

PREVALENCE OF NURSING DIAGNOSIS IMBALANCED NUTRITION IN HYPERTENSIVE PATIENTS

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ABSTRACT: The present study aimed to investigate the prevalence of Nursing Diagnosis Imbalanced Nutrition: more than body requirements in hypertensive patients. Exploratory, descriptive study, with a quantitative approach, with 90 hypertensive patients monitored in a secondary care unit. Data collection was performed in 2015 through the administration of a questionnaire on sociodemographic, anthropometric and clinical characteristics of the patients. Categorical variables were summarized by descriptive statistics of frequencies (absolute and relative). Associations between major defining characteristics and diagnosis of imbalanced nutrition were assessed by Pearson's chi-square test. The referred diagnosis was observed in 82 (91.1%) of the participants, since they presented at least one of the two major defining characteristics: "triceps skinfold thickness" ($p < 0.001$) or "overweight (20% over their ideal weight)" ($p < 0.001$). The role of nurses in the promotion of strategies aimed to introduce changes in nutritional behavior and the practice of physical activity, contributing to reducing the rates of the referred nursing diagnosis, was demonstrated.

DESCRIPTORS: Hypertension; Nursing diagnosis; Obesity; Nutrition; Nursing processes.

PREVALÊNCIA DO DIAGNÓSTICO DE ENFERMAGEM NUTRIÇÃO DESEQUILIBRADA EM HIPERTENSOS

RESUMO: Objetivou-se investigar a prevalência do Diagnóstico de Enfermagem Nutrição desequilibrada: mais do que as necessidades corporais em hipertensos. Estudo descritivo, exploratório, com abordagem quantitativa, realizado com 90 pacientes hipertensos, acompanhados em unidade de atenção secundária. A coleta de dados foi realizada em 2015, mediante questionário contendo dados sociodemográficos, antropométricos e clínicos. As variáveis categóricas foram resumidas por estatísticas descritivas de frequências (absolutas e relativas). As associações entre as características definidoras maiores e a presença do diagnóstico estudado foi avaliada pelo teste do qui-quadrado de *Pearson*. Verificou-se que o mesmo esteve presente em 82 (91,1%) dos participantes, tendo em vista que eles apresentavam pelo menos uma das duas características definidoras maiores: "dobro do tríceps alterado" ($p < 0,001$) ou "sobrepeso 20% acima do ideal" ($p < 0,001$). Evidenciou-se a importância do enfermeiro promover estratégias que visem às mudanças comportamentais na alimentação e prática de atividade física, contribuindo para a redução do diagnóstico.

DESCRIÇÕES: Hipertensão; Diagnóstico de enfermagem; Obesidade; Alimentação; Processos de enfermagem.

PREVALENCIA DEL DIAGNÓSTICO DE ENFERMERÍA NUTRICIÓN DESEQUILIBRADA EN HIPERTENSOS

RESUMEN: El objetivo del estudio fue investigar la prevalencia del Diagnóstico de Enfermería Nutrición desequilibrada: más que las necesidades corporales en hipertensos. Estudio descriptivo, exploratorio, con abordaje cuantitativo, realizado con 90 pacientes hipertensos, acompañados en unidad de atención secundaria. Los datos fueron obtenidos en 2015, por medio de cuestionario con informaciones sociodemográficas, antropométricas y clínicas. Las variables categóricas fueron resumidas por estadísticas descriptivas de frecuencias (absolutas y relativas). Las asociaciones entre las características de mayor definición y la presencia del diagnóstico estudiado fue evaluada por prueba de chi-cuadrado de *Pearson*. Se observó que este estuvo presente en 82 (91,1%) de los participantes, considerando que ellos presentaban por lo menos una de las dos características definidoras mayores: "pliegue del tríceps alterado" ($p < 0,001$) o "sobrepeso 20% mayor que el ideal" ($p < 0,001$). Se evidenció la importancia del enfermero para promover estrategias de cambios comportamentales en la alimentación y práctica de actividad física, contribuyendo para la reducción del diagnóstico.

