

**RISK FACTORS IN INDIGENOUS BRAZILIANS
FATORES DE RISCO CARDIOVASCULAR EM INDÍGENAS BRASILEIROS
CARDIOVASCULAR FACTORES DE RIESGO CARDIOVASCULAR EN INDÍGENAS
BRASILEÑOS**

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ABSTRACT

Objective: to understand the scientific evidence available in the literature on cardiovascular risk factors in indigenous populations in Brazil. **Method:** this is a bibliographic, descriptive, integrative review type study. The articles were selected by means of an electronic search in the LILACS databases and SciELO virtual library. Original articles published in the last 11 years, in national and international journals, indexed in the selected databases, that addressed the theme cardiovascular risk factors in the indigenous population in Brazil, in English, Spanish and Portuguese. The search strategy involved the Health Sciences Descriptors. **Results:** in the eight articles analyzed, the prevalence of risk factors, especially hypertension in indigenous populations in Brazil and one indigenous Peruvian ethnic group, which are affected by development and contact with non-indigenous people, stood out. **Conclusion:** the risk factors for Cardiovascular Diseases in indigenous populations due to constant changes in cultural, economic and lifestyle habits resulting from the interaction of the Indian with the non-indigenous society were evidenced.

Descriptors: Risk Factors; Cardiovascular Diseases; Diseases; Population Groups; Health of Indigenous Peoples; Indigenous Peoples.

RESUMO

Objetivo: conhecer as evidências científicas disponíveis na literatura sobre os fatores de risco cardiovascular em populações indígenas no Brasil. **Método:** trata-se de um estudo bibliográfico, descritivo, tipo revisão integrativa. Selecionaram-se os artigos por meio de busca eletrônica nas bases de dados LILACS e biblioteca virtual SciELO. Pesquisaram-se por artigos originais publicados nos últimos 11 anos, em periódicos nacionais e internacionais, indexados nos bancos de dados selecionados, que abordassem o tema fatores de risco cardiovascular em população indígena no Brasil, nos idiomas inglês, espanhol e português. Envolveram-se, na estratégia de pesquisa, os Descritores em Ciências da Saúde. **Resultados:** destacou-se, nos oito artigos analisados, a prevalência dos fatores de risco, principalmente da hipertensão arterial em populações indígenas do Brasil e uma etnia indígena peruana, que são afetadas pelo desenvolvimento e pelo contato com

o povo não índio. **Conclusão:** evidenciaram-se os fatores de risco de Doenças Cardiovasculares nas populações indígenas devido a constantes mudanças de hábitos culturais, econômicos e de estilo de vida resultantes da interação do índio com a sociedade não indígena.

Descritores: Fatores de Risco; Doenças Cardiovasculares; Doenças; Grupos Populacionais; Saúde de Populações Indígenas; Povos Indígenas.

RESUMEN

Objetivo: conocer las evidencias científicas disponibles en la literatura sobre factores de riesgo cardiovascular en poblaciones indígenas de Brasil. **Método:** se trata de un estudio tipo revisión bibliográfica, descriptiva e integradora. Los artículos fueron seleccionados mediante búsqueda electrónica en bases de datos LILACS y biblioteca virtual SciELO. Se buscaron artículos originales publicados en los últimos 11 años, en revistas nacionales e internacionales, indexados en las bases de datos seleccionadas, que abordara el tema factores de riesgo cardiovascular en población indígena de Brasil, en los idiomas inglés, español y portugués. En la estrategia de investigación estuvieron involucrados los Descriptores de Ciencias de la Salud. **Resultados:** se destacó en los ocho artículos analizados, la prevalencia de factores de riesgo, especialmente hipertensión arterial en poblaciones indígenas de Brasil y una etnia indígena peruana, a quienes les afecta por el desarrollo y el contacto la gente no indígena. **Conclusión:** se evidenciaron factores de riesgo de Enfermedades Cardiovasculares en las poblaciones indígenas debido a los constantes cambios en los hábitos culturales, económicos y de estilo de vida resultantes de la interacción del indígena con la sociedad no indígena.

Descriptores: Factores de Riesgo; Enfermedades Cardiovasculares; Enfermedad; Grupos de Población; Salud de Problaciones indígenas.

