OBJN
ONLINE BRAZILIAN JOURNAL OF NURSING
ISSN: 1676-4285

REVIEW PROTOCOL

Assessment of risk factor knowledge in patients with cardiovascular disease: a protocol for scoping review

Avaliação do conhecimento sobre fatores de risco em pacientes com doença cardiovascular: um protocolo para revisão de escopo

Kemberly Godoy Basegio[1]
ORCID: 0000-0002-0729-2259

Maria Graziela de Souza Moreira[2]
ORCID: 0000-0002-1517-3954

Lucas Helal[1]
ORCID: 0000-0002-6900-7185

Omar Pereira de Almeida Neto[3]
ORCID: 0009-0008-6108-2990

Fernando Luís Scolari[4]
ORCID: 0009-0001-2559-1199

Bruna Henkel[4]
ORCID: 0000-0002-1349-907X

Mari Ângela Gaedke[2]
ORCID: 0000-0002-3032-081X

Marco Aurélio Lumertz Saffi[1]
ORCID: 0000-0001-8232-3310

[1] Federal University of Rio Grande do Sul, Rio Grande do Sul, RS, Brazil

[2] University of Santa Cruz do Sul, Rio Grande do Sul, RS, Brazil

[3] Federal University of Uberlândia, Minas Gerais, MG, Brazil

[4] Hospital de Clínicas of Porto Alegre, Rio Grande do Sul, RS, Brazil

Editors:
Ana Carla Dantas Cavalcanti
ORCID: 0000-0003-3531-4694

Paula Vanessa Peclat Flores
ORCID: 0000-0002-9726-5229

Vinicius Batista Santos
ORCID: 0000-0001-5130-5523

Corresponding author:
Marco Aurélio Lumertz Saffi
E-mail: msaffi@hcpa.edu.br

Submission: 24/11/2023
Approved: 28/07/2024

ABSTRACT

Objective: To identify questionnaires, scales, and instruments used to assess the knowledge of risk factors in patients with cardiovascular disease. Method: This scoping review will utilize the Joanna Briggs Institute (JBI) Collaboration methodology for scoping reviews, adhering to the guidelines outlined in the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). This protocol was registered on the Open Science Framework (OSF): (https://doi.org/10.17605/OSF.IO/YVN8F). Databases and scientific information portals will be searched for relevant articles. Data will be imported into EndNote and screened for duplicates. Remaining records will then be imported into Rayyan, and two review authors will evaluate the selection, with a third review author mediating any disagreement. Findings will be presented in the form of tables, charts, or figures.
Descriptors: Risk Factors; Coronary Disease; Cardiovascular Nursing.

RESUMO

Objetivo: Identificar questionários, escalas e instrumentos utilizados para avaliar o conhecimento sobre fatores de risco em pacientes com doença cardiovascular. **Método:** Esta revisão de escopo utilizará a metodologia de colaboração do Instituto Joanna Briggs (JBI) para revisões de escopo, seguindo as diretrizes descritas na extensão do Preferred Reporting Items for Systematic reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR). Este protocolo foi registrado na Open Science Framework (OSF): (https://doi.org/10.17605/OSF.IO/YVN8F). Bases de dados e portais de informação científica serão pesquisados em busca de artigos relevantes. Os dados serão importados para o EndNote e verificados quanto à duplicidade. Os registros restantes serão então importados para o Rayyan, e dois revisores avaliarão a seleção, com um terceiro revisor mediando qualquer discordância. Os resultados serão apresentados em forma de tabelas, gráficos ou figuras.
Descritores: Fatores de Risco; Doença das Coronárias; Enfermagem Cardiovascular.

INTRODUCTION

Cardiovascular diseases (CVDs) are widely recognized as the leading cause of death from noncommunicable diseases and conditions, as evidenced by recent Global Burden of Disease estimates[1]. In Brazil, this trend is similarly pronounced, highlighting the need for multi-level approaches to care that address both the complexity of health care and the prevalence of CVDs[2]. Such approaches should focus on reducing both the morbidity and mortality associated with CVDs and minimizing exposure to modifiable risk factors[3].

