Evaluation of the nutritional risk in elderly assisted by Family Health Teams*

AVALIAÇÃO DO RISCO NUTRICIONAL EM IDOSOS ATENDIDOS POR EQUIPES DE SAÚDE DA FAMÍLIA

EVALUACIÓN DEL RIESGO NUTRICIONAL EN ANCIANOS ATENDIDOS POR EQUIPOS DE SALUD DE FAMILIA

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ABSTRACT

Changes in the nutritional state contribute to an increase of morbi-mortality among the elderly. The instrument Nutrition Screening Initiative (NSI) was developed in order to identify nutritional risks in this population group. This study aims to describe the socio-demographic profile and evaluate the nutritional risk of the elderly assisted by Family Health Strategy teams. It is a cross-sectional study with a population sample of 503 older people living in Dourados (MS). Instruments: NSI and structured questionnaire for the health socio-demographic variables. There was a prevalence of female people, aged between 60 and 69 years old, widowers, illiterate, with a per capita income up to one minimum salary, with hypertension and regular health self-evaluation. The NSI allowed to identify 33.2% of the elderly with high nutritional risk, which was significantly associated to the low level of education, low per capita income and chronic diseases. As a tracking method, the NSI was useful to identify the social and health determinants that contribute to the nutritional risk.

KEY WORDS

Aged.
Nutritional assessment.
Risk.
Health of the elderly.
Family health.
Primary Health Care.

RESUMO

Alterações do estado nutricional contribuem para o aumento da morbi-mortalidade em idosos. O instrumento The Nutrition Screening Initiative (NSI) foi desenvolvido para identificar riscos nutricionais nesse grupo populacional. Este estudo tem por objetivos descrever o perfil sociodemográfico e avaliar o risco nutricional de idosos atendidos por equipes da Estratégia Saúde da Família. O estudo é transversal, com amostra populacional de 503 idosos residentes em Dourados (MS). Instrumentos: NSI e questionário estruturado para as variáveis sociodemográficas de saúde. Verificou-se o predomínio de idosos do sexo feminino, entre 60 a 69 anos, viúvos, analfabetos, de renda per capita de até um salário mínimo, com hipertensão e auto-avaliação regular de saúde. O NSI permitiu identificar 33,2% de idosos com alto risco nutricional, o que se mostrou significativamente associado ao baixo nível de escolaridade, à baixa renda per capita e às doenças crônicas. Como método de rastreio, o NSI mostrou-se útil para identificar os determinantes sociais e de saúde que contribuem para o risco nutricional.

DESCRITORES

Idoso.
Avaliação nutricional.
Risco.
Saúde do idoso.
Saúde da família.
Atenção Primária à Saúde.

RESUMEN

Las alteraciones del estado nutricional contribuyen en aumentar la morbimortalidad en ancianos. El instrumento The Nutririon Screening Inititative (NSI) fue desarrollado para identificar riesgos nutricionales en dicho grupo poblacional. Este estudio tiene como objetivos describir el perfil sociodemográfico y evaluar el riesgo nutricional de ancianos atendidos por equipos de la Estrategia Salud de la Familia. Estudio transversal, con muestra poblacional de 503 ancianos residentes en Dourados - MS - Brasil. Instrumentos: NSI y cuestionario estructurado para las variables sociodemográficas y de salud. Se verificó el predominio de ancianos del sexo femenino, de 60 a 69 años, viudos, analfabetos, con ingresos per cápita de hasta un salario mínimo, con hipertensión y autoevaluación regular de salud. El NSI permitió identificar un 33,2% de ancianos con alto riesgo nutricional, que se mostró significativamente asociado a: bajo nivel de escolaridad, bajos ingresos per cápita de hasta un salario mínimo y enfermedades crónicas. Como método de rastreo, el NSI se mostró útil para identificar los determinantes sociales y sanitarios que contribuyen al riesgo nutricional.

DESCRIPTORES

Anciano.
Evaluación nutricional.
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INTRODUCTION

One of the priorities in elderly health care is to monitor their life and health conditions, as it is known that health problems increase with age, as well as health service use. This monitoring demands indicators to assess morbidity and the impact of a disease and/or disability on the quality of life of elderly people and their families[1], among which perceived health, limitations to perform activities of daily living, life habits, presence of chronic illnesses and nutritional state stand out. The latter can even serve as a positive health indicator[2-5].

