

Quality of Life of Elderly People Living in Different Types of Long-term Care Facilities

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Population aging is a worldwide occurrence that has become urgent in developing countries. Quality of life can be measured to identify functional capacity and determine the degree of impact on quality of life exerted on an individual. This study aimed to measure the quality of life of elderly people who have been living in different long-term care facilities for the elderly. Therefore, this research was developed with a qualitative and descriptive approach. Data were obtained from medical records and interviews, and were analyzed in R language interpreter software on the Ubuntu Linux operating system. Seventy-nine elderly people participated in the study. Eleven lived in Home Marista, and 68 lived in Home Jesus Maria José. A socioeconomic questionnaire was used to collect data on the socioeconomic characteristics of the participants. The Mini-Mental State Exam was used to measure degree of cognition. The Short Form-36 Questionnaire was used to measure quality of life. The present study suggests that the results found can clarify the individual vulnerability of the elderly in the age group studied regardless of the type of residence. Despite the discrepancy found regarding the care provided at the long-term care facilities, the scores, obtained with the quality of life assessment, did not show significant differences.

Keywords: Aging. Quality of life. Elderly. SF-36. Mini-Mental State Exam.

INTRODUCTION

Over the years the life expectancy of the Brazilian population has been gradually increasing (Dias, Carvalho, Araújo, 2013). In 2008, there were 24.7 elderly people for every 100 children aged 0 to 14 years, and it is estimated that the number will reach 172.4 in 2050 (Klaus *et al.*, 2015). The increase of this portion of the population is possibly due to improvements in health conditions, scientific and technological advances, and declines in fertility rates (Chaimowicz, 1997).

Although the World Health Organization defines an elderly person as anyone aged 65 years or older in developed countries and 60 years or older in developing countries (Dias, 2007), chronological age does not reflect the actual process of human aging. Heterogeneity should be considered in the assessment of aging (Camarano, 2004; Dias, Carvalho, Araújo, 2013; Freitas, Scheicher, 2010).

Good quality of life promotes healthy aging and contributes to increased longevity (Pereira, Teixeira, Santos, 2012). It can be defined as a complete state of physical, psycho and social well-being; that is, it is related to the perception that the individual has about himself or herself, and his or her limitations, perspectives, and concerns (Dias, 2007). When comparing the population groups, it is clear that the evaluation of the quality of life of the elderly is much more complex (Santos *et al.*, 2002). Thus, it is necessary to adopt several well-defined

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sociocultural, psychological, and biological criteria, as these elements may be indicators or determinants of well-being in the aging process (Santos *et al.*, 2002).

In Brazil, there are several instruments available to assess the quality of life of the elderly population (Quinalha, Correr, 2010). Among them, the SF-36 is used to assess quality of life (Ciconelli *et al.*, 1999; Vitorino, Prado, 2004), and the Mini-Mental State Exam is used to assess the degree of cognitive impairment (Lourenço, Veras, 2006).

Understanding the living conditions of the elderly population, who reside in long-term care facilities (LTCFs) can contribute to the diagnosis of functional limitations and improve long-term care for this age group. Therefore, this study aimed to assess the quality of life of the elderly people who reside in two LTCFs that provided different types of care.

MATERIAL AND METHODS

This study used a qualitative and descriptive design. Data were collected between December 2017 and June 2018. Data were obtained from medical records and interviews. The instruments were applied in the form of interviews conducted by the researcher to minimize problems interpreting the responses. This study was approved by the UFPR Human Research Ethics Committee (approval number 139855/2017).

Participant selection

The institutions that participated in the study were chosen based on the socioeconomic differences observed between them. Therefore, we chose Home Marista and Home Jesus Maria José, both located in the city of São José dos Pinhais, PR, Brazil. There were 11 residents of Home Marista in the study. Their average age was 87 years (73-97 years), and they were all single. There were 68 residents of Home Jesus Maria José in the study. Thirty-six were men and 32 were women. Their average age was 74 years (60-89 years).

The inclusion criteria were as follows: age 60 years or older; use of two or more medications; ability to understand the study and to consent to participate;

able to sign the consent form. Exclusion criteria: Elderly people who were unable to answer the questionnaires from the survey.

The selection of participants was made in a non-probabilistic manner. After the authorization of the legal representatives of the institutions, the visit was scheduled for the presentation of the project to the residents. After the residents signed the consent form, the interviews were scheduled.

