








The impact of social withdrawal on the COVID-19 pandemic in the care of cardiac patients in a University Hospital of the SUS-Brazil

O impacto do isolamento social na pandemia da COVID-19 no atendimento de pacientes cardíacos em um Hospital Universitário do Sistema Único de Saúde (SUS)

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ABSTRACT

Introduction: Social distancing in the COVID-19 pandemic has led to changes in habits, sedentary lifestyles, stress, poor diet and late medical care, favoring the development or worsening of cardiovascular diseases (CVD). **Objectives:** To verify possible changes in the number of consultations, daily hospitalizations and days of hospitalization, as well as in cardiac health care, diagnoses of new cases of CVD and to identify heart diseases with changes in incidence. **Methods:** 214 medical records of patients with CVD seen at a University Hospital from March 2019 to February 2020 (before the pandemic) and from March 2020 to February 2021 (during the pandemic) were analysed. Data regarding number of consultations, daily hospitalizations, hospitalization days, personal pathological history, and diagnoses were interpreted. **Results:** The average number of consultations showed a decrease from 0.83 to 0.61 consultations per patient, thus indicating a significant reduction of 26.50 % ($p < 0.03$). There was also a significant reduction of 27.11 % in the total number of consultations for the cardiology outpatient clinic between the periods before and during the social isolation of the COVID-19 pandemic. In contrast, the number of daily hospitalisations ($0.60 \times 0.55/\text{day}$) and number of hospitalisation days (2.63×2.54 days) respectively, did not change between the same periods. **Conclusion:** The results highlight the concern about delayed or minimized medical care during the pandemic. It is essential to warn patients about the risks in the absence of medical care and life changes in confinement, to implement strategies for health promotion and prevention of disease exacerbations.

Keywords: Cardiovascular diseases; Social withdrawal; COVID-19; Health care.

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No conflict of interest.

RESUMO

Introdução: O isolamento social durante a pandemia da COVID-19 levou a mudanças de hábitos, sedentarismo, estresse, má alimentação e cuidados médicos tardios, favorecendo o desenvolvimento ou agravamento de doenças cardiovasculares (DCV). **Objetivos:** Verificar possíveis alterações no número de consultas, internações diárias e dias de internação, bem como nos cuidados com a saúde cardíaca, diagnósticos de novos casos de DCV e identificar cardiopatias com alterações na incidência. **Métodos:** Foram analisados 214 prontuários de pacientes com DCV atendidos em um hospital universitário no período de março de 2019 a fevereiro de 2020 (antes da pandemia) e de março de 2020 a fevereiro de 2021 (durante a pandemia). Foram interpretados dados relativos ao número de consultas, internamentos diários, dias de internamento, antecedentes patológicos pessoais e diagnósticos. **Resultados:** O número médio de consultas apresentou uma diminuição de 0,83 para 0,61 consultas por paciente, indicando assim uma redução significativa de 26,50% ($p < 0,03$). Houve também uma redução significativa de 27,11% no número total de consultas para o ambulatório de cardiologia entre os períodos antes e durante o isolamento social da pandemia da COVID-19. Em contrapartida, o número de internamentos diários (0,60 x 0,55/dia) e o número de dias de internamento (2,63 x 2,54 dias) não se alteraram entre os mesmos períodos. **Conclusão:** Os resultados evidenciam a preocupação com o atraso ou minimização dos cuidados médicos durante a pandemia. É fundamental alertar os pacientes sobre os riscos da ausência de cuidados médicos e das alterações na vida durante o confinamento, além de implementar estratégias de promoção da saúde e prevenção de exacerbações da doença.

Palavras-chave: Doenças cardiovasculares; Isolamento social; COVID-19; Assistência à saúde.

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INTRODUCTION

In 2019, a new form of the coronavirus (SARS-CoV-2) emerged, characterizing an epidemic of acute respiratory infections. Individuals contaminated by SARS-CoV-2 over 60 years of age and with comorbidities, such as cardiovascular disease (CVD), usually develop more severe forms of COVID-19¹.