DESCRIPTORES: Hipertensión; Diagnóstico de enfermería; Obesidad; Alimentación; Procesos de enfermería.

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Received: 07/03/2016

Finalized: 06/07/2016

● INTRODUCTION

Systemic Arterial Hypertension (SAH) is a Chronic Non-communicable Disease (CND) influenced by multiple factors and characterized by high blood pressure levels⁽¹⁾. SAH may occur alone or as a result of other disorders, and is associated with several complications or even disabilities, culminating in early retirements that generate high government expenditures⁽²⁾.

According to the World Health Organization (WHO) there are 600 million hypertensive individuals in the world. Thus, the condition is the third leading risk factor associated to mortality worldwide. In Brazil, cardiovascular diseases are the leading cause of death, since the prevalence of hypertension ranges from 22% and 44% among adults (32%, in average), reaching more than 50% among individuals aged 60-69 years and 75% in individuals over 70 years of age. A prevalence of 22.6%⁽³⁾ was reported in the city of Fortaleza.

Nursing consultation to hypertensive patients consists in the investigation of risk factors and life habits, as well as in physical examination that involves blood pressure measurement, as well as height, weight, waist and hip circumference measurements followed by calculation of Body Mass Index (BMI). It also includes guidance on the disease, regular use of drugs and healthy life habits such as physical activity and healthy diet. This routine is based on Systematization of Nursing Assistance (SNA)⁽⁴⁾.

Systematization of Nursing Care (SNA) is an activity of exclusive responsibility of nurses is a set of actions planned by nurse professionals to solve patients' problems and promote individualized care⁽⁵⁾. The Nursing Diagnosis (ND) is the most important step of the SNA and is a clinical judgment, supported by some defining characteristics, about actual or potential human responses to health problems. The internationally validated taxonomy of nursing diagnoses most disseminated in Brazil is North American Nursing Diagnosis Association - NANDA Internacional⁽⁶⁾.

ND "Imbalanced Nutrition: more than body requirements" consists in nutrient intake that exceeds metabolic needs and is supported by the following defining characteristics: "eating in response to external stimuli"; "eating in response to internal stimuli other than hunger"; "triceps skinfold thickness was over 25 mm in women and over 15 mm in men"; "food intake concentrated at the end of the day"; "sedentary lifestyle"; "dysfunctional eating patterns"; "weight 20% above ideal weight range for height and build". Other related factors are "excessive food intake and insufficient physical activity" and "excessive food intake in relation to metabolic needs"⁽⁶⁾.

The relevance of this study consists in investigating a problem constantly experienced by hypertensive patients, i.e. "imbalanced nutrition: more than body requirements", as well as provide nurses with more information through actions based on the nursing diagnosis, a key aspect of systematization nursing care (SNC). The identification of the defining characteristics and related factors clarify the main causes and symptoms faced by this group of individuals, providing guidance on the planning and implementation of actions to encourage patients to adopt healthier diets.

In view of the aforementioned, the following questions were posed: What is the prevalence of the referred ND in hypertensive individuals? What are the main defining characteristics and factors related to the ND? Therefore, the present study aimed to assess the prevalence of ND "Imbalanced nutrition: more than body requirements" in hypertensive individuals.

● METHOD

Descriptive and exploratory study with a quantitative approach conducted in a reference hospital for the treatment of patients with diabetes and hypertension, in Fortaleza, Ceará, Brazil...

The sample size was calculated with the formula: $n = (z^2 \alpha \cdot P \cdot Q \cdot N) / [z^2 \alpha \cdot P \cdot Q + (N-1) \cdot E^2]$, where $Z \alpha = 1.96$, considering a confidence level of 95%, $N = 1300$, E (random error) = 0.1 (10%), prevalence (P) = 50, with a total sampling number "n" of 90 individuals. The reason for the use of this prevalence is lack of knowledge on the study variable.

The sample was composed of 90 patients with hypertension who met the following inclusion criteria:

subject registered and monitored in the referred institutions and diagnosed with SAH. Hypertensive individuals with associated comorbidities, such as diabetes mellitus were excluded from the sample.

