ISSN: 1676-4285

OBJN Online Brazilian Journal of Nursing
ENGLISH
Federal Fluminense University
AURORA DE AFONSO COSTA NURSING SCHOOL
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Original Articles

Blood pressure elevation in patients assisted in an emergency unit: cross-sectional study

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ABSTRACT

Aims: To characterize hypertensive patients seen in an emergency unit for high blood pressure and to identify factors associated with the occurrence of moderate or severe hypertension. **Method:** This is a descriptive cross-sectional study conducted with 80 individuals. Data were collected in November 2013 by means of interviews with the application of a semi-structured questionnaire. **Results:** The following results were associated with moderate or severe hypertension: failure to attend the hypertensive group activities, alcohol consumption, lack of leisure activities and excessive salt consumption. **Discussion:** When nurses are able to recognize the factors that can influence uncontrolled blood pressure, they can more effectively stimulate the systematic outpatient care for hypertensive patients and the change in these patients' lifestyle. **Conclusion:** Life habits associated with moderate or severe hypertension are modifiable according to the implementation of health education for professionals and self-care understanding by the users considered hypertensive.

Descriptors: Hypertension; Risk Factors; Prevention and Control; Nursing.

Sena AJ, Gugick JFB, Radovanovic CAT, Barreto MS. Blood Pressure Elevation in Patients Assisted in an Emergency Unit: cross--sectional study. Online braz j nurs [internet] 2014 Sep [cited year month day]; 13(4):568-78. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/4627

INTRODUCTION

Systemic hypertension (SH) is a multifactorial clinical condition characterized by high and sustained levels of blood pressure (BP)[1]. In recent years, it continues to be a global public health problem. In Brazil, there is a high prevalence (over 30% in adults and 50% in the elderly), as well as low adherence rates to treatment, and high rates of high pressure levels, lack of control, morbidity and mortality from heart and cerebrovascular diseases[2].

There are several factors that can trigger the onset of SH, as well as favor the occurrence of its aggravations and complications. These causes are divided into non-modifiable (e.g. higher age and genetic load) and modifiable (e.g. smoking, stress, excessive intake of salt and alcohol, physical inactivity, excessive weight and obesity)[1].

Among the causes that can be modified by the individual in pursuit of control over SH, the non-adherence to pharmacological and non-pharmacological treatments is today one of the greatest challenges confronting health services and their professionals[3]. When hypertensive patients properly follow treatment, they significantly reduce their risk of morbidity and mortality from cardiovascular diseases, leading to increased life expectancy and better quality of life[4].

Investigations[5-6] show that the socio-demographic profile of individuals with SH visiting emergency units or hospitals due to increased BP is constituted mostly by females, with a higher age, black ethnicity, low family income, less education, who are sedentary, overweight and have comorbidities, and who do not adhere to drug treatment.

During the identification of individuals suffering from BP elevation and in attempts to promote adherence to SH treatment, the nurse becomes a key element for developing intervention strategies aimed at counseling (both of hypertensive individual and their families), in order to promote disease control, treatment continuity and the prevention of complications. In fact, the nurse pursues along with patients and their families an important course of action for choosing the best treatment option, according to the profile of the hypertensive subjects, as well as ensuring continuation of the recommended treatment and the systematic monitoring of BP[7].

Recent studies[3,6,8-9] continue to demonstrate that individuals suffering from SH do not properly adhere to the proposed treatment, and sometimes need to visit emergency units in order to control the elevated BP. Thus, the present study asks: What is the profile of hypertensive individuals seeking care in an emergency unit for elevated BP? And what are the factors associated with moderate or severe hypertension?

In order to answer these questions, the study objectives were: to characterize hypertensive patients seen in an emergency unit for high blood pressure, and to identify factors associated with the occurrence of moderate or severe hypertension.

METHOD

This is a descriptive cross-sectional study, of a quantitative nature, conducted with individuals suffering from SH who attended an emergency unit for elevated BP, in a city in southern Brazil.

The unit is in a public hospital that provides assistance to all cases of ~~urgency and~~ emergency in the city, including hypertensive crises and hypertensive pseudo-crises. For the average daily attendance of 200 patients suffering from different aggravated diseases or trauma, there is a staff composed of one nurse, six nursing

technicians/assistants, one radiology technician and one general physician per shift.