Besides being an aggravating factor of coronavirus infection, CVD represents the group of diseases with the highest mortality worldwide^{1,2}. Its main causes today are smoking, alcoholism, poor diet, obesity, diabetes, dyslipidaemia, and sedentarism³.

In an extensive cross-sectional study⁴ of more than 600 adult patients who tested positive for COVID-19 and were treated either at home or in hospitals in the Bangladesh region in September 2021, the authors found that over 80%

of the patients treated at home had a severe infection and that there was a direct link between the worsening of the disease and the lack of adequate hospital care (considering factors such as family income, the number of comorbidities, and the lack of first-rate hospital care). The study concluded that first-rate hospital care, through the drug protocol proposed by the World Health Organisation, and oxygen therapy, significantly reduced the discomfort and treatment time caused by the disease in hospitalised patients in a city in Bangladesh.

In another important and revealing retrospective study⁵ involving almost 1,200 patients affected by COVID-19 in Iran, the authors showed that patients with lower levels of physical activity, greater sleep disturbances, and unhealthy eating patterns were those who were more severely affected by COVID-19 and had a longer recovery time. The authors concluded that physical activity and sleep quality predicted

the severity of COVID-19, and physical activity and dietary patterns predicted recovery time from COVID-19.

Social withdrawal in the pandemic exerted an intense effect on the population's health, with massive changes in lifestyle, such as increased sedentary lifestyle, smoking, and anxiety, which can lead to the development of CVD, hypertension, and obesity^{6,7}. Sedentary lifestyle is the main modifiable risk factor for CVD, since physical exercise influences the reduction of existing vascular lesions and blood pressure, in addition to protection against oxidative stress, reducing the incidence of CVD^{8,9}.

In this context, even during a pandemic scenario, heart diseases cannot be put on the back burner. In view of the social restriction measures, an analysis of the consequences of isolation in heart patients is of great importance for the evaluation of possible health problems.

A few previous studies in Brazil and Latin America have signalled a reduction in the number of hospital visits and cardiovascular hospitalisations, as well as a decrease in the demand for medical care in general during the COVID-19 pandemic¹⁰⁻¹⁵. During the COVID-19 pandemic, there has been growing concern about the decrease in medical care for heart patients, raising questions about the rationality behind this trend¹⁶. According to the authors, the pandemic has brought with it a series of challenges for healthcare systems, including the need to reallocate resources to address the health crisis, which may have directly impacted the availability of care for other medical conditions, such as CVD.

This rationality in the allocation of resources during the pandemic can be understood in the light of the triage and prioritization model adopted by health systems. As proposed by a recent study¹⁷, in crisis situations such as the COVID-19 pandemic, limited resources should be directed towards those most likely to benefit from treatment, considering not only the severity of the disease but also survivability. In this context, patients with severe COVID-19 may have been prioritized over those with chronic conditions such as CVD, resulting in a reduction in care for these patients.

However, it is important to emphasize that the decrease in medical care for patients with heart disease during the pandemic could have significant consequences, increasing the risk of complications and mortality associated with these conditions. It is therefore essential to find a balance between the response to the pandemic and the continuity of care for other chronic diseases, ensuring that all patients receive the necessary attention and treatment.

This condition heightens concern about the risks of postponing seeking medical care during the period of social isolation in the pandemic.

However, there was little data in Brazil regarding the number of days of hospitalization, and when found, there was no significant difference¹⁸. Considering the need for continuous monitoring of heart disease patients, the aim of this study was to verify the impact of social withdrawal during the COVID-19 pandemic on the alteration of number of consultations, daily hospitalizations and days of

hospitalization, as well as on cardiac health care, diagnoses of new cases of CVD, and to identify the main heart diseases that underwent changes in incidence.

METHODS

This is a primary, cross-sectional, observational, non-interventionist, retrospective, analytical and non-controlled study, with an applied and explanatory purpose. As for the technical procedure, it is cross-sectional epidemiological documental research, through the analysis of medical records.