Socioeconomic, demographic, anthropometric and clinical data were collected through a self-reported questionnaire in September 2015. Socioeconomic and demographic data included age, marital status, education, family income, number of family members and occupation. Anthropometric data included weight, height, waist circumference (WC), Body Mass Index (BMI) and Triceps Skinfold Thickness. The clinical data were Blood Pressure (BP) and information related to the nursing diagnosis investigated in this study: "Imbalanced nutrition: more than body requirements".

Habitual dietary intake (meals) concerns all the foods that are part of the individual's daily routine, considering foods eaten at least four times a week⁽⁷⁾.

The nursing diagnosis investigated in this study was determined according to the presence of defining characteristics, namely: obesity (weight 20% above ideal weight range for height and build) and triceps skinfold thickness over 25 mm in women and over 15 mm in men, since the presence of one or more of these defining characteristics is sufficient to establish the diagnosis⁽⁸⁾.

The Statistical Package for Social Sciences (SPSS), 20.0 version was used for data storage, processing and statistical analysis. The categorical variables were summarized by descriptive statistics of frequencies (absolute and relative). Association between the main defining characteristics and the presence of the referred ND was assessed by Pearson's chi-square test, with a p value <0.05 considered statistically significant, and the strength of this association was obtained by Odds Ratio – OR calculation.

The recommendations of Resolution no 466/12 of Brazil's National Health Council (CNS)⁽⁹⁾ were observed. The project of Ethics in Research with Humans of Universidade de Fortaleza (UNIFOR) was approved in August, according to statement no 1.207.985.

● RESULTS

In the present study, 55 (61.1%) of the 90 patients with hypertension were women. The age ranged from 40 to 87 years, with an average of 62.5 ± 10.22 years. Regarding family income, it ranged from R\$ 394.00 to R\$ 15,760.00, being in average R\$ $2.530,42 \pm 2.040,90$, with prevalence of R\$ 788,00 i.e. the national minimum wage of the study period. The number of family members ranged from one to eight and the per capita income was in average R\$ 673.42 ± 881.85 .

Also, 62 (68.9%) participants were married or in a stable relationship. Regarding occupation, most patients were retired, 53 (58.9%). Regarding education, it ranged from no education at all to complete higher education, with predominance of incomplete primary education: 30 (33.3%) participants.

BMI measurements showed that 33 (36.7%) of the patients were overweight, 29 (32.2%) had grade I obesity, nine (10%) had grade II obesity and only 19 (21.1%) were eutrophic. The average BMI measurement was 28.51 ± 4.27 kg/m². Concerning triceps skinfold thickness, it ranged from 10 to 40 mm among men and from 10 to 50 mm among women, with an average of 25.51 ± 4.74 mm for men and 28.22 ± 5.90 for women. It was found that 40 (72.7%) women and 33 (94.3%) men had triceps skinfold thickness values outside of the normal range, a parameter that defines the presence of the investigated ND.

Triceps skinfold thickness values not within the normal range was observed in 73 (81.1%) of the subjects and overweight/obesity, in 71 (78.8%). It can be concluded that the ND: "Imbalanced nutrition: more than body requirements" was present in 82 (91.1%) of the patients of the study sample (Figure 1).

The investigated ND was associated to overweight ($p < 0.001$) and triceps skinfold thickness ($p < 0.001$), confirming that they are main defining characteristics of the diagnosis. Regarding Odds Ratio analysis, it was found that overweight individuals (1.615) with triceps skinfold thickness values outside of the normal range (1.667) had greater probability of being diagnosed with imbalanced nutrition: more than body requirements (Table 1).

