

# FRAILITY, DEPRESSIVE SYMPTOMS, AND QUALITY OF LIFE: A STUDY WITH INSTITUTIONALIZED OLDER PEOPLE

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## FRAGILIDADE, SINTOMAS DEPRESSIVOS E QUALIDADE DE VIDA: UM ESTUDO COM IDOSOS INSTITUCIONALIZADOS

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## FRAGILIDAD, SÍNTOMAS DEPRESIVOS Y CALIDAD DE VIDA: ESTUDIO CON ANCIANOS INSTITUCIONALIZADOS

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**Objective:** to assess the relationship between frailty, depressive symptoms, and quality of life of institutionalized older people. **Methods:** Descriptive, correlational, and cross-sectional study. Forty-two institutionalized older people were assessed from September to December, 2016, using a questionnaire for characterization, the Tilburg Frailty Indicator, the Geriatric Depression Scale with 15 questions, and the Quality of Life Scales for Nursing Home Residents. **Results:** older women (57.1%) with a mean age of 77.4 years (SD=9.8), frail (57.1%), with no depressive symptoms (51.7%) were predominant. Non-frail older people showed better perception of quality of life in seven domains of the tool used for the assessment. A moderately, statistically significant, and negative correlation was found between depressive symptoms and five domains of the quality of life tool. There was a correlation between frailty and depressive symptoms ( $p=0.008$ ). **Conclusion:** institutionalized frail older people with depressive symptoms showed the worst quality of life perception.

**Descriptors:** Frail Elderly. Depression. Quality of Life. Institutionalization. Geriatric Nursing.

*Objetivo: analisar a relação entre fragilidade, sintomas depressivos e qualidade de vida de idosos institucionalizados. Métodos: estudo descritivo, correlacional, de corte transversal. Foram avaliados 42 idosos institucionalizados, de setembro a dezembro de 2016, utilizando-se questionário para caracterização, Tilburg Frailty Indicator, Escala de Depressão Geriátrica com 15 questões e Quality of Life Scales for Nursing Home Residents. Resultados: predominaram*

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*idosos do gênero feminino (57,1%), com média de idade de 77,4 anos (dp=9,8), frágeis (57,1%), sem sintomas depressivos (57,1%). Idosos não frágeis apresentaram melhor percepção da qualidade de vida em sete domínios do instrumento utilizado para avaliação. Houve correlação negativa, de moderada magnitude e estatisticamente significativa entre sintomas depressivos e cinco domínios do instrumento de qualidade de vida. Verificou-se correlação entre fragilidade e sintomas depressivos (p=0,008). Conclusão: idosos institucionalizados frágeis e com sintomas depressivos apresentaram pior percepção de qualidade de vida.*

*Descritores: Idoso Fragilizado. Depressão. Qualidade de Vida. Institucionalização. Enfermagem Geriátrica.*

*Objetivo: analizar la relación entre fragilidad, síntomas depresivos y calidad de vida de ancianos institucionalizados. Métodos: estudio descriptivo, correlacional, de corte transversal. Se evaluaron 42 ancianos institucionalizados, de septiembre a diciembre de 2016, utilizándose cuestionario para caracterización, Tilburg Frailty Indicator, Escala de Depresión Geriátrica con 15 preguntas y Quality of Life Scales for Nursing Home Residents. Resultados: predominaron ancianos del género femenino (57,1%), con promedio de edad de 77,4 años (dp=9,8), frágiles (57,1%), sin síntomas depresivos (57,1%). Ancianos no frágiles presentaron mejor percepción de la calidad de vida en siete ámbitos del instrumento utilizado para evaluación. Hubo correlación negativa, de moderada magnitud y estadísticamente significativa entre síntomas depresivos y cinco dominios del instrumento de calidad de vida. Se verificó correlación entre fragilidad y síntomas depresivos (p=0,008). Conclusión: ancianos institucionalizados frágiles y con síntomas depresivos presentaron peor percepción de calidad de vida.*

*Descriptores: Anciano Frágil. Depresión. Calidad de Vida. Institucionalización. Enfermería Geriátrica.*

## Introduction

Population aging is a worldwide phenomenon due to a decrease in mortality and fertility rates and an increase in life expectancy. Such reductions contribute to demographic transition, namely the change in the age structure of the population followed by a decline in population growth<sup>(1)</sup>.

Concomitantly to the demographic transition, there is also the presence of epidemiological transition characterized by a change in the disease scenario and more prevalent grievances. In the past, this pattern was related to infectious diseases; but chronic non-communicable diseases (CNCD) are currently the norm. In light of this context, the morbidity-mortality burden switches from the younger to the older age, causing a detrimental effect on their functional performance and the need for a caregiver<sup>(2)</sup>.