The study was submitted to the National Research Ethics Committee (Brazilian CEP-CONEP System) under number CAEE 47910521.1.0000.5143 and was approved by CEP No. 5143, according to authorization No. 4.838.334. The study was conducted in accordance with CNS resolution 466/12 and its subsequent supplements. Moreover, the study dispensed with the use of the informed consent form, since the data were collected from medical records, without the need for interviews or any kind of direct or indirect contact with patients.

The research was conducted in an important regional university hospital accredited to the Public Health Service (*Sistema Único de Saúde* – SUS) network, in the southern region of the state of Minas Gerais (MG), Brazil, through descriptive analysis of medical records¹⁸.

A survey of 295 medical records of patients with CVD seen at the hospital in the period between March 2019 and February 2021 was conducted. The medical records provided were of the conventional, non-electronic type. From this total number of records, those whose patients died (about 60 records) had already been excluded, since these records cannot be released for research. From the total number of medical records, 81 were excluded for not meeting the inclusion criteria of the study. Therefore, the sample used to collect information and to perform the statistical analysis comprised 214 medical records.

For this, the medical records of the cardiology outpatient clinic were analysed and selected for data collection¹⁸. The data collection forms to analyse medical records were used. This is a common and effective approach in clinical and epidemiological research, allowing for the systematization and organization of information relevant to the study¹⁹. According to the authors, the importance and validity of using standardized forms to collect data from medical records, guaranteeing the quality and consistency of the data obtained for analysis and interpretation, has already been demonstrated in the literature.

The data collected comprised: personal data, number of consultations and hospitalizations, physical condition, eating habits, clinical diagnosis, comorbidities, vital signs, and laboratory tests in the period mentioned above, divided into two phases: before the pandemic (from March 2019 to February 2020) and during social isolation (March 2020 to February 2021).

Thus, data collection was composed of four phases: (1) survey and selection of medical records of patients with CVD seen at the hospital in the determined period; (2) exclusion of medical records that did not fit the study criteria; (3) collection of data from medical records from a list of information predetermined by the researchers; and (4) arrangement of the collected data in a spreadsheet for organization into groups. After collection, the data were organized in a spreadsheet for later statistical analysis.

As inclusion criteria, we considered the medical records of people diagnosed with CVD in the determined periods, from 18 years of age and not infected by coronavirus. As exclusion criteria, we considered medical records of patients who presented changes in lifestyle habits not related to the impact of the coronavirus pandemic and patients affected by comorbidities other than cardiovascular.

STATISTICAL ANALYSIS

Descriptive statistical treatment was carried out (frequency, proportion and means, and standard deviation of quantitative variables) with the aim of characterizing the sample, and relative and absolute frequency analysis of categorical variables (age group, sex) and the nominal variable (pathological history). The Kolmogorov Smirnov normality test was performed for quantitative outcome variables (number of consultations and number of hospitalizations before and during the pandemic, number of days of hospitalization before and during the pandemic) and the normality of the data was verified. The parametric Student's t-test was then used to test the differences between the average number of consultations and number of hospitalizations before and during the pandemic. Student's t-test is the most suitable test for comparing means between two groups when the data has a normal distribution. This is why it was chosen. The level of statistical significance was set at 5.00 % for all tests ($p < 0.05$)¹⁸. The tests were carried out using SPSS 20.0 software (Statistical Package for the Social Sciences inc., Chicago, IL, USA).