Many Brazilian elderly people's profile is characterized by a low socioeconomic and educational level and high prevalence of chronic and disabling diseases. Studies involving elderly people seen in the Family Health Strategy also identified the predominance of women, patients with a family income of less than one minimum wage and high prevalence of chronic illnesses, mainly arterial hypertension[1-3].

Various parameters can be used to assess the nutritional state, used separately or in combination. The American Dietetic Association defined nutritional screening as the identification process of characteristics knowingly associated with dietetic or nutritional problems. It is applied to group or population to identify people with nutritional risks and detect the need for a more in-depth characterization of their nutritional state. Once identified by nutritional screening, these people should be submitted to nutritional assessment in order to classify their nutritional state and plan intervention strategies. Hence, nutritional screening serves to detect the presence of malnutrition risks, while nutritional assessment not only detects malnutrition, but also classifies its degree and permits data collection to help and correct it[4,6].

Conditions interfering in elderly people's nutritional state are mainly related to the consequences of aging, which include, among others, decreased functional capacity, olfative and gustatory sensitivity[7]. They are also related to illnesses and the pharmacological effects of medication use, psychiatric (dementia, depression and alcoholism) and social problems (emotional isolation, poverty and living alone) and life habits (reduced physical exercise, smoking, inadequate food intake).

Nutritional Risk Determination: The Nutrition Screening Initiative (NSI)

Several instruments have been developed in the attempt to identify elderly people at nutritional risk. The Nutrition Screening Initiative (NSI), a self-applied ten-item questionnaire was published in the USA in 1991, as a result of joint efforts by 30 organizations. Its goal was to identify individuals aged 65 years and older at nutritional risk, for use in primary health care, with a view to drawing attention to nutritional problems.

Even without being capable of predicting mortality[8], the NSI permits the identification of people with nutritional shortages due to chronic illnesses, functional disabilities, social isolation, inadequate food intake, alcoholism, mental problems, medication use and involuntary weight loss[4]. The total score reveals three groups, defined in terms of nutritional risk. People scoring between 0 and 2 are classified in the low nutritional risk group, those between 3 and 5 in the moderate nutritional risk group and those scoring 6 or more in the high-risk group. Conducts vary from case to case: low-risk elderly should be reassessed six months later, moderate-risk patients three months later and high-risk elderly should me immediately forwarded to the physician, nutritionist or social worker[4,9].

Nowadays, the NSI is routinely used in the USA and other countries, including Spain, England, Singapore and Turkey, because it is a simple instrument that both health professionals and family members can apply. In Brazil, on the other hand, its use remains restricted[10-16].

In developing countries like Brazil, where difficulties exist to measure nutritional risk and its influence on public and/or clinical health, using scores that indicate nutritional risk in a relatively accurate, fast and cheap way is fundamental. Despite its limitations, the use of the NSI in Primary Health Care and research is both adequate and relevant[4,16].

OBJECTIVES

This study aimed to describe the sociodemographic profile and health conditions of elderly patients seen by Family Health teams in Dourados, MS; to assess their nutritional risk through the NSI and verify associations between both.

METHOD

A cross-sectional research with a quantitative approach was carried out. The population comprised a random sample of elderly aged 60 years and older, living in Dourados, Mato Grosso do Sul (MS) and included in the records of Family Health Strategy (FHS) teams.

Dourados is located at 214 km from the State capital Campo Grande. Data from the Unified Health System Informatics Department (DATASUS) estimated 181,869 inhabitants in 2007, 15,753 of whom were 60 years of age or older, corresponding to 8.7% of the total population[17].

Basic Family Health Units (BFHU) in Dourados are located in neighborhoods distant from the center, basically

> Conditions interfering in elderly people's nutritional state are mainly related to the consequences of aging, which include, among others, decreased functional capacity, olfative and gustatory sensitivity.

concentrating agricultural, commerce and industrial workers. In some of these areas, families with low purchasing power predominate.

