

## EFFECTS OF SUPPORTED SELF-CARE ON BLOOD PRESSURE AND CARDIOMETABOLIC PROFILE OF HYPERTENSIVE INDIVIDUALS: RANDOMIZED CLINICAL TRIAL

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### ABSTRACT

**Objective:** to verify the effects of supported self-care on the blood pressure and cardiometabolic profile of hypertensive individuals. **Method:** randomized clinical trial developed with 78 hypertensive patients monitored by the Family Health Strategy in the municipality of Cajazeiras - PB - Brazil. The intervention consisted of nursing consultations based on supported self-care. The control group followed up with the usual monitoring by the health team. For data collection, a sociodemographic and clinical questionnaire, blood tests, blood pressure and anthropometric measurements were used. **Results:** There was a reduction in weight, abdominal circumference, waist-to-hip ratio, and Body Mass Index in the intervention group, with significant improvement in blood pressure. No significant improvement was seen in the control group. **Conclusion:** supported self-care showed positive effects on the participants' blood pressure and cardiometabolic profile, minimizing risk factors and configuring a methodology with promising potential when applied by nurses. REBEC - RBR-5m5qg8

**DESCRIPTORS:** Hypertension; Self-care; Cardiometabolic Risk Factors; Health Profile; Nursing consultation.

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## INTRODUCTION

Arterial Hypertension (AH) reflects a topic of public interest as it is a chronic disease on the rise. Affecting about one third of the adult population, AH was responsible for 2.1% of deaths worldwide in 2019, taking a prominent place in the global burden of cardiovascular disease and disability-adjusted life years<sup>1</sup>. In Brazil, the prevalence of AH in this same period was 24.5% in people older than 18 years, distributed in 27.3% among women and 21.2% among men, with mortality corresponding to 20.4% of total deaths in the country<sup>2</sup>.

The subject in question raises social repercussions related to unsatisfactory control of hypertensive disease<sup>3</sup>. According to the National Health Survey (PNS), 4.7% of the population has an intense or very intense degree of limitations in daily activities due to high blood pressure (BP)<sup>4</sup>. These findings are associated with overweight, large abdominal circumference (AC), physical inactivity, and dyslipidemia<sup>5</sup>.

In this sense, antihypertensive therapy should be directed to the elaboration of collective policies combined with individual actions, aiming at the achievement of ideal blood pressure goals, and the prevention of cardiovascular and renal outcomes, with the patient being oriented to start practices that lead to changes in lifestyle<sup>3,6</sup>.

However, what is perceived are ineffective results on disease control, particularly regarding the maintenance of healthy behaviors<sup>7</sup>. Supported self-care emerges in this scenario as one of the pillars of the Chronic Conditions Care Model (MACC), aiming to reformulate the predominant biomedical care that has not shown effective impacts in the field of chronic conditions. It is based on the premise of empowerment and preparation of individuals for self-management of their own health conditions<sup>8,9</sup>.

Supported self-care uses a systematized approach that aims to support the process of changing habits. It includes periodic follow-up, goal setting, and the construction of an individualized care plan. It also allows the recognition of the personal interest in modifying a risk behavior so that a counseling is carried out centered on the person, his/her wills, and availability of resources<sup>7,9</sup>.

Thus, given the public and social importance of hypertension today, confirmed by the expressivity of epidemiological data, this study aimed to verify the effects of supported self-care on the blood pressure and cardiometabolic profile of people with hypertension. Based on the findings that indicate the benefits of supported self-care on the management of chronic diseases, the hypothesis is that the nursing consultation guided by supported self-care stimulates the acquisition of healthy behaviors by the patient, improving cardiometabolic variables and blood pressure levels.

The present proposal is justified by the opportunity to test a new format of assistance, based on the decentralization of care and the active involvement of the patient, where the use of an innovative methodology, focused on health education, can contribute to a greater accountability of the patient on his treatment process with consequent improvement of the results on risk behaviors and reduction of cardiovascular events.

## METHOD

This is a randomized clinical trial (RCT), parallel, with two arms, developed from January to July 2020, with hypertensive patients followed-up in 11 units of the Family Health Strategy (FHS), in the city of Cajazeiras - PB. This RCT is part of the doctoral thesis entitled "Nursing consultation based on supported self-care in users with hypertension

followed-up in the Family Health Strategy” and has the number in the Brazilian Registry of Clinical Trials (REBEC) RBR-5m5qg83.

Inclusion criteria were age  $\geq 18$  years; medical diagnosis of arterial hypertension; antihypertensive treatment for a period of at least six months before the beginning of this study and follow-up by a nurse at the FHS. People with cognitive impairment regarding memory, attention and communication skills and pregnant hypertensive women were excluded.