RESULTS

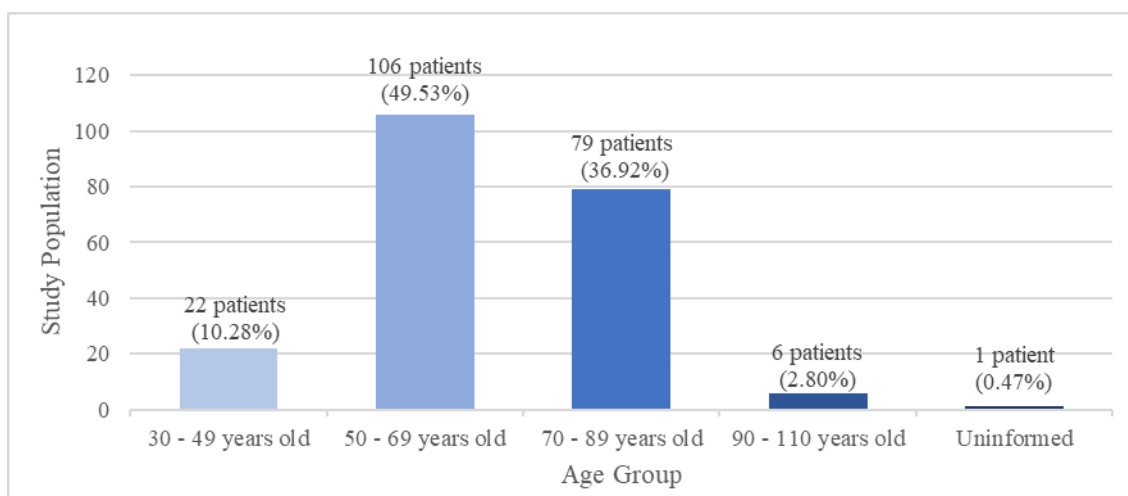
The profile of patients whose records were analysed was 56.50 % being male. The age of the patients ranged from 35 to 106 years old. The age range of patients was predominantly the 50 to 69 years range, with 49.53 %. The mean age was 66.51 years (SD = 13.00), with only 1.40 % being younger than 40 years. The age range of patients is shown in Figure 1.

The data on personal pathological history showed a predominance of hypertension with 34.52 % and, in contrast, only 5.58 % were obese. However, no associations were found between the variable's personal pathological history, daily hospitalizations, and days of hospitalization. The data concerning the personal pathological history are shown in Figure 2.

Of the total number of patients whose records were analysed, 58.88 % had consultations before the social withdrawal period imposed by the pandemic. There was a significant ($p < 0.05$) reduction in the total number of consultations to the cardiology outpatient clinic of 27.11 % between the periods before and during the social isolation of the COVID-19 pandemic. The data concerning the patients attended and hospitalizations over the period evaluated are shown in Figure 3.

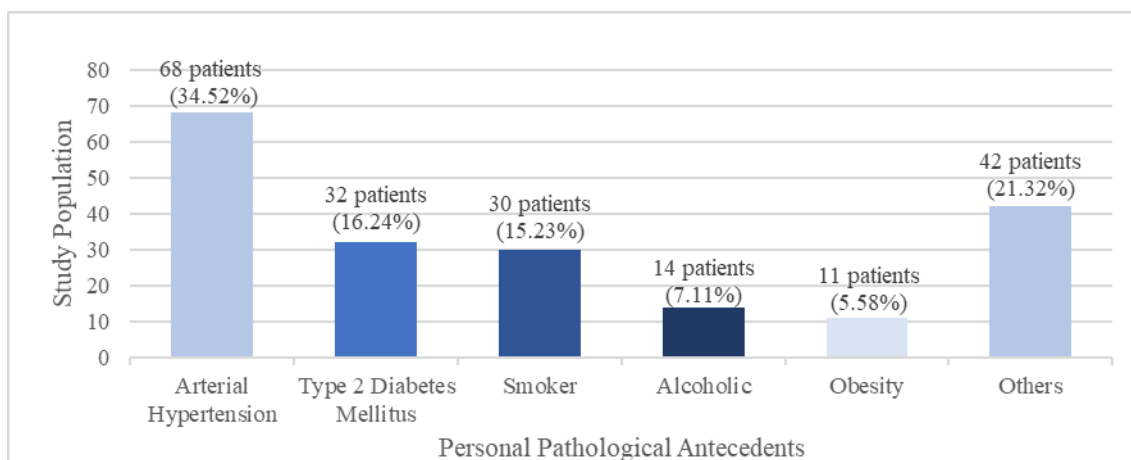
The results also reveal a significant reduction of 26.50 % in the number of consultations per patient during the social withdrawal period: an average of 0.83 vs 0.61 consultations per patient in the pre-social withdrawal period, against during the social withdrawal period respectively ($p < 0.02$). No significant alterations were observed in the mean number of daily hospitalizations between the records analysed in each of the two periods (pre 0.60 vs post 0.55) nor for the mean number of days of hospitalization between the two periods (pre 2.63 vs post 2.54). The data concerning these comparisons are shown in Table 1.

