








# Quality of primary health care for older adults during the COVID-19 pandemic: a systematic review

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## Abstract

**Objective:** To evaluate the quality of primary healthcare services for older adults during the COVID-19 pandemic through studies evaluating health services. **Method:** A systematic literature review was conducted. The search for articles covered the databases Web of Science, Embase, Scopus, and Medline/Pubmed. Original scientific articles with a case-control or cross-sectional design, involving populations that included older adults, focusing on primary healthcare, and assessing the quality of health services were included. Exclusion criteria were studies without specific analysis for older adults, studies evaluating health access or economic evaluation of health. The risk of bias analysis was conducted according to JBI protocols, and data synthesis was performed using SWiM guidelines. **Results:** Seven studies were included in the review. The primary care services evaluated were mostly outpatient, with diverse quality assessment parameters related to individual care. The evaluation of quality identified a decrease in in-person consultations and visits, and an increase in the use of telehealth, with good satisfaction ratings among older adults. **Conclusion:** The studies highlighted the difficulties maintaining and accessing in-person services during the COVID-19 pandemic, which directly contributed to a reduction in consultations and exams, usage of and access to health services, and the quality of primary healthcare.

**Keywords:** Primary Health Care. Aged People. Aged 80 and Over. COVID-19.

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## INTRODUCTION

The aim of Primary Healthcare (PHC) is to provide accessible, comprehensive organized care that meets the health needs of users and the community. The main strategy centers on creating ties which allow continued care over the long-term<sup>1</sup>.

It is widely recognized that PHC constitutes the first level of care in health systems, and its scope of services entails providing services such as medical and nursing consultations, quality support using the risk classification scale, oral healthcare, dispensing and administration of medications, immunization, home visits, group activities, mental health care, etc. All these services are geared to meet the more common health needs of a given population<sup>2</sup>. Over time, the implementation of PHC has been influenced by a host of economic, political and cultural factors, reflecting the specific contexts, eras and different social actors involved<sup>3</sup>.

The Dawson report, published in 1920, is considered a landmark document in the formulation of PHC as a form of organizing public health systems into different levels of care. Under this model, the level of care must be able to resolve most health problems and serve as the main doorway to the health system, besides coordinate the healthcare network<sup>4</sup>.

Primary Healthcare differs to the biomedical model in its emphasis on promoting health and preventing disease as key pillars for effective, equitable health systems, contributing to an increased life expectancy. As population aging continues unabated in many countries, the challenges facing society regarding structuring healthcare networks grow<sup>5</sup>.

The care model needs to be in step with the changes in profile of diseases prevailing in the population and with the constant shifts in demographic and epidemiologic transitions, which are already showing the increase in prevalence and incidence of chronic non-communicable diseases (NCDs) and neurodegenerative disorders. In order to promote successful aging, as recommended by the World Health Organization (WHO), planning

strategies take account of these changes. This includes measures for monitoring chronic conditions, which require continued care, and also tracking changes in medications, dietary counseling, support for treatment adherence and access to information. Also, to ensure integrative care, the aspects involving the health of users in the territory need to be identified, revealing that a large contingent of older adults have different degrees of dependence and that many are cared for by family members and caregivers<sup>6</sup>. These groups should be supported by providing guidance to improve quality of life and tools for early detection of cognitive decline<sup>7</sup>.

Studies conducted by Grumbach et al.<sup>8</sup> show that PHC-based health systems have better outcomes and lower costs compared with other levels of care. In parallel, assessing the quality of services delivered, as highlighted by Moore et al.<sup>9</sup>, is crucial for improving processes and achieving positive outcomes in the lives of individuals. This involves assessing the structure, process and outcomes, with respect to the resultant human and financial resources of the actions performed. Lastly, the promotion of health and delivery of quality care to older adults, catering for their specific needs, plays a key role in the prevention, early diagnosis and management of common health conditions associated with aging<sup>10</sup>.

During the waves of the COVID-19 pandemic, PHC drove actions of prevention and tracking of the disease and suffered major strain on physical resources and human capital, leading to scant attention dedicated to other conditions and practices<sup>11</sup>. This created the need to analyze the quality of health care delivered to users during the COVID-19 pandemic and the strategies adopted to mitigate the deleterious impact of this process. This knowledge can ensure that future pandemics can be tackled without adversely affecting the other services offered. Therefore, the present study was prompted by the need to analyze and understand the performance of PHC services delivered to older users during the COVID-19 pandemic, and to help inform the devising of future strategies for dealing with public health emergencies.