Prior to the RCT, an epidemiological and transversal study was developed to collect data on the control and staging of AH. To this end, a sample calculation was carried out based on the 3,041 individuals registered in the 11 research locus units, with the aid of the Epi-info<sup>TM</sup> version 7.2 software, with a prevalence of 50%, confidence level of 95%, and sampling error of 5%. The sample of the initial study consisted of 410 people, selected by non-probability sampling.

Of the 410 participants recruited, only individuals with intermediate cardiovascular risk, defined by a Global Risk Score (GRS) between 5% and 20% for men and 5% and 10% for women, and GRS below 5% with a family history of premature cardiovascular disease, were considered as the sample for the RCT<sup>10</sup>. After applying the eligibility criteria, 100 participants were randomized to the Intervention (IG) and Control (CG) groups, with the aid of the randomizer program (available at: [www.randomizer.org](http://www.randomizer.org)).

At first, a random sequence was generated using a computerized algorithm to form blocks of 10 people. Each participant received a sealed envelope, containing a sequence number that allowed their distribution in the study groups, which was opened by the researcher to maintain the confidentiality of allocation. Blinding of the principal investigator and participants was not possible due to the nature of the intervention implemented. However, to minimize the risk of bias, the statistician responsible for data analysis and outcome evaluation was blinded.

To investigate the primary outcomes, regarding the cardiometabolic and blood pressure profile, a sociodemographic and clinical questionnaire was applied in both groups, exclusively by the researcher, to collect personal and family history of cardiovascular events, including questions related to aspects of hypertensive disease. All participants underwent blood tests, performed by an accredited laboratory, to analyze fasting glucose, total cholesterol, HDL-cholesterol, LDL-cholesterol, and triglycerides, and all necessary pre-examination orientations were performed.

BP values were measured using an automatic sphygmomanometer according to the technique recommended by the 7th Brazilian Guideline on Hypertension<sup>10</sup>. The anthropometric measurements, such as weight, height, body mass index (BMI), abdominal circumference (AC), hip circumference (HC), neck circumference (NC), and waist-to-hip ratio (WHR), followed the recommendations of the Food and Nutrition Surveillance System Manual<sup>11</sup>.

As part of the intervention, nursing consultations based on supported self-care were applied with the participants of the IG. Because it coincided with the period of social isolation caused by Covid-19, deviations from the pre-established protocol were necessary, where the intervention methodology, which initially consisted of five face-to-face consultations, was readapted to the pandemic context, with three face-to-face consultations and three by telephone.

In the first face-to-face consultation with the IG, which lasted an average of one hour and 20 minutes, the first four steps of the Five A's Technique concerning: 1) assessment of current health behaviors; 2) counseling; 3) agreement; and 4) assistance in developing an individualized care plan<sup>12-13</sup>.

Step five - Follow-up - was implemented from the second nursing visit, aiming to support the process of behavior change, in order to recognize difficult situations early, to manage relapses, and to seek solutions<sup>12</sup>. New measurements of anthropometric measurements and BP were taken during the face-to-face meetings. At the end of the intervention, which lasted a total of six months, a survey was conducted about the goals achieved.

During the entire intervention period, the CG did not receive any type of assistance from the researcher, following the usual follow-up by the FHS nurse, which consisted of BP and anthropometric measurements, as well as health guidelines on healthy lifestyle habits performed during routine consultation in the primary care service. After the end of the intervention protocol, both study groups were reassessed for anthropometric and blood pressure parameters, with reapplication of the collection instruments, as well as new laboratory tests.

Data processing and analysis were performed using the Statistical Package for the Social Sciences (SPSS), version 25.0. Descriptive statistics were used, using means, medians, absolute and relative frequencies. The correlation between variables was based on the normality distribution of the data evaluated by the Kolmogorov-Smirnov test, using the student's t-test and Mann-Whitney test for independent samples and the paired t-test and Wilcoxon test for related samples. For correlation of categorical variables, Pearson's chi-square test was used. A significance level of  $p \leq 0.05$  was considered.

The study was approved by the Research Ethics Committee of the HUOC/PROCAPE Hospital Complex with opinion 3.113.712.

## RESULTS

One hundred participants classified as intermediate cardiovascular risk were included in the study. However, during the allocation process, 13 individuals were excluded as explained in Figure 1. Thus, 87 participants made up the sample and were randomized into control and intervention groups. During the 6-month follow-up, which coincided with the Covid-19 pandemic period, there were losses in the groups due to change of address and telephone contact, withdrawal from the study and death.

At the end of the RCT, a total of 78 participants completed all phases of the research protocol, distributed as 40 in IG and 38 in CG. The researcher did not report or observe any side effects that could be associated with the intervention developed, given its nature as health education.