Data were collected from 1st to the 30th of November 2013, after medical care, by means of interviews with the application of a semi-structured questionnaire, which included questions regarding the socio-demographic profile, health monitoring, and the process of accession/non-adherence to the non-pharmacological treatment of SH among the participants.

Eighty subjects, constituting the non-probabilistic sample of the study, were interviewed. For convenience, the data was collected between Monday and Saturday, from 7am to 1pm, and all hypertensive individuals who had been diagnosed for at least one year and who had visited the emergency unit with high BP (≥ 140/90mmHg) were considered potential study participants. On the other hand, we excluded those who were not in the proper physical, mental or emotional condition to answer the questionnaire (four cases) and those who did not agree to participate in the study (three cases).

The dependent variable was the participants' BP level upon arriving at the emergency unit, which was classified as either: mild hypertension (systolic blood pressure between 140-159 mmHg and diastolic BP between 90-99 mmHg); moderate hypertension (systolic blood pressure between 160-179 mmHg and diastolic BP between 100-109 mmHg); and severe hypertension (systolic blood pressure greater than 179 mmHg and diastolic blood pressure greater than 109 mmHg)[1].

Individuals with moderate and severe hypertension constituted a single group to enable statistical analysis. The independent variables – physical activity and leisure; consumption of alcohol, tobacco and inadequate food; and following a low-sodium diet - were dichotomized, so that only the presence or absence of the habit/behavior were considered.

The information was recorded in a database in Microsoft Office Excel for Windows 2007® and then statistically analyzed using the Statistical Analysis System software – SAS®. To investigate the association of the variables under study with the outcome of interest and its measure of association, statistical analyzes were conducted using Pearson's chi-square nonparametric test, with a significance level of $p<0.05$ and the relative risk (RR) was calculated.

The study was approved by the Permanent Committee on Ethics in Human Research of the State University of Maringa – CAAE: 23618913.2.0000.0104. All participants signed the Informed Consent (IC) in two ways.

RESULTS

According to the results, it was found that most individuals who sought medical care for elevated BP displayed blood pressure levels that classified them, at that time, with moderate-to-severe SH (55 to 68.8%) (Table 1).

In relation to the socio-demographic characteristics, we found that most of the patients were male (45 to 56.2%), white (42 to 52.5%), lived with a partner (46 to 57.5%), were under 60 years of age (52 to 65.0%), had an occupational activity (51 to 63.7%), had an income higher than or equal to two minimum wages (54 to 67.5%) and an education lower than or equal to eight years (from 41 to 51.2%). However, none of these characteristics were significantly associated with higher BP.

With regard to the health and disease profile, 17 respondents (21.2%) reported the time of SH diagnosis as more than 10 years ago. At the same time, 31 participants (38.8%) confessed to having comorbidities, especially for musculoskeletal, cardiac, respiratory, mental and gastrointestinal diseases, and diabetes mellitus (DM). However, these variables were

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Table 1: Distribution of the sociodemographic profile of patients treated for high blood pressure in an emergency unit. Mandaguari / PR, 2013.

Features	Light hypertension		Moderate/severe hypertension		Total		P-valor
	n	%	n	%	n	%	
Sex							
Male	13	16,2	32	40	45	56,2	0,6
Female	12	15	23	28,8	35	43,8	
Age							
< than 60 years	16	20	36	45	52	65	0,89
≥ than 60 years	9	11,2	19	23,8	28	35	
Skin color							
White	13	16,2	29	36,3	42	52,5	0,95
Not White	12	15	26	32,5	38	47,5	
Marital status							
No companion	10	12,5	24	30	34	42,5	0,76
With companion	15	18,8	31	38,7	46	57,5	
Occupational activity							
Yes	16	20	35	43,7	51	63,7	0,97
No	9	11,3	20	25	29	36,3	
Family income							
< 2 MW*	8	10	18	22,5	26	32,5	0,94
≥ 2 MW	17	21,3	37	46,2	54	67,5	
Education							
≤ 8 years	13	16,2	28	35	41	51,2	0,92
> 8 years	12	15	27	33,8	39	48,8	

** MW: Minnimum wages*

not significantly associated with elevated BP at levels above 159/99 mmHg (Table 2).

