



ORIGINALES

Nutritional assessment by the Mini-Nutritional Assessment: a tool for the nurse

Avaliação nutricional pela Mini avaliação Nutricional: uma ferramenta para o enfermeiro

Evaluación nutricional por el Mini Nutritional Assessment: una herramienta para las enfermeras

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ABSTRACT:

Objective: To characterize the nutritional status of institutionalized aged individuals according to the Mini-Nutritional Assessment (MNA®).

Method: Cross-sectional, population-based study of quantitative approach, performed with 321 elderly residents in long term care facilities of João Pessoa/PB. This study was approved by the Committee on Ethics in Research of CCS/UFPB, CAEE: 02043712.4.0000.5188.

Results: The mean age of participants was 81.09 years old and the majority of them were female (75.7%). Firstly, the elderly were evaluated by a screening, in which 86 (26.8%) had adequate nutritional status and 235 (73.2%) passed to the overall assessment; seven (3.0%) of these had adequate nutritional status. Therefore, the total amount of elderly with adequate nutritional status, according to MNA®, was 93 (29.0%); 127 (39.6%) of them were at risk of malnutrition and 101 (31.5%) were malnourished.

Conclusion: It is essential to establish prevention programs in long-term institutions that subsidize the activities of the multidisciplinary health team, in order to control risk factors, including nutritional parameters.

Keywords: Nursing; Aged; Nutritional status.

RESUMO:

Objetivo: Caracterizar o estado nutricional de idosos institucionalizados segundo a Miniavaliação Nutricional (MAN@).

Método: Estudo transversal, de base populacional e abordagem quantitativa, realizado com 321 idosos residentes em instituições de longa permanência para idosos de João Pessoa/PB. Foi aprovado pelo Comitê de Ética em Pesquisa do CCS/UFPB, CAEE: 02043712.4.0000.5188.

Resultados: A idade média dos participantes foi de 81,09 anos, e a maioria era do sexo feminino (75,7%). Na primeira fase da MAN@, a triagem, 86 (26%) dos idosos avaliados apresentaram estado nutricional adequado e 235 (73,2%) passaram para a avaliação global; desses, sete (3,0%) estavam com estado nutricional adequado. Portanto, concluída a avaliação, 93 (29,0%) idosos estavam com estado nutricional adequado; 127 (39,6%) apresentaram risco de desnutrição, e 101 (31,5%) estavam desnutridos.

Conclusão: É fundamental estabelecer programas de prevenção em instituições de longa permanência que subsidiem as intervenções da equipe multidisciplinar de saúde, a fim de controlar os fatores de risco, incluindo-se os parâmetros nutricionais.

Palavras chave: Enfermagem; Idoso; Estado nutricional.

RESUMEN:

Objetivo: Caracterizar el estado nutricional de los ancianos institucionalizados según el test Mini Nutritional Assessment (MNA@).

Métodos: Estudio transversal, basado en la población, con enfoque cuantitativo, realizado con 321 ancianos residentes en centros de atención a largo plazo de João Pessoa/PB. Fue aprobado por el Comité de Ética en Investigación del CCS/UFPB, CAEE: 02043712.4.0000.5188.

Resultados: La edad media de los participantes era de 81,09 años y la mayoría eran mujeres (75,7%). En primer lugar, los ancianos fueron evaluados por una triaje, en los que 86 (26,8%) tenían un estado nutricional adecuado y 235 (73,2%) pasaron a la evaluación general; 7 (3,0%) de estos tuvieron un estado nutricional adecuado. Por lo tanto, de acuerdo con el test MNA@, el total fue de 93 (29,0%) ancianos con estado nutricional adecuado; 127 (39,6%) estaban en riesgo de desnutrición y 101 (31,5%) estaban desnutridos.

Conclusión: Es indispensable establecer programas de prevención en las instituciones a largo plazo que apoyen las actividades del equipo de salud multidisciplinar, con el fin de controlar los factores de riesgo, incluyendo parámetros nutricionales.