Culturally, it is the family that plays the caregiver role when older people need the most; however, the family members are not always apt to provide care to older people and face major challenges trying to fulfill this role<sup>(1)</sup>. As a result of the burden derived from care, which is aggravated by further development of functional disability, cognitive decline, CNCD imbalance,

and an increase in the level of dependency of older people, many families seek long-stay institutions (LSI). However, the present study found that, in the context of LSI, a small number of visitations from relatives and deprivation of contact with family members may have a negative impact on the quality of life of older people<sup>(3)</sup>.

Older people deprived of affective experiences with their family members may be predisposed to psychological vulnerability and, consequently, to the appearance of depressive symptoms. An older person with depressive symptoms may manifest a lack of appetite, chronic malnutrition, and physical inactivity, which increase the risk for developing frailty syndrome, including mortality<sup>(4)</sup>.

It is important to emphasize that, in the institutionalized scenario, the prevalence of frailty<sup>(5)</sup> and depressive symptoms<sup>(3-4)</sup> is high and may have a negative impact on the quality of life and well-being of older people.

Based on the above considerations, it is important and pertinent to study the existing relationship between frailty, depressive symptoms, and quality of life of institutionalized

older people in order to subsidize a qualify care plan in these institutions. In addition, breakthroughs at the national level on this subject among institutionalized older people are needed. Thus, the objective of this study is to analyze the relationship among frailty, depressive symptoms, and quality of life of institutionalized older people.

## Method

A descriptive, correlational, and cross-sectional study with a quantitative approach was carried out.

The current study took place in three LSIs in the interior of São Paulo state. These are philanthropic public-private institutions with physical structure to provide care to older adults in the three levels of dependency, according to the RDC n.283/05 MS/ANVISA<sup>(6)</sup>, which establishes the minimum operational standard for long-stay institutions. The institutions were intentionally selected based on their operating time and accessibility of those responsible for the completion of this study.

The total population of residents in the LSIs that participated in the current study consisted of 134 people aged 60 years or older. The selection of participants was intentional. In each one of the institutions, and based on the medical record of the residents, the technical staff (nurses) indicated those who met the following inclusion criteria: to have 60 years or older and to understand the interview questions. Older people with a medical diagnosis of Alzheimer's disease and other dementias met the study exclusion criteria, which were: having severe hearing and vision deficits that hamper communication; having moderate or severe dementia. Thus, the sample consisted of 42 older people.

The Resolution number 466/12 from the National Council of Health was complied with. The project was submitted and approved by the Research Ethics Committee of Federal University of São Carlos, under number 1.702.982, on August 30, 2016 (CAAE: 55339716.3.0000.5504).

Data collection took place once participants read and signed the informed consent form.

The older people were contacted individually in the LSI, where they reside, at the time when the research objectives, the volunteer nature of their participation, and the collected data confidentiality were presented, the moment when possible doubts were clarified as well. Subsequently, the invitation to participate in the research was made. After acceptance, the older people were taken to a private setting, where the reading and signing of the informed consent form were conducted. Later, an individual interview with the participants took place, lasting approximately one hour, for application of the assessment tools. Data were collected between September and December 2016.

Quality of life was assessed using the Quality of Life Scales for Nursing Home Residents (QoL-NHR), created by Roseline Kane in 2003<sup>(7)</sup>, translated and adapted by Oliveira<sup>(8)</sup> and validated for Brazil by one of the authors of the current study, with overall reliability scale of 0.900 by Cronbach's alpha. The tool consists of 54 items distributed into 11 domains: Comfort (C), Functional Competence (FC), Privacy (PRI), Dignity (DIG), Significant Activities (SA), Relationship (REL), Autonomy (AUT), Appreciation of Food (AF), Spiritual Well-Being (SWB), Safety (SEF), and Individuality (IND). The score varies from 3 to 24 points, applying the Likert scale of three – four – seven or eight options, according to the particularities of each mentioned domain. If the interviewee failed to provide an answer after three attempts, he/she would be requested to answer using just two options: "most of the time, yes" or "most of the time, no".

The screening of depressive symptoms was carried out using the Geriatric Depression Scale (GDS-15), validated for the Brazilian context<sup>(9)</sup>. It is a short version consisting of 15 questions. Its score varies from 0 to 15 points and is divided into three categories: normal, when the points are between 0 and 5; light depressive symptoms from 6 to 10 points; and severe depressive symptoms, from 11 to 15 points.