When the assistance received through primary healthcare was investigated, the results showed that most patients reported assiduous attendance at previously scheduled appointments (63 to 78.8%) and that the time since their last visit was less than three months (53 to 66.2%). These characteristics were not statistically significant with the occurrence of higher BP (Table 3).

On the other hand, most of the respondents (78 to 91.3%) said they do not attend the group activities, such as lectures, walking and stretching, and gymnastic classes, that occur in the Basic Health Units (BHU) and in the community; of these participants, 53 (66.3%) had BP higher than 159/99 mmHg. It was evident, therefore, that hypertensive patients who did not participate in group activities were 2.5 times (CI: 1.19 to 5.44) more likely to have higher BP.

Despite the fact that most of the respondents reported that they did not participate in health promotion activities, in either the BHUs or the community, the majority (74 to 92.5%) claimed to have had no need of hospitalization due to complications and disorders concerning SH in the last 12 months. The variable hospitalization showed no statistically significant association with high BP.

Regarding the lifestyle of individuals with SH, it was found that 72 respondents (90.0%) consumed inadequate food (rich in protein, sodium and fat)[1], 47 respondents (58.8%) did not practice physical exercise, and 13 respondents (16.2%) were smokers. Such habits were not associated with higher BP in this study (Table 4).

Table 2: Distribution of the health-disease profile of patients treated for high blood pressure in an emergency unit. Mandaguari / PR, 2013.

Features	Light hypertension		Moderate/severe hypertension		Total		P-valor
	n	%	n	%	n	%	
Diagnostic Time							
< 10 years	20	25	43	53,8	63	78,8	0,85
≥ 10 years	5	6,2	12	15	17	21,2	
Comorbidity							
Yes	11	13,8	20	25	31	38,8	0,51
No	14	17,5	35	43,7	49	61,2	
Comorbidity type							
Diabetes mellitus	4	12,9	7	22,7	11	35,6	
Musculoskeletal diseases	2	6,4	4	12,9	6	19,3	0,9
Heart disease	3	9,7	2	6,4	5	16,1	0,37
Respiratory diseases	–	–	4	12,9	4	12,9	0,51
Mental illnesses	–	–	3	9,7	3	9,7	0,67
Gastrointestinal disorders	1	3,2	1	3,2	2	6,4	0,71

Table 3: Distribution of variables related to the care received by means of the primary care and prevalence of hospitalization in patients treated for high blood pressure in an emergency unit. Mandaguari/PR, 2013.

Features	Light hypertension		Moderate/severe hypertension		Total		P-valor
	n	%	n	%	n	%	
Attendance at the activities							
Yes	5	6,2	2	2,5	2	7,7	0,01*
No	20	25	53	66,3	78	91,3	
Attendance to medical appointments							
Yes	18	22,5	45	56,3	63	78,8	0,31
No	7	8,7	10	12,5	17	21,2	
Time of the last visit							
≤ 3 months	17	21,2	36	45	53	66,2	0,82
> 3 months	8	10	19	23,8	27	33,8	
Hospitalization**							
Yes	2	2,5	4	5	6	7,5	0,9
No	23	28,7	51	63,8	74	92,5	

**Significant P-value in the chi-square test of Pearson; ** Self-reported hospitalization due to hypertension in the last 12 months.*

However, other harmful practices for adequate control of SH were associated with increases in blood pressure above 159/99 mmHg, such as lack of leisure activities, failure to comply with a low-sodium diet, and alcohol consumption (regardless of the drink and alcohol content ($p<0.05$).

DISCUSSION

The results of this study showed that 55 participants (68.8%) had blood pressure levels that classified them at that moment with moderate or severe SH. We take into account the fact that an increase in BP, in many cases, goes unnoticed and by the time individuals display signs and symptoms that drive them to seek

Table 4: Distribution of life habits of patients who were treated for high blood pressure in an emergency unit. Mandaguari / PR, 2013.