The current shift in the age structure of the population, characterized by prolonged aging, highlights the importance of risk factors potentially associated with the development and worsening of CVDs[4]. It

How to cite: Basegio KG, Moreira MGS, Helal L, Almeida Neto OP, Scolari FL, Henkel B, et al. Assessment of knowledge of risk factors in patients with cardiovascular disease: scoping review protocol. Online Braz J Nurs. 2024;23(Suppl 1):e20246808. https://doi.org/10.17665/1676-4285.20246808

is already well established in the literature that a few modifiable risk factors may account for more than 70% of CVD cases[3]. In the context of coronary heart disease, an important study was INTERHEART, which enrolled patients from 62 centers in 52 countries to assess the importance of risk factors associated with this disease on a global scale. In summary, this research identified nine modifiable risk factors that have the potential to reduce the risk of acute myocardial infarction by up to 90%[5].

Knowledge of an individual's cardiovascular risk can be useful in making clinical decisions about the intensity of preventive interventions and individualized management to control these factors[6]. Patients have an important role to play in this process, including adherence to treatment, significant lifestyle changes, monitoring, and decision-making in the event of clinical problems[7]. However, gaps in patient knowledge about CVD and its risk factors are a significant barrier to effective prevention and treatment[6]. Therefore, a solid understanding of the existing knowledge on this subject is fundamental for the implementation of more targeted and effective educational strategies and interventions aimed at reducing the incidence of CVD and its prevention[8].

The primary objective of this scoping review is to evaluate the existing literature to identify questionnaires, scales, and instruments used to assess risk factor knowledge in patients with CVD.

METHOD

Review question

What questionnaires, scales, or instruments are available in the literature to assess risk factor knowledge in patients with CVD?

Inclusion criteria

For eligibility criteria, we chose the PCCT mnemonic (P = participants; C = concept; C = context; T = types of evidence sources), which is indicated for scoping reviews and is available in Figure 1[9].

PCCT Component	Detailed criteria
Participants	Patients diagnosed with cardiovascular disease, aged 18 or older, regardless of gender or other demographic characteristics.
Concept	Studies that describe, evaluate, or use specific questionnaires, scales, or instruments to measure patients' knowledge of risk factors associated with cardiovascular disease.
Context	Studies conducted in any setting, including healthcare environments (e.g., clinics, outpatient centers, and hospitals), academic research, health education programs, and other venues where these questionnaires, scales, and instruments are used.
Types of evidence sources	Both primary and review studies published in English, Portuguese, or Spanish, without restrictions on the research approach (quantitative, qualitative, and/or mixed methods) or the year of publication.

Figure 1 - Scoping review eligibility criteria. Porto Alegre, RS, Brazil, 2023

Exclusion criteria

The following types of publications will be excluded: case reports, conference abstracts, editorials, reviews, opinion-based articles, and any articles without full text available in English, Portuguese, or Spanish.

Study design

This scoping review will be conducted using the Joanna Briggs Institute (JBI) Collaboration methodology and will adhere to the guidelines outlined in the PRISMA Extension for Scoping Reviews: Checklist and Explanation – Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) for reporting[9-10]. The review protocol has been registered on the Open Science Framework (OSF) platform, with the registration DOI: https://doi.org/10.17605/OSF.IO/YVN8F.

Search strategy and information sources

A comprehensive search strategy was developed to retrieve relevant research papers. Search was performed initially in databases such as PubMed and Web of Science by using

carefully selected keywords, descriptors, and free terms that align with the theme of this review. The search strategy was tailored to the specific features of each database and/or virtual library. Additionally, reference lists and citations of all selected studies will be reviewed to extract further relevant information. Databases and scientific information portals include Medical Literature Analysis and Retrieval System Online (MEDLINE/PubMed), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Excerpta Medica Database (Embase), Education Resources Information Center (ERIC), Scopus, Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Base de Dados em Enfermagem (BDENF), Scientific Electronic Library Online (SciELO), and Web of Science (Figure 2).

