

# Factors associated with inadequate blood pressure control in patients of primary care\*

*Fatores associados ao inadequado controle pressórico em pacientes da atenção primária*

*Factores asociados al inadecuado control de la tensión arterial en pacientes de la atención primaria*

Mayckel da Silva Barreto<sup>1</sup>

Laura Misue Matsuda<sup>1</sup>

Sonia Silva Marcon<sup>1</sup>

1. Universidade Estadual de Maringá.  
Maringá, PR, Brazil.

## ABSTRACT

**Objective:** To identify the association between socioeconomic, personal and health care factors, with inadequate blood pressure control. **Method:** Cross sectional, descriptive study, of 392 hypertensive individuals, randomly and proportionally selected from among 23 registered in the Basic Health of a city in Southern Brazil. Data were collected from homes between December 2011 and March 2012, using a semistructured questionnaire. **Results:** Almost half of the respondents had inadequate blood pressure control, which was associated with age less than 60 years; Non adherence to pharmacotherapy; failure to attend scheduled appointments, and; use of three or more antihypertensive drugs. **Conclusion:** Among the actions to improve blood pressure control in people with hypertension, the health care team needs to create strategies that encourage attendance at appointments, scheduled and simplify the treatment regimen. Such activities should focus particularly on the elderly.

**Keywords:** Hypertension; Prevention & Control; Risk Factors; Primary Health Care; Nursing.

## RESUMO

**Objetivos:** Identificar a associação entre fatores socioeconômicos, pessoais e de cuidado à saúde, com o inadequado controle pressórico. **Métodos:** Estudo descritivo, transversal, realizado junto a 392 indivíduos com hipertensão arterial, selecionados aleatoriamente e de forma proporcional, dentre os cadastrados nas 23 Unidades Básicas de Saúde de um município do Sul do Brasil. Os dados foram coletados nos domicílios, no período de dezembro de 2011 a março de 2012, utilizando-se um questionário semiestruturado. **Resultados:** Quase metade dos entrevistados apresentou inadequado controle pressórico, o qual esteve associado à idade igual ou superior a 60 anos; não adesão à farmacoterapia; não comparecimento às consultas agendadas e; consumo de três ou mais drogas anti-hipertensivas. **Conclusão:** Dentre às ações para melhorar o controle pressórico das pessoas com hipertensão arterial, a equipe de saúde necessita criar estratégias que estimulem o comparecimento às consultas aprazadas e simplifiquem o esquema terapêutico. Tais atividades devem focar especialmente os idosos.

**Palavras-chave:** Hipertensão; Prevenção de Doenças; Fatores de Risco; Atenção Primária à Saúde; Enfermagem.

## RESUMEN

**Objetivos:** Identificar la asociación entre factores socio-económicos, personales y de cuidado a la salud, con el inadecuado control de la tensión arterial. **Métodos:** Estudio descriptivo, transversal, realizado con 392 hipertensos, seleccionados de modo proporcional entre aquellos registrados en las 23 Unidades Básicas de Salud de una ciudad en Brasil. Los datos fueron recogidos en los domicilios entre diciembre de 2011 y marzo de 2012, utilizando un cuestionario semiestructurado. **Resultados:** Casi la mitad de los encuestados tuvieron inadecuado control de la presión arterial, que se asoció a la edad mayor de 60 años; la no adherencia a farmacoterapia; al absentismo a citas médicas y; al uso de tres o más fármacos antihipertensivos. **Conclusión:** Entre las acciones para mejorar el control de la tensión arterial, el equipo de salud tiene que crear estrategias que fomenten la asistencia a las citas médicas programadas y simplifiquen el régimen de tratamiento. Tales actividades deben centrarse especialmente en los ancianos.

**Palabras clave:** Hipertensión; Prevención de Enfermedades; Factores de Riesgo; Atención Primaria de Salud; Enfermería.

### Corresponding Author:

Mayckel da Silva Barreto.

E-mail: mayckelbar@gmail.com

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## INTRODUCTION

Systemic hypertension (SH) has a multifactorial genesis, insidious chronic nature and evolution oligo/asymptomatic, which contributes to the non-adherence of hypertensive patients to drug treatment and/or for inadequate blood pressure control<sup>1</sup> The maintenance of high blood pressure levels, in turn, constitutes a risk factor for the emergence of complications in medium and long run, which surely implies the need for greater control of blood pressure (BP) of the population by professionals working in Primary Health Care (PHC)<sup>2,3</sup>.