Palabras clave: Enfermería; Anciano; Estado nutricional

INTRODUCTION

Aging is a natural and individual process that causes a series of physiological, metabolic, anatomical, social and psychological changes, manifested in structural and functional changes⁽¹⁾.

The demographic changes in the world panorama have alerted on the peculiarities and singularities involved in the aging process. In developing countries, these issues become even more essential because of the accelerated transition associated with the difficulties arising from socioeconomic inequalities, which tend to require governments to formulate and adapt public policies in order to minimize such disparities in the search for by a healthy population aging⁽²⁾.

According to the 2010 demographic census, the number of elderly people in Brazil was 20,590,599. The projections for 2025 indicate that the population over 60 will be over 30 million, in this period Brazil will represent the sixth country in the world with the largest number of elderly people^(3,4).

With aging, the elderly present a tendency to develop nutritional deficits due to the incidence of chronic diseases, physical weaknesses and physiological changes, which

can compromise the appetite, intake and absorption of nutrients, leading to the risk of malnutrition, especially the elderly Institutionalized ⁽⁵⁾.

The institutionalized elderly need special care because there is a gradual decline in cognitive functions due to normal aging.

Up to 80 years, the elderly can maintain intellectual capacity, but learning difficulties and forgetfulness can be included along with some changes that usually occur with the elderly around the age of 70 ⁽⁶⁾.

Thus, with the constant rate of aging of the population, it is fundamental to plan and develop health actions that can contribute to improving the lives of the elderly, including measures that promote habits related to healthy eating and consequently better nutritional status ⁽⁷⁾.

The American Public Health Association defines nutritional status as the "health condition of an individual influenced by the consumption and use of nutrients and identified by the correlation of information obtained through physical, biochemical, clinical, and dietary studies." Therefore, the nutritional status is detected from several parameters, which can be used and evaluated in isolation or associated ⁽⁸⁾.

Several instruments were created to evaluate the nutritional status of the elderly, including the Mini Nutritional Assessment (MNA®), which assesses nutritional risk and identifies those who may benefit from early intervention ⁽⁴⁾.

The study carried out in this population is justified by the fact that, through the research carried out in the literature scenario, there are few researches that address the theme in question or that use nutritional status assessment tools to support planning and Implementation of the care developed by the nursing professional with the institutionalized elderly, even though the number of instruments that evaluate the elderly in relation to their nutritional need is great.

In this sense, the investigation of the nutritional status of elderly people living in institutions together with daily care becomes important in order to guarantee the prevention of diseases and the rehabilitation of their health, thus contributing to new practices of interventions in this area and enabling the expansion of scientific production, consequently renewing knowledge.

Based on the above, the study was based on the following guiding question: what is the nutritional status of the elderly living in Long-Term Care Institutions for the Elderly (LTIEs) in the city of João Pessoa-PB? Therefore, the objective of this study was to characterize the nutritional status of institutionalized elderly according to the Mini Nutritional Assessment.

METHOD

It is a cross-sectional, population-based study with a quantitative approach, which was developed in six LTIEs, registered in the National Council of Social Service and the Municipal Council of Elderly, located in the municipality of João Pessoa/PB. These institutions are philanthropic, serve the needy elderly population and are maintained by community donations, as well as part of the benefits and retirement of the elderly. The population consisted of 324 elderly individuals aged 60 years or over, but only 321

were the final sample of the study. The study included all the elderly people who lived in the institutions for more than 30 days, were present at the time of data collection and accepted to participate in the research. The elderly who were hospitalized and those who died during this period were excluded. Data collection occurred from January to December 2014.

The empirical data that supported the development of this study are part of a database constructed and validated of a larger project titled: "Pressure ulcer in institutionalized elderly: association of incidence with risk factors, functional and nutritional evaluation."