Source	Search string	Items found	Search date
PubMed/ MEDLINE	((((((((((((((((((((("Cardiovascular Diseases"[MeSH Terms]) OR ("Cardiovascular Diseases"[Title/Abstract])) OR ("Cardiac Event"[Title/Abstract])) OR ("Adverse Cardiac Event"[Title/Abstract])) OR ("Coronary Artery Disease"[Title/Abstract])) OR ("Cerebrovascular Disorders"[Title/Abstract])) OR ("Cerebrovascular Disease"[Title/Abstract])) OR ("Peripheral Arterial Disease"[Title/Abstract])) OR ("Heart Defects, Congenital"[Title/Abstract])) OR ("Venous Thrombosis"[Title/Abstract])) OR ("Pulmonary Embolism"[Title/Abstract])) OR ("Pulmonary Embolism"[MeSH Terms])) OR ("Heart Valve Diseases"[MeSH Terms])) OR ("Heart Valve Diseases"[Title/Abstract])) OR (Hypertension[Title/Abstract])) OR (Hypertension[MeSH Terms])) OR ("Venous Thrombosis"[MeSH Terms])) OR ("Heart Defects, Congenital"[MeSH Terms])) OR ("Peripheral Arterial Disease"[MeSH Terms])) OR ("Cerebrovascular Disorders"[MeSH Terms])) OR ("Coronary Artery Disease"[MeSH Terms])) AND (((((("Risk Factors"[MeSH Terms]) OR ("Risk Factors"[Title/Abstract])) OR ("Cardiovascular Risk Factors"[Title/Abstract])) OR ("Risk Factor"[Title/Abstract])) OR ("Health risk"[Title/Abstract])))) AND (((((((("Surveys and Questionnaires"[Title/Abstract]) OR ("Surveys and Questionnaires"[MeSH Terms])) OR ("Questionnaires and Surveys"[Title/Abstract])) OR (Survey[Title/Abstract])) OR (Questionnaire[Title/Abstract])) OR ("Validated Instrument"[Title/Abstract])) OR (Instrument[Title/Abstract])))) AND ((("Patients' Knowledge"[Title/Abstract]) OR (Knowledge[MeSH Terms])) OR ("Knowledge of Cardiovascular Risk"[Title/Abstract]))	103	13/10/2023
CINAHL	("Cardiovascular Diseases" OR "Cardiac Event" OR "Adverse Cardiac Event" OR "Coronary Artery Disease" OR "Cerebrovascular Disorders" OR "Cerebrovascular Disease" OR "Peripheral Arterial Disease" OR "Heart Defects, Congenital" OR "Venous Thrombosis" OR "Pulmonary Embolism" OR "Heart Valve Diseases" OR Hypertension) AND ("Risk Factors" OR "Cardiovascular Risk Factors" OR "Risk Factor" OR "Health risk") AND ("Surveys and Questionnaires" OR "Questionnaires and Surveys" OR Survey OR Questionnaire OR "Validated Instrument" OR Instrument) AND ("Patients' Knowledge" OR Knowledge)	330	13/10/2023