Regarding the other defining characteristics and the factor related to ND "Imbalanced nutrition:

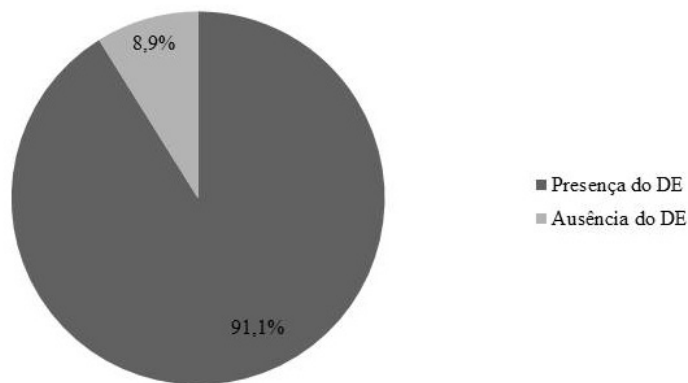


Figure 1 – Presence of ND “Imbalanced nutrition: more than body requirements in hypertensive patients” according to anthropometric variables BMI and triceps skinfold thickness. Fortaleza, CE, Brazil, 2015

Table 1 – Association between ND: “Imbalanced nutrition: more than body requirements” and anthropometric variables overweight and triceps skinfold thickness. Fortaleza, CE, Brazil, 2015

	Nursing Diagnosis				p* value	OR (CI95%)**
	Present		Absent			
	n	%	n	%		
Overweight					<0.001	
Yes	69	76.7	0	0		1.615 (1.115-2.259)
No	13	14.4	8	8.9		1
Triceps skinfold thickness					<0.001	
Not within normal range	70	77.8	0	0		1.667 (1.165-2.384)
Within normal range	12	13.3	8	8.9		1

*p: Pearson’s Chi-square test;

**OR:Odds Ratio.

more than body requirements in hypertensive patients”, shown in Table 2, physical inactivity was present in 52 (57.7%) subjects. 38 (42.2%) subjects practiced physical exercises, and walking was the most common, with a frequency of five times a week.

Regarding the defining characteristic of eating in response to internal stimuli other than hunger, non-correlation with any internal suggestion was predominant in the sample: 62 (68.8%). Regarding external suggestions, the study patients did not have the habit of eating while not hungry: 59 (65.5%).

About association of nutrition with other activities, 46 (51.19%) subjects said that there was no activity associated with the act of eating; 40 (44.4%) subjects used to eat while watching television; four (4.4%) used to eat when they were performing household chores and only one (1.1%) subject used to eat in the workplace.

Considering the habitual dietary intake of the study participants, a prevalence of foods of groups A (61: 67.7%), and E (54: 60%) was observed in breakfast; of group B (48: 53.3%) in the morning snack; of groups A (90: 100%) and D (79: 87.7%), at lunch; of groups A (38: 42.2%) and C (24: 26.6); at dinner and of groups B (14: 15.5%) and E (24: 26.6%) at supper (Table 3).

The “technique of habitual dietary intake” was used to assess concentrated food intake at the end of the day, a defining characteristic of the investigated ND. According to the findings, a prevalence of 45 (50%) of hypertensive individuals used to eat foods of group A at the end of the day. These foods are considered energy foods that are sources of carbohydrates and had low intake of foods of group B, which include fruits and vegetables. Therefore, the sample included concentrated food intake at the end of the day.

Table 2 – Distribution of individuals with hypertension according to the defining characteristics and n factor related to the investigated ND. Fortaleza, CE, Brazil, 2015

Defining characteristics and related n factor	n	%
Physical activity (practice \geq 50 min and at least 3 times a week)		
Yes	38	42.2
No	52	57.8
Eating in response to internal stimuli other than hunger		
Anxiety	20	22.2
Stress	11	12.2
Worry	18	20
None	62	68.8
Eating in response to external stimuli		
Standard time of the meal	23	25.5
Social status	14	15.5
Social event	0	0
None	55	61.1
Eating habits associated to other following activities		
Television	40	44.4
Work	1	1.1
Household chores	4	4.4
Eating is not associated to any activities	46	51.1
Nutrient intake exceeds metabolic needs (even when no longer hungry and feeling satiety, the individual continues eating)		
No	59	65.5
Yes	31	34.5

Table 3 – Distribution of the number of hypertensive individuals according to their habitual dietary intake. Fortaleza, CE, Brazil, 2015