## METHOD

The present systematic review was conducted according to the core items of guidelines for reporting systematic reviews (PRISMA), as described in Page et al.<sup>12</sup>, and was registered on PROSPERO under protocol number CRD42022359711. The following guiding question was adopted: what was the quality of Primary Care for older adults during the COVID-19 pandemic in studies evaluating health services? The question was devised using the PICO (Population, phenomenon of Interest, Context) strategy which aids the defining of questions for reviews. For the purpose of the present study, the acronym was defined as follows: Population = older adults; Interest = the

quality of healthcare delivered during the COVID-19 pandemic; and Context = primary care.

The bibliographic search was guided by controlled descriptors from the Medical Subject Headings (MeSH) and *Descritores em Ciências da Saúde* (DecS) “idoso” (aged), “idoso de 80 anos ou mais” (older adults aged 80 and over), “qualidade da assistência à saúde” (health care quality), “qualidade, acesso e avaliação da assistência à saúde” (health care quality, access and evaluation), “atenção primária à saúde” (primary health care), “indicadores de qualidade em assistência à saúde” (health care quality indicators) and “COVID-19”, using the Boolean operators AND OR. The systematic search strategy is presented in Chart 1.

**Chart 1.** Strategy for searching the databases. Recife, Pernambuco state, Brazil, 2023.

DATABASE	SEARCH STRATEGIES
WEB OF SCIENCE	aged (Topic) OR aged 80 AND over (Topic), AND Quality Indicators, Health Care (Topic) OR quality of Health Care (Topic), OR Health Care Quality, Access, AND Evaluation (Topic).
EMBASE	'health care quality'/exp or (access, and 'evaluation study'/exp)', coronavirus disease 2019'/exp,'primary healthcare'/exp, 'aged'/exp, or 'very elderly'/exp.
SCOPUS	(( KEY ( "Quality Indicators" ), OR KEY ( "Quality of Health Care" ), OR KEY ( "Access, and Evaluation" ) ), AND ( KEY ( "covid-19" ) ), AND ( KEY ( "primary health care" ) ), AND ( ( KEY ( aged ), OR KEY ( "aged, 80 and over " ) ) ).
MEDLINE/PUBMED	((COVID-19[MeSH Terms]) AND (((Quality Indicators, Health Care[MeSH Terms]), OR (Quality of Health Care[MeSH Terms])), OR (Health Care Quality, Access, AND Evaluation[MeSH Terms])), AND ((aged[MeSH Terms]), OR (aged 80 AND over[MeSH Terms])), AND (Primary Health Care[MeSH Terms])).

Source: Author elaboration, 2024.

The searches were performed on 8th September 2022 and no constraints on publication period or language were placed, so as to retrieve the maximum number of relevant studies possible.

Article screening was carried out in two stages. Abstract reading and full article reading was done by two of the authors of the present study in an independent fashion. Any disagreements were settled by a third reviewer at a consensus meeting. Initially, a pilot study of the first 100 abstracts was conducted to refine the inclusion and exclusion

criteria. Subsequently, the remaining abstracts were read by two reviewers independently.

Inclusion criteria were original scientific articles, with cohort, case-control or cross-sectional designs. The study population contained older adults ( $\geq 60$  years). Studies chosen were published from 2019 onwards and assessed PHC services in the context investigated.

The exclusion criteria were studies not specifically analyzing older individuals, studies assessing health

economics, literature reviews, editorials, opinion studies, publications prior to 2019, clinical protocols and evaluations of medications.

The Kappa coefficient was employed to analyze degree of agreement between the two researchers and validation of the protocol criteria. A Kappa statistic of 0.88 was found for the pilot of the first 100 abstracts<sup>13</sup>. The Kappa value for the reading of abstracts and full reading of articles was 0.80, representing almost perfect agreement<sup>13</sup>. Data were extracted from articles by pairs of reviewers independently, using a protocol devised by the researchers.

Data were extracted for the following variables: author(s), title, year of publication, language, country, objective, study population, age studied, study design, study period, sample size, service type evaluated, service quality evaluation parameter, study venue, measure of service quality, outcome of service quality evaluation, outcome of service evaluation.