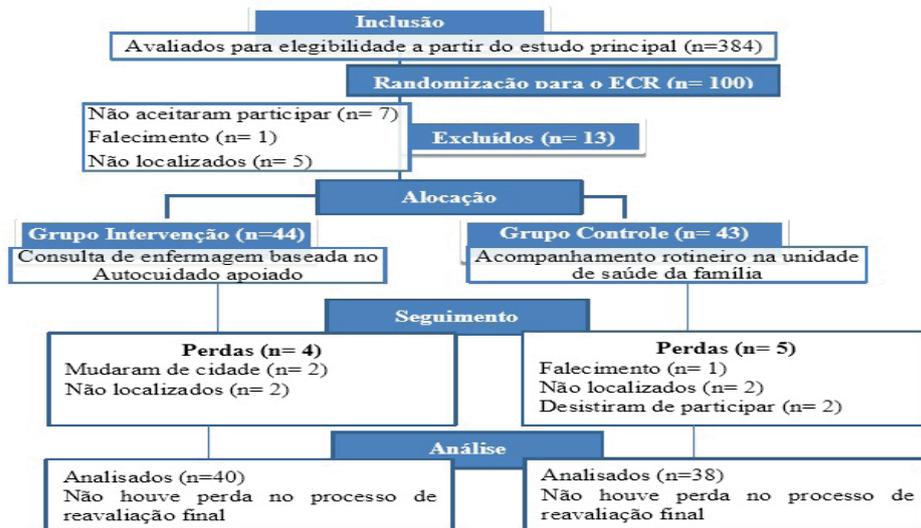


Figure 1 - Flowchart of allocation and loss of study participants. Cajazeiras, Paraíba, Brazil, 2020

Source: Adapted from CONSORT (2010).

In Table 1, one can see the characteristics corresponding to the participants' socio-demographic and economic data. Homogeneity between the groups is observed, both with a predominance of females, white, living in a stable union, without profession or occupation, with incomplete elementary education, and income < three minimum wages. There was greater representation of middle-aged adults in the intervention group and of elderly in the control group, with no statistical relevance.

Table 1 - Sociodemographic and economic characterization of the study groups; (n= 78). Cajazeiras, Paraíba, Brazil, 2020

VARIABLES	Intervention Group	Control Group	p
	n (%)	n (%)	
Age			
18 to 39 years old	6 (15.0)	2 (5.3)	0.19
40 to 59 years old	23 (57.5)	15 (39.5)	
≥ 60 years old	11 (27.5)	21 (55.3)	
Gender			
Female	33 (82.5)	31 (81.6)	0.36
Male	7 (17.5)	7 (18.4)	
Color/Race			
Black	5 (12.5)	6 (15.8)	0.61
White	22 (55.0)	20 (52.6)	
Brown	13 (32.5)	12 (31.6)	

Marital Status			
Single	4 (10.0)	4 (10.5)	0.83
Living with spouse/partner	27 (67.5)	23 (60.5)	
Widow/widower	4 (10.0)	8 (21.1)	
Separated	5 (12.5)	3 (7.9)	
Profession/Occupation			
No profession/occupation	25 (62.5)	26 (68.4)	0.32
Intellectual and scientific workers	0 (0.0)	1 (2.6)	
Middle-level professionals	4 (10.0)	2 (5.3)	
General service and sales workers	6 (15.0)	6 (15.8)	
Industrial and agricultural workers	5 (12.5)	3 (7.9)	
Individual income			
No income	8 (20.0)	1 (2.6)	0.66
1 to 2 salaries	9 (22.5)	10 (26.3)	
2 to 3 incomes	22 (55.0)	26 (68.4)	
3 to 4 incomes	1 (2.5)	1 (2.6)	
Education			
Illiterate	6 (15.0)	3 (7.9)	0.33
Elementary School Complete	1 (2.5)	1 (2.6)	
Elementary School incomplete I	17 (42.5)	23 (60.5)	
Completed High School	5 (12.5)	5 (13.2)	
Incomplete High School	5 (12.5)	1 (2.6)	
Higher Education Complete	3 (7.5)	3 (7.9)	
Incomplete Higher Education	1 (2.5)	0 (0.0)	
Professionalizing course	2 (5.0)	2 (5.3)	

Source: survey data, 2020.

The comparison between the nutritional profile, presented in Table 2, shows an improvement in the results of anthropometric variables before and after the nursing consultation applied, pointing to a statistically significant reduction in weight, AC, WHR, and BMI values in the IG. The CG did not undergo changes in the measurements of these variables, maintaining a nutritional profile like that of the initial assessment.