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INTRODUCTION

Cardiovascular Diseases (CVD) are the main cause of mortality in Brazil and in the world.¹⁻² Among the most common CVDs are Coronary Artery Disease (CAD), heart failure, angina, valve diseases, Acute Myocardial Infarction (AMI), arrhythmias, and hypertensive diseases, among others. It is pointed out that, for this reason, CVD has been the focus of attention of the public health

sector, with health promotion strategies being offered for the reduction of risk factors and some proposals for cardiovascular rehabilitation, as well as the reduction of morbidity and mortality, especially of AMI and CAD.³

It is reported that there are several risk factors related to the progression of CVD, which may be modifiable or non-modifiable. The modifiable risk factors include smoking, hyperlipidemia, alcoholism, hyperglycemia, sedentary lifestyle, obesity, poor diet, and contraceptive use; while the non-modifiable risk factors are related to family history of CVD, age, gender, and race. It is known that CVDs have a great impact on the quality of life of those affected, leading to death and premature disability, besides being responsible for a high number of hospitalizations and high costs to health systems and social security.^{4,2}

The constant transformations due to industrialization and urbanization processes have brought about great changes and several alterations in lifestyle and culture, amplifying the Chronic Non-Communicable Diseases (CNCDs), including CVDs.⁵ These impacts have become evident in the Brazilian population, also reaching more specific audiences, such as the indigenous population. The adoption and inclusion of behaviors and values produced by the new challenges of today's world, generating modifications in the way of life of the indigenous people in Brazil, has caused the acceleration of the disease processes in this population.⁶

Because of the relationship between the Indians and the non-indigenous society, there are impacts on their lives due to changes in sociocultural and economic habits, and especially in lifestyle, intense changes in relation to land and work, in addition to a decrease in physical activities and difficulty in access to health services. This leads to the onset of CNCDs, such as obesity, Systemic Arterial Hypertension (SAH), Diabetes Mellitus (DM), and Metabolic Syndrome (MS).⁵⁻⁶

The indigenous population in Brazil consists of approximately 896,000 people, belonging to 305 ethnic groups, with more than 200 specified languages, located in all Brazilian states. A large part of this population is distributed in thousands of villages located inside indigenous lands, totaling 505 indigenous lands from north to south of Brazil.⁷ It is revealed that, despite this expressive number, in the entire national territory, there is a scarcity of studies on indigenous health in Brazil.

^{5,8}

Thus, it is essential to search for scientific evidence to contextualize the issues involving the indigenous population in Brazil, because these people need a differentiated attention in their geographical, cultural and epidemiological context. It is believed that these research findings may contribute to the knowledge and development of strategies by health professionals regarding the

promotion and prevention of cardiovascular risk factors for indigenous peoples. This study is considered relevant for the scientific community and may provide a basis for new investigations focused on the theme in question. It is noteworthy; however, that research in the field of health, especially for indigenous people, is essential and enables the advancement of knowledge in the proposition of public policies for the prevention of CVDs.

OBJECTIVE

To understand the scientific evidence available in the literature on cardiovascular risk factors in indigenous populations in Brazil.

METHOD

This is an Integrative Review (IR) study conducted in six steps: 1) identification of the topic and selection of the hypothesis or research question; 2) establishment of criteria for inclusion and exclusion of studies/sampling or literature search; 3) definition of the information to be extracted from the selected studies/categorization of the studies; 4) evaluation of the studies included in the integrative review; 5) interpretation of results; 6) presentation of the review/knowledge synthesis.⁹

The following guiding research question was raised in the first stage, which was constructed based on the PICO strategy (P - Population: indigenous population in Brazil; I - Interest: cardiovascular risk factors; Co - Context: Brazil): "What is the published scientific evidence on cardiovascular risk factors in the indigenous population in Brazil?".

A bibliographic survey was then carried out in the Latin American and Caribbean Literature on Health Sciences (LILACS) and Scientific Electronic Library Online (SciELO) databases, from September to October 2018. We chose the database and the electronic library for offering access to the full text of national publications in the electronic medium, free of charge and with easy access, also involving a greater number of academic journals produced in Brazil, besides involving the theme of public health with the approximation of the investigated theme. It is informed that the researchers chose to use national databases, rather than conveniently established international ones.

The inclusion criteria for the articles were: original articles published in the last 11 years, in national and international journals, indexed in the selected databases, which addressed the theme cardiovascular risk factors in the indigenous population in Brazil, in English, Spanish and Portuguese. The articles should also answer the guiding question and be available electronically as full text.

It should be added that the delimited time frame for the search of the articles was from July 2007 to August 2018. This time limit was chosen because, after the initial survey in the database and in the selected electronic library, it was identified that, in the period prior to July 2007, there are insufficient or no articles on the research theme. Thus, we chose the time limit of eleven years because we believed in a greater exploration of scientific publications on the proposed theme.

