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Physical activity and associated factors during the COVID-19 pandemic in Brazilian university students: a scoping review

Atividade física e fatores associados durante a pandemia de COVID-19 em universitários brasileiros: revisão de escopo

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ABSTRACT

This study aimed to map the national publications that address the variable physical activity and associated factors among Brazilian university students during the COVID-19 pandemic. It is a scoping review based on original studies developed and published in Brazil between 2020 and 2023. They were conducted during the COVID-19 pandemic scenario and indexed in the databases Web of Science, PubMed, Scopus, LILACS (Latin American and Caribbean Literature in Health Sciences), and Google Scholar. By identifying the different approaches and factors associated with the subject, the descriptive synthesis explored the subtopics "level of physical activity and sedentary behavior," "mental health," and "sleep". Out of the 1,180 initial papers, 11 papers composed the synthesis, featuring different sampling patterns, ranging from 68 to 5,720 students, and taking place in several Brazilian states. Despite the geographical variety, few studies were conducted in the North and Midwest regions. The prevalence of physical inactivity among students ranged from 40.0% to 49.3%, and social isolation and restrictions contributed to this trend. Mental health was also affected, with the symptoms of anxiety and depression being more common among the inactive. On the other hand, active students reported better mental health. The relationship between physical activity and sleep was unclear, but the pandemic intensified sleep problems in general. In short, future studies are necessary to explore causes, effects, and regional influences. Combining qualitative and quantitative methods may offer a more comprehensive perspective on the students' experiences regarding physical activity during public health crises.

Keywords: Literature review; Lifestyle; Health promotion; Public health.

RESUMO

Neste estudo objetivou-se mapear as publicações nacionais que abordam a variável atividade física e fatores associados entre estudantes universitários brasileiros durante a pandemia de COVID-19. Trata-se de uma revisão de escopo a partir de estudos originais, desenvolvidos no Brasil, publicados entre 2020 e 2023, realizados no cenário clínico da pandemia de COVID-19 e indexados nas bases de dados: Web of Science, PubMed, Scopus, LILACS (Literatura Latino-Americana e do Caribe em Ciências da Saúde) e Google Scholar. Ao constatar-se diferentes abordagens e fatores associados a problemática, a síntese descritiva foi explorada em subtópicos "nível de atividade física e comportamento sedentário" "saúde mental" e "sono". Dos 1.180 artigos iniciais, 11 artigos compuseram a síntese, abrangendo distintos padrões amostrais, variando de 68 a 5.720 estudantes, conduzidos em diferentes estados brasileiros. Apesar dessa variedade regional, observou-se uma escassez de estudos nas regiões Norte e Centro-Oeste. A prevalência de inatividade física entre os estudantes variou de 40,0% a 49,3%. O isolamento social e as restrições contribuíram para essa tendência. A saúde mental também foi acometida, com sintomas de ansiedade e depressão mais comuns entre os inativos. Por outro lado, os estudantes ativos relataram melhor saúde mental. A relação entre atividade física e sono não foi clara, mas a pandemia intensificou os problemas de sono em geral. Em suma, futuras pesquisas são relevantes para explorar causas, efeitos e influências regionais. A combinação de métodos qualitativos e quantitativos podem oferecer perspectivas mais abrangentes das experiências dos estudantes em relação à atividade física durante crises de saúde pública.

Palavras-chave: *Literatura de revisão como assunto; Estilo de vida; Promoção da saúde; Saúde pública.*

Introduction

Physical inactivity is associated with the development of chronic noncommunicable diseases, which increase mortality rates, risk of hospital admissions, and psychosocial problems. Moreover, it imposes a sizeable burden on public health systems on a global

scale[1-4]. During the pandemic of coronavirus disease 2019 (COVID-19)[5,6], studies conducted by the World Health Organization[7] found that 27% of the world's adult population does not meet the recommended level of weekly physical activity[8,9], which consists of at least 150 minutes of moderate aerobic activity or 75 minutes of vigorous activity per week.

The level of physical activity can be described as the sum of how much energy an individual spends in their usual daily physical activity: at leisure, moving, in occupational or academic activities, and household chores[10]. This condition can be assessed in terms of intensity, frequency, type, and duration using an array of objective or subjective techniques, like questionnaires, interviews, physiological markers, motion sensors, accelerometers, and heart rate monitors, among others, applied singularly or jointly[11,12].