Embase	('Cardiovascular Diseases':ti OR 'Cardiac Event':ti OR 'Adverse Cardiac Event':ti OR 'Coronary Artery Disease':ti OR 'Cerebrovascular Disorders':ti OR 'Cerebrovascular Disease':ti OR 'Peripheral Arterial Disease':ti OR 'Heart Defects, Congenital':ti OR 'Venous Thrombosis':ti OR 'Pulmonary Embolism':ti OR 'Heart Valve Diseases':ti OR Hypertension:ti) AND ('Risk Factors':ti,ab,kw OR 'Cardiovascular Risk Factors':ti,ab,kw OR 'Risk Factor':ti,ab,kw OR 'Health Risk':ti,ab,kw) AND ((Surveys:ab,ti and Questionnaires:ab,ti OR Questionnaires:ab,ti) AND Surveys:ab,ti OR Survey:ab,ti OR Questionnaire:ab,ti OR 'Validated Instrument':ab,ti OR Instrument:ab,ti) AND ('Patients Knowledge':ti,ab,kw OR Knowledge:ti,ab,kw)	369	13/10/2023
ERIC	("Cardiovascular Diseases" OR "Cardiac Event" OR "Adverse Cardiac Event" OR "Coronary Artery Disease" OR "Cerebrovascular Disorders" OR "Cerebrovascular Disease" OR "Peripheral Arterial Disease" OR "Heart Defects, Congenital" OR "Venous Thrombosis" OR "Pulmonary Embolism" OR "Heart Valve Diseases" OR Hypertension) AND ("Risk Factors" OR "Cardiovascular Risk Factors" OR "Risk Factor" OR "Health Risk") AND ("Surveys and Questionnaires" OR "Questionnaires and Surveys" OR Survey OR Questionnaire OR "Validated Instrument" OR Instrument) AND ("Patients' Knowledge" OR Knowledge)	13	13/10/2023
Scopus	(TITLE ("Cardiovascular Diseases" OR "Cardiac Event" OR "Adverse Cardiac Event" OR "Coronary Artery Disease" OR "Cerebrovascular Disorders" OR "Cerebrovascular Disease" OR "Peripheral Arterial Disease" OR "Heart Defects, Congenital" OR "Venous Thrombosis" OR "Pulmonary Embolism" OR "Heart Valve Diseases" OR hypertension) AND ABS ("Risk Factors" OR "Cardiovascular Risk Factors" OR "Risk Factor" OR "Health Risk") AND ABS ("Surveys and Questionnaires" OR "Questionnaires and Surveys" OR Survey OR Questionnaire OR "Validated Instrument" OR Instrument) AND ABS ("Patients' Knowledge" OR Knowledge))	467	13/10/2023
LILACS	("Doenças Cardiovasculares" OR "Enfermedades Cardiovasculares" OR "Cardiovascular Diseases" OR "Doenças do Aparelho Circulatório" OR "Eventos Cardíacos Adversos" OR "Eventos Cardíacos" OR "Eventos Cardíacos Adversos Maiores" OR "Eventos Cardíacos Adversos Principais" OR "Doença da Artéria Coronariana" OR "Enfermedad de la Arteria Coronaria" OR "Coronary Artery Disease" OR "Doença Coronariana" OR "Doença Cerebrovascular" OR "Enfermedad Cerebrovascular" OR "Cerebrovascular Disease" OR "Doença Arterial Periférica" OR "Enfermedad Arterial Periférica" OR "Peripheral Arterial Disease" OR "Cardiopatias Congênitas" OR "Cardiopatías Congénitas" OR "Heart Defects, Congenital" OR "Trombose Venosa" OR "Trombosis de la Vena" OR "Venous Thrombosis" OR "Embolia Pulmonar" OR "Embolia Pulmonar" OR "Pulmonary Embolism" OR "Doenças das Valvas Cardíacas" OR "Enfermedades de las Válvulas Cardíacas» OR «Heart Valve Diseases" OR Hipertensão OR Hipertensión OR Hypertension) AND ("Fatores de Risco" OR "Factores de Riesgo" OR "Risk Factors" OR "Fator de Risco" OR "Fatores de Risco Cardiovasculares" OR "Riscos para a Saúde" OR "Riscos a Saúde") AND ("Inquéritos e Questionários" OR "Encuestas y Cuestionarios" OR "Surveys and Questionnaires" OR Inquérito OR Enquete OR Questionário OR Instrumento OR "Instrumento Validado") AND ("Conhecimento do Paciente" OR Conhecimento OR "Conhecimento do Risco Cardiovascular" OR Conocimiento OR Knowledge)	197	13/10/2023