To evaluate the nutritional status of the elderly, the Mini Nutritional Assessment (MNA®) was used, a validated method and considered gold standard for this population, since it is practical, non-invasive, simple measurements and quick questions applied in about 10 minutes, provided performed by well trained professional⁽⁸⁾. The instrument also examines BMI and other widely used anthropometric criteria for assessing nutritional status⁽⁵⁾.

First, they underwent screening, constituting the first part of the (MNA®), to verify if food intake decreased and if weight and psychological stress were reduced in the last three months, as well as the assessment of mobility, the neuropsychological problems and the body mass index (BMI) of each individual.

If the score of the screening score was less than 12, the overall evaluation (second part of the instrument) was carried out, which consisted in questioning whether the elderly person used more than three medications during the day if they had skin or sores, how many meals they were eating, what foods they consumed and how often they were, how many fluids they had, how to feed themselves or with self-help, and self-perception of nutritional status and health in relation to other people of the same age; Finally, the circumference of the arm and calf was measured.

In this study, only a few sociodemographic variables were used to characterize the sample as: sex, age and time of institutionalization.

Statistical analysis of the data was performed by means of absolute and percentage frequency distribution, using the Statistical Package for Social Sciences (SPSS) software version 20.0.

In order to develop the research, the ethical observances contemplated in the guidelines and in the regulatory norms for research involving human beings were considered - Resolution 466/12 of the National Health Council⁽⁹⁾ and Resolution 311/2007 of the Federal Council of Nursing - COFEN, especially with regard to the free and informed consent of the participants, the confidentiality and confidentiality of the data⁽¹⁰⁾.

This research project was approved by the Research Ethics Committee of the Health Sciences Center (CCS), Federal University of Paraíba under CAAE: 02043712.4.0000.5188.

RESULTS

Of the 321 elderly people, all were residents of a philanthropic LTIEs, 243 (75,7%) belonged to female sex, with a prevalence of over 80 years of age, represented by a mean of 81,09 years, a standard deviation of 9, 38 and median of 82,00 years. The mean institutionalization time of the elderly was 62,21 months, with a standard deviation of 66,26, ranging from one to 528 months, median of 42,00, as shown in Table 1.

Table 1: Population distribution according to sex, age group and institutionalization time - João Pessoa-PB, 2015.

Sex variables	N = 321	100,0 %
Male	78	24,3
Female	243	75,7
Age group		
60 to 69	36	11,2
70 to 79	100	31,2
80 to 89	127	39,6
90 to 99	49	15,2
100 to 110	9	2,8
Time of institutionalization		
<12 Months	41	12,8
12 - 60 Months	173	53,9
>60 e <120 Years	70	21,8
>120 e <180 Months	22	6,8
>180 Months	15	4,7

Regarding nutritional status assessment, MNA® was used, which is divided into two parts: Part I - screening - and part II - overall evaluation. In the screening, a general evaluation of the nutritional status is made (Table 2).

It was possible to identify in the item, food intake, that 247 (70.0%) elderly had no decrease in intake. When asked about weight loss, 171 (53.3%) answered that they had no losses and 88 (27.4%) do not know how to inform. Regarding mobility, 103 (32.1%) elderly were restricted to bed or wheelchairs and 69 (21.5%) wandered, but were not able to leave alone, as shown in Table 2.

Table 2: Presentation of the population according to the screening of the Mini Nutritional Assessment - João Pessoa-PB, 2015.

Screening		N = 321	100,0%
In the last three months, was there a decrease in food intake?	Severe decrease	13	4,0
	Moderate decrease	61	19,0
	No decrease	247	77,0
Weight loss in recent months	Greater than three kilogram	21	6,5
	Doesn't know inform	88	27,4
	Between one and three kilogram	41	12,8
	No weight loss	171	53,3
Mobility	Restricted to bed or wheelchair	103	32,1
	Wanders but is not able to leave the house.	69	21,5
	Normal	149	46,4
Have had any psychological stress or acute illness in the last three months?	Yes	73	22,7
	No	248	77,3
Neuropsychological problems	Dementia or severe depression	78	24,3
	Light dementia	100	31,2
	No psychological problems	143	44,5
Body Mass Index (BMI)	BMI < 19	105	32,7
	19 ≤ BMI < 21	38	11,9
	21 ≤ BMI < 23	47	14,6
	BMI ≥ 23	131	40,8