Sample size was calculate for p = 0.5, with a confidence interval of 95%, losses estimated at 25% and a 4.4% precision level, resulting in **n** = 497 subjects. The following inclusion criteria were adopted: men and women, aged 60 years or older (according to the Statute of the Elderly). People who could not communicate, indigenous people living in villages and elderly who refused to participate or sign the free and informed consent term were excluded.

To calculate the number of elderly per FHS team, the simple random sampling technique was used. Out of 31 existing urban teams, 28 participated in the study, as three had not been consolidated. In total, 672 elderly were drafted, five of whom refused to participate, 135 were not at home at the time of data collection and 29 were excluded from the study due to communication inability, resulting in 503 elderly who answered the questionnaire.

A number of steps were followed to capture the research subjects: a) random draft of Family Health teams, b) to organize a collection timetable, a period between five and seven days was established for each FHS team; c) the timetable with the data collection dates per FHS team was forwarded to the Municipal Health Secretary in Dourados to be disseminated among the teams; c) the researcher contact each team by phone to schedule the start of the activities; d) after making the appointment, one of the researchers went to the BFHU to explain the study goals to the nurses and community health agents and present the data collection instruments; e) the families' files were randomly drafted through Microsoft Excel™ version 97-2003.

Data were collected between June 2007 and March 2008 through home interviews, held in the presence of the Community Health Agent or Family Health Team (FHT) nurse. Three undergraduate Nursing students from *Universidade Estadual de Mato Grosso do Sul* also participated after a 20-hour theoretical-practical training to get familiar with the instruments.

A structured instrument was used to collect data on sociodemographic and health variables, in addition to the Nutrition Screening Initiative[4]. The following score was considered as the assessment criterion: from 0 to 2, low nutritional risk; from 3 to 5, moderate risk and from 6 to 21, high risk.

Demographic, socioeconomic variables and health conditions: age (categorized per age range from 60 to 69, 70 to 79 and 80 years and older); gender; self-defined skin color, classified as white, black and mulatto (including indigenous and yellow); religion (catholic, evangelical, others); education (illiterate and literate); civil status (single, living with a fixed partner, widowed and divorced); family structure (lives alone or accompanied); per capita income; housing conditions (good, regular or precarious[a]); self-assessed health (very good/good, regular, bad/very bad); diseases self-referred by the interviewee; social participation (which, according to the Primary Health Care Information System Manual[19], includes religious group, association, cooperative, among others); and weekly physical exercise (at least twice per week).

Authorization for each elderly person's participation was obtained from the elderly him/herself or the legal guardian through the signing of the free and informed consent term. Approval for this study was obtained from the Ethics Committee at the University of São Paulo School of Nursing under process 593/2006 and authorization to accomplish the study was obtained from the Municipal Health Secretary in Dourados.

The collected data were submitted to statistical tests, using SPSS version 15.0. Initially, descriptive analysis was applied and associations between the categorical variables were studied based on the non-parametric chi-square test, with nutritional risk assessment as the dependent variable and the elderly subjects' sociodemographic characteristics and health conditions as independent variables. The significance level adopted for the study was 5%.

RESULTS

The sample predominantly included women (69.0%), between 60 and 69 years of age (46.3%), white (72.6%), widowed or married (42.9% and 41.6%, respectively), Catholics (56.5%), living with another person (83.0%) and in good housing conditions (73.6%). The number of participants who declared to be illiterate stood out (53.0%), as well as people who did not participate in any social activity (80.9%).

Per capita income was distributed as follows: 153 (30.4%) participants received up to one minimum wage per person per month[b], 262 (52.1%), between 0.6 and 1.0 MW and 88 (17.5%), more than 1.0 MW. Thus, it is observed that part of the elderly people's revenues was being used to sustain other people with whom they shared their accommodations.

With regard to nutritional risk, the distribution among the low, moderate and high-risk groups was homogeneous (30.2%, 36.6% and 33.2%, respectively). The mean score was 4.6, with a standard deviation of 3.41. Fifty-five elderly (10.9%) obtained the minimum score (zero) and only one scored 17, which was the highest score.

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[a] An author[18] define *good* as a construction with appropriate material, at least four spaces, using all rooms as bedrooms and a private bathroom, kitchen and top loading washing machine; *regular* as a construction with appropriate material, at least three spaces or four spaces with the use of rooms not as bedrooms, a private bathroom, kitchen or top loading washing machine; and *precarious* as a construction with adapted material, at least one room, one living room, a kitchen and a bathroom or bathroom for collective use, a kitchen or a top loading washing machine.

