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REPORT ON AN INTERVENTION PROJECT TO REDUCE THE PREVALENCE OF UNCONTROLLED SYSTEMIC ARTERIAL HYPERTENSION IN THE POPULATION OF A FAMILY HEALTH TEAM IN CEILÂNDIA - BRASÍLIA, DF

Rafael Victor Vieira Frujeri

Family and Community Physician - Federal
University of Maranhão - UFMA

Maria de Lourdes Vieira Frujeri

PhD in Health Sciences - University of
Brasília - UNB

Roberta Janaína Soares Mendes

Master's Degree in Dentistry/ Concentration
Area in Pediatric Dentistry - FOP/
UNICAMP

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Abstract: Systemic arterial hypertension is a major risk factor for cardiovascular disease and is often poorly controlled in the population. This Intervention Project aims to reduce the prevalence of uncontrolled hypertension among patients in QNP 5 in Ceilândia-DF, through multidisciplinary actions that include educational programs for lifestyle changes, regular consultations for medication adjustment and continued physical exercise practices. The project will be developed in four stages: planning - which will include training the teams, identifying and calling on the target audience; intervention - which will include educational actions, consultations and supervised physical activities, carried out by a multidisciplinary team; monitoring - which will follow the progress of the actions implemented; and closure - which will evaluate the results obtained from the project. It is hoped that there will be a reduction in the prevalence of uncontrolled hypertension and an advance in patients' knowledge of preventive health, resulting in the adoption of healthier lifestyle habits, better adherence to pharmacological therapy, as well as better self-management of their clinical conditions. The successful implementation of this project could serve as a model for other regions with similar characteristics, contributing to the reduction of uncontrolled hypertension rates at a national level. And it will provide valuable information for future public health initiatives and research.

Keywords: Chronic non-communicable diseases; health promotion and disease prevention; hypertension; cardiovascular diseases; prevention and control.

INTRODUCTION

Systemic arterial hypertension (SAH) can be defined as a sustained high level of blood pressure (BP). It is part of a larger context called metabolic syndrome, which includes other diseases such as diabetes mellitus (DM), obesity and dyslipidemia (BARROSO *et al.*, 2021). It is the most important modifiable risk factor for the onset of cardiovascular diseases (CVDs), surpassing in frequency other important factors such as smoking, dyslipidemia and diabetes (BLOCH and BASILE, 2024). CVDs include a variety of conditions, such as stroke, coronary artery disease, heart failure, atrial fibrillation, abdominal aortic aneurysm and peripheral cardiovascular disease.

Although progress has been made in the diagnosis of hypertension and various treatment options are available, a significant portion of the population is still unable to keep it under control. Global BP control rates remain unsatisfactory and far from ideal levels (WILLIAMS *et al.*, 2018 cited by LUZ; SILVA-COSTA; GRIEP, 2020). An important study points to a high prevalence of hypertension worldwide and approximately half of people with this condition do not achieve adequate blood pressure control (BASILE and BLOCH, 2024). Around 75% of people with this disease live in developing countries, where health resources are scarce, knowledge about the disease is limited and BP control is insufficient (IBRAHIM and DAMASCENO, 2012). In Brazil, the disease affects 28.7% of adults and the control rate has shown a downward trend over time. A meta-analysis of population studies revealed that BP control in the country was only a quarter of cases (PICON *et al.*, 2012 cited by Picon *et al.*, 2017).

In the Federal District (DF), the situation is no different. The prevalence of adults diagnosed with SAH in this region is 26.1%, and this frequency increases among individuals with a lower level of education.

Ceilândia, one of the DF's largest and most populous administrative regions, follows the trend of a high prevalence of SAH, associated with a low rate of disease control. This scenario is aggravated by socio-economic factors such as a low level of education, limited family income and difficulties in accessing health services, which contribute to less knowledge about the disease and, consequently, less adherence to treatment (BRASIL, 2023).

Primary Health Care (PHC) plays a crucial role in the prevention, early diagnosis and ongoing treatment of hypertension. As the gateway to the health system, it is responsible for identifying individuals at risk, offering health education, regularly monitoring BP and promoting lifestyle changes, all of which contribute to controlling hypertension. The Family Health Strategy (FHS) is particularly important in this context, as it is based on a model of comprehensive and continuous care, capable of intervening early in hypertension and preventing progression to more serious complications, such as acute myocardial infarction (AMI), stroke and kidney failure (MENDES *et al.*, 2019).