In Brazil, public health measures like social isolation and restrictions on sports and leisure activities affected the lifestyle of the Brazilian population significantly[13]. Given the unstable nature of the routine of university students, it is likely that they were especially affected by this problem. Before the pandemic, a series of studies had already identified high levels of physical inactivity among Brazilian university students[14-17]. The academic context, notable for high levels of stress, anxiety, and academic pressure, raises even more the concern with decreasing physical activity levels, considering that students face constant challenges to balance their physical and mental health[18].

In this scenario, the lack of physical activity can be correlated with individual, environmental, and sociocultural factors[19], including aspects like socioeconomic conditions, time availability, access to spaces for physical activities[20], sleep quality[21], sedentary lifestyle[22], academic stress, anxiety, social pressure[23], among others.

There is a lack of records of published reviews that explore knowledge gaps, trends, and possible intervention strategies to propose physical activities for the student population during or after the COVID-19 pandemic. Given the territorial extension of Brazil, it is crucial to promote a more guided debate on the situation of physical activity in this population, considering regional particularities and different realities. Thus, this study aimed to map the national publications that assessed the level of physical activity and associated factors of Brazilian university students during the COVID-19 pandemic.

Methods

This study is a scoping review based on the following guiding question: what scientific evidence has been produced and summarized about the level of physical activity and associated factors of Brazilian university students during the COVID-19 pandemic? This review mapped evidence and built descriptions in five stages: (1) defining the guiding question and conducting systematic searches; (2) assessing and filtering titles and abstracts; (3) extracting the selected papers from databases; (4) reading and assessing the texts in full; and (5) developing the descriptive synthesis and mapping the evidence[24].

The reporting in this review followed the theoretical premises of the Preferred Reporting Items for Systematic Extension for Scoping Reviews (PRISMA-ScR) checklist[25] and the manual proposed by the Joanna Briggs Institute (JBI)[26]. The study was registered on the OpenScience Framework platform (DOI 10.17605/OSF.IO/T9BYR).

This synthesis defines the following eligibility criteria regarding the identification of participants, concept, context, and types of evidence[26] respectively: (I) studies conducted with university students published from March 1, 2020 to June 1, 2023; (II) studies that assessed the level of physical activity and associated factors; (III) studies conducted in a Brazilian geographical context during the COVID-19 pandemic; (IV) original manuscripts published by scientific journals with ample representation in the area of physical activity and health or interdisciplinary, indexed in the Coordination for the Improvement of Higher Education Personnel QUALIS/CAPES rating in the four-year period (2017-2020). Systematic reviews, meta-analyses, editorial letters, viewpoints, experience reports, editorial comments, and similar works were excluded. Due to the use of gray literature, including studies from Google Scholar, studies not indexed in the QUALIS/CAPES system were not considered to ensure the quality and scientificity of the evidence analyzed.

The records were obtained on June 7, 2023, from the following databases: Web of Science, PubMed, Scopus, Latin American and Caribbean Literature (LILACS), and Google Scholar, using the Publish or Perish software.

The search for studies used controlled descriptors based on the Health Sciences Descriptors (DeCS) in Portuguese and English: "physical activity" and "university students," combined with "COVID-19" with

the Boolean operator AND. Moreover, complementary searches were conducted combining the aforementioned terms with the descriptors "Brazil" and "Brazilian" to identify studies with data collected predominantly in Brazil. The search combinations employed were: atividade física AND estudantes universitários AND COVID-19 and physical activity AND college students AND COVID-19 AND (Brazil OR Brazilians), with no quotation marks (Appendix I).

Two researchers (JG, LMV) searched for and selected the studies independently, and read the titles and abstracts of the papers found. In case of disagreement, a third examiner was consulted to reach a consensus (TMV). After filtering, the data were organized in the Mendeley® reference manager version 1.19.5, and the duplicates were removed.

After selecting the potential papers, the researchers (JG and LMV) read the studies in full, considering the inclusion criteria and the objectives established for the synthesis. During this stage, each paper was carefully assessed, and those deemed relevant were selected for the review.