Excluded were papers such as theses, dissertations, repeated studies in one or more databases, editorials from non-scientific journals, books, book chapters, and articles in which no research ethics committee approval was indicated.

The controlled descriptors were selected for the survey of articles after consulting the terms entered in the Health Sciences Descriptors (DECS) database, based on their relation to the theme, combining them with each other using the Boolean operator AND, in order to cover the largest number of studies related to the guiding question. The following descriptors were used: "cardiovascular diseases" [and] "indigenous population"; "risk factors" [and] "indigenous population"; "hypertension" [and] "indigenous population"; "diabetes" [and] "indigenous population"; "risk factors" [and] "cardiovascular diseases" [and] "indigenous population". Figure 1 shows the literature survey and the results found in LILACS and SciELO.

Databases/Electronic Library	Descriptors	N
LILACS	Cardiovascular diseases and indigenous population	6
	Risk factors and indigenous population	23
	Hypertension and indigenous population	16
	Diabetes and indigenous population	7
	Risk factors and cardiovascular diseases and indigenous population	4
SciELO	Cardiovascular diseases and indigenous population	3
	Risk factors and indigenous population	17
	Hypertension and indigenous population	5
	Diabetes and indigenous population	8
	Risk factors and cardiovascular diseases and indigenous population	2

Figure 1. Bibliographic survey according to database, electronic library and health descriptors. Coari (AM), Brazil, 2018.

It is detailed that the search in SciELO virtual library returned 35 articles, and in LILACS database, 56 articles, totaling 91 publications. Of these, 19 were excluded as duplicates. Duplicate

articles were manually excluded and those that appeared for the first time in SciELO or LILACS were kept.

After analyzing the title and abstract of the remaining 72 articles, 64 were excluded for not being related to the theme. Thus, eight articles were included in the study according to the pre-established methodological criteria, as shown in figure 1.