It is known, however, that the clinical management of Chronic Diseases (CD) such as hypertension, faces several difficulties, including structural problems, such as limited access to appointments, tests and medicines and problems related to the professionals themselves, because, besides the lack of skilled workers, many are unmotivated and unhappy at work<sup>4</sup>. Aside from these factors, others issues related to the patients such as poor socioeconomic conditions, cultural and behavioral influences, all interfere in the process of adherence to the treatment of CDs. This fact threatens the quality of the care and the aimed clinical outcome (Blood Pressure control)<sup>4</sup>.

In face of the exposed, estimates show that only a third of people who are regularly monitored in basic health services have their BP maintained at desirable levels<sup>5</sup>. Such evidence favors the annual occurrence of more than one million hospital admissions due to circulatory diseases, with costs that reach approximately one billion and 800 million reais, and still is the leading cause of deaths in Brazil<sup>6</sup>.

In order to reduce these numbers it is essential that the health team investigate the habits and the lifestyle of people with hypertension during the service, and at the medical and nursing consultations in favor of obtaining concrete data for planning individualized, systematic and holistic care, aiming at effective control of the disease<sup>7</sup>.

Despite the importance and the need for health professionals to act systematically in the prevention and treatment of hypertension, Brazilian studies that are focused on the investigation of factors that are associated with patients with uncontrolled blood pressure and that are assisted at the PHC are still scarce. Among the existing, many professionals are unaware of the reasons why patients do not adhere to the recommended treatment<sup>8</sup>.

Taking into consideration the issues presented, this study is justified because the knowledge on the occurrence and the factors that are associated with uncontrolled blood pressure in hypertensive subjects enables managers, health professionals and clients to plan together more efficient and effective measures for the treatment and monitoring of SH.

Given that the adherence to treatment and the control of CD depend on multiple factors, the question is: Do socioeconomic, personal and health care factors interfere in the control of blood pressure in hypertensive patients? And to answer this question, this study was proposed in order to identify the associations between socioeconomic, personal and health care factors and inadequate blood pressure control in people with hypertension that are assisted in primary care units.

## METHODS

It's a descriptive, cross-sectional study, conducted with hypertensive individuals from an outpatient clinics in the PHC of a city in the south of Brazil that has a population of approximately 357,000 inhabitants, who, at the time of data collection, were accompanied by 25 Basic Health Units (BHU) that had Family Health Strategy teams (FHST). For the purposes of this research we used the area covered by 23 BHU located in the urban area of the city.

The sample size was calculated based on the total number of people with hypertension who were registered in the city (40.073). We have considered that the percentage of 50% could present the characteristic of interest (inadequate blood pressure control) with error estimate of 5% and 95% confidence interval, plus another 10% for possible losses. This resulted in a sample of 422 individuals, randomly selected and stratified, with proportional distribution of the sample size among people with hypertension registered in each BHU.

Inclusion criteria in the study contemplated: age less than 18 years old; and being in drug treatment for at least one year. The exclusion criterion were: patients with contraindication of antihypertensive therapy (two cases); and psychiatric diagnosis of mental disorder in the acute phase (fifteen cases). These, due to the characteristics of the disease, tend not to adhere faithfully to therapy, because in many cases they depend on other people for the correct outlet of continuous use of drugs, which interfere in the blood pressure control.

To collect the data, initially, it was obtained from the City Health Department a list, divided by BHU, with the registration data of the hypertensive people, and then they were numbered. Through electronic sorting it was determined those who would be interviewed. In cases where the selected individual didn't met the inclusion criteria or refused to participate in the research, automatically the next one on the list was invited. This operation could be repeated up to three times.

After gathering the addresses and phone numbers of the selected individuals, which occurred in the BHU, we proceeded to the data collection itself, which was carried out during the months of December 2011 to March 2012, by consulting the medical records in BHU and semistructured interviews that were held at home, with the application of a questionnaire which included questions on personal, socioeconomic and the monitoring of their health status.

To measure the non-adherence to pharmacotherapy a tool<sup>9</sup> of indirect assessment was used and validated and entitled: Questionnaire of Non-adherence to Medicines from Qualiaids Team (QAM-Q), which was developed to address the act (if the individual takes and how much medicines they are making use of), the process (if they takes the medicines in the seven-day period ) and the result - in this case , if their BP was controlled.