The most frequent diagnoses were acute myocardial infarction (AMI), heart failure (HF), heart diseases, and

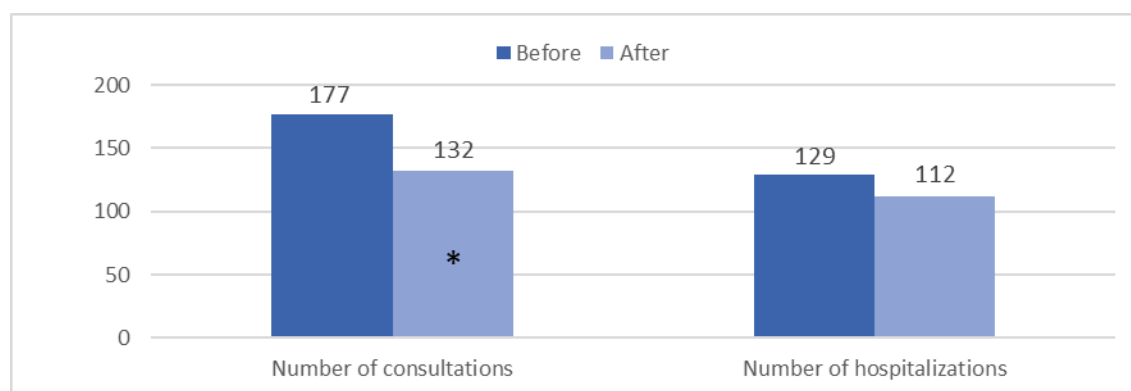


Legend: Absolute values and percentages of the total number of medical records evaluated (descriptive statistics).

Figure 1. Graph of the distribution of the study population according to age group.



Legend: Absolute values and percentages of the total number of medical records evaluated (descriptive statistics). **Figure 2.** Graph of the distribution of the study population in relation to the personal pathological antecedents.



Legend: Values in absolute numbers within each evaluated period of 365 days. *Significant reduction of total number of consultations comparing the periods ($p < 0.05$ paired t -Test).

Figure 3. Graph of the number of consultations and hospitalizations, before and during the pandemic period.

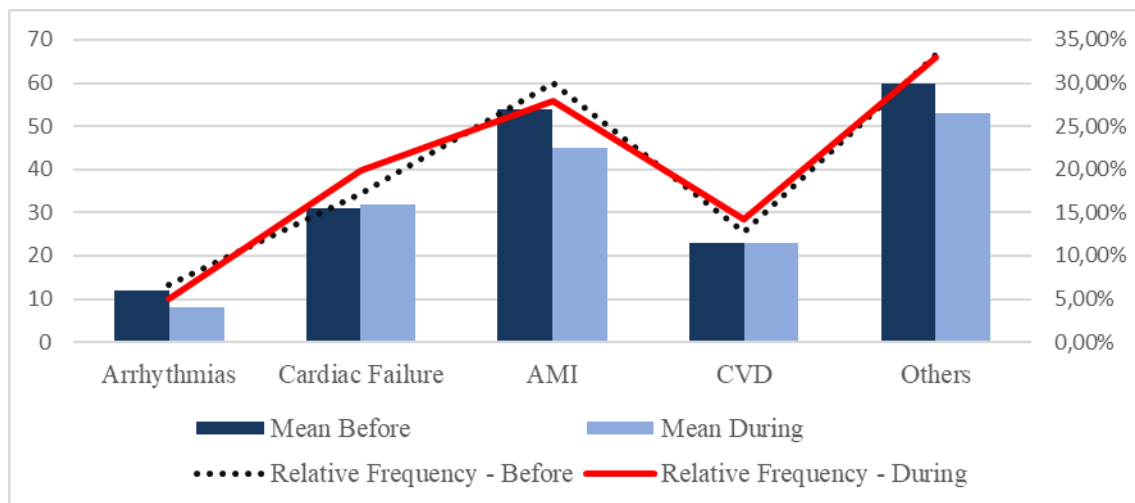
arrhythmias, respectively. For arrhythmias, atrial fibrillation and atrial flutter were considered; for HF, both preserved and reduced ejection fraction were considered; for AMI, both without and with ST-segment elevation were considered; and for heart diseases, valvular and ischemic heart disease, acute coronary syndrome, unstable angina, left bundle branch block, cardiogenic shock, pericarditis, and junctional bradycardia were considered. A decrease was observed in the relative frequency of 1.67 % in the diagnoses of arrhythmias and 2.00 % of AMI when comparing the period before and during social withdrawal, while there was an increase of 2.78 % in the relative frequency of HF diagnoses and 1.22 % of heart disease. The data concerning absolute and relative frequencies of the four main diagnoses are shown in Figure 4.

