

DOI: <https://doi.org/10.36489/saudecoletiva.2020v10i53p2426-2449>

# Stratification of cardiovascular risk in users in the Family Health Strategy: a tool for care

Estratificación del riesgo cardiovascular en los usuarios en la Estrategia de salud familiar: una herramienta para la atención

Estratificação de risco cardiovascular em usuários na Estratégia de Saúde da Família: uma ferramenta para o cuidado

## ABSTRACT

**Objective:** To characterize types of cardiovascular risk in hypertensive patients treated by a family health team in the city of Rio de Janeiro using the Framingham score. **Methods:** Observational, cross-sectional study, carried out at a Family Health Clinic in the city of Rio de Janeiro in October 2017, through consultation of medical records of registered hypertensive patients. The data were categorized in a database in the Excel® 2013 program and descriptive statistical tests were performed. **Results:** Data were obtained from 221 individuals and most participants were at high and medium risk for developing a major cardiovascular event in 10 years. **Conclusion:** The Framingham Risk Score was a successful tool for stratifying the risk of users in Primary Health Care and deserves to be incorporated as an instrument by the health team in promoting cardiovascular health.

**DESCRIPTORS:** Primary Health Care; Hypertension; Cardiovascular Diseases.

## RESUMEN

**Objetivo:** caracterizar los tipos de riesgo cardiovascular en pacientes hipertensos tratados por un equipo de salud familiar en la ciudad de Río de Janeiro utilizando el puntaje Framingham. **Métodos:** Estudio observacional, transversal, realizado en una Clínica de Salud Familiar en la ciudad de Río de Janeiro, en octubre de 2017, a través de la consulta de registros médicos de pacientes hipertensos registrados. Los datos se clasificaron en una base de datos en el programa Excel® 2013 y se realizaron pruebas estadísticas descriptivas. **Resultados:** se obtuvieron datos de 221 individuos y se consideró que la mayoría de los participantes tenían un riesgo alto y medio de desarrollar un evento cardiovascular mayor en 10 años. **Conclusión:** El Framingham Risk Score fue una herramienta exitosa para estratificar el riesgo de los usuarios en Atención Primaria de Salud y merece ser incorporado como un instrumento por el equipo de salud para promover la salud cardiovascular.

**DESCRIPTORES:** Atención Primaria de Salud; Hipertensión; Enfermedades Cardiovasculares.

## RESUMO

**Objetivo:** Caracterizar tipos de risco cardiovascular nos pacientes hipertensos atendidos por uma equipe de saúde da família do município do Rio de Janeiro através do escore de Framingham. **Métodos:** Estudo observacional, transversal, realizado em uma Clínica de Saúde da Família no município do Rio de Janeiro, no mês de outubro de 2017, através de consulta a prontuários dos pacientes hipertensos cadastrados. Os dados foram categorizados em um banco de dados no programa Excel® 2013 e realizado testes estatísticos descritivos. **Resultados:** Foram obtidos dados de 221 indivíduos e a maioria dos participantes foram considerados de alto e médio risco para desenvolvimento de evento cardiovascular maior em 10 anos. **Conclusão:** O Escore de Risco de Framingham foi uma ferramenta exitosa para a estratificação de risco de usuários na Atenção Primária à Saúde e merece ser incorporado como instrumento pela equipe de saúde na promoção da saúde cardiovascular.

**DESCRIPTORIOS:** Atenção Primária à Saúde; Hipertensão; Doenças Cardiovasculares.

RECEIVED ON: 01/31/2020 APPROVED ON: 02/02/2020

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**INTRODUCTION**

The Unified Health System (SUS) has been improved and advanced as a result of the implementation of the Family Health Program (PSF) in 1994, transforming the care model, through the incorporation of innovative practices aimed at the family and community. Renamed, in 2003, as the Family Health Strategy (FHS), it is considered a strategy for expansion and qualification of primary care because it strengthens the premise of bringing health closer to families and being the gateway to services<sup>(1)</sup>. Primary health care is based on the premise of being the gateway for the population to seek universal access to health, in addition to being a tool for social protection in health. Only it is able to produce and return responses that come close to the user's local reality and thereby directly contribute to changing lifestyles, in addition to being the main actor in the construction and coordination of a response to the care of the population at all levels of attention<sup>(2)</sup>.