Given the challenging epidemiological scenario and the existing barriers to controlling hypertension, it is imperative to develop intervention strategies that promote effective BP control. This intervention project (IP) aims to reduce the prevalence of uncontrolled hypertension in the population of QNP 5 in Ceilândia-DF, through integrated and multi-disciplinary actions that include health education, lifestyle changes (LBM), adherence to drug treatment and ongoing support from PHC. The justification for this project is based on the need to create an organized strategic plan with the aim of improving health indicators related to hypertension in the region, minimizing the associated risks and promoting a better quality of life for hypertensive patients.

BACKGROUND

SAH is one of the main risk factors for CVDs, which are responsible for a significant proportion of avoidable deaths in Brazil and worldwide. Given its relevance, it is a comorbidity that is part of the indicators of the Previne Brasil Program, created by the Ministry of Health (MoH) with the aim of expanding access, improving quality and promoting greater equity in PHC (HARZHEIM, 2020). From this perspective, some authors have demonstrated the fundamental role of PHC in the prevention and proper management of hypertensive patients, with a consequent reduction in cardiovascular complications and the overload on the hospital system (ROCHA *et al.*, 2022).

This project is justified by the need to create a structured action plan that is effective in controlling SAH in the population of QNP 5 in Ceilândia-DF, in order to reduce morbidity and mortality associated with cardiovascular complications. The implementation of strategies based on PHC, aligned with national and international guidelines for the management of hypertension, it is essential to overcome existing barriers and provide comprehensive and effective care to patients. Thus, the project aims to contribute to improving the quality of life of hypertensive individuals and to reducing the economic and social impacts of the disease.

THEORETICAL BACKGROUND

DEFINITION, DIAGNOSIS AND THERAPEUTIC GOALS

SAH consists of persistent elevation of systolic BP (SBP) to values greater than or equal to 140 mmHg and/or diastolic BP (DBP) to values greater than or equal to 90 mmHg. These measurements should be taken on at least two different occasions, and it is recommended, when possible, to validate these measurements by assessing BP outside the doctor's office - Ambulatory Blood Pressure Monitoring (ABPM), Home Blood Pressure Monitoring (HBPM) or Self-Measured Blood Pressure (SHBPM). With regard to BP control, the aim of this project, the target values to be achieved vary according to the patient's cardiovascular risk (CVR). According to the Brazilian Guidelines, they are: SBP <140 mmHg and DBP <90 mmHg for individuals at low or moderate risk; and SBP <130 mmHg and DBP <80 mmHg for those at high risk (BARROSO *et al.*, 2021).

TREATMENT, CONTROL AND PREVENTION

Adequate BP control can be achieved through different actions described in scientific literature. Most involve behavior change theories and health promotion strategies. Prevention is recognized as the most cost-effective option, and the main focus of the Unified Health System (SUS) should be to adequately address risk factors (BARROSO *et al.*, 2021). To date, most interventions have focused on promoting hypertension self-management behaviors, such as BP self-monitoring, the adoption of EBMs (including diet, exercise and moderation or abstinence from alcohol consumption), improved medication adherence and the active participation of patients in decisions about their care with their doctors. These behaviors are the basis of the

guidelines recommended for the treatment of hypertension and have shown significant results in controlling the condition among treated patients (CAREY *et al.*, 2018). An important comparative meta-analysis on the effectiveness of non-pharmacological interventions in reducing BP concluded that *Dietary Approach to Stop Hypertension* (DASH) was considered the most effective intervention, followed by aerobic and isometric exercise, low-sodium, high-potassium salt intake and comprehensive lifestyle modification. Salt restriction was also relevant (FU *et al.*, 2020).

DASH represents a dietary pattern that includes a large amount of fruit, vegetables, low-fat dairy products, whole grains, poultry, fish and nuts, and limits the consumption of sweets, sugary drinks and red meat. It is also rich in potassium, magnesium, calcium, protein and fiber, but is low in saturated fat, total fat and cholesterol (BASILE and BLOCH, 2024). Appel *et al.* (1997) found this diet to be effective in reducing BP, which was corroborated by Gay *et al.* (2016) and Sacks *et al.* (2001).

Regarding the benefit of physical exercise in controlling BP, the Canadian Hypertension Guidelines recommend 30 to 60 minutes of moderate-intensity aerobic exercise, 4 to 7 days a week (RABI *et al.*, 2020); while the European Hypertension Guidelines advise at least 30 minutes of moderate dynamic exercise, 5 to 7 days a week (WILLIAMS *et al.*, 2018). Lee *et al.* (2021), Whelton *et al.* (2002) and Lee *et al.* (2010) reinforce the effectiveness of physical activity in reducing BP.