Finally, the new diagnosed cases of CVD showed a small percentage increase from 12.78 % to 14.00 % between the pre and during the pandemic, but without statistical significance.

Table 1. Paired t - test comparing averages of consultations, hospitalizations, and days of hospitalization between the periods before and during social distancing.

Variables	Difference between Averages			t-value	p-value
	Difference	95%CI	Averages		
Number of Queries A and D	0.21	0.02 0.40	2.20	0.02*	
Number of Hospitalizations A and D	0.05	-0.10 0.21	0.69	0.48	
Number of days of hospitalization A and D	0.08	-0.89 1.07	0.17	0.86	

Legend: A = before social isolation; D = during social isolation; CI = Confidence Intervals. *Significant difference in the number of consultations between periods A and D ($p < 0.02$).



Legend: Even without statistically significant differences, the relative frequencies show different behaviours, which can mask worrying public health conditions ($p < 0.05$ paired t -Test).

Figure 4. Graph comparing the frequency of the 4 prevalent diagnoses in the study, in the period before and during social withdrawal.

DISCUSSION

CVDs are influenced by non-modifiable risk factors, such as sex, age, and genetic inheritance, and by modifiable risk factors, especially smoking, excessive consumption of alcoholic beverages, sedentary lifestyle, poor diet, obesity, and metabolic changes, such as dyslipidemia³.

The population in the present study is mostly male, corroborating a Brazilian study²⁰, which also observed higher mortality from CVD in the male population in relation to all diseases and age groups. Furthermore, men have a modestly higher prevalence of hypertension than women, except those older than 75 years, who have a higher incidence of hypertension compared with men of the same age^{21,22}. In general, men tend to have a worse risk factor profile than women, which probably increases the likelihood of early adverse events in men. This aspect helps us to understand the higher number of men seen among the medical records analysed in the two study periods of the present study.

Regarding the pathological profile of the population studied, the predominant risk factors were hypertension (34.52 %), followed by type 2 diabetes (16.24 %), and smoking (15.23 %). The same factors were described in another study²³, where the authors found a greater association between metabolic risk factors and hypertension with CVD, followed by diabetes and high non-HDL-cholesterol; and behavioural risk factors (tobacco use, physical inactivity, and poor diet).

Hypertension and type 2 diabetes are related to the patients' lifestyle habits, such as sedentarism, poor diet, and stress, which aggravate or propagate the metabolic risk for CVD, remembering that during the period of social withdrawal in the COVID-19 pandemic, these habits may have intensified. In a recent study²⁴ involving diabetic individuals during the period of social distancing, the authors pointed to an increase in body weight, 32.00 % of

which was associated with poor diet and 52.00 % per cent with a sedentary lifestyle.

During the COVID-19 pandemic, social isolation measures and mobility restrictions have had a significant impact on people's lifestyles, resulting in changes in habits that may have contributed to an increase in chronic heart disease conditions and a reduction in medical care. Studies suggest that the increase in sedentary time, the interruption of physical exercise routines and the adoption of less healthy eating habits during isolation may have contributed to the worsening of CVD²⁵.