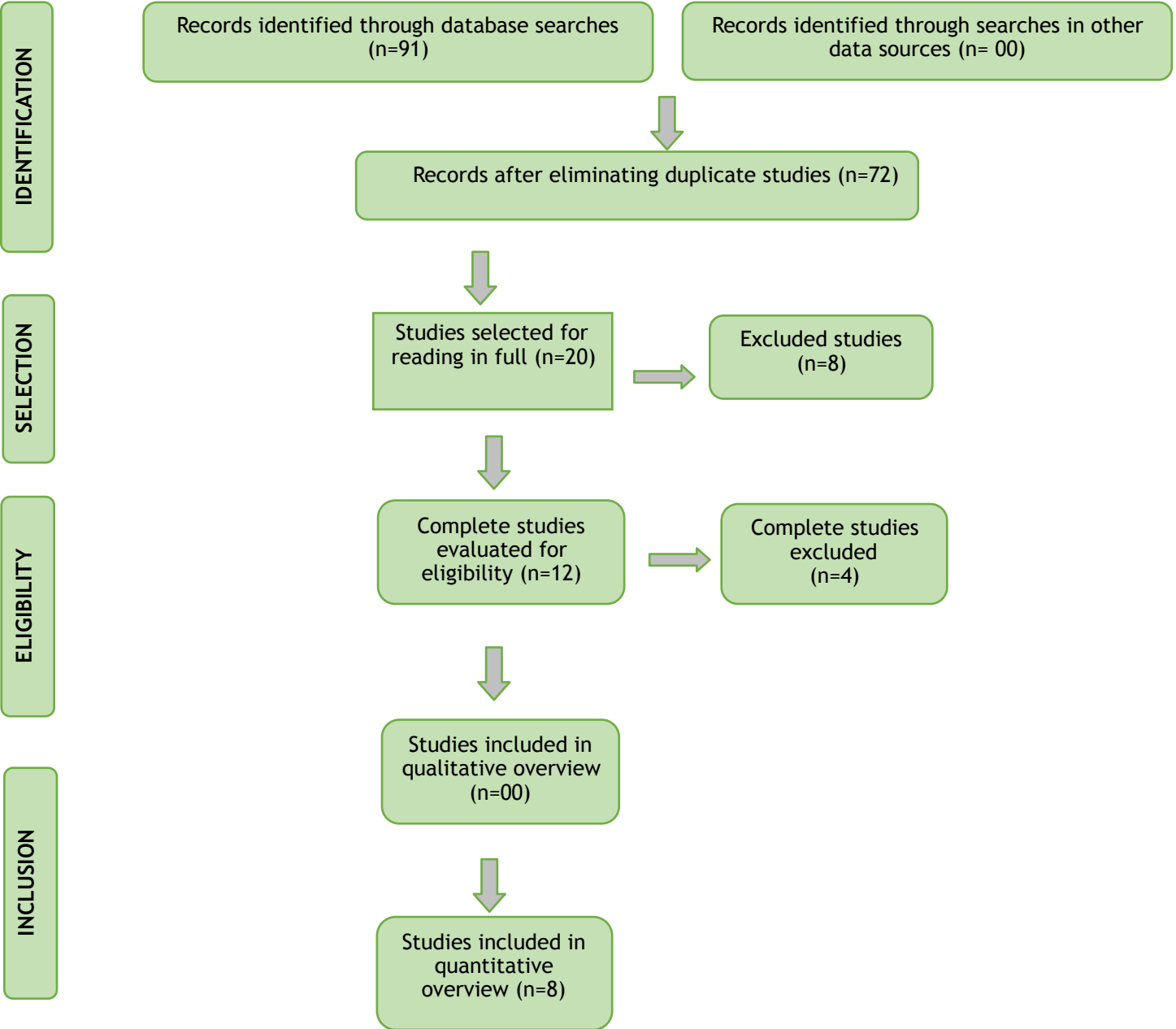


Figure 2: Flowchart of study selection adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2009). Coari (AM), Brazil, 2019.

In the third stage, the articles were arranged in an instrument built specifically for the study. Information was extracted in relation to year of publication, authors, journals, country in which the research was developed, language used, objective, type of study, study results, conclusion, and score of the journal in the Qualis system of the Coordination for the Improvement of Higher Education Personnel (CAPES), database, digital library used, and level of evidence of the studies.

The fourth stage consisted of filling out the instrument in a judicious and individual way, using the eight articles selected. The results obtained were organized in spreadsheets in increasing numerical order in the Microsoft Excel® 2016 program. The Sucupira platform was used to obtain

the Qualis, which verifies the quality of the intellectual production, classifying the articles in strata (A1, A2, B1, B2, B3, B4, B5, and C).

The studies were critically analyzed using the Hierarchical Evidence Classification for Evaluating Studies, adapted from the Critical Appraisal Skills Program (CASP) developed by Oxford University in 2002.¹⁰ This validated instrument classifies and contemplates the levels of evidence of the studies analyzed. Thus, it was decided to use only articles classified as five to ten points.

In the fifth step, the results obtained were compared and interpreted with information from other authors in the literature and, in the sixth step, the results found were highlighted by means of tables and figures and the data were analyzed descriptively to facilitate reading comprehension. The IR of the submission of the study to the Research Ethics Committee (REC) is waived with regard to the ethical aspects of the research.

RESULTS

Eight articles were included to compose the ILR. It was observed that most of the articles analyzed were developed by Ph.D. researchers (74%), mostly from the area of Medicine, followed by Masters (20%), specifically from the areas of Medicine, Nursing, Nutrition and Statistics, as shown in figure 3.