Frailty was assessed by the Tilburg Frailty Indicator (TFI), adapted and validated for the Brazilian context<sup>(10)</sup>. This indicator consists of 15 questions spread into three domains: physical (physical health, walking difficulties, unintentional weight loss, vision and hearing impairments, difficulties to maintain the balance, physical fatigue, and reduced grip force); social (feeling alone, living alone, and lack of social support); psychological (depressive symptoms, anxiety, cognitive deficit, and dealing with problems). Its score varies from 0 to 15 points; however, results equal or higher to 5 indicate frailty.

The data were processed and entered in an Excel 2016 spreadsheet, and analyzed with the Statistical Program for Social Sciences (SPSS) program, version 19.0.

Descriptive statistics were used to describe the sample profile. For the continuous variables, measures of position and dispersion (mean, standard deviation) were carried out. For the categorical variables, rate tables with absolute values (n) in percentage (%) were designed.

Using the Kolmogorov-Smirnov test, it was found a lack of normal distribution of the data, whereas non-parametric tests for analysis were applied.

The Mann-Whitney test was used to compare the means of the TFI domains in relation to the GDS-15 categories, and to compare the means of the QoL-NHR domains regarding frailty.

The Spearman's Correlation Coefficient was used to check the correlation between depressive symptoms and the QoL-NHR domains.

The statistical significance level of 5% ( $p \leq 0.05$ ) was adopted.

## Results

Forty-two institutionalized older people were assessed. Older women (57.1%), with a mean age of 77.4 years ( $SD=9.8$ ) were predominant. Most participants were frail (57.1%) and showed cognitive impairments (66.7%). Regarding depressive symptoms, 57.1% did not have them, 38.1% showed light depressive symptoms, and 4.8% had severe depressive symptoms, as shown in Table 1.

**Table 1** – Descriptive statistics of the data collected through interview with institutionalized older people classified by categories. São Carlos, São Paulo, Brazil – 2016 (N=42)

| Variables                         | Mean<br>( $\pm$ Standard<br>Deviation) | Median | Observed<br>Variation | n  | %    |
|-----------------------------------|--|--------|-----------------------|----|------|
| <b>Gender</b>                     |  |        |                       |    |      |
| Male                              |  |        |                       | 18 | 42.9 |
| Female                            |  |        |                       | 24 | 57.1 |
| <b>Age</b> (in years)             | 77.4( $\pm$ 9.8)                       | 79.0   | 60-96                 |    |      |
| <b>Tilburg Frailty Indicator</b>  |  |        |                       |    |      |
| Non-Frail                         |  |        |                       | 18 | 42.9 |
| Frail                             |  |        |                       | 24 | 57.1 |
| <b>Geriatric Depression Scale</b> |  |        |                       |    |      |
| No depressive symptoms            |  |        |                       | 24 | 57.1 |
| Light depressive symptoms         |  |        |                       | 16 | 38.1 |
| Severe depressive symptoms        |  |        |                       | 2  | 4.8  |

Source: Created by the authors.

It should be noted that the internal consistency of the TFI and GDS-15 were satisfactory, with Cronbach's alpha and Kuder Richardson values

– 20 of 0.70 and 0.749, respectively. Regarding the reliability of the QoL-NHR tool, the Cronbach' alpha values obtained by domain were: Comfort

(0.600), Functional Competence (0.870), Privacy (0.600), Dignity (0.772), Significant Activities (0.550), Spiritual Well-Being (0.700), Safety (0.500), and Individuality (0.713).

Tables 2a and 2b show the comparison of frailty in relation to the quality of life.

**Table 2a** – Comparison of the means of the quality of life domains, according to the levels of frailty. São Carlos, São Paulo, Brazil – 2016 (N=42)

| Frailty Levels  | Comfort      | Functional Competence | Privacy      | Dignity      | Significant Activities | Relationship |
|-----------------|--------------|-----------------------|--------------|--------------|------------------------|--------------|
| Non-frail       | 19.6         | 18.7                  | 17.8         | 19.5         | 23.7                   | 17.1         |
| Frail           | 15.5         | 14.2                  | 14.4         | 17.4         | 18.3                   | 15.2         |
| <i>p-value*</i> | <i>0.001</i> | <i>&lt;0.001</i>      | <i>0.002</i> | <i>0.004</i> | <i>0.593</i>           | <i>0.065</i> |

Source: Created by the authors.

\* Mann-Whitney test.