BDENF	("Doenças Cardiovasculares" OR "Enfermedades Cardiovasculares" OR "Cardiovascular Diseases" OR "Doenças do Aparelho Circulatório" OR "Eventos Cardíacos Adversos" OR "Eventos Cardíacos" OR "Eventos Cardíacos Adversos Maiores" OR "Eventos Cardíacos Adversos Principais" OR "Doença da Artéria Coronariana" OR "Enfermedad de la Arteria Coronaria" OR "Coronary Artery Disease" OR "Doença Coronariana" OR "Doença Cerebrovascular" OR "Enfermedad Cerebrovascular" OR "Cerebrovascular Disease" OR "Doença Arterial Periférica" OR "Enfermedad Arterial Periférica" OR "Peripheral Arterial Disease" OR "Cardiopatias Congênitas" OR "Cardiopatías Congénitas" OR "Heart Defects, Congenital" OR "Trombose Venosa" OR "Trombosis de la Vena" OR "Venous Thrombosis" OR "Embolia Pulmonar" OR "Embolia Pulmonar" OR "Pulmonary Embolism" OR "Doenças das Valvas Cardíacas" OR "Enfermedades de las Válvulas Cardíacas» OR «Heart Valve Diseases" OR Hipertensão OR Hipertensión OR Hypertension) AND ("Fatores de Risco" OR "Factores de Riesgo" OR "Risk Factors" OR "Fator de Risco" OR "Fatores de Risco Cardiovasculares" OR "Riscos para a Saúde" OR "Riscos a Saúde") AND ("Inquéritos e Questionários" OR "Encuestas y Cuestionarios" OR "Surveys and Questionnaires" OR Inquérito OR Enquete OR Questionário OR Instrumento OR "Instrumento Validado") AND ("Conhecimento do Paciente" OR Conhecimento OR "Conhecimento do Risco Cardiovascular" OR Conocimiento OR Knowledge)	35	13/10/2023
SciELO	("Doenças Cardiovasculares" OR "Enfermedades Cardiovasculares" OR "Cardiovascular Diseases" OR "Doenças do Aparelho Circulatório" OR "Eventos Cardíacos Adversos" OR "Eventos Cardíacos" OR "Eventos Cardíacos Adversos Maiores" OR "Eventos Cardíacos Adversos Principais" OR "Doença da Artéria Coronariana" OR "Enfermedad de la Arteria Coronaria" OR "Coronary Artery Disease" OR "Doença Coronariana" OR "Doença Cerebrovascular" OR "Enfermedad Cerebrovascular" OR "Cerebrovascular Disease" OR "Doença Arterial Periférica" OR "Enfermedad Arterial Periférica" OR "Peripheral Arterial Disease" OR "Cardiopatias Congênitas" OR "Cardiopatías Congénitas" OR "Heart Defects, Congenital" OR "Trombose Venosa" OR "Trombosis de la Vena" OR "Venous Thrombosis" OR "Embolia Pulmonar" OR "Embolia Pulmonar" OR "Pulmonary Embolism" OR "Doenças das Valvas Cardíacas" OR "Enfermedades de las Válvulas Cardíacas» OR «Heart Valve Diseases" OR Hipertensão OR Hipertensión OR Hypertension) AND ("Fatores de Risco" OR "Factores de Riesgo" OR "Risk Factors" OR "Fator de Risco" OR "Fatores de Risco Cardiovasculares" OR "Riscos para a Saúde" OR "Riscos a Saúde") AND ("Inquéritos e Questionários" OR "Encuestas y Cuestionarios" OR "Surveys and Questionnaires" OR Inquérito OR Enquete OR Questionário OR Instrumento OR "Instrumento Validado") AND ("Conhecimento do Paciente" OR Conhecimento OR "Conhecimento do Risco Cardiovascular" OR Conocimiento OR Knowledge)	47	13/10/2023
Web of Science	("Cardiovascular Diseases" OR "Cardiac Event" OR "Adverse Cardiac Event" OR "Coronary Artery Disease" OR "Cerebrovascular Disorders" OR "Cerebrovascular Disease" OR "Peripheral Arterial Disease" OR "Heart Defects, Congenital" OR "Venous Thrombosis" OR "Pulmonary Embolism" OR "Heart Valve Diseases" OR Hypertension) AND ("Risk Factors" OR "Cardiovascular Risk Factors" OR "Risk Factor" OR "Health risk") AND ("Surveys and Questionnaires" OR "Questionnaires and Surveys" OR Survey OR Questionnaire OR "Validated Instrument" OR Instrument) AND ("Patients' Knowledge" OR Knowledge)	211	13/10/2023

Figure 2 - Description of search strategies carried out for each information source. Porto Alegre, RS, Brazil, 2023

Study selection
After the search strategy is executed, the gathered information from various sources will be imported into EndNote software, where duplicates will be removed. The records will then be imported into Rayyan (Intelligent Systematic Review) software, which facilitates reference import, organization, and study selection through blind peer review.
During the selection phase, titles and abstracts will be evaluated according to the inclusion criteria and the PCCT strategy defined for this scoping review. Following this, the researchers will conduct a detailed analysis of the selected texts, documenting any reasons for excluding studies as necessary.