[b] The Minimum Wage at the time of data collection was R$ 380.00.

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Tables 1 and 2 show the elderly participants' distribution according to sociodemographic characteristics, housing conditions, health conditions and associations with nutritional risk.

Table 1 - Analysis of association between nutritional risk and sociodemographic variables of elderly people seen by Family Health Strategy teams - Dourados, MS - 2008

Variable	Category	Nutritional Risk			Total N (%)	p
		Low N (%)	Moderate N (%)	High N (%)		
Gender	Male	55 (35.3)	54 (34.6)	47 (30.1)	156 (100.0)	
	Female	97 (27.9)	130 (37.5)	120 (34.6)	347 (100.0)	0.249
Education	Illiterate	77 (28.8)	87 (32.6)	103 (38.6)	267 (100.0)	
	Literate	75 (31.8)	97 (41.1)	64 (27.1)	236 (100.0)	0.020
Age range	60 - 69 years	76 (32.6)	81 (34.8)	76 (32.6)	233 (100.0)	
	70 - 79 years	54 (28.3)	72 (37.7)	65 (34.0)	191 (100.0)	0.857
	80 years and +	22 (27.9)	31 (39.2)	26 (32.9)	79 (100.0)	
Family structure	With partner	131 (31.4)	152 (36.5)	134 (32.1)	417 (100.0)	
	Single	21 (24.4)	32 (37.2)	33 (38.4)	86 (100.0)	0.368
Housing conditions	Good	121 (32.7)	144 (38.9)	105 (28.4)	370 (100.0)	
	Regular	26 (25.7)	33 (32.7)	42 (41.6)	101 (100.0)	0.001
	Precarious	5 (16.7)	6 (20.0)	19 (63.3)	30 (100.0)	
Per capita income	Up to 0.5 MW	39 (25.5)	45 (29.4)	69 (45.1)	153 (100.0)	
	0.6 – 1 MW	76 (29.0)	105 (40.1)	81 (30.9)	262 (100.0)	<0.001
	> 1 MW	37 (42.0)	34 (38.6)	17 (19.3)	88 (100.0)	

Table 2 - Analysis of association between nutritional risk and health conditions of elderly patients seen by Family Health Strategy teams - Dourados, MS - 2008

Variable	Category	Nutritional Risk			Total N (%)	p
		Low N (%)	Moderate N (%)	High N (%)		
Physical exercise	No	97 (25.9)	140 (37.4)	137 (36.6)	374 (100.0)	0.001
	Yes	55 (42.6)	44 (34.1)	30 (23.3)	129 (100.0)	
Self-assessed health	Very good/Good	79 (40.7)	69 (35.6)	46 (23.7)	194 (100.0)	<0.001
	Regular	67 (26.2)	98 (38.3)	91 (35.5)	256 (100.0)	
	Bad/ Very bad	6 (11.3)	17 (32.1)	30 (56.6)	53 (100.0)	
Hypertension	No	50 (41.7)	41 (34.2)	29 (24.2)	120 (100.0)	0.004
	Yes	102 (26.6)	143 (37.3)	138 (36.0)	383 (100.0)	
Heart failure	No	146 (32.2)	170 (37.4)	138 (30.4)	454 (100.0)	<0.001
	Yes	6 (12.2)	14 (28.6)	29 (59.2)	49 (100.0)	
Diabetes	No	141 (35.4)	137 (34.4)	120 (30.2)	398 (100.0)	<0.001
	Yes	11 (10.5)	47 (44.8)	47 (44.8)	105 (100.0)	
Osteoarthrosis	No	121 (33.7)	130 (36.2)	108 (30.1)	359 (100.0)	0.013
	Yes	31 (21.5)	54 (37.5)	59 (41.0)	144 (100.0)	
Digestive Disorders	No	128 (34.2)	133 (35.6)	113 (30.2)	374 (100.0)	0.002
	Yes	24 (18.6)	51 (39.5)	54 (41.9)	129 (100.0)	

It is observed in Table 1 that nutritional risk was significantly associated with education (p=0.020), housing conditions (p=0.001) and monthly per capita income (p<0.001). The higher the education level, the smaller the proportion of elderly people at high nutritional risk. The same is observed regarding housing conditions and per capita income.