**Table 2b** – Comparison of the means of the quality of life tool domains, according to the levels of frailty. São Carlos, São Paulo, Brazil – 2016 (N=42)

| Frailty Levels  | Autonomy     | Appreciation of food | Spiritual Well-being | Safety       | Individuality |
|-----------------|--------------|----------------------|----------------------|--------------|---------------|
| Non-frail       | 14.8         | 9.7                  | 14.4                 | 16.6         | 22.3          |
| Frail           | 11.3         | 8.8                  | 13.5                 | 14.6         | 18.5          |
| <i>p-value*</i> | <i>0.002</i> | <i>0.237</i>         | <i>0.356</i>         | <i>0.019</i> | <i>0.001</i>  |

Source: Created by the authors.

\* Mann-Whitney test.

The perception of quality of life was better for non-frail older people in all domains of the tool, with statistical significance in the

comfort, functional competency, privacy, dignity, autonomy, safety, and individuality domains.

Tables 3a and 3b show the comparison of depressive symptoms related to quality of life.

**Table 3a** – Comparison of the means of the quality of life tool domains, according to the presence of depressive symptoms. São Carlos, São Paulo, Brazil – 2016 (N=42)

| Depressive symptoms | Comfort      | Functional competency | Privacy      | Dignity      | Activities   | Relationship |
|---------------------|--------------|-----------------------|--------------|--------------|--------------|--------------|
| r                   | -0.301       | -0.200                | -0.304       | -0.366       | -0.257       | -0.177       |
| <i>p-value*</i>     | <i>0.053</i> | <i>0.204</i>          | <i>0.051</i> | <i>0.017</i> | <i>0.101</i> | <i>0.462</i> |

Source: Created by the authors.

\*Spearman's Correlation Coefficient.

**Table 3b** – Comparison of the means of the quality of life tool domains, according to the presence of depressive symptoms. São Carlos, São Paulo, Brazil – 2016 (N=42)

| Depressive symptoms | Autonomy     | Appreciation of food | Spiritual well-being | Safety       | Individuality |
|---------------------|--------------|----------------------|----------------------|--------------|---------------|
| r                   | -0.343       | -0.267               | -0.385               | -0.432       | -0.321        |
| <i>p-value*</i>     | <i>0.026</i> | <i>0.087</i>         | <i>0.012</i>         | <i>0.004</i> | <i>0.038</i>  |

Source: Created by the authors.

\* Spearman's Correlation Coefficient.

There was a negative, moderate, and statistically significant correlation between the depressive symptoms and the dignity, autonomy, spiritual well-being, safety, and individuality domains. This means that fewer depressive

symptoms resulted in better quality of life for the institutionalized older people.

Table 4 shows the comparison of frailty related to depressive symptoms.

**Table 4** – Comparison of the means of the domains and the total of the Tilburg Frailty Indicator, according to the Geriatric Depression Scale categories. São Carlos, São Paulo, Brazil – 2016 (N=42)

| <b>TFI<br/>GDS - 15</b>  | <b>Physical<br/>domain</b> | <b>Psychological<br/>domain</b> | <b>Social domain</b> | <b>Total</b> |
|--------------------------|----------------------------|---------------------------------|----------------------|--------------|
| No depressive symptoms   | 2.2                        | 1.0                             | 1.0                  | 4.2          |
| With depressive symptoms | 3.3                        | 1.8                             | 1.3                  | 6.5          |
| <i>p-value*</i>          | <i>0.011</i>               | <i>0.038</i>                    | 0.191                | <i>0.008</i> |

Source: Created by the authors.

\* Mann-Whitney test.

A correlation between frailty and depressive symptoms ( $p=0.008$ ) was found. Older people with depressive symptoms showed higher mean scores in all TFI domains, with statistical significance in the total TFI and in the physical and psychological domains.

## Discussion

Among the institutionalized older people, women with advanced age were predominant. Similar data were found in both Brazilian<sup>(11)</sup> and international<sup>(12)</sup> literature. This happens because, in most cases, women remain alone when they become widowed, while men tend to marry again. In addition, men die younger because of higher exposure to violence and the adoption of a less healthy lifestyle. This whole scenario confirmed the feminization of aging, in which women constitute the majority of the older population in several contexts and in Brazilian regions and worldwide<sup>(1)</sup>.

Despite longevity being taken as a positive factor, due to the capacity of humans to live longer, it is important to understand that, for women, this greater life expectancy brings positive and negative impacts, such as biological (hormonal imbalance), environmental (lifestyle, poverty, poor education, and social isolation), and historical pathological factors, besides differences in availability of opportunities

between men and women which adversely affect older women throughout their lives<sup>(13)</sup>.

The reduced capacity to independently perform self-care activities, less contact with family members, and the lack of involvement with friends/community have a negative impact on the incidence of depressive symptoms, which is reflected in several recent studies found in the literature<sup>(14)</sup>.