Considering this is a scoping review, the risk of bias assessment of the studies included was discarded. To analyze the evidence, the data were organized in Microsoft Excel® spreadsheets and Microsoft Word® for the categorization and quantitative and qualitative analysis of the following variables: authors, study location, sample, year of publication, type of recruitment, method (research design), and instruments.

The description of study characteristics and methodological strategies were presented in tables. Then, the researchers (JG, TMV, and LMV) recorded the information about each evidence, identifying results and recommendations. Due to finding different approaches and factors associated with the subject, the descriptive synthesis was divided into three categories: (I) level of physical activity and sedentary behavior; (II) level of physical activity and mental health; and (III) level of physical activity and sleep.

Results

The search strategies used by the researchers in the four electronic databases: Web of Science, PubMed, Scopus, Latin American and Caribbean Literature (LILACS), and Google Scholar returned 1,180 papers. After excluding the 23 duplicate records, the titles and abstracts of the remaining 1,157 were assessed. After this filtering, 29 papers remained to be read in full. Among these, 18 were discarded due to theme incompatibility, data collected before March 1, 2020, or because they were published in journals not indexed in the Qualis/Capes system. Thus, 11 original papers with a sample of Brazilian university students composed this scoping review, as shown in Figure 1.

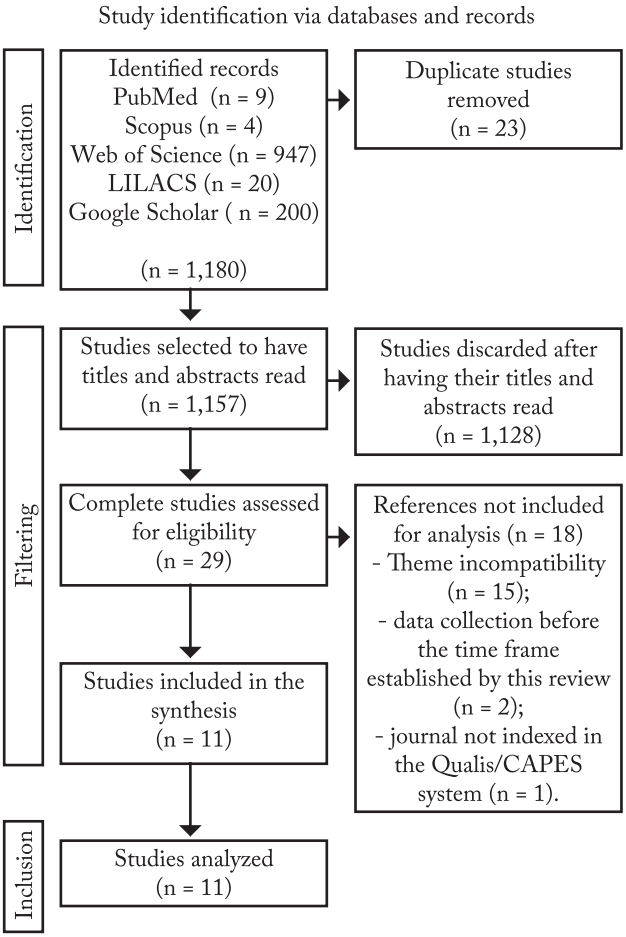

Figure 1 – Flowchart of the study selection of the scoping review

The studies analyzed in this review sought to identify the level of physical activity and associated factors among Brazilian university students during the COVID-19 pandemic. Specifically, the relationships between the levels of physical activity and mental health[27-30], sleep[28,31,32] and sedentary behavior[33-37] were investigated.

The studies included in the synthesis were distributed geographically in several Brazilian states (Table 1). The state of Pernambuco stood out with two studies (n = 2), followed by Minas Gerais (n = 1) and other states with a single study: Alagoas, Bahia, Federal District, Paraná, Rio Grande do Sul, São Paulo, Santa Catarina, and Piauí. The Northeast region had the most studies

(n = 4), followed by the Southeast (n = 3) and South (n = 3). On the other hand, the North and Midwest regions were only approached in the multicenter study conducted by Dumith et al.[33].