Other non-pharmacological measures associated with lowering BP are weight loss and limiting alcohol consumption, the effectiveness of which can be confirmed by Neter *et al.* (2003) and Roerecke *et al.* (2017), respectively.

With regard to pharmacological interventions, it is important to highlight the importance of other professionals, in addition to

doctors, in caring for hypertensive patients. Given the various interventions tested in recent decades to improve BP control, the most effective approaches have involved reorganizing clinical practice, incorporating nurses and pharmacists into a team-based model for hypertension care. In addition, AMPA has been found to be very useful in monitoring and controlling BP (WALSH *et al.*, 2006; GLYNN *et al.*, 2010; CARTER *et al.*, 2009; CUELLAR *et al.*, 2010), 2014; PROIA *et al.*, 2014; UHLIG *et al.*, 2013 cited by MARGOLIS *et al.*, 2015).

Studies show that reducing BP with antihypertensive drugs has the primary aim of reducing cardiovascular outcomes and mortality related to SAH (WHELTON *et al.*, 2017; WILLIAMS *et al.*, 2018; MALACHIAS *et al.*, 2016; BARBOSA *et al.*, 2017 cited by BARROSO *et al.*, 2021). Most studies recommend four drug classes for the initial management of hypertension: thiazide diuretics, long-acting calcium channel blockers (CCBs), angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin II receptor blockers (ARBs) (BASILE and BLOCH, 2024).

EXISTING BARRIERS AND THE ROLE OF PHC

Several factors interfere with the effective control of SAH, including limited access to health services, the lack of educational programs about the disease, patients' low adherence to EBMs and drug treatment, and the patient's inability to self-manage their clinical condition. These factors are particularly prevalent in peripheral areas with fewer resources, such as QNP 5 in Ceilândia-DF.

In this sense, PHC plays a key role in the management of this pathology. According to the Ministry of Health's Technical Note 18/2022, proper monitoring by PHC teams of mild and moderate cases of hypertension, which account for the majority of diagnoses,

is essential to ensure correct treatment and BP control. In addition, according to the same document, implementing a systematized and continuous educational intervention with health professionals is crucial to promoting changes in practices related to the management of this condition (BRASIL, 2022).

OBJECTIVES

GENERAL OBJECTIVE

To reduce the prevalence of uncontrolled hypertension in the population of QNP 5 in Ceilândia-DF, by means of an algorithm that overcomes the existing difficulties in controlling BP.

SPECIFIC OBJECTIVES

- Improving the population's access to preventive health care;
- Implement educational programs on SAH;
- Promote MEVs, such as diet and exercise;
- Improving adherence to drug treatment;
- Empower patients to self-manage their clinical condition.

METHODOLOGY

LOCATION:

The IP will be held at the "São Francisco de Assis" chapel in QNP 5, located in the administrative region of Ceilândia, in the Federal District. This location was chosen due to its accessibility for the target population, who live nearby, facilitating the participation of hypertensive patients who have difficulty traveling or accessing health services. The chapel was selected as a strategic space not only because of its proximity to the community, but also because it is an environment that already serves as a meeting point for various community activities, and is therefore a familiar and trusted place for residents.

In addition, the chapel offers adequate infrastructure for carrying out the various stages of the project. It has a large room which will be used for educational activities and consultations. These rooms are ventilated, well lit and allow patients to be organized into groups according to the project's schedule. The chapel's outdoor area will also be used for physical activities, providing a safe and appropriate environment for outdoor exercise.

The involvement of the local religious community is another positive factor, as it can facilitate the engagement of participants and the dissemination of information about the importance of hypertension control. Collaboration with religious and community leaders is a relevant strategy for increasing adherence to the project, since these figures have a significant influence on the region's residents.

Finally, the fact that the chapel is located at a central point in QNP 5 facilitates access for the health professionals involved in the project, allowing efficient logistics for transporting the equipment and materials needed to carry out the planned activities. The use of this space therefore aims to ensure that the project meets the needs of the target population in an efficient and welcoming manner, providing an environment conducive to carrying out all the planned actions.

PARTICIPANTS

The success of the IP will depend on the active involvement of various actors, each with specific responsibilities. The participants will make up two main groups: the target audience and the teams involved in carrying out the project.