When questioned about whether they had undergone any psychological stress or acute illness, 73 (24,3%) said yes. Regarding neuropsychological problems, 100 (31,2%) had mild dementia and 78 (24,3%) had severe dementia or depression. MNA® also addresses BMI and verified that 131 (40,8%) elderly had adequate BMI, however 105 (32,7%) were underweight.

Of the 321 elderly surveyed, 86 (26,8%) presented adequate nutritional status in the triage and 235 (73,2%) needed the overall evaluation to better identify the nutritional status (Table 3).

Table 3: Population presentation according to the Global Evaluation of the Mini Nutritional Assessment - João Pessoa-PB, 2015.

Global evaluation		N = 235	100,0 %
Do you use more than three different medications per day?	Yes	146	62,1
	No	89	37,9
Do have skin lesions or bedsores*?	Yes	45	19,1
	No	190	80,9
How many meals have per day?	Two meals	5	2,1
	Three meals	230	97,9
Does the patient consume a daily portion of milk and milk products? Two or more weekly servings of vegetables or eggs? Meat, fish or poultry every day?	No answer yes	14	5,9
	Two answer yes	61	25,3
	Three answer yes	160	68,8
Does the patient consume two or more daily portions of fruits and vegetables?	Yes	130	44,7
	No	105	55,6
How many cups of liquid (water, juice, coffee, tea, milk) does the patient consume per day?	Less than three cups	43	18,3
	Three to five cups	159	67,7
	More than five cups	33	14,0
Way of feeding	Not able to feed himself	76	32,3
	Himself with difficulty	41	17,4
	Himself without difficulty	118	50,2
Does the patient believe they have any nutritional problems?	Thinks being malnourished	16	6,8
	Doesn't know	155	66,0
	Thinks don't have any nutritional problem	64	27,2
Compared to other people of the same age, how does the patient consider health?	Not very good	26	11,1
	Doesn't know inform	137	58,3
	Good	56	23,8
	Better	16	6,8

Arm Circumference (AC) in cm**	AC < 21	41	17,4
	21 ≤ AC ≤ 22	42	17,9
	AC ≥ 22	152	64,7
Calf circumference (CC) in cm**	CC < 31	145	61,7
	CC ≥ 31	90	38,3

*According to the National Pressure Ulcer Advisory Panel (NPUAP) the new nomenclature is pressure injury ⁽¹¹⁾. **Centimeters.

Regarding the overall evaluation (Table 3), it is worth mentioning that all the elderly lived in LTIEs. When investigated on medication use, 146 (62,1%) reported using more than three different medications a day; 45 (19,1%) had any skin lesions or pressure lesions; 160 (68,8%) reported consuming dairy, vegetables, meat, poultry, eggs and vegetables, and 130 (44,7%) from two to three servings of vegetables and / or fruits daily.

On the intake of liquids, 159 (67,7%) consumed between three and five glasses of liquid a day, 118 (58,2%) fed themselves without difficulties, but 76 (32,3%) were not able to feed themselves. In the self-assessment about nutritional status, 155 (66,0%) elderly people do not know if they have nutritional problems, and 16 (6,8%) believe they are malnourished. In the self-assessment about health itself, 137 (58,3%) of the elderly did not know how to inform, and 56 (23,8%) considered their health to be good.

In the general evaluation of the nutritional status of the Mini Nutritional Assessment (MNA®), 93 (29,0%) elderly had adequate nutritional status, 127 (39,6%) were at risk of malnutrition, and 101 (31,4%) were malnourished.

DISCUSSION

Population aging is a global phenomenon, and Brazil is no exception in this scenario, which has important social and economic repercussions and requires the development of specific policies for this part of society ⁽¹⁾.