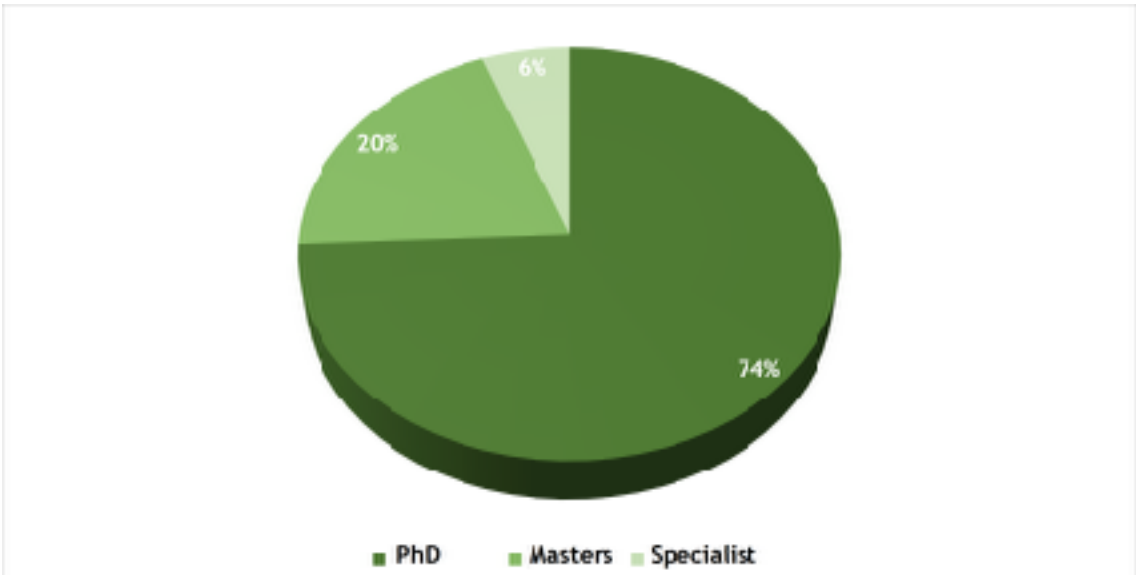


Figure 3.

Distribution of articles by authors' titles. Coari (AM), Brazil, 2018.

Figure 4 below shows the institutions of origin of the authors of the articles used for the IR.

Authors' institution of origin	n
University of São Paulo	7
Pontifical Catholic University of Rio Grande do Sul	3
Federal University of São Paulo	2
Peruana Cayetano Heredia University	2
Federal University of Mato Grosso	2
Medical Hospital Foundation of the State of Minas Gerais	1

Federal University of Amazonas	1
Federal University of Uberlândia	1
Federal University of Rio de Janeiro	1
Research and Development Area	1
Indigenous Health Unit - Cayetano Heredia Foundation	1
International Health Department	1
McGill Montreal University	1
Total	24

Figure 4. Distribution of articles used for the IR on cardiovascular risk factors in indigenous population in Brazil by authors' institution of origin. Coari (AM), Brazil, 2018.

Regarding the origin of the publications, seven articles were national and one was international, from Peru. With regard to the methodological design of the selected articles, six used the quantitative-transversal design method, one was qualitative-ethnographic, and one was a systematic review.

With regard to the indigenous ethnic group, it was verified that the Khisêdjê, belonging to the medial region of the Xingu Park, was the most studied, appearing in two articles, followed by the Kaingang, Guarani, and Xerente, analyzed in individual articles. Regarding the region in Brazil where the research was carried out, we found a higher concentration of studies in the Center-West region (four articles), followed by the Southeast (three articles) and South (two articles).

Regarding the year of publication, two articles were found in 2014 and 2016, and one article each in 2011, 2012, 2015, and 2018. It was identified in this ILR, in the search for articles, that from the year 2010 on, there was a higher concentration of publications on the indigenous population, which may explain the number presented in the study, besides the theme being specific about cardiovascular risk factors.

With regard to the journal, it was observed that Cadernos de Saúde Pública had the largest number of articles, with two publications, as shown in figure 5. One of the aspects analyzed in the articles refers to the stratification of journals obtained by the Qualis system of Capes through the Sucupira platform. It was found that the A1, A2 and B2 strata had two articles each, and B1 and B3, one article. Regarding the level of evidence, level six was highlighted in most of the articles analyzed.

It was found that not all the articles analyzed contained information about the titles/education of the authors, so as to meet the objective proposed by this study. Therefore, the search for these data was conducted in the Lattes curriculum of the authors on the Lattes Platform of CNPq; as for

the international article, the search was conducted by personal profiles available on Google academic.

Analyzing the modifiable and non-modifiable cardiovascular risk factors in the indigenous population in Brazil, we found a higher frequency of obesity/dyslipidemia and physical inactivity/sedentary lifestyle among the modifiable factors, while in the non-modifiable factors, age was a factor that aided in the development of cardiac risks, as shown in figure 6.

Regarding the main results found in the evaluated publications, it can be observed that the first study (A1) sought to verify the existence of an association between the degree of physical activity and the presence of metabolic syndrome in Khisêdjê people from the Xingu indigenous park. It was found that the prevalence was 27.8% in this population, affecting mainly women over 39 years of age. Lower levels of physical activity and lower performance in physical tests were associated with higher prevalence of metabolic syndrome.

The second study (A2) highlighted Systemic Arterial Hypertension (SAH) and obesity in Asháninkas indigenous people of the Junin-Peru region, finding that the prevalence of SAH is similar to that of peoples experiencing migration. It is inferred that these population-level changes also span the indigenous peoples of the Amazon as well as the world, making it necessary to create local strategies that contribute to a culturally appropriate approach to chronic diseases.