Study Instruments

Three instruments were used: A socioeconomic questionnaire was used to collect data such as age, gender, place of residence, current treatment, medications in use, and associated comorbidities. In this stage, data on the residents' physical conditions and the services provided by each home were also collected. The Mini-Mental State Exam (Bertolucci *et al.*, 1994) was used to assess mental status, in order to identify symptoms of dementia. It had been developed in response to the need for an instrument that was easy to apply, standardized, simplified, reduced, and fast in the clinical context. It can be used alone or linked to other instruments, monitoring dementia, and assessing cognitive function. It has been widely used in clinical settings, with three main functions: to detect cognitive decline, to track dementia progression, and to monitor responses to treatment (Lourenço, Veras, 2006). The Short Form-36 Questionnaire (SF-36) (Ciconelli *et al.*, 1999) was developed by Ware *et al.* (1993) and evaluates an individual's quality of life. Ciconelli *et al.* (1999) developed and validated the Portuguese version of the SF-36. The SF-36 is a generic health assessment instrument that is very transparent and easy to understand, and its validity and reproducibility have already been demonstrated in other studies. The SF-36 is divided into two parts. The first part assesses health status (with items related to physical mobility, pain, sleep, and functional capacity), and the second part assesses the impact of the disease on the patient's daily life (with items related to mental health, emotional aspects, social aspects and vitality) (Vitorino *et al.*, 2004). The total score ranges from 0 to 100 points, 0 indicating the worst state and 100 the best.

The responses to the questionnaires were tabulated and scored according to the instructions of each developer. All analyses were performed using R language interpreter, version 3.4.4. parts packages and plot parts (R Foundation for Statistical Computing, Vienna, Austria), on the Ubuntu Linux operating system (Sobell, 2015). Univariate analyses were used to examine the associations between the socioeconomic characteristics and quality of life scores using the logistic regression and classification tree model. The variables that explain quality of life were measured objectively with the Mini-Mental State Exam and SF-36. Thus, in each case, the set of variables explained better the form which the results were determined.

RESULTS AND DISCUSSION

Results

Socioeconomic questionnaire

The research sought, through the socioeconomic instrument, to identify characteristics of residents. Knowing the residents' profiles and their clinical history, it seems to be important to understand the real requirements of each individual. In this stage, variables such as age, education, religion, marital status, and medicines in daily use (Table I), were analyzed.

TABLE I- Socioeconomic Characteristics of Residents of the Home Marista and Home Jesus Maria José

Variable	Residence	
	Home Marista	Home Jesus Maria José
Total	11 (100%)	68 (100%)
Sex		
Female	0 (0%)	32 (47,6%)
Male	11 (100%)	36 (52,94%)
Average age (years)	86,5 (73-97)	72,4 (60-89)
Schooling		
Illiterate	0	24 (35,28%)
Elementary school incomplete	0	20 (29,41%)
Elementary school complete	0	14 (20,58%)
Incomplete gym	0	4 (5,87%)
Complete gym	0	1 (1,74%)
Incomplete high school	0	0 (0%)
Complete high school	0	3 (4,4%)
Incomplete higher education	0	1 (1,74%)
Complete higher education	11 (100%)	1 (1,74%)
Marital status		
Singles	11 (100%)	21 (30,9%)
Married	0	17 (25%)
Separated/divorced	0	18 (26,47%)
Widows	0	9 (13,23%)
Others	0	3 (4,41)
Religion		
Catholic	11 (100%)	39 (57,35%)
Evangelical	0	18 (26,47%)
Atheist	0	9 (13,24%)
Others	0	2 (2,94%)
The average number of medications used	17 (7-26)	6 (2-13)

SOURCE: The Author, (2018).

Of the 79 individuals analyzed, 11 were residents of Home Marista, and 68 were residents of Home Jesus Maria José. The Home Marista residents were all male and all single. They were between 73 to 97 years of age, with an average age 86.5 years. The predominant religion was Catholicism. Among the Home Jesus Maria José residents, 36 were male and 32 were female. They were between 60 to 89 years of age, and the average age was 72.4 years. The predominant religion was Catholicism (57.35%), followed by Evangelicalism (26.47%), and 13.23% of individuals reported being atheists.

With regard to education, all residents of Home Marista had completed higher education. Among the Home Jesus Maria José residents, 91.18% of the residents did not complete elementary school. The average number of medicines used by the residents of Home Marista was 17 (range=7-26), and that average was 6 (range=2-13) for the Home Jesus Maria José residents.