Meals	*Group A		* Group B		* Group C		* Group D		* Group E		* Group F	
	N	%	N	%	N	%	N	%	N	%	N	%
Breakfast	61	67.7	14	15.5	-	-	-	-	54	60	-	-
Morning snack	4	4.4	48	53.3	-	-	-	-	2	2.2	-	-
Lunch	90	100	43	47.7	73	81.1	79	87.7	-	-	-	-
Afternoon snack	38	42.2	28	31.1	-	-	-	-	13	14.4	-	-
Dinner	40	44.4	11	12.2	24	26.6	14	15.5	13	14.4	-	-
Supper	5	5.5	14	15.5	-	-	-	-	24	26.6	-	-

* Classification according to the groups of foods of the food pyramid. Group A: bread, rice, grains and pasta; Group B: vegetables and fruits; Group C: meat, poultry, fish and eggs; Group D: Beans and nuts; Group E: milk, yoghurt and cheese; Group F: fats, oils and sweets.

● DISCUSSION

One defining characteristic of the investigated ND is weight 20% above ideal weight range for height and build. There was a prevalence of overweight subjects in the study: 33 (36.7%). There are several ways of assessing obesity, including BMI and WC measurements, which are objective, low-cost and practical. Another descriptive study with quantitative conducted in a Family Health Strategy Unit in a city in Southern Minas Gerais, found that most subjects had overweight and obesity: 158 (39.8%) and 141 (35.5%), respectively⁽¹⁰⁾.

Regarding anthropometric variables, WC was most prevalent for women: 50 (90.0%) of the women with values outside the normal limits. A study conducted in Botucatu, state of São Paulo, in the 2004-2008 period found that hypertensive subjects had high rates of BMI, body fat and WC⁽¹¹⁾.

Another defining characteristic of the diagnosis is "triceps skinfold thickness was over 25 mm in women and over 15 mm in men". Triceps skinfold thickness was not within the normal range in most subjects, particularly women: 40 (72.7%), and it is one defining characteristic of the investigated ND. Tricipital Skinfold Thickness (TST) is more reliable than BMI regarding fat accumulation, indicating even the presence of peripheral fat accumulation⁽¹²⁾.

It is known that obesity, a major defining characteristic, can be eliminated with a change in lifestyle, i.e. healthy eating and physical activity that should be stimulated by nurses during nursing consultations to maximize patient treatment⁽²⁾.

Regarding habitual dietary intake, most subjects showed high intake of foods of group A, which corresponds to defining characteristic dysfunctional eating pattern, since these foods, sources of carbohydrates, are at the base of the food guide pyramid and must be consumed in greater quantities than other groups; however, such intake must be balanced these are high energy dense food that induce overweight/obesity⁽¹³⁾.

Carbohydrate intake is entirely associated to increase in BP levels, by stimulating increase in insulin levels. Such increase (as well as renal sodium reabsorption) causes hypertension. Obesity can also be associated to insulin resistance and hyperinsulinemia, increasing sympathetic nervous system activity and tubular sodium reabsorption, which affects BP levels⁽¹¹⁾.

A relatively low intake of vegetables and fruits was also observed. This finding is particularly a matter of concern, since fruits and vegetables are ideal sources of vitamins, minerals and fibers that contribute to regulate various body responses⁽⁹⁾. Some studies demonstrated that a diet rich in vegetables, fruits and dairy products provide nutrients such as potassium, fibers and calcium that satisfactorily reduce BP levels. In contrast, intake of saturated fats and refined carbohydrates (meat and carbohydrates) did not reduce BP levels⁽¹¹⁾.

A study conducted in the city of Ibatibaon dietary intake of the adult population found that inadequate nutrition exposes the population to chronic diseases such as cardiovascular disorders. The habitual dietary intake of the adults that composed the study sample consisted of animal fats, sugar and refined foods, rather than high-fiber foods, such as fruits⁽¹³⁾.

The habitual dietary intake of hypertensive individuals was analyzed to detect the presence of the defining characteristic of ND: "food intake concentrated at the end of the day". The prevalence of foods eaten at dinner and supper were, respectively, from Group A: 40 (44.4%) and Group E: 24 (15.5%), and low intake of foods from Group B, or else, high incidence of food rich in carbohydrates and low intake of fruits and vegetables, which corresponds to the above mentioned defining characteristic.