The FHS, among the various fields of health activities, provides a privileged space for the different application of care practices. Through it, it is possible to identify in an approximate way the context of the population its main demands and, with this, it seeks to develop an effective assistance, positively impacting the health conditions of the population, in this case the Chronic Non-Communicable Diseases (NCDs) stand out<sup>(3)</sup>.

NCDs are considered a public health

problem, as they are multifactorial diseases that develop throughout life and have a long duration. Worldwide, systemic arterial hypertension (SAH) stands out as the most prevalent disease, responsible for 13.5% of all deaths, significantly increasing cardiovascular risk. In Brazil, its average prevalence in the general population is 32.5%<sup>(4,5)</sup>.

According to data from the Surveillance of Risk and Protection Factors for Chronic Diseases by Telephone Survey (Vigitel) 2018, the frequency of diagnoses of hypertension increased with age and decreased with the level of education, in both sexes, having Rio de Janeiro a percentage of 31.2%<sup>(6)</sup>. Arterial Hypertension (AH) is characterized by sustained elevation of blood pressure levels  $\geq 140$  and/or 90 mmHg. It is often associated with metabolic disorders, functional and / or structural changes in target organs, being aggravated by the presence of other risk factors (RF), such as: smoking, physical inactivity and a high-fat diet, dyslipidemia, abdominal obesity, intolerance to glucose and diabetes mellitus - DM<sup>(7)</sup>.

Studies indicate that SAH is one of the main risk factors for the development of Cardiovascular Diseases (CVD), such as: coronary artery disease, heart failure, cerebrovascular disease, chronic kidney disease and atrial fibrillation. Although SAH is also a cardiovascular disease, it is highlighted here for its high prevalence, chronicity, low control and high socio-financial cost<sup>(8)</sup>.

Based on evidence-based medicine, algorithms were created to stratify di-

sease risk, which are simple to perform and low cost. Among such algorithms, the Framingham Risk Score (ERF) stands out, being a tool that assesses the risk of cardiovascular disease, according to the presence or absence of certain risk factors. The ERF is an instrument used to calculate and estimate the risk of an absolute cardiovascular event in clinical practice, classifying the individual into low, medium and high risk, thus being able to estimate the risk of developing CVD over a period of ten years. Worldwide recognized and widely applied, it allows the adjustment between the intensity of the risk factor and the estimated probability of the disease, making treatment more cost-effective<sup>(9)</sup>.

Being an important tool for the care of users with SAH, this stratification of cardiovascular risk by the ERF must be performed in the FHS, playing the role of guiding the user's care line, in order to guide the path of this user within the care network health, sometimes in Primary Health Care (PHC), sometimes in Specialized Outpatient Care, according to the score results<sup>(4,10)</sup>.

According to the score revealed by the ERF, the routine of consultations with health professionals occurs differently, that is, a user classified as low risk, with up to 10% risk of cardiovascular events in individuals without atherosclerotic disease, is indicated annual consultations with the doctor and the nurse. For those at moderate risk, between 10% and 20%, medical and nursing consultations should be held every six months. For patients classified as high risk, which means a 20% or more

chance of developing a major cardiovascular event, they will receive medical and nursing monitoring every four months<sup>(11)</sup>.

As professionals inserted in an ESF team that attend an important number of users with SAH and in view of the exposed problem, we ask: What is the cardiovascular risk according to the ERF of the hypertensive user in care in a basic health unit to develop a major cardiovascular event? And to answer this guiding question, the following objective was operationalized: to characterize types of cardiovascular risk in hypertensive patients treated by a family health team in the city of Rio de Janeiro using the Framingham score.