Defined as a sociovital process composed of multiple faces that is passed and experienced during singular moments that make up the life, the aging is seen as something progressive. The expression "to be old" is not something that fits with the social idea limited to a physically depleted body, but rather covers a state of life and health that is successful, for even in the face of the inevitable physiological deletion and certain functional capacities, can be seen as a moment that provides the experimenter with experiences of well-being, pleasure and enjoyment of a lifetime history ⁽¹²⁾.

Simultaneously with this process, there are changes in morbidity and mortality rates, with the prevalence of non-transmissible chronic diseases due to the reduction of the functional, cognitive and nutritional capacity of the elderly ⁽¹⁾.

The predominance of females stands out in Brazil, whose proportion of women is higher than that of males, as found in this study and also in others performed with the elderly ^(4, 13-14).

The longevity of women is attributed to factors related to lower occupational risk, as well as mortality from external causes, such as homicide and traffic accidents, lower prevalence of smoking and alcohol use, difference in attitudes towards diseases, disabilities and decrease in maternal mortality, due to the greater coverage of gynecological and obstetric care^(9, 15).

Regarding the average age of the elderly, it was verified the prevalence of the elderly in the age group above 80 years of age, which is consistent with the increase in the longevity of the Brazilian elderly estimated by the Brazilian Institute of Geography and Statistics⁽³⁾.

Old age brings with it a significant increase in the incidence of chronic and multiple pathologies and the use of continuous medication, as found in the elderly investigated in this study, which demands permanent care, including feeding, which should be adequate to meet the metabolic specificities of this population, in order to promote health at this stage of life⁽¹⁶⁾.

A study on nutritional evaluation of institutionalized elderly in São Paulo, Brazil, evidenced the tendency to a decrease in the greater muscular mass in the female group due to the increase of age in this gender⁽¹⁷⁾. This fact should raise in health professionals strategies that aim at reducing risks to malnutrition, requiring these promotion actions aimed at the transformation of life habits that directly involve the nutritional aspects of the elderly inserted in their socioeconomic context⁽⁷⁾.

Regarding the nutritional status detected by MNA®, the present study showed that a considerably high proportion of the elderly were at risk for malnutrition or malnourished, which corroborates with another study that used MNA® as one of the ways to assess nutritional status of the elderly, which showed that women presented 31,8% of malnutrition and 50,0% of malnutrition risk, similar to men, which presented 27,0% and 40,0%, respectively⁽¹⁸⁾. However, in the current study the differentiation was not made by sex, but by the quantitative of the elderly. A systematic review of the literature on Anthropometric Indicators of the Nutritional Status in the Elderly showed that MNA® was used in nine studies and a prognostic value for malnutrition of 97,0%⁽¹⁹⁾.

It is also observed that the longer the stay in these institutions, the greater the chances of anxiety, distress and distress, which may negatively influence food intake, thus compromising the nutritional status of the elderly. The MNA® scale offers a risk parameter for malnutrition that can be stratified through the items inserted in the body of the instrument. Therefore, the nurse as a professional responsible for acting vehemently against preventive care for the elderly, becomes essential in the process of detecting the existing risk when the association of comorbidities inherent to the state of health of the elderly occurs, and may therefore be extremely important as a potential modifier of reality pertinent to the institutionalized elderly with risk for malnutrition. However, if it is to treat and intervene in the nutritional state, there will be a need for the multiprofessional team, including the nutrition professional to guide the conduct and establishment of these, considering that the details pertinent to the diet, modification of consumption and adequacy to the therapeutic framework already established for the elderly, requires a more accurate nutritional view. In addition, it is recommended that the institution develop mechanisms that maintain the proximity of these elderly with the family and society, promoting a comprehensive and resolute treatment of psychosocial needs⁽²⁰⁾.