Table 2 - Comparative analysis of the nutritional profile of the study groups before and after the intervention; (n= 78). Cajazeiras, Paraíba, Brazil, 2020

VARIABLES	Intervention Group		p	Control Group		p
	Before	After		Before	After	
Weight	*69.9 (44-131)	*69.0 (45-114)	0.01	*70.1 (45-117)	*70.4 (46-120)	0.83
Abdominal Circumference	**97.2 ±11.4	**93.3 ±10.7	<0.01	**97.0 ±12.2	**95.8 ±10.7	0.11
Neck Circumference	**35.0 ±3.36	**34.8 ±3.58	0.46	35.5* (31-44)	*35.5 (32-45)	0.15
Waist-to-Rip Ratio	**0.96 ±0.08	**0.92 ±0.08	<0.01	**0.95 ±0.09	**0.94 ±0.09	0.32
Body Mass Index	*27.7 (21-46)	*26.9 (21-41)	<0.01	*28.3 (19-43)	*29.0 (18-39)	0.61

Source: survey data, 2020.

Note: \*Results presented as median and minimum and maximum range (non-parametric Wilcoxon test). \*\*Results presented as mean and standard deviation (Student's t-test for paired samples).

Regarding the lipid profile shown in Table 3, no statistical changes were found in IG with the counseling based on the five A's technique, although a non-significant improvement in LDL, HDL, and triglyceride rates was noticed. At the same time, the CG showed a significant increase in triglyceride values ( $p = 0.03$ ) and a non-significant worsening ( $p > 0.05$ ) in total and LDL cholesterol.

Fasting blood glucose (Table 3) increased significantly ( $p < 0.01$ ) for both groups studied, comparing before and after. The metabolic profile of the participants, represented by insulin resistance, did not show any statistical difference after six months of follow-up in IG. However, in the CG there was a relevant increase in the percentage of individuals with Metabolic Syndrome (MS) ( $p < 0.01$ ), showing an increase in cardiovascular risk factors for this group.

Table 3 - Comparative analysis of lipid, glycemic and metabolic profile of the study groups before and after the intervention; (n= 78). Cajazeiras, Paraíba, Brazil, 2020

VARIABLES	Intervention Group		p	Control Group		p
	Before	After		Before	After	
Fasting blood glucose	*78.5 (70-163)	*90.0 (80-130)	<0.01	*79.5 (70-150)	*89.0 (72-139)	<0.01
Total Cholesterol	**156.7 ±32.7	**156.5 ±33.9	0.97	**152.8 ±27.2	**153.9 ±32.2	0.83
Triglycerides	*122.2 (89-258)	*124.5 (74-248)	0.99	**123.8 ±20.0	**141,8 ±32.3	0.03
Cholesterol - LDL	**87.2 ±31.3	**83.3 ±32.0	0.44	*78.5 (32-167)	*82.0 (40-121)	0.82
Cholesterol - HDL	*42.0 (40-54)	*43.0 (40-58)	0.11	*43.0 (33-58)	*44.0 (40-54)	0.12

Metabolic Syndrome***						
Presence	7 (17.5)	12 (30.0)	0.18	3 (7.9)	16 (42.1)	0.01
Absence	33 (82.5)	28 (70.0)		35 (92.1)	22 (57.9)	

Source: survey data, 2020.

Note: \*Results presented as median and minimum and maximum range (non-parametric Wilcoxon test). \*\*Results presented as mean and standard deviation (Student's t-test for paired samples). \*\*\*Results presented as absolute and relative numbers - N (%).

Data regarding the blood pressure profile, shown in Table 4, showed significant improvement in blood pressure levels in IG at the end of the study, with the percentage of disease control reaching 80.0% compared to 50.0% in the initial phase. This result allowed the reclassification of individuals to a milder stage of the disease (prehypertension stage), zeroing the percentages of stages two and three (more severe forms). On the contrary, in the CG, the blood pressure behavior was upward, with an increase in the percentage of uncontrolled BP, and a significant increase in pulse pressure was also visualized ( $p < 0.01$ ) during the final evaluation.

Table 4 - Blood pressure profile of the intervention and control groups at the time of evaluation before and after follow-up; (n= 78). Cajazeiras, Paraíba, Brazil, 2020

VARIABLES	Intervention Group		p	Control Group		p
	Before	After		Before	After	
Blood pressure control						
Controlled	20 (50)	32(80)	<0.01*	26 (68.4)	22 (57.9)	0.34*
Not controlled	20 (50)	8 (20)		12 (31.6)	16 (42.1)	
Disease stage						
Normal	7 (17.5)	8 (20)	0.02	10 (26.3)	4 (10.5)	0.20
Pre-hypertensive	12 (30)	24(60)		19 (50)	19 (50)	
Stage I	16 (40)	8 (20)		9 (23.7)	12 (31.6)	
Stage II	2 (5)	0 (0)		0 (0)	2 (5.3)	
Stage III	3 (7.5)	0 (0)		0 (0)	1 (2.6)	
Pulse pressure	¥47.6 ±12.9	¥48.1 ±9.86	0.80	¥44.9 ±12.5	¥49.6 ±11.5	0.01

Source: survey data, 2020.