Characteristics	Light hypertension		Moderate/severe hypertension		Total		P-valor
	n	%	n	%	n	%	
Practice physical exercise							
Yes	11	13,7	22	27,5	33	41,2	0,73
No	14	17,5	33	41,3	47	58,8	
Pratica atividades de lazer							
Yes	7	8,7	34	42,5	41	51,2	0,00*
No	18	22,5	21	26,3	39	48,8	
Smoker							
Yes	3	3,7	10	12,5	13	16,2	0,48
No	22	27,5	45	56,3	67	83,8	
Alcohol consumption							
Yes	2	2,5	24	30	26	32,5	0,00*
No	23	28,7	31	38,8	54	67,5	
Inadequate food consumption **							
Yes	23	28,75	49	61,25	72	90	0,68
No	2	2,5	6	7,5	8	10	
Following a low sodium diet							
Yes	21	26,2	28	35	49	61,2	0,00*
No	4	5	27	33,8	31	38,8	

** Significant P-value in the chi-square test of Pearson; ** Rich in protein, fats and sodium (1).*

health services, blood pressure levels are often already very high.

Among the participants there was a predominance of males, which differed from another similar study[5]. In part, this finding may be attributed to the fact that SH has increased in prevalence among men aged up to 50 years[1]. However, as evidenced in the literature[2,5], this variable is also influenced by the fact that women seek primary healthcare services first and more often, which culminates in a lower female demand for the emergency services.

Another factor which must be taken into consideration is the fact that the results of national studies[3,10] indicate a higher rate of SH treatment dropout among men, especially among the illiterate and those aged in the range of 24-40 years. Besides a lack of knowledge, such a situation can be explained by gender, in terms of the feeling of self-confidence among men who believe that they will not suffer from any disease aggravations, which in turn is more likely to lead to the non-adherence to treatment and, therefore, the increase of BP, resulting in their need to seek emergency medical services.

In addition, male behavior with regard to health issues is related to conceptions such as work, the body and sexuality. Moved by such understandings, men have sought health services that meet their expectations, seeking thus those with faster assistance and whose actions are guided by curative and medical intervention[11].

Regarding age, the prevalence of people under 60 years of age suffering from moderate-to-severe SH was observed. It is known that SH is not a disease that affects only the elderly, as it has been occurring in younger adults. This fact has been associated with the occurrence of major complications and disorders resulting from the disease among the elderly[4].

Despite the fact that studies have pointed to higher BP levels among older people, there

is evidence that age isn't the only barrier to the maintenance of adequate blood pressure, but also factors related to the contemporary lifestyle. A study in India showed that older women who lived secluded in remote rural areas had lower rates of SH[12].

Most individuals with higher BP were Caucasian. It is noteworthy that the population of the city being studied is predominantly white, which partly justifies this finding. However, a non-white skin color was shown to be a risk factor that doubles the chances of people developing SH and not being able to control blood pressure levels, even if they properly adhere to treatment, due to genetic and biological factors[1].

With regard to education, it was observed that more than half of the participants had eight years or less of schooling. In Brazil, SH prevails among individuals with less education[2], which, according to research conducted in a northeastern Brazilian capital, can be considered a risk factor for hospitalization from BP elevation, since hypertensive patients have less of an understanding of the treatment and hence they are less likely to be able to effectively control the disease[2]. Other factors, directly or indirectly related to low education levels, that can influence the proper management of treatment are: lower income and poorer access to healthy food, healthcare and medicine[13].

Considering this, we can infer that a low educational level constitutes a risk factor obstructing the understanding of guidelines offered by health professionals, which in turn can impair positive lifestyle changes among hypertensive patients. Thus, it is important to highlight that professionals need to be alert, especially about the language they use when working with with this population[14].

As for diagnosis time, it became clear that most of the individuals had been hypertensive for no more than 10 years. Although not significantly associated with elevated BP, the results showed that patients with a shorter time of diagnosis had higher uncontrolled blood pressure levels. Such results corroborate what was found in a study conducted with 440 hypertensive individuals, in which those diagnosed longer ago had lower BP values[10]. It is observed that the largest SH diagnostic time can be a guarantee for the patient's acclimatization to the pathological condition, and what at first was a reason to fear, over time, starts to be considered as controllable. Therefore, care becomes part of the daily lives of individuals[15].