The refere questionnaire contained three questions that were based on the last seven days: 1) On which days of the week did you take or not at least one pill of this medication?; 2) In those days, how many pills did you not take or took more than the recommended?; 3) How was your blood pressure

like the last time you checked it?. It is noteworthy that for each antihypertensive medication the first two questions were made to check the way the individual made use each of their medications.

The answers resulted in a composite measure, where only the individuals who reported having taken 80% to 120% of the prescribed doses were considered adherent to the treatment. These values can be obtained by multiplying the number of pills ingested by the number of times there were taken, and then by dividing the number of prescribed tablets multiplied by the number of times that they should be taken. Finally, the result is multiplied by one hundred.

The adherence to treatment was still subject to the proper intake of the medication. That is, without any "pauses" (did not take any medicine for one day); "Trading hours" (took the correct dose, but at the wrong times); "Exchange dose" (to increase or decrease the amount of the drug or drugs); "Taking it irregularly" (stopped taking the drugs at various days and times); "Half-adherence" (took a medication correctly and the other incorrectly); "Partial abandonment" (stopped taking one or more of their drugs); "Abandonment" (took no dose of all drugs in the last seven days); and the report that the BP was normal in the last it was checked (clinical outcome).

We have decided to use the QAM-Q as it is a comprehensive tool that includes three different dimensions as for the construct related to the adherence (drug intake, behavior towards the medication and clinical outcome). It also presents the same effectiveness as some other instruments and allows an easier and a faster pace of application<sup>9</sup>.

The reports of the respondents were used to determine the variables related to health care, such as the frequency of BP check (weekly or monthly) and attendance at group activities (Hiperdia meetings, walks in BHU and lectures) and to medical appointments previously scheduled.

The data were inserted into an Excel spreadsheet for Windows 2007<sup>®</sup> and analyzed descriptively and statistically with the assistance of the software *Statistical Analysis System - SAS*<sup>®</sup>. Respondentes were divided into two groups, according to the classification of their blood pressure, which was based on Brazilian and international guidelines<sup>10</sup>. According to their medical records, the individuals whose BP were not controlled were considered hypertensive if in a maximum interval of one year, they presented in three of the last five checks, systolic blood pressure (SBP) greater than 140 mmHg and/or diastolic blood pressure (DBP) greater than 90 mmHg. The BP values were the only information verified in the medical records.

In order to verify the existence of factors related to the inadequate BP control, the logistic regression of type Stepwise Backward Elimination was carried out. To that it was also added all the variables in the model, which were removed gradually based on the level of significance ( $p < 0.20$ ). After the analysis the variables who remained in the final model of logistic regression ( $p < 0.05$ ) were: age, non-adherence to pharmacotherapy, attendance at medical appointments and number of medications taken. For these variables the relative risk (RR) was also calculated in order to verify the extent of the correlation.

The study was authorized by the Permanent Training Center on Health from the City Health Department and approved by the Ethics Committee in Research Involving Human Beings of the State University of Maringá, in the opinion 631/2011, in accordance with Resolution No. 196/96 of the National Health Council (CNS) and its complementary. Participants signed the two copies of the Informed Consent.

## RESULTS

Among the 422 persons with hypertension in the study, 30 (7.10%) were excluded due to the inexistence of records of at least five BP checks in a 12-month interval. It should be noted that this fact, by itself, can already be considered as one of the results of this study, as it shows that a significant proportion of individuals with hypertension and that make continued use of medication did not have their BP checked not even at every two months.

It was evident that among the 392 participants, 176 (44.89%) had inadequate blood pressure control, even though they consumed antihypertensive medications for over a year. Most of these people were women (59.95%); married (67.60%); white (68.85%); with low family income (75.01%) and low education (79.08%). None of these factors presented statistically significant association with inadequate blood pressure control (Table 1).

It was also found that most participants were in the age group above 60 years (63.52%) and that the improper blood pressure control was more common among them ( $p = 0.03$ ). The RR calculation demonstrated that individuals with 60 years or more had 0.8 times (CI: 0.68 to 1.06) more chances of not controlling their BP.

With regard to health care, it was found that individuals with hypertension, in most cases, had not checked their BP in the last week (57.66%). In contrast, most of them reported having attended routinely the activities of the group of hypertensive at the BHU (51.78%) and has verified the PA in the last month (78.83%), but these factors did not show statistical association with uncontrolled BP.