Note: \*Pearson's chi-square test for association of percentages. □Results presented as median and minimum and maximum range (nonparametric Wilcoxon test). ¥Results presented as mean and standard deviation (Student's t-test for paired samples).

## DISCUSSION

The data presented show positive effects of the nursing consultation based on supported self-care in relation to the blood pressure and cardiometabolic profiles of hypertensive patients when compared to the usual follow-up performed by nurses in family health units. Statistical analysis points to a reduction in anthropometry of participants with consequent improvement in nutritional profile, although the levels achieved do not reflect a decrease in cardiovascular risk cut-off points.

These results are consistent with reports in the literature, where counseling using the five A's technique can contribute to an average loss of 5.4 kg in pregnant women, reducing to less than 76% the chances of excessive weight gain during pregnancy ( $p < 0.01$ )<sup>14</sup>. Benefits were also identified in 35 obese women, who showed statistically significant loss of 2.7 kg, 2.18 cm in waist size, and reduced their BMI by 0.34 points over eight weeks<sup>15</sup>. Effectiveness in promoting weight loss was also observed among elderly men with hypertension assisted in primary care<sup>16</sup>.

Researchers believe that professional training programs for teaching supported self-care is an opportune way to structure guidelines for changes in overweight through brief and personalized counseling<sup>17</sup>. The implementation of the five A's in health consultations provides a greater tendency to develop treatment plans around patients' preferences, less imposition of behaviors, and increased collaborative interactions between nurses, nutritionists, and mental health professionals<sup>18</sup>.

As for the lipid profile, the supported self-care did not promote statistical changes in IG. Fasting blood glucose increased in IG during the final evaluation, although it remained within acceptable limits ( $< 100$  mg/dl), an increase also observed in CG. Divergent data indicate that the five A's technique applied to people with type 2 Diabetes Mellitus significantly reduced the mean glycated hemoglobin by 1.5%, as well as the percentage of total cholesterol, LDL, urea, and glomerular filtration rate (GFR). These findings were considered clinically relevant, interfering with disease prognosis. In the group that did not receive the intervention, most changes were negative, with an increase in weight, WC, total cholesterol and GFR values<sup>19</sup>.

Meta-analysis of randomized trials with diabetic patients also ratified the positive effects of chronic disease self-management programs, with a reduction in glycated hemoglobin and systolic blood pressure and contributing to the achievement of improved clinical management strategies when compared to individuals assisted by traditional care, guided by simple guidelines, without systematized techniques, and without the sharing of goals and actions<sup>20-21</sup>.

Regarding the metabolic profile, there was a slight increase in the percentage of MS in IG, however, without statistical relevance. In the CG, there was a significant increase in the presence of MS, with worsening of insulin resistance corroborated by the increase in triglyceride and cholesterol values.

MS has a special particularity in the context of cardiovascular diseases due to its burden of clinical changes related to glucose metabolism, endothelial dysfunction and widespread tissue damage. The prevalence of MS in the population reaches percentages of 46.3%, especially in females and in overweight individuals<sup>21-23</sup>.

Although the contributions of supported self-care on MS are not yet well explained, a meta-analysis of 48 studies that employed brief counseling and motivational interviewing concluded that there was a 55% increase in the chances of producing satisfactory results compared with traditional interventions (Odds Ratio 1.55;  $p < 0.01$ ). The effects were found to be durable over the long term for a range of risk factors, including body weight, fasting glucose, HDL-cholesterol, and smoking.<sup>24-25</sup>

Among the most important results obtained in this research are the effects of supported self-care on the blood pressure profile. After follow-up in IG, there was a significant increase in disease control rates, where 80.0% of patients reached the ideal blood pressure target. The implemented actions shifted individuals from the most severe to the milder stages of the disease.

In the CG, the number of people with uncontrolled blood pressure increased from 31.6% to 42.1%, with a respective increase in the percentage of subjects classified in the most advanced stages. The pulse pressure in this group had a significant increase, increasing the risk of stiffness of the great arteries and coronary artery disease.

The problem of uncontrolled blood pressure emerges as a matter of concern in public health in the country, where literature reviews reveal that the highest rate of BP control corresponds to 57.6%, alternating between 20.0% and 30.7% in patients assisted by the FHS<sup>26</sup>. The difficult maintenance of BP within the desirable parameters contributes to microvascular changes as early as the diagnosis, leading to accelerated atherosclerosis, reduced elasticity, and reduced vascular regeneration capacity, which is the initial mechanism of almost all cardiovascular complications<sup>27</sup>.

In view of the data pointed out by the literature, the results found are valuable for demonstrating a substantial impact of self-care supported in the control of hypertensive disease, representing an alternative with resolute potential on the obstacles in the treatment of the disease and its sequelae in the context of primary care. The data prove to be even more impactful when one evaluates the pandemic context experienced, where even with all the intervening factors related to isolation and social distance, the IG obtained favorable clinical results in most of the variables investigated.