In this context, during confinement situations such as boredom, stressful moments, and anxiety arose that motivated binge eating and the search for unhealthy, high-energy foods, especially those with high palatability²⁶⁻²⁸. In another recent study carried out in Italy²⁷ the authors showed that although the intake of greens, vegetables, and fruits increased and fast-food consumption decreased among adolescents significantly during COVID-19 confinement, the average intake of fried foods and sweets increased. Thus, it is evident that social withdrawal is capable of provoking changes in the eating behaviour of the population, in addition to other consequences²⁹, potentially aggravating CVD.

However, despite the associations between the variables analysed by the aforementioned studies in relation to the worsening clinical condition of CVD patients, this study found no association between some of these variables and personal pathological history, daily hospitalizations, and days of hospitalization. This result can be partly explained by the difficulty in obtaining information on behavioural patterns, such as smoking, sedentary lifestyles and eating habits, which are poorly and rarely reported in the medical records assessed.

Regarding the demand for health services, a reduction of 8.33 % in the number of hospitalizations although not

statistically significant is worrying, as it indicates a downward trend in hospitalizations for CVD treatment, which could result in a worsening of the patient's clinical condition. In addition, a 26.50 % drop in the number of consultations was observed when comparing the two periods studied, in this case revealing a significant and expressive drop in the demand for health care by patients with CVD. These results signal a worsening in health-related aspects, due to the period of social isolation in the first year of the COVID-19 pandemic in Brazil.

This decrease has also been demonstrated previously in Brazil¹⁰, where the authors showed a 15.00 % decrease in the number of hospitalizations for cardiovascular reasons (stroke and hypertension) in the months of March, April, and May 2020, compared to the same period in 2019. The authors also showed a 13.00 % and 32.00 % drop in cardio and endovascular surgeries, respectively. According to the study, the decrease in procedures and hospitalizations for cardiac reasons are associated with COVID-19 social withdrawal¹⁰.

In a study³⁰ in which was analysed the cardiovascular mortality from March to May 2020, the authors verified an increase in total cardiovascular deaths in Brazilian cities with higher numbers of deaths by COVID-19. In another Brazilian study³¹ carried out in Belo Horizonte (MG), there was a 16.3 % reduction in hospital admissions for CVD and acute coronary syndrome due to fear of becoming infected; however, the present study did not find a significant difference regarding the average length of hospital stay, a result different to that found in the other Brazilian³¹ study.

Several studies also show a reduction in demand for oncology services, including a decrease in the number of diagnostic tests and therapeutic procedures, during the pandemic. This fact proves the influence of social withdrawal and the indirect consequences of the COVID-19 pandemic on other chronic diseases, not limited only to CVDs³²⁻³⁵. This condition of a decrease in the search for health services was not only observed in Brazil, as in our study, which obtained a decrease in the total number of consultations of 27.11 %. In Uruguay, the number of emergency consultations due to precordial pain showed a significant decrease in 2020¹². This scenario shows that medical assistance is postponed during the pandemic period, so that when attended, the patient with CVD is in a more serious condition, increasing lethality¹⁰.

Given the pandemic withdrawal scenario, CVD continued as a serious public health problem due to changes in lifestyle during that period; many surgical procedures that required hospitalization were postponed because the health service was focused on meeting the demands resulting from COVID-19³⁵. In addition, restrictions on access to health services and the fear of contracting the virus may have led patients to postpone or avoid medical appointments and essential procedures, resulting in a reduction in the medical care required for the proper management of heart disease³⁶.

The population's fear of contracting the virus and the systematization of care, prioritizing the pandemic, justify this impact³⁷. Due to the norms of social distancing and

the fear of contamination, individuals seek medical care less, especially those with CVD or risk factors³⁸. Moreover, isolation makes it difficult for other people to detect cardiovascular symptoms, making it impossible to transport patients to a hospital in a timely manner³⁹. We could also observe a decrease in cases of AMI by 2.00% and arrhythmias by 1.67%. Although not statistically significant, these results may demonstrate an underestimation of actual cases of these diseases during the pandemic.