Based on the extracted data, a risk of bias analysis of the studies was performed using JBI's Critical Appraisal tools available for use in systematic reviews. The checklists for cohort and cross-sectional studies were applied. Data synthesis was performed based on the Synthesis Without Meta-Analysis-SWiM guideline<sup>14</sup> and subdivided into two subgroups: parameters for evaluation of quality; and type of service evaluated, with results presented in the form of charts.

## DATA AVAILABILITY

The complete dataset underpinning the results of the present study is available upon request from the corresponding author of the article.

## RESULTS

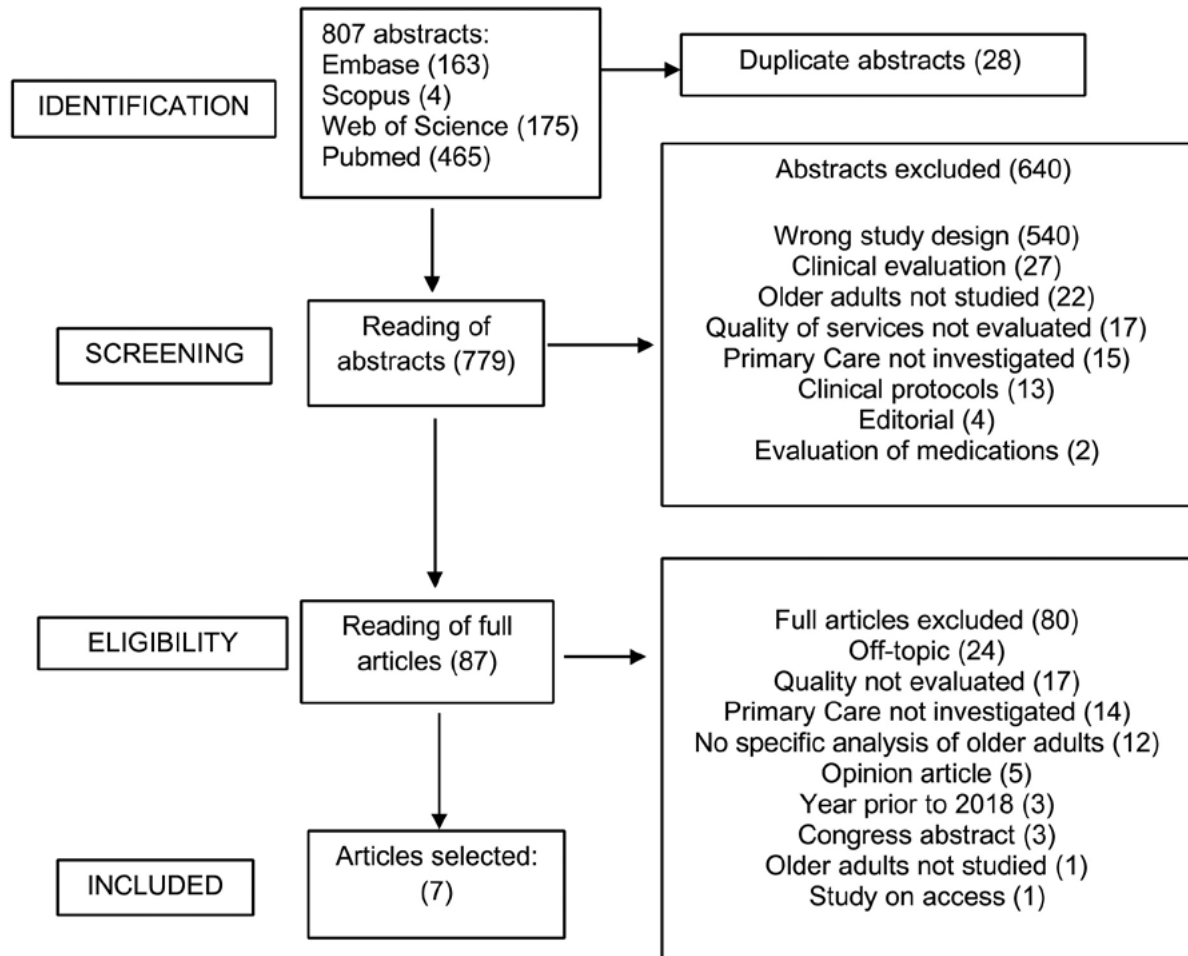
The search for articles led to the retrieval of 807 studies which, after removal of 28 duplicates,

gave a total of 778. A further 641 studies were excluded during the first stage of screening. There was reviewer disagreement on 110 articles, which were then read by a third reviewer at a consensus meeting, with 87 selected for the next stage (Figure 1). After full reading of the articles, independently, 77 articles were excluded, with disagreement on 3 cases, subsequently examined by a third reviewer. Following a consensus meeting, agreement was reached and 2 of these articles were included in the review.