In relation to the non-adherence to antihypertensive drug treatment, it could be verified that 167 (44.90%) participants were considered non-adherent, and among these, 147 (88.02%) had no blood pressure values in desirable levels ( $p = 0.00$ ). It was made clear that the individuals who were non-adherent to treatment had 9.0 times (CI: 6.74 to 12.07) more chances of presenting uncontrolled blood pressure.

It was also found that 43 respondents revealed to attend assiduously to scheduled appointments at the BHU, and of these, 35 (81.39%) did not present satisfactory blood pressure control ( $p = 0.00$ ). Such individuals had chance 5.3 times (CI: 2.8 to 10.2) more chances of not controlling their BP.

Another feature that also proved to be a predictor of inadequate blood pressure control was the number of medications taken ( $p = 0.00$ ), once the individuals with prescription of three or more drugs had 1.2 (CI: 1.13 to 1.35) times more chances of having low blood pressure control compared to those who used up to two medications.

**Table 1.** Univariate association between the inadequate blood pressure control and the personal, socioeconomic and health care factors to the health of hypertensive individuals. Maringá (PR), 2012

| Variables                                | Controles BP |       |     |       | Total |       | p     |
|--|--------------|-------|-----|-------|-------|-------|-------|
|  | No           |       | Yes |       | n     | %     |       |
|  | n            | %     | n   | %     |       |       |       |
| <b>Gender</b>                            |              |       |     |       |       |       |       |
| Male                                     | 79           | 20.15 | 78  | 19.90 | 157   | 40.05 | 0.95  |
| Female                                   | 97           | 24.74 | 138 | 35.21 | 235   | 59.95 |       |
| <b>Age</b>                               |              |       |     |       |       |       |       |
| < 60 years                               | 71           | 18.11 | 72  | 18.36 | 143   | 36.47 | 0.03* |
| ≥ 60 years                               | 105          | 26.78 | 144 | 36.74 | 249   | 63.52 |       |
| <b>Ethnicity</b>                         |              |       |     |       |       |       |       |
| White                                    | 110          | 28.06 | 163 | 41.59 | 263   | 69.65 | 0.77  |
| Not white                                | 66           | 16.83 | 53  | 13.52 | 119   | 30.35 |       |
| <b>Marital status</b>                    |              |       |     |       |       |       |       |
| with a partner                           | 113          | 28.83 | 152 | 38.77 | 265   | 67.60 | 0.19  |
| without a partner                        | 63           | 16.07 | 64  | 16.33 | 127   | 32.40 |       |
| <b>Schooling</b>                         |              |       |     |       |       |       |       |
| ≤ 08 years                               | 142          | 36.22 | 168 | 42.86 | 310   | 79.08 | 0.88  |
| > 08 years                               | 34           | 8.68  | 48  | 12.24 | 82    | 20.92 |       |
| <b>Economic class**</b>                  |              |       |     |       |       |       |       |
| High                                     | 43           | 10.96 | 55  | 14.03 | 98    | 24.99 | 0.49  |
| Low                                      | 133          | 33.93 | 161 | 41.08 | 294   | 75.01 |       |
| <b>Checked the BP on the week</b>        |              |       |     |       |       |       |       |
| Yes                                      | 61           | 15.56 | 105 | 26.78 | 166   | 42.34 | 0.65  |
| No                                       | 115          | 29.34 | 111 | 28.32 | 226   | 57.66 |       |
| <b>Checked the BP in the month</b>       |              |       |     |       |       |       |       |
| Yes                                      | 122          | 31.12 | 187 | 47.71 | 309   | 78.83 | 0.31  |
| No                                       | 54           | 13.77 | 29  | 7.40  | 83    | 21.17 |       |
| <b>Attended the group meeting</b>        |              |       |     |       |       |       |       |
| Yes                                      | 80           | 20.41 | 123 | 31.37 | 203   | 51.78 | 0.54  |
| No                                       | 96           | 24.49 | 93  | 23.73 | 189   | 48.22 |       |
| <b>Attended the medical consultation</b> |              |       |     |       |       |       |       |
| Yes                                      | 141          | 36.06 | 207 | 52.94 | 348   | 89.00 | 0.00* |
| No                                       | 35           | 8.95  | 08  | 2.05  | 43    | 11.00 |       |
| <b>Nº of medications</b>                 |              |       |     |       |       |       |       |
| ≤ 02                                     | 130          | 33.16 | 197 | 50.26 | 327   | 83.42 | 0.00* |
| ≥ 03                                     | 46           | 11.73 | 19  | 4.85  | 65    | 16.58 |       |
| <b>Adherence to pharmacotherapy</b>      |              |       |     |       |       |       |       |
| Yes                                      | 29           | 7.40  | 196 | 50.00 | 225   | 57.40 | 0.00* |
| No                                       | 147          | 37.50 | 20  | 5.10  | 167   | 42.60 |       |