Mini-Mental State Exam

For the Mini-Mental State Exam, the model used for logistic regression and the important variable was schooling. As a consequence, it was possible to identify the cognitive deficit of the respondents. Therefore, the results obtained were divided into scoring ranges. Two residents of Home Marista scored between 2 and 13 points, 1 resident scored between 14 and 20 points, and 8 residents scored between 21 and 30 points. Among the residents of the Home Jesus Maria José, 2 residents scored between 0 and 1 point, 25 residents scored between 2 and 13 points, 31 scored between 14 and 20 points, and 10 scored between 21 and 30 points (Table II).

TABLE II - Comparison of Mini-Mental State Exam Results

Score Range	Relative Frequency Home Marista (%)	Relative Frequency Home Jesus Maria José (%)
0-1	0 (0)	2 (2,94)
2-13	2 (18,8)	25 (36,76)
14-20	1 (9,09)	31 (45,58)
21-30	8 (72,72)	10 (14,70)

SOURCE: The Author, (2018).

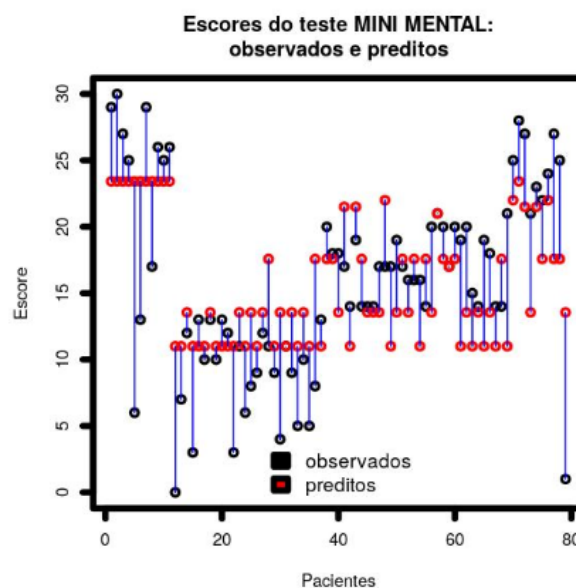


FIGURE 1 - Observed and predicted Mini-Mental State Exam scores.

SF-36

For the SF-36, each domain was assigned a set of variables. For the mental health domain, the model adopted was logistic regression, and the variable used was vitamins.

For the limitations in emotional aspects domain, the model adopted was a classification tree, and the variables used were age, gender, and use of antipsychotics.

For the limitations in social aspects domain, the model adopted was logistic regression, and the variable used was antilipemic drugs.

For the vitality domain, the model adopted was logistic regression, and in this domain, no variable capable of explaining the variation in the score was found.

Similar to the vitality domain, for the general health domain, the model adopted was logistic regression, and there was no variable capable of explaining the variation in the score found.

For the pain domain, the model adopted was a classification tree, and the variables used were

age, number of medications being used, and use of anticonvulsant medications.

For the limitations in physical aspects domain, the model adopted was a classification tree, and the variables used were antipsychotic drugs, use of antidepressant drugs, use of laxatives, and the number of drugs used.

Finally, for the functional capacity domain, the model adopted was logistic regression, and the variables used were age and use of vitamins (Table III).

TABLE III - Scores Obtained for Each Domain of the Short Form-36

Domain	Coefficient AIC	Value estimated	Value (Z)	Value (P)
Mental Health				
Intercept	0.634	0.286	2.216	0.027
Vitamins	0.501	0.547	0.971	0.359
Vitality				
Intercept	0.367	v	1.604	0.109
Lim. in emotional aspects*	0.0	0.0	0.0	0.0
Lim. in social aspects				
Intercept	-1.579	2.024	-0.780	0.435
Age	0.033	0.028	1.184	0.237
Antilipemic	-0.437	0.490	-0.892	0.372
Lim. in physical aspects				
Intercept	-1.579	2.024	-0.780	0.435
Age	0.033	0.028	1.184	0.237
Antilipemic	-0.437	0.490	-0.892	0.372
Functional capacity				
Intercept	3.179	2.265	1.404	0.160
Age	-0.061	0.032	-1.920	0.055
Vitamins	1.096	0.579	1.892	0.058
Pain*	0.0	0.0	0.0	0.0
General health				
Intercept	0.143	0.226	0.634	0.526

AIC=Akaike's information coefficient, Lim.=limitations.

* Domain was statistically analyzed using the tree model classification.