Although most older people have not shown depressive symptoms in the current study, there is a concern regarding other elders that showed light depressive symptoms (38.1%). Similar data were found in the literature<sup>(15-16)</sup>. In the institutionalization context, it was found that older people were not stimulated enough for performing daily activities, despite being deprived of extra-familial activities. These factors contribute to individual introspection and, as a result, to the onset of depressive symptoms<sup>(15-17)</sup>.

The LSIs have a fast routine that hampers the availability of professionals. The provision of physical care to all residents takes several hours a day, with no time left for listening what older people have to say. Communication and entertainment contribute to an improved quality of life for older people, prevent against isolation and introspection, and are predictors of the manifestation of depressive symptoms.

In the current study, 57.1% of the older people were frail and 42.9% non-frail, according

to the TFI assessment criteria. Similar data were found in the Brazilian literature, using the same assessment tool<sup>(18)</sup>. The subjects of the study carried out in the Brazilian Southeast and Midwest were 442 older people living in long-stay institutions, where a prevalence of 52% of frail older people was identified by the authors applying the TFI<sup>(18)</sup>.

In some cases, the institutionalization makes the adaptation difficult to the older people, which has a negative impact on the quality of life, besides undermining independence and autonomy, and leading the older people to the frailty syndrome. The frail older people suffer from physical dependency, which is a characteristic of the syndrome, causing a decrease in their quality of life<sup>(19)</sup>. An older person shows reduced homeostatic reserve, lower resilience, and increased vulnerability when facing stresses. All these factors may lead to variations in the health status, implications in the psychological and physical well-being, interfering in the positive perception in their quality of life<sup>(20-22)</sup>.

The literature shows that depression may lead to physiological conditions for the outbreak or escalation of the frailty syndrome. Older people with depressive symptoms may manifest lack of appetite, chronic malnutrition, and physical inactivity, which increase the risk for developing frailty with a negative impact on the quality of life of these individuals<sup>(22-23)</sup>.

Besides the physiological aspects that have a direct influence on the quality of life of the elders, the increased decline on the functional status has a direct impact on the well-being and in the physical and mental health of this population. As a reflection of these characteristics, social isolation and loneliness in the old age, marked by the presence of depressive symptoms, affect the well-being and social participation<sup>(24)</sup>.

In this study, the data analysis made possible to show that frailty and depressive symptoms had a correlation with the quality of life of older people in the domains of Dignity, Autonomy, Safety, and Individuality. This indicates that the interviewed older people had a negative perception regarding the maintenance of

their own personal and unique identity in the institutions they lived, which implied in a feeling of neglect and/or depreciation as human beings, thus making it difficult for them to take initiative and choices related to their own care within the institution, and ultimately contributing to the sense of insecurity.

As study limitations, the cross-sectional dimension prevented the establishment of causality among the frailty, depressive symptoms, and quality of life variables. In addition, there was a sample size limitation due to the high percentage of institutionalized older people with dementia. This limitation narrowed the generalization of the conclusions.

## Conclusion

The study results served to confirm that the social-demographic and clinical characteristics of institutionalized older people are similar to those findings published in the scientific literature, with a predominance of women living in long-stay institutions and with high mean age among the interviewed.

The study participants may be considered frail due to the fact that a significant portion of the older people showed cognitive changes and light depressive symptoms. It was found that older people with depressive symptoms showed a higher mean score in the TFI tool, which explains the correlation between frailty and depressive symptoms. The impacts caused by frailty contribute to the manifestation of depressive symptoms, and depression can lead the person to frailty.

Correlations were found between frailty and quality of life and between depressive symptoms/quality of life, thus revealing that the perception of quality of life was better for both, non-frail older people and older people without depressive symptoms.

It is recommended to carry out longitudinal studies to find out the cause and effect relationship in the level of frailty, depressive symptoms, and quality of life of older people living in LSIs. In addition, it is also suggested

the development of intervention studies for the cases in process of frailty, such as randomized controlled trials, since it has been known that frailty is potentially reversible and its overcoming allows this population to achieve a better level of quality of life.

### Collaborations

1. conception, design, analysis, and interpretation of data: Letícia Alves Melo, Larissa Andrade, Helena Rita Oliveira Silva, Marisa Silvana Zazzetta, Ariene Angelini Santos-Orlandi and Fabiana Souza Orlandi;

2. writing of the article and relevant critical review of the intellectual content: Letícia Alves de Melo, Marisa Silvana Zazzetta, Ariene Angelini Santos-Orlandi and Fabiana Souza Orlandi;

3. final approval of the version to be published: Letícia Alves de Melo and Fabiana Souza Orlandi.

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