1 Target audience: the target audience will be hypertensive patients from QNP 5 in Ceilândia-DF who have uncontrolled hypertension. These individuals will be identified from electronic medical records at the local Basic Health Unit (BHU) and

selected based on clinical criteria, such as the presence of BP values higher than those established in the Brazilian Hypertension Guidelines. The careful selection of these patients will be essential to ensure that the PI reaches those most in need of intervention. The participating patients will represent a significant sample of the socio-economic and health conditions of the region's population. Many of them face difficulties in regular access to health services, low adherence to drug treatment, resistance or difficulties in adopting lifestyle changes (LBMs), and a low level of knowledge about the importance of BP control. The motivation for including these patients in the project is to provide targeted and personalized care that overcomes these barriers, promoting a reduction in the prevalence of uncontrolled hypertension.

2 Family Health Team (eSF): the Family Health Team (eSF) will play a central role in the implementation of the project and will be made up of:

- **Doctor:** the eSF doctor will be responsible for the diagnosis and clinical management of hypertensive patients. In this context, the doctor will have the role of adjusting drug therapies according to BP targets, advising patients on the importance of adherence to treatment and monitoring clinical progress throughout the project;
- **Nurse:** the nurse will coordinate care, supervising the team's activities and carrying out educational activities aimed at patient self-care. The nurse will also be instrumental in identifying patients for the project and continuously monitoring the participants' state of health;
- **Nursing technician:** this professional will be responsible for providing operational support during the interven-

tions, including measuring BP, making records, and providing logistical support during consultations and educational activities. Their work will ensure accurate data collection and the smooth running of clinical activities;

- **Community health agent (CHA):** the CHA will play a strategic role, as they will be the link between the health team and the community. They will be responsible for summoning participants through home visits and for monitoring patients' adherence to the IP. In addition, the CHW will play an important role in identifying barriers faced by patients and promoting health education activities within the community.

3 Multiprofessional Team (eMulti): the work of the eMulti will be essential to address the various aspects that influence the control of SAH and will integrate knowledge and practices from different areas of health:

- **Nutritionist:** the nutritionist will be responsible for conducting educational actions related to diet and nutrition, focusing on interventions such as the Dietary Approach to Stop Hypertension (DASH), salt restriction and the promotion of healthy eating. They will also provide personalized guidance for each patient, according to their needs and clinical conditions, with a view to the sustainable adoption of eating habits that contribute to BP control;
- **Physical educator:** the physical educator will lead activities to promote regular physical exercise, which is essential for BP control. Their responsibilities will include designing physical activity programs that are accessible and safe for patients, as well as supervising the practice of exercises during the ses-

sions scheduled in the IP. The physical educator will work to motivate patients to incorporate physical activity into their daily routines;

- **Physiotherapist:** the physiotherapist will complement the activities of the physical educator, offering specialized support for patients with physical limitations or other conditions that may make it difficult to exercise. They will adapt the exercises to individual needs, ensuring that all patients are able to participate.

STRATEGIC ACTIONS:

The strategic actions outlined will be fundamental to the effective implementation of the proposed measures. They will unfold in four main stages: planning, intervention, monitoring and closure. Each of these stages will be interdependent and essential to ensure the success and sustainability of the actions, with a view to adequate control of hypertension in the target population.

1. Planning: this will be the initial stage and will include: training the teams, which will take place at the UBS itself, under the responsibility of the doctor and nurse of the eSF, carried out in an expository manner, using audiovisual resources; identifying and planning the target audience, also under the responsibility of the doctor and nurse who, with the help of the electronic medical records, will divide the patients into small groups; and calling the participants, to be carried out by the ACSs, personally, through home visits.

2. Intervention: this stage will take place every 3 months in the chapel, where each patient in a given group will go through the following steps: screening, educational action and consultation. Screening will be coordinated by the nursing technician, who will be responsible for measuring and

initially recording the BP and classifying the CVR of each member. Patients whose BP is within the target will be excluded from the PI. The educational action will consist of a round table discussion, led by the nurse and the nutritionist, in which participants will be instructed on the most important non-pharmacological measures for adequate BP control: DASH, salt restriction, physical exercise, weight loss and limiting alcohol intake. The consultation will be led by the doctor, at which point each member will have their medication adjusted according to their BP target, and any doubts regarding pharmacological therapy will be answered. Finally, physical activity will correspond to a transversal and continuous axis, managed by the physical educator and the physiotherapist, in which the following will be practiced moderate aerobic and isometric exercise, 5 times a week, lasting 30 minutes.

3. **Monitoring:** this will be an ongoing stage and will take place simultaneously with the intervention, extending to the end of the project. The aim of this phase will be to monitor the progress of the actions implemented, assessing the effectiveness of the strategies and making adjustments where necessary. It will be carried out by the patient themselves, who will check, via the AMPA, whether they are within the target set; and by the eSF, every 3 months, when patients return to the groups.