The third study (A3) addressed the prevalence of SAH in Brazilian indigenous people by means of a systematic review with meta-analysis, showing a 12% chance of indigenous Brazilians presenting SAH for each year studied, and the findings may be the result of changes in cultural and economic habits, lifestyle, and especially the interaction between indigenous and non-indigenous society.

The fourth study (A4) addressed the incidence of metabolic syndrome and associated disease in the Khisêdjê indigenous population of the Xingu Indigenous Park. The results showed a high cumulative incidence of metabolic syndrome, hypertriglyceridemia, hypertension, central obesity, and overweight. It is observed that the results obtained do not represent all the Brazilian ethnic groups, but are important to highlight the need for interventional actions that serve to protect these people from the acculturation that has inevitably been introduced into the daily life of this population over the years.

ID	Publication year/ Authors	Journal	Qu ali s	Coun try/ Lang uage	Type of study	Databases/ Electronic Library	Level of evid ence
(A1)	2012 Santos, Tsutsui, Galvão, Mazzucchetti, Rodrigues, Gimeno ¹¹	Public Health Booklets	A1	Brazi l/ Portu gues e	Quantitative- epidemiologi cal	SciELO	VI
(A2)	2014 Romero, Zavaleta, Cabrera, Gilman, Miranda ¹²	Rev Peru Med Exp Salud Publica	B1	Peru/ Espa nhol	Quantitative- cross- sectional	SciELO	VI
(A3)	2015 Souza Filho, Ferreira, Santos B, Pierin ⁶	USP's Nursing School Journal	A2	Brazi l/ Portu gues e	Systematic review	SciELO	V
(A4)	2014 Mazzucchetti, Galvão, Tsutsui, Santos, Rodrigues, Mendonça, et al. ¹³	Public Health Booklets	A1	Brazi l/ Portu gues e	Quantitative- epidemiologi cal	SciELO	VI
(A5)	2011 Rocha, Bós, Huttner, Machado ¹⁴	Pan American Journal of Public Health	A2	Brazi l/ Portu gues e	Quantitative cross- sectional, descriptive and analytical	SciELO	VI
(A6)	2018 Soares, Fabbro, Silva, Sartorelli, Franco, Kuhn, et al. ¹⁵	Brazilian Archives of Cardiology	B2	Brazi l/ Portu gues e	Quantitative- cross- sectional	SciELO	VI

(A7)	2016 Alves, Goulart, Ladeira, Oliveira, Benseñor ¹⁶	São Paulo Medical Journal	B3	Brazi l/ Engli sh	Quantitative- Prospective Cohort	LILACS	VI
(A8)	2016 Rodrigues, Santos, Santos ¹⁷	Research journal: Care is fundamental	B2	Brazi l/ Engli sh	Qualitative- ethnographic	LILACS	VI

Figure 5. synthesis of the studies included in the IR according to identification, year of publication, authors, journal, Qualis, type of study, and level of evidence. Coari (AM), Brazil, 2018.

Risk factors		Identified articles (authors)	N
Modifiable	Obesity/ Dyslipidemia	Santos, Tsutsui, Galvão, Mazzucchetti, Rodrigues, Gimeno ¹¹ Souza Filho, Ferreira, Santos, Pierin ⁶ Mazzucchetti, Galvão, Tsutsui, Santos, Rodrigues, Mendonça, et al. ¹³ Rocha, Bós, Huttner, Machado ¹⁴ Alves, Goulart, Ladeira, Oliveira, Benseñor ¹⁶ Soares, Fabbro, Silva, Sartorelli, Franco, Kuhn, et al. ¹⁵	6
		Physical Inactivity/ Sedentary lifestyle	3
		Smoking habit	2
		Drinking alcoholic beverages	1
Non-modifiable	Age	Rocha, Bós, Huttner, Machado ¹⁴ Soares, Fabbro, Silva, Sartorelli, Franco, Kuhn, et al. ¹⁵	2

Figure 6. Distribution of cardiovascular risk factors identified in the selected articles by authors. Coari (AM), Brazil, 2018.

The fifth study analyzed the prevalence of metabolic syndrome in indigenous people over 40 years old, in the cities of Porto Alegre and Nonoai/RS, showing that indigenous females were more prevalent when compared to males; moreover, MH was associated with some significant factors, such as smoking, age, sedentary lifestyle and eating habits.

The sixth study (A6) aimed to assess the prevalence of cardiovascular risk factors in adults Xavante Indians - Mato Grosso State, between the years 2008 and 2012, showed high cardiovascular risk in this population; providing subsidies for support actions for the development of preventive measures and early treatment.

