negative effect on the health self-assessment.

The lower scores of quality of life in the physical domain among the frail are similar to the results found in a study in the United States with the use of the SF-36<sup>(6)</sup>. This finding may be explained by the fact that frail

elderly patients are more susceptible to adverse events in their health<sup>(2)</sup>, contributing to pain and discomfort<sup>(13)</sup>, measured in this domain. In addition, the possible higher development of comorbidities<sup>(3)</sup> favors the dependence of drugs and treatments. Furthermore, this study points out that hospitalization contributes to pain, fatigue, and decrease in the sleep quality of the elderly due to the excessive lighting while receiving nursing care<sup>(19)</sup>, possibly negatively affecting their quality of life, especially for those with worst health conditions.

In this context, it is important to reflect on the role of the nursing team in the control and assessment of pain, as well as provide resources for the medical staff to determine the appropriate treatment for relief. Also, this study suggests that care planning, particularly in the night shift, may contribute for the hospitalized individual to maintain sleep quality.

In the psychological domain frail patients presented lower scores of quality of life, corroborating a study conducted in the United States that verified worse scores related to mental behavior among the elderly<sup>(6)</sup>. This fact may be related to depressive symptoms that tend to be more frequent among the frail, negatively affecting their psychological status<sup>(18)</sup>. Another factor that may have an impact on this domain of quality of life regards the worst scores in the physical aspect, which could contribute to the appearance of negative feelings related to their health condition.

Moreover, considering that this domain assesses spirituality, religiosity, and personal beliefs, it includes the possibility for professionals to identify these aspects in an ethical and respectful manner, as they can contribute for coping with the illness process and for the changes generated by the hospitalization<sup>(23)</sup>. In view of this, health professionals should provide care to these elderly patients beyond the clinical manifestations and related to the hospitalization. Emotional implications and the negative feelings related to this process should also be considered. In addition, when it is possible, the support and participation of the family and friends as a means of support should be encouraged, as they contribute to the adaptation of the elderly to the hospital routine and to the process of coping with hospitalization<sup>(23)</sup>.

Regarding the environmental domain, it is inferred that the process of hospitalization may affect physical security, protection, and participation and opportunity for recreation/leisure<sup>(13)</sup>, items assessed in this domain. Thus, due to worst physical conditions, frail elderly patients suffer a higher impact on these aspects. It is important that the nursing team offer individualized support taking into account the specificities<sup>(23)</sup> of the elderly so that they feel protected and safe.

The development of recreational activities that may be executed in the hospital and that are interesting for the elderly is recommended, prioritizing those that may be performed at home after discharge.

The lower mean value found in the facet sensory abilities among the frail corroborates data of a study with elderly patients in communities in Mexico<sup>(24)</sup>, which found worst levels of hearing and visual acuity related to frailty. A higher prevalence of hearing impairment was found among the oldest individuals as well as among those presenting visual impairment<sup>(25)</sup>. This fact may have contributed to the present result,

considering that the higher proportion of older elderly individuals was among the frail ones in this study.

The lowest score of quality of life in the facet social participation for frail patients is consistent with a hospital study in the United States<sup>(6)</sup>. The lower physical capacity and worst sensory ability of the frail may limit their participation in activities. In this context, the health team should identify the preferences of the elderly according to physical and sensory disabilities, as well as use the existing options within the hospital, such as recreational spaces and ecumenical rooms. Thus, interaction with health professionals, family, and other hospitalized individuals may be encouraged, favoring the expansion of social activities and affecting quality of life positively.

## CONCLUSION

Frail elderly patients presented significantly lower scores of quality of life in the several domains and facets of the instruments used. In this perspective, health strategies directed to the most affected items among those presenting frailty may be rethought.

Its cross-sectional design represents a limitation of the present study, as it disables the introduction of causality between quality of life and the frailty syndrome, therefore suggesting further studies with different reports. It is also important to note that the use of a specific instrument for this age group comprises aspects that are consistent with the concept of quality of life designed for this population and that were not included in previous national and international investigations, thus making it difficult to discuss the results.

It is believed that the present investigation contributes to a reflection on the factors that affect quality of life according to the frailty status, creating resources for the design and implementation of care strategies to minimize such impact.

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