International Journal of Nutritional Sciences

Open Access

Austin Publishing Group

Special Issue – Malnutrition

Quality of Life and Nutritional Status of Institutionalized Brazilian Elderly

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Received: April 28, 2017; **Accepted:** May 10, 2017; **Published:** May 17, 2017

Abstract

Objectives: In addition to promoting increased survival, it is necessary to provide adequate conditions for the aging population. Thus, it is worth investigating changes in the nutritional state of the elderly that may affect not only morbidity and mortality but also their quality of life. The objective of this study was to evaluate the quality of life and the nutritional state of institutionalized elderly.

Method: Cross-sectional study in Nursing homes in the city of Salvador, Brazil. A total of 185 institutionalized elderly were included in the study.

Results: The quality of life scores were lower in the domains of Intimacy (50%), Autonomy (51%) and Environment (54%). We found a high prevalence of malnourishment and risk for malnutrition as well as lower quality of life. Men had a higher risk of malnutrition and lower satisfaction with their quality of life than women, and these differences are statistically significant (p<0,05) in the domains of Social Relations, Environment, Social Participation and Autonomy.

Discussion: Malnutrition and the risk of malnourishment are relevant and important discoveries about the institutionalized elderly. Malnourished elderly and elderly at risk for malnutrition had lower quality of life compared to the well-nourished, suggesting a relationship between those factors.

Keywords: Malnutrition; Institutionalized; Nutrition assessment

Introduction

Population aging has shown increasing interest from professionals and scholars from different fields of knowledge due to the accelerated pace at which this phenomenon has occurred in many countries. Latin America, for example, is the second fastest aging region in the world, with the current proportion of elderly (10%) projected to more than double (25%) in the year 2050 [1].

The aging process is accompanied by physiological, psychological, social and also economic changes, which determine that the elderly population is more vulnerable to nutritional deficits [2,3]. Apart from its relevance to morbidity and mortality [4] malnutrition is associated with worsening of functioning and quality of life [5,6].

In this context, assessing the Quality of Life (QoL) has emerged as the main objective to promote the health of the elderly [1], therefore, the understanding of this thematic proves to be increasingly relevant [7,8]. There is a wide variety of issues in research about QoL and aging [9], however, there are few studies that address this issue regarding the nutritional status [10-12], especially with institutionalized elderly, in whom the prevalence of eating and nutritional disorders is higher when compared with those living in their households [13,14].

With the increasing demand for long-stay institutions for seniors (Nursing Homes, NH) [15], investigating the nutritional status and quality of life of residents is a public health issue [16]. Thus, the aim of this study was to assess quality of life and nutritional status of institutionalized elderly.

Materials and Methods

Cross-sectional study, performed with individuals of both sexes, with the age of 60+, residents in public and private NHs, located in the urban area of the city of Salvador, located in the northeastern region of Brazil.

Twenty-nine NHs were identified, with a total of 1239 elderly, (916 women and 323 men). The sample size was based on a random sampling by Health District, to ensure this representativeness. The total sample calculated was 412 elderly, with 80% of power.

The study included individuals with age equals or superior to 60 years old, able to answer the questionnaires and perform nutritional assessment. Individuals that had deficit of speech and/or hearing, with physical and/or cognitive impairment or another condition that could make impossible the procedure of data collection were not evaluated. Thus, 185 elderly participated in the final sample.

Data collection was performed by a multidisciplinary health team, consisting of geriatricians, dieticians, nurse, physiotherapists and physical educator, from the Center of Research and Intervention on the Aging area of Federal University of Bahia (UFBA). All underwent training and collection procedures were standardized as a measure of quality control and consistency.

The following instruments were used: 1) semi-structured questionnaire previously standardized and pre-coded for obtaining the sociodemographic variables (sex, age, education level and marital status), institutionalization (in years time) and medication (number

Citation: Pricilla AM, Roriz AK, Eickemberg M, Pereira ML, Lopes JA, Medeiros JB, et al. Quality of Life and Nutritional Status of Institutionalized Brazilian Elderly. Int J Nutr Sci. 2017; 2(1): 1016.

Table 1: Domains and their respective aspects assessed by the WHOQOL-Old and WHOQOL-Bref.

Domains of WHOQOL – Bref [19]	**Evaluated aspects**
Physical health	Pain, sleep and rest; mobility; energy; daily activities; drugs and treatment dependency and work capacity.
Psychological	Happiness and joy of living; ability to concentrate; feeling about themselves; corporal image and appearance; religion/ spirituality/personal beliefs.
Social relationship	Sexual activity; Personal relationships and social support;
Environmental health	Sense of physical security and protection; financial resources; participation in recreation/leisure; adequate transportation and physical environment.
Domains of WHOQOL – Old [22]	**Evaluated aspects**
Intimacy	Ability to have personal and intimate relationships.
Death and dying	Worries, concerns and fears about death and dying.
Social participation	Participation in daily activities.
Past, present and future activities	Satisfaction with achievements in life and the things they are looking forward.
Sensory abilities	Sensory functioning, impacts of the sensorial ability skills loss in quality of life.
Autonomy	Independence in old age, ability or freedom to live autonomously and make decisions.