A randomized clinical trial conducted with 60 elderly hypertensive patients in Iran after 12 weeks of a self-management program based on the five A's model reported a significant increase in self-efficacy and chronic disease management scores, improving blood pressure control<sup>16</sup>. It is pertinent to clarify that the increase in hypertension control percentages may also have been influenced by the decrease in weight, BMI, AC, and WHR in the IG, confirming the assertion that a 5% body weight loss can lead to a 20 to 30% decrease in blood pressure levels, even when the BMI remains altered<sup>10</sup>.

In short, the counseling of the five A's has proven effective in helping patients modify risk factors and morbid events, producing relevant evidence in biological, behavioral, and therapeutic aspects<sup>25</sup>. Health consultations, typically used in care services, take on a new guise, where the patient becomes the main caregiver of his treatment, choosing and making decisions about how to manage his health in the long term and in the context of his life. The professional starts to guide and support the change instead of trying to force it<sup>8,9,25</sup>.

The benefits presented do not exclude the limitations of this work, in which the biggest difficulties were related to the recruitment of participants in the initial phases of the research, due to the low demand of hypertensive patients in the health units; the resistance of some individuals to start changing their lifestyle habits; the need to restructure the methodological format of the consultations to adapt to the historical moment of the global pandemic; the loss of participants during this period, who could not be contacted for telephone consultations, and the short follow-up time of the intervention, which lasted only six months.

## CONCLUSION

In view of the above, it can be stated that the results presented confirm the hypothesis raised by this study. Supported self-care showed positive effects on the health behaviors of people with hypertension, providing the reduction of anthropometric measurements in IG,

and improving the percentage of blood pressure control.

Thus, this study brings subsidies for changes in the way of organizing, planning and implementing nursing care for hypertensive patients followed by the FHS. The establishment of concrete, palpable and realistic therapeutic goals, provided by supported self-care, proved to be a useful and feasible tool that can be implemented in the assistance to the programmed demand, in order to increase the efficiency of health outcomes on the management of hypertension.

## REFERENCES

01. World Health Organization. Global Health Estimates 2016: deaths by cause, Age, Sex, by Country and by Region, 2000-2019. Geneva: WHO; 2020.
02. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Departamento de Análise em Saúde e Vigilância de Doenças Não Transmissíveis. Vigitel Brasil 2019: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico: estimativas sobre frequência e distribuição sociodemográfica de fatores de risco e proteção para doenças crônicas nas capitais dos 26 estados brasileiros e no Distrito Federal em 2019. [Internet]. Brasília: Ministério da Saúde; 2020. Disponível em: [https://bvsm.sau.gov.br/bvs/publicacoes/vigitel\\_brasil\\_2019\\_vigilancia\\_fatores\\_risco.pdf](https://bvsm.sau.gov.br/bvs/publicacoes/vigitel_brasil_2019_vigilancia_fatores_risco.pdf).
03. Barroso WKS, Rodrigues CIS, Bortolotto LA, Mota-Gomes MA, Brandão AA, Feitosa AD de M, et al. Diretrizes Brasileiras de Hipertensão Arterial – 2020. Arq. Bras. Cardiol. [Internet]. 2021 [acesso em 21 jun 2020]; 116(3): 516-658. Disponível em: <https://doi.org/10.36660/abc.20201238>.
04. Instituto Brasileiro de Geografia e Estatística (IBGE). Pesquisa Nacional de Saúde 2013: percepção do estado de saúde, estilos de vida e doenças crônicas. [Internet]. Rio de Janeiro: IBGE; 2014 [acesso em 02 jul 2020]. Disponível em: <http://www.dive.sc.gov.br/conteudos/agrivos/publicacoes/PNS%202013%20Percep%C3%A7%C3%A3o%20do%20estado%20de%20sa%C3%BAde%20estilos%20de%20vida%20e%20doen%C3%A7as%20cr%C3%B4nicas.pdf>.
05. Rêgo AS, Laqui VS, Trevisan FG, Jaques AE, Oliveira RR, Radovanovic CAT. Fatores associados à pressão arterial inadequada de pessoas com hipertensão. Cogitare Enferm. [Internet]. 2018. [acesso em 10 abr 2020]; 1(23): e54087. Disponível em: <http://dx.doi.org/10.5380/ce.v23i1.54087>.
06. Ministério da Saúde (BR). Secretaria de Atenção Primária à Saúde. Departamento de Saúde da Família. Linha de cuidado do adulto com hipertensão arterial sistêmica [Internet]. Brasília: Ministério da Saúde; 2021. Disponível em: Modo de acesso: [http://bvsm.sau.gov.br/bvs/publicacoes/linha\\_cuidado\\_adulto hipertensao\\_arterial.pdf](http://bvsm.sau.gov.br/bvs/publicacoes/linha_cuidado_adulto hipertensao_arterial.pdf).
07. Tricco AC, Ivers NM, Grimshaw JM, Moher D, Turner L, Galipeau J, et al. Effectiveness of quality improvement strategies on the management of diabetes: a systematic review and meta-analysis. London: Lancet [Internet]. 2012 [acesso em 07 mar 2020]; 16(379): 2252-61. Disponível em: [https://doi.org/10.1016/S0140-6736\(12\)60480-2](https://doi.org/10.1016/S0140-6736(12)60480-2).
08. Mendes EV. As redes de atenção à saúde. 2. ed. [Internet]. Brasília: Organização Pan-Americana da Saúde; 2011 [acesso em 07 nov 2019]. Disponível em: [https://bvsm.sau.gov.br/bvs/publicacoes/redes\\_de\\_atencao\\_sau.pdf](https://bvsm.sau.gov.br/bvs/publicacoes/redes_de_atencao_sau.pdf).
09. Mendes EV. O cuidado das condições crônicas na atenção primária à saúde: o imperativo da consolidação da estratégia da saúde da família. [Internet]. Brasília: Organização Pan-Americana da Saúde; 2012 [acesso em 07 nov 2019]. Disponível em: [https://bvsm.sau.gov.br/bvs/publicacoes/cuidado\\_condicoes\\_atencao\\_primaria\\_sau.pdf](https://bvsm.sau.gov.br/bvs/publicacoes/cuidado_condicoes_atencao_primaria_sau.pdf).
10. Malachias MVB, Souza WKSB, Plavnik FL, Rodrigues CIS, Brandão AA, Neves MFT, et al. 7 Diretriz Brasileira de Hipertensão Arterial. Arq. Bra. Cardiol. [Internet]. 2016 [acesso em 11 dez 2019]; 107(3 supl. 3): 1-104. Disponível em: [http://publicacoes.cardiol.br/2014/diretrizes/2016/05\\_HIPERTENSAO\\_ARTERIAL.pdf](http://publicacoes.cardiol.br/2014/diretrizes/2016/05_HIPERTENSAO_ARTERIAL.pdf).

11. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Orientações para coleta e análise de dados antropométricos em serviços de saúde: Norma Técnica do Sistema de Vigilância Alimentar e Nutricional – SISVAN. [Internet]. Brasília: Ministério da Saúde; 2011 [acesso em 20 dez 2019]. Disponível em: [https://bvsmms.saude.gov.br/bvs/publicacoes/orientacoes\\_coleta\\_analise\\_dados\\_antropometricos.pdf](https://bvsmms.saude.gov.br/bvs/publicacoes/orientacoes_coleta_analise_dados_antropometricos.pdf).
12. Cavalcanti AM, Tosin EV, Jesus CS de, Correa LB, Adam GP, Moraes SG, et al. Autocuidado apoiado: manual do profissional de saúde. [Internet]. Curitiba: Secretaria Municipal de Saúde; 2012 [acesso em 20 dez 2019]. Disponível em: <https://www.passeidireto.com/arquivo/70672353/autocuidado-apoiado-manual-profissional-de-saude-ana-cavalcanti>.
13. Volpi AC, Moreira A de JS, Schlotag AC, Allegretti AC, Cavalcanti AM, Oliveira ACL de, et al. Autocuidado apoiado: caderno de exercícios. [Internet]. Curitiba: Secretaria Municipal da Saúde; 2012 [acesso em 20 dez 2019]. Disponível em: <https://www.conass.org.br/liacc/wp-content/uploads/2015/02/novas-tecnologias-para-manejo-das-condic%cc%a7o%cc%83es-cro%cc%82nicas-autocuidado-caderno-de-exercicio.pdf>
14. Cole KOW, Gudzone KA, Bleich SN, Bennett WL, Cheskin LJ, Henderson JL, et al. Influence of the 5A's counseling strategy on weight gain during pregnancy: an observational study. *J Women Health*. [Internet]. 2017 [acesso em 20 abr 2020]; 26(10): 1123-1130. Disponível em: <http://doi.org/10.1089/jwh.2016.6115>.
15. Baer J. Losing Weight with Five A's (5 A's): assess, advise, agree, assist, Arrange framework and Motivational Interviewing (MI) for health behavior change counseling. [Doctoral dissertation]. [Internet]. University of South Carolina; 2017 [acesso em 20 abr 2020]. Disponível em: <https://scholarcommons.sc.edu/cgi/viewcontent.cgi?article=5026&context=etd>.
16. Moradi M, Nasiri M, Jahanshahi M, Hajiahmadi M. The effects of a self-management program based on the 5 A's model on self-efficacy among older men with hypertension. *Nurs Midwifery Stud*. [Internet]. 2019 [acesso em 03 maio 2020]; 8(1): 21-7. Disponível em: [http://doi.org/10.4103/nms.nms\\_97\\_17](http://doi.org/10.4103/nms.nms_97_17).
17. Pollaka KI, Tulsy JA, Bravender T, Østbye T, Lyna P, Dolor RJ, et al. Teaching primary care physicians the 5 A's for discussing weight with overweight and obese adolescents. *Patient. Educ. Couns*. [Internet]. 2016 [acesso em 04 maio 2020]; 99(10): 1620–25. Disponível em: <http://doi.org/10.1016/j.pec.2016.05.007>.
18. Asselin J, Salami E, Osunlana AM, Ogunleye AA, Cave A, Johnson JA, et al. Impact of the 5As Team study on clinical practice in primary care obesity management: a qualitative study. *CMAJ OPEN* [Internet]. 2017 [acesso em 05 maio 2020]; 5(2): E322-E329. Disponível em: <http://doi.org/10.9778/cmajo.20160090>.
19. Teston EF, Arruda GO de, Sales CA, Serafim D, Marcon SS. Consulta de enfermagem e controle cardiometabólico de diabéticos: ensaio clínico randomizado. *Rev. Bras. Enferm*. [Internet]. 2017 [acesso em 06 maio 2020]; 70(3): 492–98. Disponível em: <https://doi.org/10.1590/0034-7167-2016-0352>.
20. Pimouguet C, Goff M Le, Thiébaud R, Dartigues JF, Helmer C. Effectiveness of disease-management programs for improving diabetes care: a meta-analysis. *CMAJ OPEN* [Internet]. 2011 [acesso em 02 jun 2020]; 183(2): 115–27. Disponível em: <http://doi.org/10.1503/cmaj.091786>.
21. Neves CVB, Mambrini JV de M, Torres KCL, Teixeira-Carvalho A, Martins-Filho AO, Lima-Costa MF, et al. Associação entre síndrome metabólica e marcadores inflamatórios em idosos residentes na comunidade. *Cad. Saúde Pública* [Internet]. 2019 [acesso em 02 jun 2020]; 35(3): e00129918. Disponível em: <https://doi.org/10.1590/0102-311X00129918>.
22. Lira Neto JCG, Oliveira JF de SF, Souza MA de, Araújo MFM de, Damasceno MMC, Freitas RWJF de. Prevalência da síndrome metabólica e de seus componentes em pessoas com diabetes mellitus tipo 2. *Texto & Contexto Enferm*. [Internet]. 2018 [acesso em 04 maio 2020]; 27(3): e3900016. Disponível em: <https://doi.org/10.1590/0104-070720180003900016>.
23. Timóteo AT, Carmo MM, Soares C, Ferreira RC. Será a síndrome metabólica um marcador de prognóstico em doentes com elevado risco cardiovascular? Um estudo de coorte a longo-prazo. *Rev. Port. Cardiol*. [Internet]. 2019 [acesso em 26 maio 2020]; 38(5): 325-32. Disponível em: <http://doi.org/10.1016/j.repc.2018.06.012>.