A total of seven articles were included in this systematic review, comprising four cohort and three cross-sectional studies. The analysis of risk of bias of the studies reviewed showed that most reported the essential details, such as sample size, target population and statistical analyses, justifying the relevance of the analysis of the quality of the services in question (Chart 2).

The country of study encompassed a total of five different nations, namely: the USA, Canada, Finland, the UK, and Spain, spanning the two continents of North America and Europe. All of the articles reviewed were published in English between 2021 and 2022. Sample sizes ranged from 513 to 2,363,742 participants. In terms of age groups of the populations investigated, most of the studies adopted an age cut-off of 65 years or over. However, four articles opted for a broader age range from 10 to 80 years or older. In these studies, the older population accounted for over half of the total participants. With regard to study venues, most of the studies reviewed took place in PHC facilities (Chart 3).

The PHC services evaluated were mostly outpatient facilities, with the inclusion of one study about vaccination services and another investigating telemedicine. A variety of different parameters were used for evaluating the quality of services. The vast majority were related to services involving individual care, such as vaccination coverage, number of follow-up consultations, interruptions in the care process, referrals to mental health services, mortality levels and satisfaction with telemedicine care service (Chart 4).



**Figure 1.** Flow diagram of study selection process. Recife, Pernambuco state, Brazil, 2023.

Source: Author elaboration, 2023

**Chart 2.** Analysis of risk of bias using Joanna Briggs Institute Checklist. Recife, Pernambuco state, Brazil, 2023.

Joanna Briggs Institute Checklist for Cohort studies											
Study (year)	1	2	3	4	5	6	7	8	9	10	11
Rand et al. <sup>26</sup> (2021)	yes	yes	yes	no	not applicable	no	unclear	not applicable	not applicable	not applicable	yes
Steeg et al. <sup>27</sup> (2022)	yes	yes	yes	not applicable	not applicable	no	yes	not applicable	not applicable	not applicable	yes
Smith et al. <sup>28</sup> (2022)	yes	yes	not applicable	not applicable	not applicable	no	yes	not applicable	yes	not applicable	yes
Inglin et al. <sup>29</sup> (2022)	yes	yes	yes	yes	yes	no	yes	yes	yes	not applicable	yes
Joanna Briggs Institute Checklist for Cross-sectional studies											
Study (year)	12	13	14	15	16	17	18	19			
Blackstone et al. <sup>30</sup> (2002)	unclear	yes	yes	yes	not applicable	not applicable	not applicable	yes			
Bronskill et al. <sup>31</sup> (2022)	yes	yes	yes	not applicable	not applicable	not applicable	not applicable	yes			
Almeida et al. <sup>32</sup> (2021)	yes	yes	yes	yes	yes	yes	yes	yes			

Source: Author elaboration, 2023.

1.Were the two groups similar and recruited from the same population? 2.Were the exposures measured similarly to assign people to both exposed and unexposed groups? 3.Was the exposure measured in a valid and reliable way? 4.Were confounding factors identified? 5.Were strategies to deal with confounding factors stated? 6.Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)? 7.Were the outcomes measured in a valid and reliable way? 8.Was the follow up time reported and sufficient to be long enough for outcomes to occur? 9.Was follow up complete, and if not, were the reasons to loss to follow up described and explored? 10.Were strategies to address incomplete follow up utilized? 11.Was appropriate statistical analysis used? 12.Were the criteria for inclusion in the sample clearly defined? 13.Were the study subjects and the setting described in detail? 14.Was the exposure measured in a valid and reliable way? 15. Were objective, standard criteria used for measurement of the condition? 16.Were confounding factors identified? 17.Were strategies to deal with confounding factors stated? 18.Were the outcomes measured in a valid and reliable way? 19.Was appropriate statistical analysis used?