Also in this study, it was observed that the most common comorbidity found was DM. The literature indicates that the prevalence of hypertensive patients with DM is at least two times higher than in the general population and that, due to acute and chronic complications, the chances of the individual suffering from cardiovascular problems rise[16]. Another problem observed is that there is a greater propensity for hypertensive patients to find it difficult to adhere to treatment, as the number of prescription drugs and care regimes increase, along with the diet[17]. Thus, nursing professionals should take a different approach with the hypertensive individuals who have other comorbidities, especially DM, seeking to sensitize them to the importance of adhering to the proposed treatment.

The non-attendance of patients at meetings/consultations also occupied a prominent place among the predictors of uncontrolled blood pressure in this research. Studies show that, among individuals followed by the SH programs, those who attended meetings promoted by the professionals most assiduously, both in the BHU (medical and nursing consultation) and in the wider community (group activities), demonstrated a greater reduction in blood pressure levels[7, 9].

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Indeed, the patient's frequent presence at the health unit is a determining condition for the proper management of the SH treatment, perhaps because it promotes the individual motivation and generate attitudes that contribute to reduce BP. Corroborating the notion that the most appropriate handling of treatment starts with a larger number of patient visits to the clinic, studies[17-19] indicate that more frequent consultations, directed by hypertensive systematic assessment instruments, provide better monitoring of blood pressure levels. In addition, they increase the individual's access to information, which, in turn, can underpin and strengthen adherence to therapy.

In addition to attendance at consultations, individuals with SH need to adhere to pharmacological and non-pharmacological treatment. From this perspective, the data in this analysis showed that the majority of respondents were not used to performing perform physical exercises. Studies[13.17] show that physical activities, along with other non-pharmacological measures, not only reduce blood pressure levels, but also aid in weight loss, and the lowering of cholesterol, triglycerides and glucose levels, which are directly related to high BP and its complications.

It is noteworthy that nowadays the fight against sedentarism is a condition that requires commitment from all people, especially those who suffer from SH, as it directly affects their quality of life[15]. Health professionals should evaluate the risks before initiating physical exercises, so that damage is minimized[14].

Health promotion and disease prevention in chronic diseases are priorities in the strategies that endorse the development of an active lifestyle, considering the practice of physical activity in four areas: leisure, locomotion or movement, work, and home[8]. In order to reverse the low accession framework to non-pharmacological treatment, nurses require sensitivity to optimize the practice of regular physical activity for hypertensive patients, and advise them on the different ways to carry out the activities, which can improve their control over the disease and minimize the occurrence of aggravations such as emergency BP elevation.

Another factor investigated in this study was the intake of a low sodium diet. It was observed that almost 40% of respondents claimed not to observe any restrictions on sodium. The literature[1] confirms that a diet low in sodium quickly reduces and maintains pressure values at desirable levels. Thus, daily sodium intake should not exceed 5g of salt. However, the amount that Brazilians currently consume corresponds to twice the recommended allowance.

A study[3] conducted with 57 hypertensive patients, which evaluated the reduction of salt intake after diagnosis of the disease, showed that the majority did not accept the new diet on medical recommendation, highlighting the existence of a gap between the instructions given by health professionals and their implementation by patients. Therefore, it is reiterated that it is necessary to change the way these guidelines are being communicated by professionals, since they have not significantly impacted the decisions of hypertensive individuals to modify their own lifestyles.

As for the intake of inappropriate food (more specifically: food high in protein, sodium and fat)[1], the vast majority of respondents reported not restricting their consumption. Diet changes are essential for the proper control of SH[20]. The maintenance of a healthy diet depends on an adequate menu, rich in fruits, vegetables, white meats and salt reduction, and the eradication of inappropriate food[14,20].

Often the changes in lifestyle do not materialize because the hypertensive patients does not

feel themselves to be part of the treatment; that is, they have no say in decisions about physical exercises and diet modifications. The provider does not consider the user's opinion, leading them to not adhere to treatment.

Alcohol and tobacco consumption habits are also factors that increase blood pressure levels[1]. In the present study, we observed a low prevalence of individuals reporting the use of tobacco and alcohol, which is consistent with the findings of a previous study on the adherence to non-pharmacological treatment of hypertensive patients at a health center, which found 7% of participants to be smokers and 31.6% alcohol drinkers[15]. As the prevalence of smokers and alcohol drinkers is small, there is evidence that BP rises proportionally to the amount of ingested alcohol and tobacco, making it urgent for nurses to highlight the importance of abstention from these habits to all hypertensive patients under their care[1.19].