## METHODOLOGY

This is an observational, cross-sectional study carried out at a Family Health Clinic in Complexo do Alemão, in the city of Rio de Janeiro. This unit has a total of 15 teams, with a coverage area of 46,000 patients. We chose to analyze only patients from a pre-established team, the reason for the choice was that one of the researchers was allocated as a nurse of this team during the data collection period. The researched team has an enrolled population of 2845 patients, 590 of whom are hypertensive, 164 diabetic, 200 children, 752 women and 1139 patients who do not fit into any of these groups. The researchers opted for a convenience sampling due to the short period of time to carry out the data collection, thus, we tried to guarantee the largest possible number of participants to carry out the study.

The inclusion criteria used were: hypertensive patients of the team, over 18 years of age, of both sexes and who had the record of the following items in the electronic medical record: sex, age, blood pressure levels, medical prescription for antihypertensive, history collected and documented presence or absence of current or past smoking and / or the presence or absence of diabetes, in

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addition to total cholesterol and HDL (High Density Lipoproteins) cholesterol levels. The exclusion criteria were patients whose medical records did not have updated data (last 6 months) of the following items: blood pressure levels, medical prescription of antihypertensive medication and levels of total cholesterol and HDL cholesterol.

Data collection was carried out in October 2017, through a pre-established list issued by the electronic medical record, in which all the hypertensive patients on the team were listed. Afterwards, the researcher applied the inclusion and exclusion criteria and 221 participants who completed all criteria were selected for this study. Then the Framingham Score was calculated using the Cardiovascular Risk Calculator application developed by the telehealth center RS/UFRGS (Federal University of Rio Grande do Sul) for the Ministry of Health of Brazil, which was based on the study by D'Agostino and collaborators<sup>(10)</sup>.

The data were entered, categorized and coded in a database in the Excel® 2013 program, from the Microsoft® package, and through it, descriptive statistical tests were performed. The normality of the sample was verified by the Kolmogorov-Smirno test and the data were presented in absolute numbers, percentages and or frequencies, mean and standard deviation.

As it is a research involving human beings, the project was assessed by two research ethics committees (CEPs) and approved in accordance with opinions No. 2,312,534 (Federal University of Rio de Janeiro) and No. 2,312,534 (Municipal Health Secretariat of the city of Rio de Janeiro). Due to the impossibility of contacting all research participants in a period of 01 months (time of data collection), as well as to obtain the presence of everyone during this period to obtain the Free and Informed Consent Term (ICF), there was understanding CEP members on the waiver of the IC, and the guarantee of the participants

was preserved through the granting of the Confidentiality Term delivered to the CEPs by the researchers.

## RESULTS

Data were obtained from 221 individuals out of 590 who were diagnosed with hypertension. In the sample studied, there was a predominance of females and it was observed that the values of pressure levels were outside the appro-

priate range for control despite the use of antihypertensive drugs by all. Total cholesterol was truly little above the limit and HDL cholesterol was within the range with a tendency for values closer to the lower limits. Most participants were at high and medium risk for developing a major cardiovascular event in 10 years. The sample characteristics are detailed in Table 1.

## DISCUSSION

The results of this study show that in the hypertensive population evaluated, there was a presence of other risk factors that increase the likelihood of developing a major cardiovascular event in 10 years. This finding corroborates with other national and international studies that associate such results as a consequence of the person's lifestyle, poor adherence to the prescribed therapy and inactive physical activity, thus increasing the risk of morbidity and mortality<sup>(12,13)</sup>.

Most of the sample studied, composed of users attended by the FHS team, were classified as having high or moderate cardiovascular risk. This finding highlights the challenge found in the routine of Primary Health Care with regard to the articulation of care with health conditions and the ability to respond to user needs, or better, to draw the line of care in order to agree on the flows of care, in order to facilitate user access to the Units and Services they need, incorporating integrality in health care<sup>(2)</sup>.