Table 2: Characteristics of the sample according to sex.

Variables	**All subjects**	**Men**	**Women**
N	185	44	141
Age (years); Mean (SD)	78,8(8,7)	72,0(8,2)	80,9*(7,8)
Marital status (%)			
Single	49,1	45,5	50,3
Married	7,0	11,4	5,7
Widowed	33,5	25,0	36,2
Divorced	10,3	18,2	7,8
School education (%)			
Illiterate	9,7	11,4	9,2
Low and average schooling	48,6	56,8	46,1
High education	41,6	31,8	44,7
Time of institucionalized			
(years); Mean (SD)	7,4(10,1)	7,0(11,0)	7,5(9,8)
Functional capacity (%)			
Dependent	5,2	4,7	5,4
Partially dependente	14,5	20,9	12,3
Independent	80,3	74,4	82,3
Medication (%)			
≥ 3 per day	61,5	40,9	68,1*
< 3 per day	38,5	59,1	31,9

*p< 0.05. Comparasions were estimated using the two-sample t-test or chi-square test.

used per day); 2) Scale of Activities of Daily Living (ADLs), to assess the functional capacity [17]; 3) Mini-Nutritional Assessment (MNA), to evaluate the nutritional status of the elderly [18]; 4) the instruments of quality of life evaluation from the World Health Organization Quality Of Life - WHOQOL): WHOQOL-Bref [19] and WHOQOL-Old [20].

Regarding educational level, the subjects were classified according to their years of study: illiterate (less than 1 year of study); low educational level (1-4 incomplete years); average schooling (4-8 incomplete years) and high education (8 years or more) [21].

Assessment of life

Following the instruction of the WHOQOL Group, quality of life was assessed by the WHOQOL-Bref (generic instrument) and WHOQOL-Old (specific for elderly). As the two instruments provide different information, they are used concurrently in order to complete each other [22].

The WHOQOL-Bref and WHOQOL-Old instruments were analyzed individually using their respective syntaxes. The results of the instruments were converted into scores raging from zero to 100%. The mean percentage in each area indicates the perception of the elderly regarding their satisfaction in each of the investigated aspects. Thus, the closer to 100%, the more satisfied or positive is the perception of the domain [22].

In the table below (Table 1) the evaluated aspects by each of the domains that make up the instruments of quality of life were summarized.

Assessment of nutritional status

For the assessment of nutritional status the MNA [18] has been used. This instrument is composed by 18 items covering 4 blocks: anthropometry (body mass index, calf circumference and arm circumference), dietary (number of meals, autonomy to feed, water and food intake), global assessment (medicines, residence, mobility, dementia, stress or acute disease and presence of skin lesions) and self-assessment (health and nutritional status).

Interpretation is based on the total score, being considered malnourished the individual who obtained a score lower than 17; between 17 and 23.5 at risk of malnutrition; and when the score is greater than or equal to 24 it was considered as normal nutritional status [18].

Processing and statistical analysis

Sociodemographic data, institutionalization, medication and functional capacity were expressed as mean and standard deviation for continuous variables and as percentage for categorical variables. Student's t-test was used to evaluate different means between continuous variables and Pearson's chi-square test for categorical variables.

Significance level of 5% was considered. Data were analyzed with the Statistical Package for Social Sciences (SPSS), version 16.0.

Results

The study included 185 elderly, predominantly female (n=161) (Table 2). The mean age of subjects was 79 years old, being significantly higher for women (p<0.00). The elderly, for the most part, were single and had low or medium education (48.6%), being important to highlight the percentage of almost 10% of illiteracy. The average length of institutionalization was 7.4 years (SD 10.1). Most

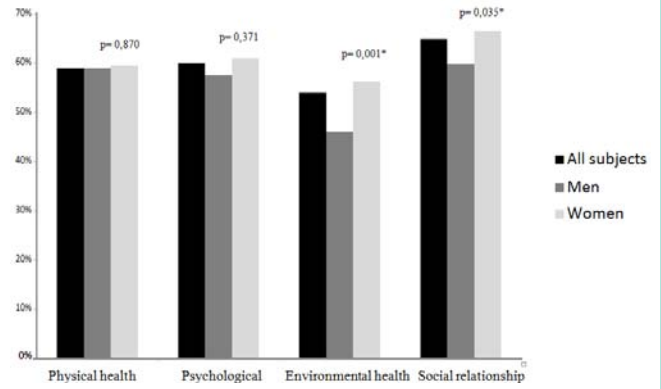

Figure 1: Scores of WHOQOL- Bref domains (n=185).
*p< 0.05. Comparisons were estimated using the two sample t-test.