The sample sizes of the studies ranged from 68 to 5,720 university students. The largest sample found in this review was in the multicenter study conducted in universities from different regions of Brazil, including Amazonas, Mato Grosso, Rio Grande do Sul, Rio de Janeiro, and Pernambuco. Every study included female and male participants. Regarding the year of publication, 63.6% of the papers (n = 7) were published in 2022, 18.2% (n = 2) in 2021, 9.09% (n = 1) in 2020, and the rest were published in 2023.

Table 1 – Characteristics of the studies included (n = 11).

References	Location	Sample/ students	Year of publication
Araújo et al.[34]	Bahia	68	2022
Cetolin et al.[31]	Santa Catarina	208	2022
Dumith et al.[33]	Multicenter*	5,720	2022
Lopes & Nihei[32]	Paraná	1,579	2023
Mendes et al.[27]	São Paulo	218	2021
Moura et al.[35]	Minas Gerais	102	2022
Oliveira et al.[28]	Pernambuco	163	2022
Ribeiro et al.[36]	Piauí	137	2022
Santos & Azambuja[37]	Rio Grande do Sul	721	2020
Santos et al.[29]	Pernambuco**	1,167	2022
Teixeira et al.[30]	Alagoas	75	2021

* The study took place in five Brazilian regions; ** According to the authors, students from throughout the country participated, but 87% were from Pernambuco.

Table 2 shows that all papers included in the review adopted a cross-sectional approach with quantitative data analysis. Regarding the recruitment of participants, all studies used online surveys as the data collection method. The non-probability convenience sampling was employed in 90.9% of the papers (n = 10), while 9.1% (n = 1) adopted the snowball sampling strategy.

Different instruments were used to measure the university students' level of physical activity. The International Physical Activity Questionnaire (IPAQ) - short form was employed by several studies[27,29,31,34,35]. IPAQ's long form was used in one study[28]. Some papers also employed self-authored questionnaires to assess the level of physical activity of university students, like Santos & Azambuja[37], Teixeira et al.[30], Dumith et al.[33], Lopes & Nihei[32], and Ribeiro et al.[36]. These instruments were chosen by the researchers according to how suitable they were to their specific goals.

Table 2 – Methodological design of the studies analyzed (n = 11).

References	Sampling	Type of study	Instruments
Araújo et al.[34]	Convenience	Cross-sectional	IPAQ – short form – Online
Cetolin et al.[31]	Convenience	Cross-sectional	IPAQ – short form – Online
Dumith et al.[33]	Convenience	Cross-sectional	Self-authored questionnaire
Lopes & Nihei[32]	Convenience	Cross-sectional	Self-authored questionnaire
Mendes et al.[27]	Convenience	Cross-sectional	IPAQ – short form – Online
Moura et al.[35]	Convenience	Cross-sectional	IPAQ – short form – Online
Oliveira et al.[28]	Convenience	Cross-sectional	IPAQ – long form – Online
Ribeiro et al.[36]	Convenience	Cross-sectional	Self-authored questionnaire
Santos & Azambuja[37]	Convenience	Cross-sectional	Self-authored questionnaire
Santos et al.[29]	Snowball	Cross-sectional	IPAQ – short form – Online
Teixeira et al.[30]	Convenience	Cross-sectional	Self-authored questionnaire

Discussion

The synthesis of this review points to a significant increase in physical inactivity among Brazilian university students during the COVID-19 pandemic. The analyses of these publications highlighted the relationship between physical activity, mental health, sleep, and sedentary behavior. Given the possible benefits of physical activity for the students' health, it is essential to investigate effective strategies to promote it, especially when facing public health crises. Thus, implementing preventive measures and targeted interventions to deal with the negative effects of physical inactivity during and after the COVID-19 pandemic may contribute to reflecting on the students' long-term well-being.

Characteristics of the studies reviewed

Looking at the geographical location of the studies reveals that several Brazilian regions were approached. However, the absence of studies in the North and Midwest regions reveals a research gap concerning the level of physical activity among university students during the COVID-19 pandemic in these specific areas. This gap provides an opportunity for future studies to explore these regions, providing a more comprehensive view of the subject.