The data obtained referring to Diabetes Mellitus stood out because they predominate in one third of the studied sample, in addition to having a direct relationship to high cardiovascular risk. This variable is a challenge for national and international public health, making it essential to build tools that facilitate prevention strategies, health promotion and blood glucose management in the at-risk population and others<sup>(14,15)</sup>.

Although smoking was not decisive in this sample to determine the presence of high or moderate cardiovascular risk, smoking is considered the only risk factor totally avoidable for the onset of diseases and death due to cardiovascular problems. It is noteworthy that the interruption of smoking reduces the probability of CVD by up to 50%, however, even in individuals who quit smoking, the degree of the existing injury is not known exactly<sup>(16)</sup>.

In relation to SAH, the mean value of systolic and diastolic blood pressure

Table 1. Sample characterization. Rio de Janeiro, RJ, Brazil, 2017.

VARIÁVEIS	N	%	DESVIO PADRÃO
<b>SEXO</b>			
Feminino	145	66%	-
Masculino	76	34%	-
IDADE	-	-	58* (10)#
<b>DIABETES MELLITUS</b>			
Sim	80	36%	-
Não	141	64%	-
<b>TABAGISMO</b>			
Sim	27	12%	-
Não	194	88%	-
<b>PAS (pressão arterial sistólica)</b>	-	-	142* (22)#
<b>PAD (pressão arterial diastólica)</b>	-	-	85* (12)#
<b>COLESTEROL</b>			
Total	-	-	209* (46)#
HDL	-	-	52* (18)#
<b>RISCO ALTO<sup>§</sup></b>			
Homem	43	20%	-
Mulher	45	20%	-
Total	88	40%	-
<b>RISCO MÉDIO<sup>§</sup></b>			
Homem	22	10%	-
Mulher	51	23%	-
Total	73	33%	-
<b>RISCO BAIXO<sup>§</sup></b>			
Homem	11	5%	-
Mulher	29	13%	-
Total	60	27%	-

Note: Total number of individuals = 221; \* calculated average of the sample; # standard deviation; § Framingham Cardiovascular Risk by D'Agostino and colleagues.

of users was high, considering that all patients in the sample use antihypertensive medication. Stratification of hypertension is a way of adopting better strategies for its management, according to the risk projected for the development of a cardiovascular event. The two main guidelines for the prevention and control of SAH, from the European and American cardiology associations, agree that blood pressure control should happen at home and in the outpatient clinic and that doctors should make restricted use of beta-blockers as first-line therapy. In addition, both recommend that patients identified as high cardiovascular risk should have lower blood pressure goals and more intensive antihypertensive treatment<sup>(17)</sup>.

Among factors that contribute to adherence to the treatment of SAH in primary care patients, it was observed that higher family income and the presence of a partner (stable union or marriage) were protective. In the elderly, the main risk factors for poor adherence were: older age, less education, male gender and non-white race/color<sup>(18)</sup>. It was also observed in another study that patients who claimed to undergo treatment for SAH only used drug treatment, indicating a lack of knowledge of non-pharmacological treatment measures or failure of FHS health professionals to raise patients' awareness of the importance of these therapeutic measures<sup>(19)</sup>. In addition, several factors can hinder adherence to the treatment of hypertension, such as low economic condition, degree of knowledge about the disease, difficulty in accessing health services, absence of physical symptoms that demonstrate increased blood pressure and chronic disease<sup>(20)</sup>.

The data referring to the lipid profile of the studied subjects in the light of the recommendations of the update of the Brazilian guideline for the control of dyslipidemia and prevention of atherosclerosis<sup>(21)</sup> it is not alarming, since the average total cholesterol is in the category classified as borderline

for the population over 20 years old, although this value is not classified as high, it must be optimized to reach the desirable category, below 190mg/dl. According to the literature, high cholesterol may be the main modifiable risk factor for coronary artery disease, and its control is responsible for decreasing the risk of cardiovascular events such as acute myocardial infarction. Current US prevention guidelines for blood pressure and cholesterol control recommend using combined cohort equations to initiate a shared decision-making process between doctors and patients in primary prevention<sup>(22)</sup>.