\* significative p-value according to the model of logistic regression stepwise backward elimination; \*\* Based on the Criteria of Economic Classification in Brasil from the Brazilian Association of Research Companies (ABEP).

## DISCUSSION

Studies conducted in Brazil have identified high prevalence of inadequate blood pressure control, which has not been configured differently in this research, whose prevalence was 44.89%. Researches on hypertensive patients undergoing treatment at the PHC in Espírito Santo and São Paulo, have shown, respectively, prevalence of 50.15%<sup>7</sup> and 78.0%<sup>1</sup> of uncontrolled BP.

It should be noted that the studies referred above have considered as uncontrolled blood pressure the BP that was uncontrolled at the time of the interview, being checked with the use of digital manometer. It is believed that the determination of uncontrolled blood pressure, through the checking of medical records and considering a relatively long period of time, as in the case of this study, can reduce biases as for the prevalence of hypertensive individuals with uncontrolled BP. That is because blood pressure levels suffer momentary influences of the environment, food and the emotional state of the individual.

Among the socioeconomic factors identified in the literature<sup>11</sup> as predictors of inadequate blood pressure control, it was found in the present study, only that the high age rate of the hypertensive individuals was associated with the outcome of interest.

Despite the fact that studies have pointed to higher blood pressure levels among older people, there is evidence that not only the age is hindrance to the maintenance of adequate blood pressure figures. An investigation carried out in India showed that there are elderly people who remain isolated and exhibit low rates of hypertension, such as prisoner women who live in remote rural areas<sup>11</sup>. This has led the authors to consider a few factors, including the urbanization and the modern lifestyle, as elements that can exert more influence in controlling the disease than the age itself.

Another factor worth mentioning is the behavior of patients in what concerns the management of medications. It can be noted that, given the increase in the clinical trial studies, new drugs or the combination with other already known drugs have appeared and increased the therapeutic arsenal for DC, such as hypertension. Yet, those who treat patients with this disease are still bumping into a secular problem: the lack of adherence to drug therapy, which increases the occurrence of complications and disorders<sup>4</sup>. From this perspective, and similar to what was found in the present study, an investigation conducted with 109 individuals with hypertension found that those non-adherent to drug therapy were more likely to have inadequate blood pressure control<sup>12</sup>.

A case-control study carried out in a specialized service, involving 57 people with hypertension who were divided into two groups, one of which received measurement apparatus of the BP and guidance on how to use it, showed that after six months of monitoring patients in the intervention groups, they achieved faster treatment goals, with a significant decrease in SBP and DBP. This difference was explained by the increased adherence to drug therapy, triggered by the higher frequency of measurements of BP<sup>13</sup>.

These results reinforce the importance of managers and health professionals to adopt specific and individualized measures to improve patient adherence to treatment and

encourage them to check more frequently their BP. To do so, they must be present in all stages of the therapeutic process, informing the patients about the importance of achieving blood pressure goals and the means to accomplish it<sup>13</sup>.

Based on the above, it is considered that health professionals, especially those from the PHC, should be instrumentalized and sensitized to work with the hypertensive population. They should target, at the extent of their ability, to increase the adherence levels to drug treatment since there is evidence that the correct ongoing therapy reduces mortality; emergency consultations; hospitalizations; and therefore, the medical and hospital costs<sup>5</sup>. Besides these benefits, the adherence to the treatment of hypertension tends to promote the patient's well-being and improves their quality of life and also of their families<sup>5</sup>.

Regarding the number of drugs used for the treatment of hypertension, it has become clear that the majority of respondents (83.42%) made use of up to two medications. However, the inappropriate blood pressure control was more frequent among those who took more than two pills. A study in a southern capital of Brazil with 206 hypertensive individual showed that respondents with low adherence to drug treatment tended to have a higher number of medications in use<sup>14</sup>.