Regarding the type of study adopted, all manuscripts included in the review were cross-sectional and used a quantitative approach. The convenience sam-

pling technique was predominant to select participants, with the data collected through online forms. Although cross-sectional studies provide an instantaneous view of the investigated population and are suitable for analyzing associations between variables, it is worth noting that they fail to establish cause-and-effect relationships between phenomena. However, these studies provide a statistics-based "photograph" of the subject, which may be further explored in greater depth.

Considering the complexity of the subject and the need to understand the objective and subjective experiences of university students, a suggestion is to conduct more scientific studies with a mixed approach, combining qualitative and quantitative techniques. This complementary approach would allow a more comprehensive view of the effects of active lifestyles and their impact on the health of these students. Combining qualitative and quantitative methods could indicate a deeper understanding of individual experiences, social contexts, and subjective factors that influenced the practice of physical activity during the COVID-19 pandemic.

Level of physical activity and sedentary behavior

In general, the Brazilian scientific studies analyzed revealed that between 40.0% and 49.3% of university students did not reach the minimum weekly time of physical activity recommended by the World Health Organization during the pandemic[27,29-33,36,37]. Another trend observed was the significant increase in the prevalence of physical inactivity comparing before and during the social isolation measures. These results were reported by Santos & Azambuja[37], Oliveira et al.[28], Ribeiro et al.[36], and Santos et al.[29], which assessed students who participated exclusively in remote classes.

Studies whose samples contained mostly Physical Education students showed that they are active or very active[34,35]. These results corroborate the systematic review conducted by Silva et al.[38], which found evidence that this population is mostly active in Brazil. Among those considered physically active, the most frequent activities were walking/running, resistance exercises, street running, cycling, and team sports[35].

The sedentary behavior of the university students evaluated intensified during the critical moments of the COVID-19 pandemic. Increased screen time and prolonged use of computer/smartphone or similar devices were the sedentary behaviors most mentioned in the studies[35-37]. The average sitting time rose by at least four hours a day[35,36], exceeding eight hours in some cases[27]. Moreover, an increase in academic activities contributed to sedentary behavior[37].

These results are concerning, seeing that physical activity is crucial in promoting health and overall well-being. As Dumith et al.[33] and Lopes & Nihei[32], point out, it is important to highlight the need to consider this variable in the long term to monitor the university population and foster student engagement in regular physical activity programs on university campuses. Implementing effective strategies to encourage physical activity among university students is crucial to mitigate the negative effects of physical inactivity during the pandemic and promote healthier lifestyles.

Physical activity and mental health

The studies reviewed indicated that the decrease in the levels of physical activity during the COVID-19 pandemic may have contributed to reducing quality of life and increasing levels of depression and stress[29]. During this period, most students reported that measures of social isolation and restrictions affected their mental health[28]. These findings are disturbing, as they suggest a negative association between the students' physical inactivity and mental health during the pandemic.

On the other hand, the studies analyzed indicated that those considered physically active had fewer symptoms of anxiety and depression during the COVID-19 pandemic[27]. These results suggest a protective relationship between the regular practice of physical activity and the mental health of university students. Teixeira et al.[30] found a moderate to weak correlation between the time practicing physical activity and the level of depression and anxiety, indicating that the shorter the time practicing physical activity, the more severe the level of depression and anxiety.

These findings reinforce the importance of physical activity as a protective factor for the mental health of university students. The regular practice of physical activity may help reduce symptoms of anxiety and depression, improve psychological well-being, and improve quality of life.

Physical activity and sleep

Data collected at the critical moment of the COVID-19 pandemic among health students in mid-2020 found no association between the level of physical activity and sleep quality. Both physically active and inactive students already had sleep problems or disorders[27,28].

This evidence suggests that other factors related

to the daily routine, like stress, anxiety, and lifestyle changes, may have a more significant impact on the students' quality of sleep. Restrictions to outdoor activities, increased screen time, and concerns about health and the future may have contributed to worsening sleep quality among university students during the pandemic. Therefore, longitudinal studies with representative samples are relevant to better understanding the effects of physical activity on sleep quality over time.