The seventh study (A7) evidenced the frequency of cholecystectomy and sociodemographic and clinical risk factors associated with the ELSA-Brazil study. Highlighting female gender and high Body Mass Index (BMI) as the main risk factors associated with cholecystectomy, as well as previous bariatric surgery and indigenous ethnicity.

The eighth study (A8) sought to understand the perception of the Xerente people about Systemic Arterial Hypertension (SAH), in the municipality of Tocantínia, State of Tocantins. The results showed that SAH in the Xerente Indians is related to changes in lifestyle, which has been causing concern among these people, in view of the fear and anxiety about the unknown.

DISCUSSION

The acculturation of indigenous peoples has become a serious public health problem, contributing to the increase in the prevalence of CNCs, including CVD, which increase the risk of premature death, decrease quality of life, and cause disability, among other problems. The fragility and scarcity of studies on indigenous health in Brazil are evident and worrisome. It is inferred, therefore, that there is a need for vigilance in the control of disease progression, public policy interventions, and especially the prevention of modifiable risk factors in the cultural universe of Indians, meeting the particular needs of each people.

The modifiable risk factors refer to lifestyle habits, being changeable, while the non-modifiable factors are related to genetic inheritance and hormonal issues. It is explained that obesity is a chronic, multifactorial, recidivating, and often silent disease that can influence the quality and life expectancy of the individual.¹⁸ Obesity is associated, in many cases, with an exaggerated caloric intake and a sedentary lifestyle, in which the excess calories are stored in the adipose tissue, causing a positive energy balance.¹⁹ Changes in the nutritional and physical activity patterns of indigenous people have contributed significantly to the development of these CNCs, especially CVD.

It is inferred, therefore, that the accelerated growth of obesity in the indigenous population is related to the modernization of society, which causes a greater supply of industrialized or processed foods, combined with improved forms of work due to the automation of activities and mechanization.

It is shown, in a research²⁰ which sought to explore the impact of development on traditional food systems and the perception of indigenous people in Nigeria, that of the four communities assessed, community development in education, roads, jobs, and immigrants influenced sharp changes in the traditional diet of these indigenous people. This has resulted in these people adopting modern foods and adopting new cultural foods, since the environment in which one lives can influence new habits and customs.

It is noteworthy that a sedentary lifestyle, when combined with other risk factors, such as obesity and stress, contributes to the onset of a number of chronic diseases, such as hypertension,

diabetes and dyslipidemia and, above all, other CVDs.¹ The practice of physical activity promotes benefits such as obesity control, anxiety, stress and depression.¹⁸

There is growing scientific evidence that CVD risk factors emerge earlier and earlier and extend into later adulthood. It was shown in a ILR study conducted in non-indigenous populations, which included 15 articles published from the year 1994 on risk factors for CAD in young people, that 91.6% of the analyzed studies were unanimous in indicating dyslipidemia as the main cause for CAD already in young individuals.²¹ They do, however, make progress in the treatment of CVD evident and prevention strategies more effective.

A study carried out with the Khisêdjê and Suyá indigenous people located in the Xingu Indigenous Park showed that they have undergone changes in their traditional habits and lifestyles. This implies the onset of risk factors for the health of these populations, which makes public policy interventions and educational implementations necessary to try to minimize the negative effects of these changes.²² The contemporary world, with its technologies and facilities, directly contributes to the process of changes in the eating habits and lifestyles of various populations, among which are the indigenous peoples. Consequently, the risks of cardiovascular comorbidities have increased over time, becoming an aggravating problem in the public health of indigenous peoples.

It is observed that the epidemiological and nutritional process is responsible for the presence of several CNCs in Arúak indigenous people, specifically hypertension and obesity in males, while women present a greater predisposition for abdominal obesity, regardless of age or tribe of origin.²³

It is evident, in this investigation, that the geographic distance in which the indigenous people find themselves is perceptible, taking into consideration the location of the studies analyzed, because a large part of them are at risk for developing cardiovascular disease.