The educational activities promoted by health professionals should encourage the development of individual autonomy, bringing discussions and guidelines to motivate the adoption of new lifestyles[14]. Thus, there is a need for the collaborative involvement of health professionals and hypertensive individuals to develop strategies together that can lead to the abandonment of unhealthy habits").

One example of this type of action is educational activities, such as group work, which allow individuals to work closely with health professionals, form a bond, and permit them to share their experiences, and to experience different forms of knowledge and practices[3].

In this way, individuals suffering from SH need continuous ambulatory treatment and qualified professional advice. With the adoption of a so-called healthy routine, we can promote decreases in blood pressure, prevent cardiovascular complications and minimize the occurrence of hypertensive crises, which have increasingly been sending hypertensive patients to the emergency health services[9]. Such a change in behavior should be strongly encouraged by health professionals, taking into account the population profile of their area of expertise.

CONCLUSION

The results of this research have given us an insight into the profile of the hypertensive patients who sought treatment in an emergency unit for BP elevation and factors associated with moderate or severe hypertension. It was observed that most of the people who sought this assistance were male, of Caucasian origin, lived with a partner, were aged below 60, had a schooling of less than or equal to eight years, and had a work activity. This work activity was not associated with the increased BP values that were greater than 159/99 mmHg.

The factors associated with moderate or severe hypertension were: the failure to attend the activities carried out by primary healthcare professionals, the intake of alcohol, the failure to partake in leisure activities, and excessive salt consumption.

As for the non-pharmacological treatment of SH, most of the individuals did not adhere to the habit of practicing physical exercises and modifying their diet after the diagnosis of the disease. Such situations deserve attention and commitment from the health professionals of the multidisciplinary team, so that a change may occur, as these problems interfere in the adequate control of BP. Thus, there is a need to implement educational activities targeted at the hypertensive population that aim to prevent emergency situations arising from BP elevation.