However, it is worth recognizing the limitations of this study. Despite the wide scope of the databases employed to find evidence, other sources of information like theses, dissertations, and manual searches in specific journals or in the references of the selected studies could have been explored more deeply. These considerations may have led to the exclusion of relevant publications indirectly. Most studies used convenient samples and slightly less than half self-report instruments, which may induce selection and memory bias. Therefore, the results should be interpreted with caution.

Finally, the studies reviewed revealed that a significant portion of the students did not meet the weekly recommended time of physical activity. The studies also indicated that the increased physical inactivity during the pandemic was associated with worse mental health and more symptoms of anxiety and depression. On the other hand, students who remained physically active reported less severity of these symptoms. These findings reinforce the importance of physical activity as a protective factor for the mental health of university students.

In summary, a suggestion is that future studies address the gaps identified in this study, like investigating the relationship between physical activity, mental health, and sleep quality in different regions of Brazil, including the North and the Midwest. Longitudinal and representative sample studies are necessary to understand better the effects of physical activity in this population.

Conflict of interest

The authors declare no conflict of interest.

Authors' contribution

Goveia JC: Conceptualization, Methodology, Data Analysis, Data Curation, Writing of the original manuscript, Writing - review and editing, Approval of the final version of the manuscript. Vargas TM: Data Analysis, Data Curation, Writing of the original manuscript, Approval of the final version of the manuscript. Cantorani JRH: Conceptualization, Writing - Review and edition, Approval of the final version of the manuscript. Pedroso B: Conceptualization, Writing - Review and edition, Approval of the final version of the manuscript. Vargas LM: Conceptualization, Methodology, Data analysis, Data curation, Writing of the original manuscript, Writing - review and editing, Approval of the final version of the manuscript.

Statement regarding the use of artificial intelligence tools in the process of writing the paper

The authors did not use artificial intelligence tools in writing the manuscript.

Availability of research data and other materials

The data are available on demand from the reviewers.

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Appendix 1 – Search strategies of the scoping review

Search strategies	
Extraction date	07/06/2023
Combination	atividade Física AND estudantes universitários AND COVID-19 physical Activity AND college students AND COVID-19 AND (Brazil OR Brazilians) physical activity AND college students AND COVID-19 AND Brazil OR Brazilians

Web of Science

Descriptors and keywords	Number of studies found
#1 ALL FIELDS = (atividade física AND estudantes universitários AND COVID-19))	0
#2 ALL FIELDS = (physical activity AND college students AND COVID-19 AND (Brazil OR Brazilians))	14
#3 (physical activity AND college students AND COVID-19 AND Brazil OR Brazilians) (All Fields) AND 2020 OR 2021 OR 2022 OR 2023 (Publication Years)	933