Table 2 shows a significant association for absence of physical activity (p=0.001), bad self-assessed health (p<0.001), arterial hypertension (p=0.004), heart failure (p<0.001), diabetes (p<0.001), osteoarthritis (p=0.013) and digestive disorders (p=0.002).

DISCUSSION

In 2003, the proportion of elderly Brazilian who could neither read nor write was approximately four million, i.e.,

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1/3 of all elderly people in the country[5]. It is known that education level is a precise indicator of a population's socioeconomic level, related to access to employment and revenues, use of health services and receptiveness for education and health programs. In the study sample, the number of illiterate elderly stands out, as they are knowingly five times more susceptible to dependence[20].

The presence of chronic illnesses stands out, as well as the elderly people's lack of participation in social activities and in regular physical exercise. There are no public policies aimed at physical exercise for the elderly in Dourados, as the city offers only one community center for elderly people, which was distant from the place of study. Brazilian studies appoint similar results in terms of physical inactivity, limited social participation and presence of hypertension as the most prevalent chronic illness[2-3,20].

These study findings showed a certain balance between the quantities of elderly in the three NSI groups. This fact is similar to a study carried out in Gravataí-RS, but diverges from the Passo Fundo Project-RS, whose results indicated 55.6% of low-risk, 27.8% of moderate-risk and 16.6% of high-risk elderly[15-16].

A cross-sectional multicenter research carried out in Spain, involving 1,320 elderly people over 65 years of age, identified 46.2% of women and 43.2% of men with high nutritional risk[10], similar to a study developed in Ankara, Turkey, in which 36.9% of women and 34.3% of men were classified with high nutritional risk[12]. In Oklahoma, USA, an epidemiological research of 8,892 elderly identified 38% at moderate risk and 18% at high nutritional risk[21]. In Singapore, the NSI was used to determine the nutritional risk of 2,605 people between 55 and 98 years of age, showing 25.5% at moderate risk and 4.6% at high risk[13].

Brazilian and international studies[10,15-16,22-24] support the present results on the association between high nutritional risk and changes occurred in the elderly patients' diet related to illnesses, use of three or more drugs per day and body weight alterations in the last six months.

These study results also showed an association between nutritional risk and chronic illnesses. Alcoholism is an exception, as it did not demonstrate any significant association. As it was self-referred, however, this problem may have been underestimated. The research carried out in Gravataí-RS showed an association between nutritional risk and tumors and the study from Passo Fundo-RS with hypertension, osteoporosis and bone-joint diseases[14,16].

In this study, the highest nutritional risk percentage was found for illiterate elderly people with a low family and per capita income. In the research from Gravataí, no significant difference was found between these variables, but the study from Alabama found an association between high nutritional risk, education and income[14,24].

CONCLUSION

The NSI permitted classifying the elderly participants in terms of nutritional risk. The following scored higher, indicating high nutritional risk: women, illiterate, with chronic illnesses and low purchasing power, supporting findings from other Brazilian and international studies. These findings show that elderly people at high nutritional risk are also in worse socioeconomic conditions. Understanding the elderly people's social and health situation is important to formulate prevention plans or treatments adequate to their reality.

As a result of the increase in the elderly population, health services need to be prepared for nutritional risk assessment in this population group. The use of the NSI can be the first step to detect nutritional alterations, as this instrument rapidly identifies changes in food intake due to the presence of disease, number of meals, alcohol and food intake, medication, independence to purchase and prepare food, economic and social difficulties, as well as oral health conditions and rapid body weight alterations. Each NSI item should be carefully analyzed, as it permits guiding the intervention.

The use of the NSI is fast, easy and cheap. It is indicated for Primary Health Care, mainly for application by community health agents from FHS teams. The instrument demands little training time and permits screening cases in need of more in-depth nutritional assessment, thus guiding the use of scarce resources. It is highlighted that nutrition risk screening through the NSI replaces neither anthropometric measures nor other nutritional parameters.

The researchers hope these study results may alert Family Health Teams to direct and broaden the perspective of their actions to see to the needs of this population.

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