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REFERENCES

1. Sociedade Brasileira de Cardiologia/Sociedade Brasileira de Hipertensão/Sociedade Brasileira de Nefrologia. VI Diretrizes Brasileiras de Hipertensão. Arq Bras Cardio. 2010; 95(supl 1):1-51.
2. Freitas LC, Rodrigues GM, Araújo FC, Falcon EBS, Xavier NF, Lemos ELC, et al. Perfil dos hipertensos da Unidade de Saúde da Família Cidade Nova 8, município de Ananindeua-PA. Rev Bras Med Fam Comunidade. 2012; 7(22):13-9.
3. Girotto E, Andrade SM, Cabrera MAS, Matsuo T. Adesão ao tratamento farmacológico e não farmacológico e fatores associados na atenção primária da hipertensão arterial. Cienc Saude Colet. 2013; 18(6):1763-72.
4. García GM, Miúdo V, Alves CG, Lopes M, Gomes JV. Characterization of patients aged 45 or under admitted with hypertensive emergencies in the Hospital do Prenda. Rev Port Cardiol. 2014;33(1):15-21.
5. Pereira SE, Aguiar RS, Vian VH, Cunha EM, Silva DA, Teixeira MA. Análise crítica do atendimento da crise hipertensiva em Unidade de Pronto Atendimento de Itaperuna – Rio de Janeiro. Rev Bras Med. 2012; 69(5):139-44.
6. Barreto MS, Marcon SS. Hospitalization due to complications of arterial hypertension in primary care patients. Acta Paul Enferm. 2013; 26(4):313-7.
7. Drevenhorn E, Bengtson A, Nilsson PM, Nyberg P, Kjellgren KI. Consultation training of nurses for cardiovascular prevention – a randomized study of 2 years duration. Blood Press. 2012; 21(5):293-9.
8. Massa KHC, Guimarães VV, César CLG, Barros MBA, Carandina L, Goldbaum M, et al. Prática de atividade física em quatro domínios em idosos com hipertensão arterial referida no Município de São Paulo: estudo de base populacional. Rev Bras Ativ Fis Saude. 2012; 17(1):7-13.
9. Reiners AAO, Seabra FMF, Azevedo RCS, Sudré MRS, Duarte SJH. Adesão ao tratamento de hipertensos da Atenção Básica. Cienc Cuid Saude. 2012; 11(3):581-7.
10. Pierin AMG, Marroni SN, Taveira LAF, Benseñor IJM. Controle da hipertensão arterial e fatores associados na atenção primária em Unidades Básicas de Saúde localizadas na Região Oeste da cidade de São Paulo. Cienc Saude Colet. 2011; 16(Supl 1):1389-400.
11. Damasceno CA, Queiroz TL, Santos CAST, Mussi FC. Fatores associados à decisão para procura de serviço de saúde no infarto do miocárdio: diferenças entre gêneros. Rev Esc Enferm USP. 2012;46(6):1362-70.
12. Gupta R, Pandey RM, Misra A, Dey S, Rao S, Menon VU, et al. High prevalence and low awareness, treatment and control of hypertension in Asian Indian women. J Hum Hypertens. 2012; 26(10):585-93.
13. Souza ACC, Moreira TMM, Borges JWP, Andrade AM, Andrade MM, Almeida PC. Caracterização clínico-epidemiológica da clientela com crise hipertensiva atendida em um serviço de emergência de um hospital municipal de Fortaleza-CE. REME Rev Min Enferm. 2009; 13(1):13-18.
14. Oliveira TL, Miranda LP, Fernandes PS, Caldeira AP. Effectiveness of education in health in the non-medication treatment of arterial hypertension. Acta Paul Enferm. 2013; 26(2):179-84.
15. Baldissera VDA, Carvalho MDB, Pelloso SM. Adesão ao tratamento não-farmacológico entre hipertensos de um centro de saúde escola. Rev Gauch Enferm. 2009; 30(1):27-32.
16. Gitt AK, Schieder RE, Duetting E, Bramlage P, Schneider S, Tschope D. Achievement of recommended glucose and blood pressure targets in patients with type 2 diabetes and hypertension in clinical practice – study rationale and protocol protocol of dialogue. Cardiovasc Diabetol. 2012; 11(148).
17. Moura DJM, Bezerra STF, Moreira TMM, Fialho AVM. Cuidado de enfermagem ao cliente com hipertensão: uma revisão bibliográfica. Rev Bras Enferm. 2011; 64(4):759-65.
18. Santana JS, Soares MJGO, Nóbrega MML. Instrument for visiting in nursing to hypertensive patients in family: a methodological study. Online Braz J Nurs (Online) [internet]. 2011 5 Sep [Cited 2013 Dec 2] 10(3) Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/3481/1098
19. Holt EW, Muntner P, Joyce C, Morisky DE, Webber LS, Krousel-Wood M. Life events, coping, and antihypertensive medication adherence amomg

older adulds: the cohort study of medication adherence among older adults. Am J Epidemiol. 2012; 176(Suppl 7):64-71.

20. Vernay M, Aidara M, Salanave B, Deschamps V, Malon A, Oleko A, et al. Diet and blood pressure in 18-74 year-old adulsts: the Franch Nutrition and Health Survey (ENNS, 2006-2007). J Hypertens. 2012; 30(10): 1920-7.

All authors participated in the phases of this publication in one or more of the following steps, in According to the recommendations of the International Committee of Medical Journal Editors (ICMJE, 2013): (a) substantial involvement in the planning or preparation of the manuscript or in the collection, analysis or interpretation of data; (b) preparation of the manuscript or conducting critical revision of intellectual content; (c) approval of the versión submitted of this manuscript. All authors declare for the appropriate purposes that the responsibilities related to all aspects of the manuscript submitted to OBJN are yours. They ensure that issues related to the accuracy or integrity of any part of the article were properly investigated and resolved. Therefore, they exempt the OBJN of any participation whatsoever in any imbroglios concerning the content under consideration. All authors declare that they have no conflict of interest of financial or personal nature concerning this manuscript which may influence the writing and/or interpretation of the findings. This statement has been digitally signed by all authors as recommended by the ICMJE, whose model is available in http://www.objnursing.uff.br/normas/DUDE_eng_13-06-2013.pdf

Received: 12/18/2013
Revised: 11/14/2014
Approved: 11/14/2014