For the coordination and integration of health services and actions in serving the users of this work, we point out that they are inserted in the Network of Health Care (RAS) of the NCDs. NCDs are characterized not only by the sum of their signs and symptoms themselves, but also by their social determinants, among them, social inequalities, differences in access to goods and services, low education, inequalities in access to health care information, in addition to modifiable risk factors, such as smoking, alcohol consumption, physical inactivity and inadequate diet. In summary, the RAS consists of the organization of a set of health services and actions of different technological densities that, integrated through technical, logistical and management support structures, seek to guarantee the integrality of care to the populations of a health region<sup>(23)</sup>. In this sense, PHC as a gateway for users in the health system has a fundamental role in the planning and organization of the HCN, integrating, coordinating and serving users in their health needs.

It must be considered that when it is proposed to stratify users to adjust their treatments, it is important to understand that stratification is not driven only by the number of risk factors or comorbidities, but also by their type. Better to say, hypertensive patients with diabetes are different from

hypertensive smokers, which means that the treatment must be appropriate for each user, but not only in relation to the number of comorbidities present<sup>(14)</sup>. These particularities reinforce the need for health professionals inserted in PHC to organize the health care of these users through lines of care drawn in a singular way, according to the results of stratifications, identified risk factors and health needs presented.

Considering that most users were classified as moderate to high risk for developing a major cardiovascular event, it is recommended that the unit team in question meet in order to outline strategies to optimize the management of these users. A working technology in health that can contribute to a broader conception of health and broaden the concept of RAS are the "operating groups". Created by Pichon-Rivière and defined as the "restricted group of people, linked together by constants of time and space, articulated by their mutual internal representation, who propose themselves, explicitly or implicitly, to a task that constitutes their purpose", This concept can be useful as a way to operationalize strategies that allow the health team and users to share experiences and experience knowledge and practices that facilitate listening, welcoming and bonding<sup>(24)</sup>.

Currently, in Brazil, operative groups have been used in several areas of health, especially in PHC, to promote educational programs in health, disease prevention and provision of specific care. As a suggestion for the reality found in the study, it is envisaged the creation of a program of care for users with moderate to high risk to develop a major cardiovascular event, which allows progress in managing the health needs of these people. Expected benefits for such a program would be a greater optimization of the work of the unit team in the RAS, with the monitoring of hypertensive and diabetic patients in a more studied way, guidance of users effectively about

the danger of being classified as moderate to high risk to develop a major cardiovascular event, active user participation in the construction of their care plan and greater involvement of the professional team with the user, strengthening the bond.

## CONCLUSION

This study showed that most hypertensive patients followed up in primary care by a family health strategy team were classified by the Framingham Risk Score as moderate and high risk. These data affirm the great potential in the use of this stratification tool as an instrument to be incorporated by the health team in promoting cardiovascular health in the consultations carried out.

However, the findings show that other actions need to be incorporated in order to consider the hypertensive individual in all their social and cultural nuances, valuing their environment and their individual and collective behaviors.

Thus, educational technologies are presented as allies in the process of building an expanded view of the concept of health by users. Among these, the technology "Operative Groups" can contribute as a tool to be incorporated by the team as a strategy to promote care, since it opens spaces for listening to the needs of people, allowing through dialogue, exchange of knowledge about the conditioning factors of the health-disease process, also offering subsidies for the adoption of new health habits. Operative groups in PHC allow everyone to

talk about their problems and seek solutions together, strengthening the bond and promoting integrality.

Finally, it is suggested to create a "Program of Attention to Users with Moderate to High Risk of Major Cardiovascular Event" with the users of the unit's FHS, in order to incorporate benefits of the strategic order with the formulation of the actions to be developed for meeting health needs and preventing health problems and, tactical-operational, with the execution and management of the program formulated at the unit and its interface with health care networks, in order to support the construction of articulated, comprehensive therapeutic plans, which consider local conditions and needs and the autonomy of users in the processes. ■

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