Regarding the defining characteristic "eating in response to external stimuli", 55 (61.1%) subjects did not comply with this characteristic; only 23 (25.5%) used to eat always at the same time, while 14 (15.5%) ate when stimulated by social situations. Most respondents said they only ate when they were hungry. Regarding internal stimuli, 62 (68.8%) did not experience any changes in their eating habits when exposed to stimuli; only 20 (22.2%) ate more food when they felt anxious; 11 (12.2%) when stressed and 18 (20%) when worried. Some participants reported that the feelings described decreased their hunger, producing an opposite effect than expected. Thus, the defining characteristics "eating in response to external stimuli" and "eating in response to internal stimuli other than hunger" were not prevalent in this study.

One study conducted in a Basic Health Unit (UBS) in Porto Firme, state of Minas Gerais, with 26 hypertensive patients identified negative psychological effects in the subjects, such as: sensation of fear and concern with possible complications of the disease, particularly because of the pressing need to change their lifestyle. Approximately 70% of the individuals showed symptoms related to nervousness, and 30% of them took antidepressants regularly. The participants stressed positive aspects in the change of lifestyle and adopting a healthy diet, because the disease symptoms were reduced. Also, family support encouraged adherence to a healthy diet, particularly when family members also

adhere to a healthy diet⁽¹⁴⁾.

Concerning the defining characteristic of association of nutrition with other activities, 40 (44.4%) subjects used to eat while watching television; four (4.4%) used to eat when they were performing household chores and 46 (51.1%) did not associate eating with other activities.

Eating while watching television or performing another activity simultaneously reduces the individual's perception of how much they are eating, resulting in higher consumption than usual. Also, distraction and low involvement with eating reduces the sensation of satiety perceived in the central nervous system⁽¹⁵⁾.

Since they cannot have regular meals with their family members because of their different schedules, some subjects reported that they have their meals watching television where they are exposed to a variety of food advertisements, and many attractive foods advertised are not healthy. It should be stressed that people with lower educational levels are more affected by the media. An observational study showed that 85% of food products advertised are rich in sugars, oils and fats from the top of the food pyramid. The referred study did not identify any advertisement encouraging the consumption of fruits and vegetables⁽¹⁶⁾.

Regarding the defining characteristic sedentary lifestyle, it was prevalent in this study, where 52 (57.8%) subjects did not perform physical exercises. Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that results in energy expenditure beyond resting expenditure. Several scientific evidence indicate that physical activity is a protective factor for hypertension. Studies have demonstrated that physical activity at moderate intensity, from 150 to 285 minutes per week, are a good strategy for prevention of hypertension. The mechanisms responsible for this prevention are decreased insulin levels; reduction of catecholamine levels and release of vasodilator substances in blood circulation⁽¹⁷⁾.

The present study showed that 82 (91.1%) subjects had the ND investigated in this study. One study with 67 elderly individuals from the inland of the state of São Paulo focused on the main nursing diagnoses, including Imbalanced nutrition: more than body requirements, observed in 32 (47.7%) subjects and chronic sorrow in 24 (35.8%), among others. Thus, the importance of nursing professionals in the management of obesity and physical inactivity, as well as in the assessment of their determinants is essential to reduce the risk of mortality in hypertensive patients⁽¹⁸⁾.

● CONCLUSION

In the present study, the investigated ND was present in most subjects, and statistical calculations demonstrated a significant association between the main defining characteristics and the ND. The main limitations of this study are the lack of studies on defining characteristics, as well as on the investigated nursing diagnosis.

Further studies with larger, more representative samples of individuals on this nursing diagnosis are recommended to overcome the limitations of the present study, as well as longitudinal studies that may examine the associations found here.

Therefore, it is concluded that hypertensive patients need a better monitoring of weight gain, more effective nutritional guidance, greater encouragement to the practice of physical activity and more attention from nurses during consultation. This may reduce the defining characteristics and related factors, and, consequently, the nursing diagnosis (ND): "Imbalanced nutrition: more than body requirements," in hypertensive patients.

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