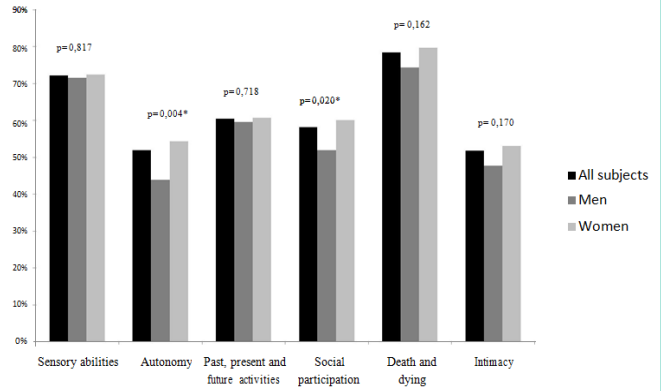

Figure 2: Scores of WHOQOL- Old domains (n=185).
*p< 0.05. Comparisons were estimated using the two sample t-test.

were independent in activities of daily living (80.3%) and women used more medication than men (p=0.002).

In the evaluation of quality of life by WHOQOL-Bref, elderly showed less satisfaction in the environmental domain (54%). Men had significantly lower satisfaction than women in the environmental and social relations domains (Figure 1).

The WHOQOL-Old showed lower scores in Intimacy (50%) and Autonomy (51%) (Figure 2). Men had lower scores for social participation (52%) and Autonomy (44%).

Regarding nutritional status, most seniors showed up malnourished and at risk of malnutrition (53.5%), which was higher among men (70.4%) (Table 3).

Differences were observed in the scores of most domains of quality of life according to the nutritional status (Table 4), and the malnourished and at risk of malnutrition elderly had, generally, lower quality of life when compared to the well nourished.

Discussion

This study assessed the quality of life and nutritional status of institutionalized elderly. This is an unprecedented research, a representative sample of NHs of the third largest capital in Brazil and primary data collection.

Table 3: Nutritional status of institutionalized elderly.

Nutritional status	All subjects	Men	Women
	(N=185)	(n=44)	(n=141)
Malnourished, % (n)	8,6 (16)	4,5 (2)	9,9* (14)
Risk for malnutrition, % (n)	44,9 (83)	65,9 (29)	38,3* (54)
Normal nutritional status, % (n)	46,5 (86)	29,5 (13)	51,8* (73)

*p< 0.05. Comparasions were estimated using the chi-square test.

Table 4: Mean percentage score of the domains of quality of life according to the nutritional status.

Quality of life	MNA (N=185)		
WHOQOL-Old	Malnourished and at risk of malnutrition (n=99)	Adequate nutritional status (n=86)	p-value
SENSORY ABILITIES (%)	71,3	73,1	0,542
AUTONOMY (%)	48,2	56,1	0,004*
PAST, PRESENT AND FUTURE ACTIVITIES (%)	56,9	64,4	0,005*
SOCIAL PARTICIPATION (%)	54,4	62,2	0,005*
DEATH AND DYING (%)	76,3	80,8	0,168
INTIMACY (%)	47,2	57,1	0,003*
WHOQOL-Bref			
SOCIAL RELATIONSHIPS (%)	62,0	70,1	0,002*
ENVIRONMENTAL HEALTH (%)	50,3	59,0	0,000*
PSYCHOLOGICAL (%)	56,7	64,7	0,001*
PHYSICAL HEALTH (%)	57,2	61,9	0,077

*p< 0.05. Comparasions were estimated using the two-sample t-test.

In general, the results showed that, despite the predominance of females, men situation is the one that stands up in this population, as they had poorer perception of quality of life and increased risk of malnutrition when compared to women. There was a high prevalence of malnourished elderly and at risk of malnourishment and reduced quality of life in these individuals.

Satisfaction with quality of life of the elderly in this study was lower than that observed in more developed regions of Brazil, as shown by similar studies [23-25]. It is possible that this finding is associated with lower education identified in the elderly of this study and poor socioeconomic conditions in the region investigated in this study [26]. Although in the last decade significant progress has occurred in reducing social inequalities in developing countries, for many of the current elderly population, cumulative disadvantages over the life course remain a challenge and can influence the quality that is experienced at old age [1].

As far as is known, there are still no cut points to determine a score below or above of which it is possible to consider the quality of life as "good" or "bad", however, less punctuated domains indicate fields of lower satisfaction and therefore in need of intervention.