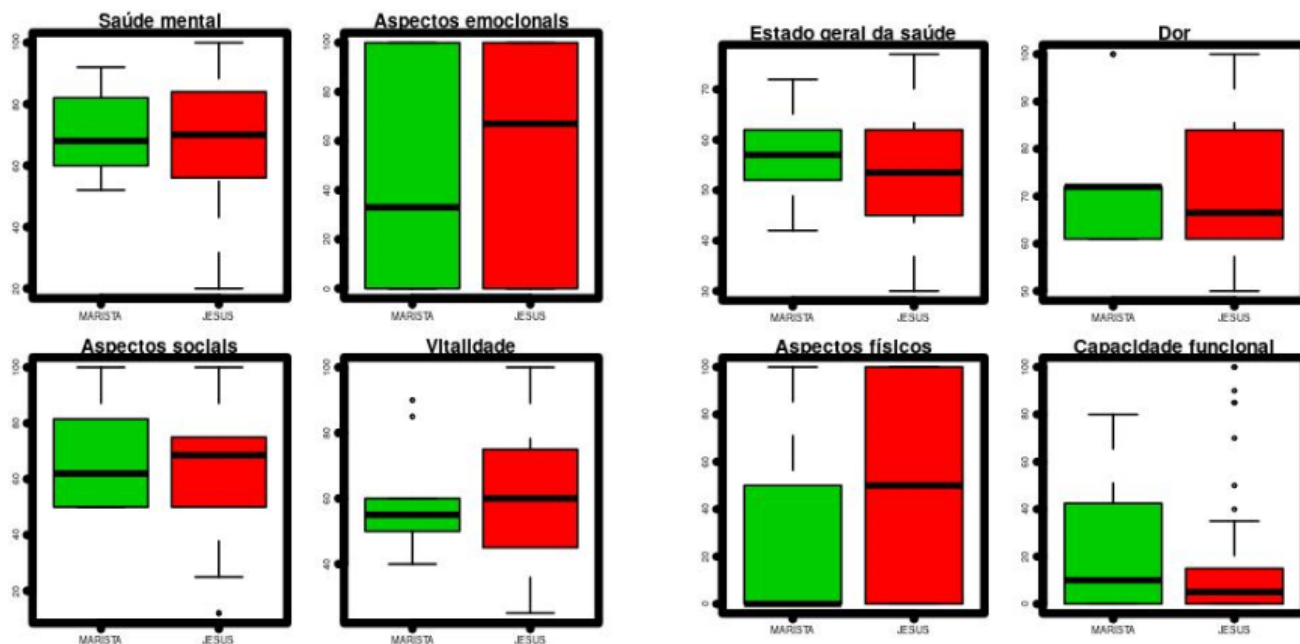


FIGURE 2 - Scores for the Mental Health and Physical Capacity domains of the Short Form-36 for the Home Marista and Home Jesus Maria José.

DISCUSSION

Considering the institutions in question, some peculiar characteristics could be identified. The Home Marista is a private institution, maintained by the non-profit Marista group. The residents dedicate their lives to the institution with the main purpose of serving God. The multi-professional team is composed of physicians, physiotherapists, pharmacists, nurses, nutritionists, and

other professionals. The Home Jesus Maria José, is a social institution designed to support the neediest people. It is maintained with resources from the municipalities of São José dos Pinhais, Pinhais, and Fazenda Rio Grande. Social services refer the elderly to it. It also receives donations from the population and relies on community volunteer work. The multi-professional team consists of a physician, physiotherapist, nutritionist, social worker, among others (Table IV).

TABLE IV - Multi-professional Care Teams at Home Marista and Home Jesus Maria José

PROFESSIONAL	HOME MARISTA	HOME JESUS MARIA JOSÉ
Doctor (geriatric)	Gift (8 hours/week)	Gift (2 hours/week)
Pharmacist	Gift (44 hours week)	Absence
Physiotherapist	Gift	Gift
Nutritionist	Gift	Gift
Nurses	Gift*	Gift**
Physical educator	Gift	Gift
Music therapist	Absent	Gift (1x week, 4 hours/day)
Caregivers	Gift***	Gift****
Psychologist	Absent	Gift
Social worker	Absent	Gift

* nurses; ** nursing technicians; *** One caregiver per resident; **** A caregiver for the elderly group.

The multi-professional team at the LTCF has the objective of fully assisting the residents, with each professional being responsible for the development of their work in a complementary manner (Brasil, 2016).