The evaluation of the nutritional status of the elderly encompasses a complex network of factors, such as socioeconomic factors (which reveal more heterogeneity among individuals), food, social isolation, chronic diseases, disabilities, physiological changes due to age and the style of life, which includes practices throughout life such as smoking, diet, and physical activity ⁽²¹⁾.

Knowledge about the nutritional status of the elderly brings benefits for the professional to carry out a planning of actions when inserted in a multiprofessional team. Regarding the nurses' performance, it is verified that this, because it is responsible for the practice of day-to-day care, becomes an indispensable agent in the early detection of nutritional deficits. Thus, a simple and systematized nutritional evaluation, through which early elderly patients at nutritional risk can be detected early to be submitted to a complete evaluation, should be part of a protocolized form of geriatric patient care, especially those institutionalized ⁽⁵⁾.

The use of MNA® as a tool to evaluate the nutritional status and to draw the nutritional profile of an elderly population should be judicious because, even if, in the triage, the answers were adequate, some of the elderly had a BMI below normal. Reduced BMI and malnutrition have serious and, in some cases, irreversible health consequences and should therefore be investigated as it is considered that the early detection of changes in the nutritional status of a population is essential for prevention and / or therapeutic intervention, In order to prevent the onset of disease and improve the quality of life of these populations ^(5, 22).

The risk of malnutrition can occur for a number of reasons, including lack of nutritional education, financial constraints, physical and psychological impairment, social isolation and treatment of multiple disorders and concomitant diseases ⁽²³⁻²⁴⁾.

Other secondary causes of malnutrition include inability to eat, anorexia, malabsorption due to gastrointestinal dysfunction, and increased nutrient requirements as a result of injury or illness, such as dysphagia, pressure lesions, Alzheimer's disease, Parkinson's, difficulty of the good geriatric development, osteoporosis, type 2 diabetes mellitus, systemic arterial hypertension and constipation ⁽²³⁻²⁴⁾.

In addition, the interaction between the drugs used by the elderly and the nutrients is also something that should be considered when dealing with the nutritional aspects, since polypharmacy is a very present event in the life of the elderly and can bring about greater probability of interactions between the medicines and medicine-food. Clearly, this type of interaction has as one of its characteristics the compromise of the process of nutrient absorption, and can thus be considered as one more factor that contributes to the nutritional deficit ⁽²⁵⁻²⁶⁾.

CONCLUSION

The study showed that, in the institutions studied, malnutrition in the elderly was present. The aging process, which causes the absorption of food to be altered which allows the coexistence of diseases, which in turn decrease appetite and food absorption, leading to a cycle that must be broken.

The prevention and/or control of malnutrition in the elderly should be a goal considered by all the health team involved in the services to this population. The application of nutritional assessment methods that allow monitoring of nutritional status is an

essential tool in the process of controlling the risks for malnutrition and its levels when already installed, as well as the progression of the clinical picture when already diagnosed. In addition, the evaluation should encompass all levels of control of the health-disease process, being essential the attendance of the biopsychosocial needs of the attended.

The number of studies that use the MNA® questionnaire in the elderly is still scarce, and even lower, the content described in the literature with institutionalized elderly.

Unfortunately, Brazil does not yet have a national reference tool to determine the nutritional status of the elderly. Thus, studies conducted with elderly people in Brazil use international standards, as used by MNA® in this research, and there is still no consensus among which is the best indicator of nutritional status, as well as how health professionals should carry out nutritional assessment.

It is essential to establish prevention programs in long-term institutions that subsidize the interventions of the multidisciplinary health team with a view to controlling risk factors, including nutritional parameters. Through an individualized nutritional intervention, performed after an adequate evaluation of the nutritional status, and, when necessary, of the existing diseases, it will be possible to revert, in a large number of cases, a malnutrition scenario, and consequently, to provide the elderly patient with the reestablishment of their organic functions.