**Chart 3.** Characteristics of studies included in systematic review. Recife, Pernambuco state, Brazil, 2023.

Author/Year	Country	Design	Sample size	Study population	Study venues
Rand et al. <sup>26</sup> (2021)	USA	Cohort	513	Patients 19-80+	Outpatient clinic in San Francisco hospital for Veterans
Steeg et al. <sup>27</sup> (2022)	UK	Cohort	52987	Patients 10-80+	UK primary care
Smith et al. <sup>28</sup> (2022)	USA	Cohort	14406	Older adults ≥65 years	Community and academic health systems
Inglin et al. <sup>29</sup> (2022)	Finland	Cohort	11458	Older adults ≥70 with type 2 diabetes	North Karelia Social and Health Services
Blackstone et al. <sup>30</sup> (2002)	USA	Cross-sectional	23745	Patients 18-80+	Charlottesville, VA, in Family Medicine Department.
Bronskill et al. <sup>31</sup> (2022)	Canada	Cross-sectional	2363742	Older adults ≥ 65 years	Data from Ontario health system
Almeida et al. <sup>32</sup> (2021)	Spain	Cross-sectional	2017	Older adults ≥ 65 years	Users of Vitrius Family Health Unit

Source: Author elaboration (2023).

**Chart 4.** Evaluation of quality of health services. Recife, Pernambuco state, Brazil, 2023.

Author/Year	Type of service evaluated	Parameter of quality evaluation	Outcome of quality evaluation
Rand et al. <sup>26</sup> (2021)	Vaccination	Vaccination coverage	Increase in vaccination coverage for veterans after intervention.
Steeg et al. <sup>27</sup> (2022)	Outpatient service	3-month follow-up by multiprofessional health team and increase in referrals to mental health services.	Follow-up services remained unchanged with patterns similar to prepandemic levels.
Smith et al. <sup>28</sup> (2022)	Outpatient service	Reduction in mortality of patients with follow-up.	Services had increased mortality with decrease in number of Medicare users and increase in telehealth.
Inglin et al. <sup>29</sup> (2022)	Outpatient service	Number of follow-up consultations of patients in PHC.	Reduction in face-to-face appointments and increase in remote consultations, and reduction in emergency visits led to worsening in evaluation of service.
Blackstone et al. <sup>30</sup> (2002)	Anamnesis in outpatient service	Proportion of patients with up-to-date depression screening record.	Improved completion of records during screenings.
Bronskill et al. <sup>31</sup> (2022)	Outpatient service	Interruptions in health service care.	Excess mortality on service evaluation.
Almeida et al. <sup>32</sup> (2021)	Telemedicine service	Satisfaction with service – Likert scale (1-very unsatisfied to 5-very satisfied)	Users were satisfied with telemedicine care service

Source: Author elaboration, 2023.

The studies exposed the difficulties in maintaining services during the COVID-19 pandemic. The crisis directly impacted the quality of care, with a decline in the number of in-person Medicare users, and a drop in emergency visits during lockdown period and then a rebound effect. Also, two of the studies reported increased mortality of the older population followed for chronic NCDs and neurodegenerative and immune preventable diseases.

An increase in vaccination coverage was achieved among veterans, as well as improved work processes, such as completeness of screening records. One study reported maintenance of the number of outpatient consultations, with broadly similar patterns to pre-pandemic levels. An increase in the use of telehealth services was reported in two articles, as a technological tool for serving the population during lockdown, while another study reported good satisfaction of older users with the service.

## DISCUSSION

The quality of healthcare for older patients during the COVID-19 pandemic in Primary Healthcare (PHC) services was investigated in different regions including North America and Europe. However, it is important to note these regions represent developed countries, characterized by different health and economic systems, extensive availability of more robust resources, and greater access to technology. Although analyses carried out in these regions are valuable, they may be poorly representative of the global panorama because they lack studies in developing or low-income countries<sup>15</sup>.

The absence of studies in these regions can give rise to gaps in knowledge on the specific challenges faced by these nations with regard to care for older individuals during the pandemic. This situation may also hamper the identification of effective

strategies for improving healthcare in settings with limited resources<sup>16</sup>.