The Statute of the Elderly states that LTCFs should provide integrated, continuous geriatric care according to the needs of its residents (Silva, Santos, 2010). A multi-professional team is likely to be more equipped to provide such care (Brasil, 2016). Unfortunately, it is not clear which professionals should be involved in providing this service (Bertolucci *et al.*, 1994; Silva, Santos, 2010).

When assessing quality of life of the elderly it is important to consider cognitive deficit and to evaluate all the functions involved in the health-disease process in a multidimensional way, in order to obtain the global and etiological functional diagnosis (dysfunctions / diseases) and develop a therapeutic plan for long-term care (Moraes, 2012).

The Mini-Mental State Exam assesses cognitive impairment. From its development to the present day, it has undergone several reevaluations, translations, and cultural adaptations (Lourenço, Veras, 2006). This has been the case in Brazil (Folstein, Folstein, Mchugh, 1975), where researchers who translated the instrument realized that adaptations in some items were necessary to adjust to the characteristics of the population. When the cut-off was 17 (Folstein, Folstein, Mchugh, 1975), the result was 23/24 points.

Among the adaptation proposed in translation, the level of education was considered; thus, the author adopted 13 points for illiterate people, 18 points for those with a low or medium level of education, and 26 points for those with a high level of education (Bertolucci *et al.*, 1994).

In one study 18 points was adopted for those who were illiterate, 21 points for people with 1-3 years of schooling, 24 points for people with 4-7 years of schooling, and 26 points for people with more than 7 years of schooling (Caramelli, Nitrini, 2000).

In the present study, the version used was that proposed by Bertolucci *et al.* (1994), followed by modifications proposed by the logistic regression model (Figure 1) where it was observed that the predicted cutoff point for the Home Marista was 24 points. As observed

in the model, 72.72% of individuals had a higher than expected score, and 27.27% had a lower than expected score, indicating good cognitive performance at the home.

In Home Jesus Maria José, the predicted cut-off points were 11, 14, and 17 according to the model, demonstrating that 41.18% of respondents obtained a result above expectations, 51.47% a result below expectations, 4.41% obtained. The expected result according to the proposed model and 2.94% of the respondents presented a value much lower than the one presented, indicating a high degree of cognitive impairment.

The SF-36 is among the top five quality of life questionnaires (Adorno, Brasil-Neto, 2013). Several studies have already demonstrated its measurement properties, validity, and reproducibility (Ciconelli *et al.*, 1999). It is divided into eight domains. Four domains (limitations in emotional aspects, limitations in social aspects, mental health, and vitality) are related to mental health, and the other 4 domains (limitations in physical aspects, functional capacity, pain, and general health) are related to physical health (Ciconelli *et al.*, 1999; Vitorino, Prado, 2004).

In the present study, it was possible to compile the results obtained (Figures 2). The residents of Home Marista and Home Jesus Maria José obtained similar scores for the mental health, limitations in social aspects, vitality, general health, and pain domains, as shown in the Figures 1 and 2. However, the diagrams of the Home Marista are more compact, which suggests that the individuals in this home are more homogeneous, unlike Home Jesus Maria José where there was greater variability of the sample.

Regarding the limitations in emotional aspects and limitations in physical aspects, the individuals from both homes presented great variability in the score obtained (Pimenta *et al.*, 2008). Moreover, it was observed that the median scores of the residents of Home Jesus Maria José were better than those of the Home Marista.

For the functional capacity domain, both homes obtained similar median scores, but the diagram of the Jesus Maria José Homes was more compact. Despite the occurrence of some individuals who obtained scores above the typical values at this home, the diagram suggests that it is more common to find individuals with

higher than expected scores at the Home Marista than at the Home Jesus Maria José.

The domain with the lowest score obtained was functional capacity, a result found in both homes. For Home Marista, a possible explanation for the finding may be the advanced age of the residents. For Home Jesus Maria José, the finding may be due to the personal history of each resident.

A study conducted with 87 retired people that evaluated quality of life with the SF-36 found that regular physical activity led to higher scores in the functional capacity, general health, vitality, limitations in social aspects, and general health domains, supporting the findings of other studies that associated physical activity with improved quality of life (Pimenta *et al.*, 2008).

In conclusion, the findings of this research shed light on the degree of individual vulnerability of the elderly in the age group studied regardless of the type of residence. Despite the discrepancy found regarding the care provided at the LTCF, the results of the scores, obtained by the quality of life assessment, did not show significant differences.

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