Regarding the quality of life evaluated by WHOQOL-Bref, the environment domain had lower score, which was also observed in other studies with institutionalized elderly [25,27]. Dissatisfaction with this domain may impair functional capacity, create stress and

reduce pleasure and interest in life [28]. Thus, aspects related to the environment, especially in LTCF, need to be considered to promote better quality of life.

In the WHOQOL-Old assessment, the Intimacy and Autonomy areas had lower scores. The commitment of intimacy reflects the need for creating and maintaining meaningful personal ties among the elderly, both in the institution and in the community in which they live. Regarding autonomy, the greatest involvement in this domain was also seen in other studies [24,29,30] and shows the dissatisfaction of institutionalized elderly about their ability to make decisions, manage their lives and feel productive [31].

Low scores observed in the quality of life area suggest a relation between these, since dissatisfaction in the living environment may compromise autonomy and limit intimacy, which increases their susceptibility to isolation and depression [19].

In this study a difference in the assessment of quality of life between men and women in the domains of Social and Environment relations (WHOQOL-Bref) and Social and Autonomy participation (WHOQOL-Old) has been observed. However, the relationship between gender and quality of life is not consensual [32], results in literature indicate that elderly male, both institutionalized [24,33,34] and non institutionalized [35,36] had better perception of quality of life, however, this was not found in the present study. A possible explanation is related to changes in activities and social roles performed by men, as well as the financial situation, which may affect more decisively the adaptation of these to the aging and institutionalization process, impacting the quality of life and health status and nutrition [35,37].

Regarding nutritional status, prevalence of malnutrition and risk of undernourished shows to be relevant, both in men and in women in this study. Further investigations using MNA also found similar results [38-41]. Although there is no gold standard method for diagnosing malnutrition, MNA has been indicated as the most appropriate tool because it better reflects the particularities of the nutritional status of elderly subjects [42].

The prevalence of malnutrition is significantly higher among elderly residents in NHs compared to those living in their households [43,44], depending on the criterion applied it ranges from 5% to 70% [44,45], whereas in the non-institutionalized is around 15-20% [46]. Such evidence points to the nutritional vulnerability of institutionalized elderly, emphasizing the relevance of nutritional care geared to this population, since malnutrition in this group is associated with increased morbidity and dependence [14,47], thus representing an important public health problem.

Generally, the elderly are at greater risk of malnutrition due to adverse socioeconomic conditions, as well as depressive conditions and pathophysiological factors that lead to inadequate food intake and low nutritional quality [48]. This situation is exacerbated in the context of institutionalization, due to the presence of aspects that affect the power of the elderly, among these are the method of food preparation and the monotony of menus [49].

Significant differences were observed in the results of MNA when compared by gender, with a higher percentage of men at risk of malnutrition. The differences in nutritional status by sex are still unclear, there are studies that identify [11,25,49] and other that do not observe this relationship [38,50], possibly because factors related to nutritional deterioration are multiple, complex and until then little understood.

This study emphasizes that men showed lower quality of life and greater risk of malnutrition than women. Literature data indicates that the impact of malnutrition on quality of life is greater in men than in women [11]. One possible explanation for this is that, in the process of weight loss, while women lose more fat, men have a higher loss of muscle [51], which directly affects the functional capacity and hence the quality of life.

In this study, malnourished elderly and at risk of malnutrition had a poorer perception of quality of life in most areas, which was also observed in other investigations [35,52,53]. One of the reasons for this finding is that a poor nutritional state changes the functionality, autonomy and social participation of the elderly, affecting their quality of life [12,40].

The relation between quality of life and nutritional status is not well established, due to the different approaches and instruments used to assess these variables. However, the available results in the literature and in this study show the need to incorporate nutritional aspects related to the instruments for assessing quality of life variables.

Despite the prevalence of malnutrition being high in the elderly with cognitive impairment [54], this group was not included in this study, which can be considered a limitation. However, it would have been impossible to evaluate the quality of life and nutritional state of these individuals with the same methods used to asses those not having this clinical picture.

Conclusion

The quality of life in institutionalized elderly in this study was more impaired in aspects related to the environment, autonomy and intimacy. Malnourishment and the risk of malnutrition were found relevant and expressive in the institutionalized elderly in this study, with over half of the individuals in this condition. Besides, malnourished elderly or at risk of malnutrition had worse quality of life then well nourished ones, suggesting a relationship between these factors. Men had greater risk of malnutrition and worst quality of life than women. The results presented in this study have implications on the direction of long-term care for the institutionalized elderly, especially in aspects of care that affect quality of life and nutritional status.

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Citation: Pricilla AM, Roriz AK, Eickemberg M, Pereira ML, Lopes JA, Medeiros JB, et al. Quality of Life and Nutritional Status of Institutionalized Brazilian Elderly. Int J Nutr Sci. 2017; 2(1): 1016.