Outpatient services offered in PHC worldwide play a crucial role, particularly in controlling chronic non-communicable diseases (NCDs) and neurodegenerative diseases, which have a major impact on increased mortality of older adults<sup>17</sup>.

During the COVID-19 pandemic, these services faced unique challenges, particularly regarding adaptation to remote working. Although teleconsultation proved a promising alternative for care continuity, some health conditions require a more face-to-face closer approach, especially in cases requiring physical examinations or specific procedures<sup>18</sup>.

This transition to a distance care model raised questions as to the adequacy and efficacy of monitoring chronic conditions and over the ability to deliver preventive interventions effectively. Consequently, many older patients may have faced difficulties managing their health conditions during the pandemic, highlighting the need for adaptive innovative strategies for ensuring continuity and quality of health care in crisis situations<sup>19</sup>.

The studies conducted in North America and Europe revealed some of the main challenges during the COVID-19 pandemic, allowing the evaluation of the quality of healthcare gleaned from understanding the responses to these challenges. The implementation of teleconsultation played a crucial role in maintaining care continuity, reducing the burden on health systems, while minimizing risk of exposure to the virus<sup>20</sup>.

However, difficulty accessing technology emerged as a major obstacle to implementing teleconsultation, raising concerns over the equity of access, particularly among older users. The main challenge encountered by these studies was a lack of familiarity with the technologies, access to appropriate devices and usability in this group. Nevertheless, on the evaluation of quality, teleconsultation favored the reduction of exposure of older adults to health services overloaded by COVID-19 cases, representing an experience widely replicated on a global level<sup>21,22</sup>.

Another challenge seen in the studies was the low vaccination coverage during the pandemic, representing an obstacle in promoting and prevention of the spread of the virus and a significant threat to public health, especially for more vulnerable groups, such as older adults<sup>23</sup>.

Lower vaccination rates can lead to an increase in immune preventable diseases, such as influenza, pneumonia and other serious respiratory infections, which pose a particular threat to older adults due to their susceptibility to serious complications and associated mortality<sup>24</sup>.

Amid this scenario, it is imperative to implement effective strategies encouraging vaccination to ensure rates of vaccination coverage are restored and maintained at adequate levels. This includes the running of public information campaigns at strategic locations where older adults meet up to clear up doubts and dispel myths about the vaccines, to highlight their importance in preventing serious diseases, and emphasize their proven safety and efficacy, expanding the vaccination coverage in the study<sup>25</sup>.

However, it is important to underscore that the dearth of studies in lower income countries may constitute a major limitation in this analysis, given that the lack of comparisons of the strategies adopted in these regions precludes a deeper understanding of the global response to the pandemic.

Given the present study centered on the analysis of literature within the descriptors constructed based on the search strategy, comparing against different study designs or the grey literature may have contributed to an approach centered on countries with different publications and concerns with evaluating these services.

Indeed, the lack of studies in Brazil enabling the identification of specific strategies in the Brazilian health system amid the pandemic also represents a limitation. Most of the studies reviewed were conducted in Europe and the USA, limiting the generalization of results to other world regions.

Importantly, the selection of articles, omitting those in poorer countries or grey literature, represents



a bias masking the understanding of the true situation of the adverse effects of the COVID-19 pandemic on the older population.

## CONCLUSION

Important lessons were learned from the COVID-19 pandemic on the need to reorganize health systems worldwide. The outbreak also revealed weaknesses in aspects of health promotion and prevention of illness. The low vaccination coverage among older adults had a significant impact on the increased mortality in this population group, prompting the implementation of strategic measures to address this issue. Measures ranging from low-cost informational actions to heavy investment were adopted to reach this target public.

There was a clear need to expand and valorize PHC as a key public health instrument, a strategy of utmost importance which featured in all of the studies reviewed.

One of the main findings identified in these studies was increased mortality among older patients and low vaccination coverage, underscoring the urgent need to strengthen public health policies and promote effective actions to protect more vulnerable groups during public health emergencies, such as the COVID-19 pandemic.

## AUTHOR CONTRIBUTIONS

- Camila Caroline da Silva - conceptualization, writing and data interpretation.
- Vanessa de Lima Silva - design, conceptualization, review and supervision.
- Gessica Cazuya de Medeiros – data interpretation.
- Jonathas de Lima Arruda - data interpretation.
- Rafael da Silveira Moreira - critical review.

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