Data extraction
Data will be analyzed in accordance with the recommendations of the Joanna Briggs Institute (JBI)[10]. Review authors KGB and MGSM will conduct the double-blind screening, with any disagreements resolved by a third review author (MALS).
Data from the selected studies included in the scoping review will be entered into a Microsoft Excel spreadsheet, organized by the following categories:

- **Publication information**: authors, year of publication, title, study design, objectives, DOI.
- **Country and setting**.
- **Participants**: Sample size, age, sex, and diagnosis.
- **Results**: Description of the main results.

Data analysis and presentation
Results of our research strategy will be reported by using the PRISMA-ScR diagram framework. Results will be presented in tables, graphs, or figures that address the research question and objectives outlined in this study.

CONFLICT OF INTERESTS
The authors have declared that there is no conflict of interests.

FUNDING
This study was supported by the Hospital de Clínicas de Porto Alegre (Research and Event Incentive Fund – FIPE/HCPA) – 22/0401.

REFERENCES

1. GBD. Diseases and Injuries Collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study. Washington: Institute for Health Metrics and Evaluation; 2020. https://doi.org/10.1016/s0140-6736(20)30925-9
2. Sleeman KE, de Brito M, Etkind S, Nkhoma K, Guo P, Higginson IJ, et al. The escalating global burden of serious health-related suffering: projections to 2060 by world regions, age groups, and health conditions. Lancet Glob Health. 2019;7(7):883-892. https://doi.org/10.1016/s2214-109x(19)-30172-x
3. Yusuf S, Joseph P, Rangarajan S, Islam S, Mente A, Hystad P, et al. Modifiable risk factors, cardiovascular disease, and mortality in 155 722 individuals from 21 high-income, middle-income, and low-income countries (PURE): a prospective cohort study. Lancet. 2020;395(10226):795-808. https://doi.org/10.1016/s0140-6736(19)32008-2
4. Visseren FLJ, Mach F, Smulders YM, Carballo D, Koskinas KC, Bäck M, et al. ESC Guidelines on cardiovascular disease prevention in clinical practice. Utrech: Department of Vascular Medicine; 2021. https://doi.org/10.1093/eurheartj/ehab484
5. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004;364(9438):937-52. https://doi.org/10.1016/s0140-6736(04)17018-9
6. Chukwuemeka UM, Okoro FC, Okonkwo UP, Amaechi IA, Anakor AC, Onwuakagba IU, et al. Knowledge, awareness, and presence of cardiovascular risk factors among college staff of a Nigerian University. Bull Fac Phys Ther. 2023;28(8). https://doi.org/10.1186/s43161-023-00119-w
7. Bhattad PB, Pacifico L. Empowering Patients: Promoting Patient Education and Health Literacy. 2022;14(7)e27336. https://doi.org/10.7759/cureus.27336
8. Negesa LB, Magarey J, Rasmussen P, Hendriks JML. Patients' knowledge on cardiovascular risk factors and asso-

ciated lifestyle behaviour in Ethiopia in 2018: A cross-sectional study. PLoS One. 2020;15(6):e0234198. https://doi.org/10.1371/journal.pone.0234198

9. Peters MDJ, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L, et al. Updated methodological guidance for the conduct of scoping reviews. Adelaide: JBI; 2020. https://doi.org/10.11124/jbies-20-00167

10. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ontário: Knowledge Translation Program, Li Ka Shing Knowledge Institute; 2018. https://doi.org/10.7326/m18-0850

AUTHORSHIP CONTRIBUTIONS
Project design: Basegio KG, Moreira MGS, Helal L, Almeida Neto OP, Scolari FL, Henkel B, Gaedke MÂ, Saffi MAL
Data collection: Basegio KG, Moreira MGS, Helal L, Saffi MAL
Data analysis and interpretation: Basegio KG, Moreira MGS, Helal L, Saffi MAL
Writing and/or critical review of the intellectual content: Basegio KG, Moreira MGS, Helal L, Almeida Neto OP, Scolari FL, Henkel B, Gaedke MÂ, Saffi MAL
Final approval of the version to be published: Basegio KG, Moreira MGS, Helal L, Almeida Neto OP, Scolari FL, Henkel B, Gaedke MÂ, Saffi MAL
Responsibility for the text in ensuring the accuracy and completeness of any part of the paper: Basegio KG, Moreira MGS, Helal L, Almeida Neto OP, Scolari FL, Henkel B, Gaedke MÂ, Saffi MAL