REFERENCES

1. Paz RC, Fazzio DMG, Santos ALB. Avaliação nutricional em idosos institucionalizados. *Revisa* [Internet]. 2012 [Cited 2013 Jul. 24]; 1(1): 9-18. Available from: <http://revistafacesa.senaaires.com.br/index.php/revisa/article/view/6>
2. Oliveira ERA, Gomes MJ, Paiva KM. Institucionalização e qualidade de vida de idosos da Região Metropolitana de Vitória-ES. *Esc Anna Nery* [Internet]. 2011 [Cited 2013 Aug. 13]; 15(3): 518-23. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452011000300011
3. Instituto Brasileiro de Geografia e Estatística [internet]. Indicadores sociais. 2010. [cited 2015 Jan 25]. Available from: <http://www.ibge.gov.br/home/estatistica/populacao/censo2010/indicadores_sociais_municipais/indicadores_sociais_municipais_tab_uf_zip.shtm>.
4. Neumann B, Conde SR, Lemos JRN, Moreira TR. Associação entre o estado nutricional e a prevalência de doenças crônicas não transmissíveis em idosos residentes no município de Roca Sales-RS. *RBCEH* [Internet]. 2014 [Cited 2015 Jun. 22]; 11(2): 166-177. Available from: <http://seer.upf.br/index.php/rbceh/article/view/4058>
5. Colembergue JP, Conde SR. Uso da Miniavaliação Nutricional em idosos institucionalizados. *Scientia Medica (Porto Alegre)* [Internet]. 2011 [Cited 2012 Jun. 23]; 21(2): 59-63. Available from: <https://core.ac.uk/download/pdf/25529756.pdf>
6. Fachine BRA, Trompieri N. O processo de envelhecimento: as principais alterações que acontecem com o idoso com o passar dos anos. *Rev. Científica Internacional* [Internet]. 2012 [Cited 2014 Jul. 14]; 1(20):106-32. Available from: <http://www.interscienceplace.org/isp/index.php/isp/article/view/196>
7. Heitor SFD, Rodrigues LR, Tavares DMS. Prevalência da adequação à alimentação saudável de idosos residentes em zona rural. *Texto Contexto Enferm* [Internet]. 2013 [Cited 2015 Nov. 15]; 22(1): 79-88. Available from: http://www.scielo.br/pdf/tce/v22n1/pt_10.pdf