This situation can in part be attributed to the fact that the greater the number of most prescribed drugs the greater the potential risk of dangerous interactions and adverse effects, resulting in low adherence to the treatment. Moreover, taking more medication increases the complexity of the pharmacotherapy and hence the deviant forms of such therapeutic approach<sup>4</sup>.

According to the above, the simplification of the treatment regimen is one of the key points to increase adherence to chronic treatment, such as hypertension. Thus the decrease in the number of medications and their dosages frequency (preferably a single daily dose) appears to be an aspect that favors adhesion and improves control of blood pressure in people with hypertension<sup>15</sup>.

It is worth mentioning that the drug intake time has also been pointed out as a factor that intervenes in the treatment adherence. When relating the hours of dosing with activities of daily routine (which serve as reminders, for example, before breakfast or after meals), there is an improvement in the level of adherence and blood pressure control<sup>15</sup>. In this regard, adapting and simplifying the therapeutic scheme of patients is, therefore, one of the strategies that professionals can use to promote adherence to treatment.

The non-attendance of patients to meetings/consultations also took place among the predictors of uncontrolled blood pressure in this investigation. Studies have shown that among the individuals accompanied by SBP programs, those more assiduous at the meetings promoted by the professionals, both in BHU (medical consultation) and the community (group activities), had greater reduction in blood pressure levels<sup>1,11</sup>.

In Brazil, the HIPERDIA constitutes a tool that if used according to the protocols, can enhance the achievement of good results in assisting people with hypertension. Its main purpose is to register individuals with hypertension and/or *diabetes mellitus* (DM) who are treated in outpatient facilities of the Unified Health System (SUS), in order to generate information for acquisition, distribution and dispensing of medications in a regular and

systematic way. In addition to the registration, this system favors the monitoring of care, ensuring that the prescribed drugs will be received and the verification of the epidemiological profile of this population, which leads to triggering public health strategies to improve the quality of the individuals lives and the reduction on the social costs with diseases and their complications<sup>16</sup>.

On the other hand, despite the fact the implementation of HIPERDIA has occurred almost fifteen years ago, studies of literature review<sup>17</sup> showed that many localities do not use it as a tool for the planning and evaluation of the quality of the assistance provided. This fact constitutes an important challenge for professionals and managers who work at health offices in PHC because the proper use of HIPERDIA, in all territorial extent of the country, could result in a qualitative leap in public healthcare, minimizing the appearance of diseases and complications resulting from SBP and DM.

Another important and current challenge for professionals working in HIPERDIA is to ensure the patient's presence at the facility, as this seems to be a basic condition for the proper management of the treatment of hypertension, probably because it enables individual motivation and generates attitudes that contribute to the reduction of the BP. To endorse this thought, a qualitative study carried out among 14 nurses revealed that, in the perception of these professionals, more frequent consultations provide better monitoring of blood pressure, along with access to more information, which, in turn, underpin and strengthen adherence to therapy<sup>18</sup>.

Although the number of consultations in health facilities relate strongly with the pressure control, the literature still states that clinical practice and the evidence presented by the research are not sufficiently satisfactory to state that only the attendance of individuals to the consultation is sufficient to promote the reduction of the BP values<sup>11</sup>. Thus, it's believed to be necessary also to consider the working method applied in monitoring the hypertensive person; the activities undertaken by the professionals; the quality of care; and the relationships established between the patient and the healthcare professional.

It's also important to emphasize the urgent need of reformulation of the activities developed by the health professionals geared to individuals with hypertension. This is because we can see, in practice, that the assistance to that part of the population, including the activities of HIPERDIA, are still focused on the biomedical specialized and fragmented model and do not meet the the different needs and multiple demands of patients because there is little room for qualified listening, acceptance and understanding of suffering. Thus, a fragmented care is reflected on the individual and their family.

In accordance with the foregoing, a prospective study, held in Rio de Janeiro (RJ), with 196 hypertensive people, divided into two groups - where one was seen only by medical consultations that were previously scheduled, and the other was accompanied by a multidisciplinary staff composed by doctors, nurses and nutritionists, and where they also performed educational activities for health and leisure - has show that in the second group, after five years of follow-up, there was a significant drop in blood pressure levels (160/100 mmHg to 130/80mmHg),

while in the first there was a less sharp drop (160/90mmHg to 140/90mmHg)<sup>2</sup>.