4. **Closure:** this will be the final stage of the project, in which a comprehensive evaluation of the results obtained will be carried out, with the help of the spreadsheets and electronic medical records. It will involve analyzing the data collected during monitoring, with the aim of comparing the results achieved with the targets set in the planning.

EXPECTED RESULTS

The expected results of this IP are directly linked to the general and specific objectives defined and are based on the studies discussed in the literature review. The main goal, presented in the general objective, is to reduce the rate of uncontrolled hypertension among participants. This is in line with the Brazilian Hypertension Guidelines, described by Barroso *et al.* (2021), which highlight the need to achieve adequate BP values according to each patient's CVR. This means achieving SBP below 140 mmHg and DBP below 90 mmHg for individuals at low or moderate risk, and SBP values below 130 mmHg and DBP below 80 mmHg for those at high risk.

The IP is also expected to improve the population's access to preventive health care and implement educational programs on SAH. These specific objectives are defended by the Ministry of Health in its Technical Note^o 18/2022 (BRASIL, 2022), which highlights the role of PHC in fulfilling them and managing the pathology in question. The methodology designed converges with these objectives, through a location that is accessible to the population, facilitated interaction with a multidisciplinary team and the educational interventions proposed by the project, which include conversation circles, medical consultations and supervised physical activities.

Other specific objectives are to promote VSMs and improve adherence to drug treatment by patients. These objectives are widely supported by studies such as those by Barroso *et al.* (2021) and Carey *et al.* (2018). VSMs include the adoption of DASH, which has been shown to be highly effective in reducing BP, as proven by Appel *et al.* (1997), Gay *et al.* (2016) and Sacks *et al.* (2001), as well as regular physical exercise practices, recommended by Rabi *et al.* (2020), Williams *et al.* (2018), Lee *et al.* (2021), Whelton *et al.* (2002) and Lee *et al.* (2010). Improving adherence to drug

treatment is of great importance in reducing the morbidity and mortality associated with hypertension, which has been reiterated by Whelton *et al.* (2017), Williams *et al.* (2018), Malachias *et al.* (2016), Barbosa *et al.* (2017) cited by Barroso *et al.* (2021). The methodology applied by the project, which focuses on both behavioral changes and clinical management, is in line with the aforementioned literature, which emphasizes the combination of pharmacological and non-pharmacological interventions to control hypertensive disease.

Empowering patients to self-manage their clinical condition is another important objective outlined by the project. The intervention seeks to improve access to preventive care, including regular BP monitoring using methods such as AMPA and ABPM, recommended by Walsh *et al.* (2006), Glynn *et al.* (2010), Carter *et al.* (2009), Cuellar *et al.* (2014), Proia *et al.* (2024), Uhlig *et al.* (2013) cited by Margolis *et al.* (2015). It is hoped that increasing the frequency of follow-up appointments, as well as integration between the health professionals involved - nurses, doctors, nutritionists and others - will strengthen patient adherence and improve health outcomes. The multi-professional approach proposed by the project follows the model recommended by the literature presented.

Finally, the expected results also involve improvements in patients' quality of life, with the expectation that the positive impact of the intervention will be reflected not only in controlled BP, but also in the reduction of complications arising from hypertension and in the reduction of costs associated with the treatment of CVDs. Thus, the project is in line with best practices and scientific evidence, offering a model that can be replicated in other regions to tackle the challenge of uncontrolled hypertension.

FINAL CONSIDERATIONS

The IP developed reflects the urgent need for effective strategies for the management of hypertension in areas with high prevalence rates and socioeconomic challenges. Hypertension, being a significant risk factor for CVDs, requires a comprehensive approach encompassing education, monitoring and ongoing support.

Through the proposed actions, the project aims not only to control patients' BP, but also to promote a healthy lifestyle and improve adherence to treatment. The involvement of a multi-professional team guarantees an integrated and personalized approach, which is essential for dealing with the multiple dimensions of the problem.

The successful implementation of this project could serve as a model for other regions with similar characteristics, helping to reduce rates of uncontrolled hypertension at a national level. The experience gained and the results obtained will provide valuable information for future initiatives and research in the field of public health.

Continuous evaluation and monitoring of results are fundamental to adjusting strategies and ensuring the sustainability of the benefits achieved. With the collaboration of all those involved and the mobilization of the community, it is possible to tackle the challenges posed by hypertension and promote a significant improvement in the health and quality of life of those affected.

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