8. Martin FG, Nebuloni CC, Najas S. Correlação entre estado nutricional e força de preensão palmar em idosos. Rev. Bras. Geriatr. Gerontol [Internet]. 2012 [Cited 2015 Oct. 22]; 15(3):493-504. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1809-98232012000300010
9. Brasil. Ministério da Saúde. Conselho Nacional de Saúde. Resolução nº 466/2012, aprova as diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos (12/12/12). Brasília: Diário Oficial da União; 2013.
10. Brasil. Ministério da Saúde. Conselho Federal de Enfermagem. Resolução COFEN nº 311, de 8 de fevereiro de 2007. Dispõe sobre a Reformulação do Código de Ética dos Profissionais de Enfermagem. Brasília: Ministério da Saúde, 2007.
11. National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Australia; 2016. [Cited 2016 Jan. 24]. Available from: <http://www.sobest.com.br/textod/35>
12. Dawalibi NW, Anacleto GMC, Witter C, Goulart RMM, Aquino RC. Envelhecimento e qualidade de vida: análise da produção científica da Scielo. Rev. de Estudos de Psicologia [Internet]. 2013 [Cited 2014 Nov. 30]; 3(30):393-403. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-166X2013000300009
13. Silva A, Dal Prá KR. Envelhecimento populacional no Brasil: o lugar das famílias na proteção aos idosos. Argumentum [Internet]. 2014 [Cited 2015 Feb. 22]; 1(6): 99-115. Available from: <http://www.redalyc.org/articulo.oa?id=475547142008>
14. Pereira IFS, Spyrides MHC, Andrade LMB. Nutritional status of elderly Brazilians: a multilevel approach. Cad. Saúde Pública [Internet]. 2016 [Cited 2016 Dec. 17]; 32(5):1-12. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2016000500709
15. Salmaso FV, Vigário OS, Mendonça LMC, Madeira M, Netto LV, Guimarães MRM et al. Análise de idosos ambulatoriais quanto ao estado nutricional, sarcopenia, função renal e densidade óssea. Arq Bras Endocrinol Metab [Internet]. 2014 [Cited 2015 Jan. 18]; 58(3): 226-231. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0004-27302014000300226
16. Azevedo EAM, Lopes HG, Maia AHS, Lima VT, Nunes VMA, Alchieri JC. Avaliação nutricional de idosos residentes em instituições filantrópicas. J Health Sci Inst [Internet]. 2014 [Cited 2015 May 22]; 32(3):260-4. Available from: https://www.unip.br/comunicacao/publicacoes/ics/edicoes/2014/03_jul-set/V32_n3_2014_p260a264.pdf
17. Volpini MM, Frangella VS. Avaliação nutricional de idosos institucionalizados. Einstein [Internet]. 2012 [Cited 2013 Jan. 19]; 11(1):32-40. Available from: <http://www.scielo.br/pdf/eins/v11n1/a07v11n1.pdf>
18. Félix LN, Souza EMT. Avaliação nutricional de idosos em uma instituição por diferentes instrumentos. Rev Nutr [Internet]. 2009 [Cited 2011 Jul. 14]; 22(4): 571-80. Available from: http://www.scielo.br/scielo.php?pid=S1415-52732009000400012&script=sci_abstract&tlng=pt
19. Cortez ACL, Martins MCC. Anthropometric Indicators of Nutritional Status in Elderly: a Systematic Review. UNOPAR Cient Ciênc Biol Saúde [Internet]. 2012 [Cited 2013 Dec. 16]; 14(4):271-7. Available from: <http://www.pgsskroton.com.br/seer/index.php/JHealthSci/article/view/887/851>
20. Oliveira PB, Tavares DMS. Condições de saúde de idosos residentes em Instituição de Longa Permanência segundo necessidades humanas básicas. Rev bras enferm [Internet]. 2014 [Cited 2015 Nov. 18]; 67(2): 241-6. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672014000200241

21. Fares D, Barbosa AR, Borgatto AF, Coqueiro RS, Fernandes MH. Fatores associados ao estado nutricional de idosos de duas regiões do Brasil. Rev Assoc Med Bras [Internet]. 2012 [Cited 2014 Jan. 22]; 58(4):434-441. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-42302012000400013
22. Fazzio DMG. Envelhecimento e qualidade de vida - uma abordagem nutricional e alimentar. Revisa [Internet]. 2012 [Cited 2013 Nov. 30]; 1(1):76-88. Available from: <http://revistafacesa.senaaires.com.br/index.php/revisa/article/view/15>
23. Sperotto FM, Spinelli RB. Avaliação nutricional em idosos independentes de uma instituição de longa permanência para idosos no município de Erechim-RS. Perspectiva [Internet]. 2010 [Cited 2011 Jan. 12]; 34(125): 105-16. Available from: http://www.uricer.edu.br/site/pdfs/perspectiva/125_78.pdf
24. Silva MV, Figueiredo MLF. Idosos institucionalizados: uma reflexão para o cuidado de longo prazo. Enfermagem em Foco [Internet]. 2012 [Cited 2013 Jul. 30]; 3(1): 22-24. Available from: <http://revista.portalcofen.gov.br/index.php/enfermagem/article/view/215>
25. Silva R, Schmidt OF, Silva S. Farmacologia em geriatria. Revi AMRIGS. 2012; 2(56):164-74.
26. Gautério DP, Santos SSC, Pelzer MT, Barros EJ, Baumgarten L. Caracterização dos idosos usuários de medicação residentes em instituição de longa permanência. Rev Esc Enferm USP [Internet]. 2012 [Cited 2013 Feb. 27]; 46(6): 1394-9. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342012000600016

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