In research conducted with the Evenk indigenous people of the Russian Arctic, a high incidence of SAH and behavioral factors for its development related to smoking, alcohol consumption, and physical inactivity were identified. Alcohol consumption, physical inactivity, and smoking were reported to be more frequent in men than in women. It was also evidenced by the authors that there is a need for public policies, with a significant impact on the social and health of the indigenous people, as well as the application of disease prevention actions and lifestyle modification programs. It is also necessary to encourage the practice of physical activity, to combat smoking and excessive alcohol consumption, in addition to monitoring the level of hypertension and risk factors among the indigenous peoples of the North of Brazil.²⁴

In a research, the health risk factors of 400 individuals over 15 years of age in the indigenous community Pehuenches were analyzed, showing that the prevalence of SAH, as well as other

pathologies, is high. The authors emphasized the importance of prevention programs with therapies aimed at changing lifestyle habits.²⁵

In one study, it was highlighted that the process of nutritional and epidemiological transition experienced by indigenous peoples, conciliated with CNCDs such as hypertension, threatens people of the Suruí-Rondônia ethnic group. A higher prevalence of hypertension was found in females and in people over 40 years of age, making clear the need for health care for this population.²⁶

A study carried out with the Muras Indians, in Autazes, Amazonas State, showed a prevalence of SAH (26.6%) in females when compared to males, in women without a partner, with monthly family income below one minimum wage. The authors mentioned that the findings in the indigenous population are due to the accelerated urbanization process, the progressive increase in life expectancy, changes in eating patterns, with excessive consumption of foods rich in saturated fat.²⁷

The prevalence of risk factors for CNCDs was found in the indigenous community of Santiago Atitlan, located in Guatemala, in which a high prevalence of obesity, hypertension, dyslipidemias and metabolic syndrome was evidenced.²⁸ This result was also identified in the Xavante Indians of the São Marcos and Sangradouro reserves in the state of Mato Grosso, requiring intervention actions aimed at their health.¹⁵

It was pointed out in a survey conducted in the Jaguapiru village, Mato Grosso do Sul, that the prevalence of obesity was high and women were at higher risk for obesity and DM than men. It is detailed, however, that the prevalence of SAH did not present a distinction between the sexes. The results of this study suggest the need for nutritional guidelines and encouragement of physical activity among the indigenous population as a form of prevention.²⁹

A survey carried out in the municipality of Santa Isabel do Rio Negro, in the Alto Rio Negro region of the state of Amazonas, involving local and indigenous people, showed that the prevalence of SAH is high due to high consumption of alcoholic beverages, advanced age, and smoking³⁰, showing that modifiable risk factors are part of the daily life of the indigenous population in Brazil and negatively impact the quality of life of this population.

It is necessary to create programs and actions aimed at maintaining and monitoring indigenous health in Brazil, which is precarious. Public policy interventions should meet the demands of indigenous peoples, but are limited by lack of investment and knowledge of existing problems. For this reason, the development of research that produces information about the profile of CVD and its risk factors helps in the implementation of actions to promote health and prevent CNCDs.

It is reported, as a limitation of this review, the access to only one database and one virtual library, besides the possibility that, based on the inclusion criteria, some articles on the theme were not selected for the delimited research period. It is important to note that the search process

was extremely rigorous, especially with regard to the articles selected. It is suggested that the theme be explored in new scientific investigations that may arouse the interest of other authors for the development of research on CVD involving indigenous peoples, specifically those from Brazil.

CONCLUSION

It is known that cardiovascular risk factors, especially SAH, are present in indigenous populations in Brazil, which resulted mainly from contact with non-indigenous peoples. This contact drastically reduced routine activities that were part of the indigenous culture, such as hunting, fishing, and agriculture, sources of food for most of these people. This change is directly reflected in the development of diseases such as diabetes, metabolic syndrome, sedentary lifestyle, and smoking.

Despite the growing number of publications related to risk factors for the development of CNCs, the number of studies involving indigenous populations in Brazil is still scarce. Therefore, it is necessary to carry out scientific research that seeks to understand the diversities and needs of indigenous peoples today.

It is noted that knowing the cardiovascular risks in Brazilian indigenous populations is of utmost importance for health professionals, considering that public policies, as well as the approach strategies aimed at this ethnic group, should be offered mainly at the primary level of care in order to guide about the consequences of unhealthy eating and behavioral habits, in addition to sedentarism, for the development of serious and mostly irreversible comorbidities. It is necessary to carry out more studies focused on the aforementioned population, because they can show more clearly the acculturation process of these people and the consequences of contact with the current globalized world.

It is hoped that, with the passage of time, based on this research, actions aimed at the health of indigenous populations in Brazil will be taken, providing them with basic life rights, such as access to quality health care within their own model of coexistence, which strengthens the reconstruction of indigenous identity and provides these populations with a minimum of dignity.

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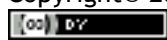
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