24. Lundahl B, Moleni T, Burke BL, Butters R, Tollefson D, Butler C, et al. Motivational interviewing in medical care settings: a systematic review and meta-analysis of randomized controlled trials. *Patient. Educ. Couns.* [Internet]. 2013 [acesso em 04 set 2020]; 93(2): 157–68. Disponível em: <http://doi.org/10.1016/j.pec.2013.07.012>.
25. Murphy KM, Mash R, Malan Z. The case for behavioural change counselling for the prevention of NCDs and improvement of self-management of chronic conditions. *South African Family Practice* [Internet]. 2016 [acesso em 05 set 2020]; 58(6): 249-52. Disponível em: <http://doi.org/10.1080/20786190.2016.1187885>.
26. Pinho N de A, Pierin AMG. Hypertension Control in Brazilian Publications. São Paulo: Arq. Bras. Cardiol. [Internet]. 2013 [acesso em 10 maio 2020]; 101(3): e65-e73. Disponível em: <https://doi.org/10.5935/abc.20130173>.
27. Santos JC dos, Moreira TMM. Fatores de risco e complicações em hipertensos/diabéticos de uma regional sanitária do nordeste brasileiro. *Rev Esc Enferm USP* [Internet]. 2012 [acesso em 08 abr 2020]; 46(5): 1125-1132. Disponível em: <https://doi.org/10.1590/S0080-62342012000500013>.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - Moraes JCO; Drafting the work or revising it critically for important intellectual content - Moraes JCO, Bezerra SMM da S; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - Moraes JCO; All authors approved the final version of the text.

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