A similar study conducted in the United States, with 279 individuals with hypertension, where they were divided into two groups: intervention (medical consultations and educational activities for health), and control (medical appointments) showed that after 12 months of follow-up there was a significant fall in the SBP of patients from the intervention group (-10.6 mmHg) when compared to the control group (-2.0 mmHg)<sup>19</sup>.

Here in Brazil we have already shown that adults with hypertension, participating in health education programs - provided they are multidisciplinary, structured and effective - show a significant improvement in health conditions, both with regard to the reduction of risk factors in improving adherence to treatment preconized<sup>1</sup>. Likewise, another study asserts that educational interventions made by the health team bring considerable changes in the behavior of patients. However, these actions are not easy to implement, because they depend on factors such as the method used and the staff's interaction itself with the subjects and their families<sup>18</sup>.

A study in the Northeast of Brazil with 135 individuals with hypertension, assisted by the PHC revealed that respondents had an increase in BP normalization (28.9% to 57.0% of controlled hypertensive subjects) after the actions carried out by the multidisciplinary team of FHS and after the inclusion of the patients and their families in the design of the proposed treatment. This shows how much the assistance of FHS professionals can be efficient if shared with family members. Therefore, the reorganization of primary care based on the integration of a multidisciplinary team with the chronically ill and their families is essential, each with its responsibilities, rights and duties previously defined<sup>3</sup>.

Despite some methodological limitations, such as the fact that the study participants were selected from those registered in the Hiperdia program and performed medical treatment for at least one year, which resulted in a sample of mostly women and elderly. Along with the various possible methods for identification of inadequate blood pressure control, which hampers the comparability of these results. It can be said that the prevalence of people who are treated for hypertension in PHC and do not have adequate control of blood pressure levels is high (44.89%) and it is not very different from what has been found in other Brazilian locations. These issues, therefore, appear as a challenge for the health sector in cities with different population sizes and located in various regions of the country.

As mentioned above, the adoption of intervention measures to increase the number of individuals who perform an adequate blood pressure control is neither simple nor easy, once all the multiple factors involved in the adherence to the treatment must be considered. Furthermore, the results are disturbing and indicate the urgency for efforts by managers and health professionals as for the need for more effective measures to control hypertension. This is because the control of blood pressure is key to a significant reduction in morbidity and mortality from cerebrovascular diseases, especially when there is an associated comorbidity that increases the severity of the disease<sup>2</sup>. Added to that, it is known that hypertensive people who follow the pharmacological

treatment prescribed appropriately and make changes in their lifestyle, have a considerable reduction of damage to their health and increase their life expectancy<sup>7</sup>.

Considering, then, the results of this study, it is suggested that the nurse at the PHC act together with hypertensive individuals, especially the elderly, to perform systematic consultations, respecting the contexts in which they live. It is important that they aim to improve the outcomes related to the disease, promote autonomy and healthy lifestyle, favoring then the adaptations required to the condition of being hypertensive, which will culminate in improvement of their quality of life.

To achieve the objectives mentioned above is essential to create and/or take advantage of the spaces of experiences with the patient and family, for example, the HIPERDIA groups. It is also indicated that the groups are conducted in accordance with what is established by the Ministry of Health protocols, in order to promote the careful planning related to the treatment of the disease and the exchange of information among users and between them and the healthcare workers. Finally, it is necessary to develop intervention strategies that seek adherence to blood pressure control and the simplification of drug prescriptions, which include, for example, the association of taking medication with routine activities, such as before breakfast or after lunch.

## CONCLUSION

The results of this study have shown that approximately 45% of the hypertensive individuals assisted in primary care in a city in the south of Brazil, had inadequate control of blood pressure. This reinforces the importance of the health staff, especially nurses, to act towards making hypertensive people to adhere more effectively to the proposed treatment, favoring the control of their blood pressure levels.

The factors: age of or above 60 years, the non-adherence to pharmacotherapy, the absence in the medical consultations and the prescription of a greater number of drugs deserve special attention from health professionals who work with the hypertensive population, because such changes are associated with inadequate blood pressure control, but they are all bound to be changed by the actions carried out by the multidisciplinary health team and the hypertensive person.

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