PUBMED

Descriptors and keywords	Number of studies found
#1 (“atividade”[All Fields] OR “atividades”[All Fields]) AND “Fisica”[All Fields] AND (“estudantes”[All Fields] AND “universitarios”[All Fields]) AND (“covid 19”[All Fields] OR “covid 19”[MeSH Terms] OR “covid 19 vaccines”[All Fields] OR “covid 19 vaccines”[MeSH Terms] OR “covid 19 serotherapy”[All Fields] OR “covid 19 nucleic acid testing”[All Fields] OR “covid 19 nucleic acid testing”[MeSH Terms] OR “covid 19 serological testing”[All Fields] OR “covid 19 serological testing”[MeSH Terms] OR “covid 19 testing”[All Fields] OR “covid 19 testing”[MeSH Terms] OR “sars cov 2”[All Fields] OR “sars cov 2”[MeSH Terms] OR “severe acute respiratory syndrome coronavirus 2”[All Fields] OR “ncov”[All Fields] OR “2019 ncov”[All Fields] OR ((“coronavirus”[MeSH Terms] OR “coronavirus”[All Fields] OR “cov”[All Fields])	0
#2 (“exercise”[MeSH Terms] OR “exercise”[All Fields] OR (“physical”[All Fields] AND “activity”[All Fields]) OR “physical activity”[All Fields]) AND ((“college”[All Fields] OR “college s”[All Fields] OR “colleges”[All Fields]) AND (“student s”[All Fields] OR “students”[MeSH Terms] OR “students”[All Fields] OR “student”[All Fields] OR “students s”[All Fields])) AND (“covid 19”[All Fields] OR “covid 19”[MeSH Terms] OR “covid 19 vaccines”[All Fields] OR “covid 19 vaccines”[MeSH Terms] OR “covid 19 serotherapy”[All Fields] OR “covid 19 nucleic acid testing”[All Fields] OR “covid 19 nucleic acid testing”[MeSH Terms] OR “covid 19 serological testing”[All Fields] OR “covid 19 serological testing”[MeSH Terms] OR “covid 19 testing”[All Fields] OR “covid 19 testing”[MeSH Terms] OR “sars cov 2”[All Fields] OR “sars cov 2”[MeSH Terms] OR “severe acute respiratory syndrome coronavirus 2”[All Fields] OR “ncov”[All Fields] OR “2019 ncov”[All Fields] OR ((“coronavirus”[MeSH Terms] OR “coronavirus”[All Fields] OR “cov”[All Fields]) AND 2019/11/01:3000/12/31[Date - Publication])) AND (“brazil”[MeSH Terms] OR “brazil”[All Fields] OR “brazil s”[All Fields] OR “brazils”[All Fields] OR (“brazilian people”[Supplementary Concept] OR “brazilian people”[All Fields] OR “brazilians”[All Fields] OR “brazilian”[All Fields]))	9
#3* ((“exercise”[MeSH Terms] OR “exercise”[All Fields] OR (“physical”[All Fields] AND “activity”[All Fields]) OR “physical activity”[All Fields]) AND ((“college”[All Fields] OR “college s”[All Fields] OR “colleges”[All Fields]) AND (“student s”[All Fields] OR “students”[MeSH Terms] OR “students”[All Fields] OR “student”[All Fields] OR “students s”[All Fields])) AND (“covid 19”[All Fields] OR “covid 19”[MeSH Terms] OR “covid 19 vaccines”[All Fields] OR “covid 19 vaccines”[MeSH Terms] OR “covid 19 serotherapy”[All Fields] OR “covid 19 nucleic acid testing”[All Fields] OR “covid 19 nucleic acid testing”[MeSH Terms] OR “covid 19 serological testing”[All Fields] OR “covid 19 serological testing”[MeSH Terms] OR “covid 19 testing”[All Fields] OR “covid 19 testing”[MeSH Terms] OR “sars cov 2”[All Fields] OR “sars cov 2”[MeSH Terms] OR “severe acute respiratory syndrome coronavirus 2”[All Fields] OR “ncov”[All Fields] OR “2019 ncov”[All Fields] OR ((“coronavirus”[MeSH Terms] OR “coronavirus”[All Fields] OR “cov”[All Fields]) AND 2019/11/01:3000/12/31[Date - Publication])) AND (“brazil”[MeSH Terms] OR “brazil”[All Fields] OR “brazil s”[All Fields] OR “brazils”[All Fields])) OR (“brazilian people”[Supplementary Concept] OR “brazilian people”[All Fields] OR “brazilians”[All Fields] OR “brazilian”[All Fields]))	18.935

* The described ones were not employed because they presented result generalization.

SCOPUS

Descriptors and keywords	Number of studies found
#1 TITLE-ABS-KEY (atividade AND física AND estudantes AND universitários AND covid-19)	0
#2 TITLE-ABS-KEY (physical activity AND college students AND COVID-19 AND (Brazil OR brazilian))	2
#3 TITLE-ABS-KEY (physical activity AND college students AND COVID-19 AND Brazil OR brazilian)	2

LILACS

Descriptors and keywords	Number of studies found
#1 TÍTULO, RESUMO, ASSUNTO = atividade física AND estudantes universitários AND COVID-19	11
#2 TÍTULO, RESUMO, ASSUNTO = physical Activity AND college students AND COVID-19 AND (Brazil OR Brazilians)	2
#3 TÍTULO, RESUMO, ASSUNTO = physical activity AND college students AND COVID-19 AND Brazil OR Brazilians	7

Google Scholar via Publish of Perish

Descriptors and keywords	Number of studies found
#1 (atividade Física AND estudantes universitários AND COVID-19) OR (physical Activity AND college students AND COVID-19 AND (Brazil OR Brazilians))	200 first results 200