Similar results were found in the study carried out in 54 hospitals in Italy⁴⁰ between March 2019 and March 2020, which recorded a reduction in cases of AMI and a substantial reduction in cases of HF. The authors also showed a reduction in hospitalizations recorded for HF in 2020 compared to the same period in 2019, results which the authors are concerned about, as they may in fact be showing a false decrease in incidence, compromising early care and attention. However, in the present study, heart failures showed a small increase of 2.78% during isolation compared to the period before isolation, which may be related to behavioural and lifestyle changes.

Regarding new diagnosed cases of CVD, this study showed a percentage increase from 12.78% to 14.00% between the pre-pandemic period and during the pandemic. However, although small and not statistically significant, these results may be masked by the drop in the number of consultations between the two periods, favouring false interpretations about the increase in new CVD cases in the pandemic. Corroborating our point of view, another study¹⁴ carried out in more than 100 countries found that there was a significant reduction in cardiovascular diagnoses and the volume of cardiac diagnostic procedures worldwide. This reduction was 42.00% from March 2019 to March 2020 and 64.00% from March 2019 to April 2020¹⁴.

In Latin America, the volumes of cardiac diagnostic procedures decreased by 36.00% in March 2020 compared to March 2019, and further reduced (82.00%) in April 2020, a drop associated with social distancing measures¹⁵. With this situation portrayed in the COVID-19 pandemic, there has been a tendency to seek health services late for fear of contamination. As a result, patients with AMI, decompensated HF, or stroke remained at home or sought late medical attention⁹, increasing the risk of complications and death for those with CVD as a result of the social isolation caused by the pandemic. Thus, the extreme fear of becoming infected caused typical symptoms of acute coronary syndrome to be neglected, delaying their treatment and exposing the patient to avoidable risks^{41,42}.

CVD-related prognoses are related to early and effective diagnosis and evidence-based treatments, highlighting the importance of diagnostic and therapeutic cardiovascular procedures in promoting cardiovascular health¹². In addition to the epidemiological repercussions, the new coronavirus also impacted psychologically, socially, and economically on the lives of the population, causing unemployment and shorter working hours, resulting in worse control of chronic degenerative diseases, besides the deficit of physical

activity and irregularity in consultations with health professionals^{13,26,43}.

In view of the above, it is clear for the need to raise awareness of health professionals and patients about the importance of early diagnosis and treatment of CVDs; to minimize the risks of contamination in health services; and of the importance of services such as the use of telemedicine^{9,41}. These changes highlight the importance of strategies to mitigate the impacts of isolation on cardiovascular health, including the promotion of healthy lifestyles at home, remote access to healthcare and the implementation of safety measures to ensure continuity of medical treatment for patients with heart disease.

In view of the findings of this study, it seems essential that government actions to provide guidance to the population are effectively implemented in order to clarify the importance of maintaining medical care even during exceptional conditions such as those experienced during the COVID-19 pandemic, especially for patients with heart disease. In contrast, and in agreement with previous studies⁴, the results of this study also reveal the importance of training and targeting resources to ensure efficient public health management and generalized public knowledge as a precaution for new phenomena such as COVID-19.

CONCLUSION

The results of this study confirm the concern about the postponement of medical care during the COVID-19 pandemic. The consequences of social isolation in the COVID-19 pandemic go far beyond deaths from complications of the disease caused by this virus. A retrospective study evaluating medical records of visits to the cardiology outpatient clinic at a major hospital accredited to the SUS network in the southern region of the state of MG - Brazil, revealed a significant drop in the total number of visits to the cardiology outpatient clinic as well as a reduction in the average number of visits by patients already diagnosed.

These results reveal a potential risk of underestimating the detection of new cases of CVD, as well as affecting the follow-up of previously diagnosed patients. In addition, a decrease of more than 8% in the number of hospitalizations during the COVID-19 pandemic points to a perverse downward trend in the care and treatment of CVD patients.

It is therefore concluded that the indirect results of the pandemic are alarming, and that the findings of this study point to the essential importance of actions aimed at alerting patients to the risks implicit in the absence of medical care and the changes in life resulting from confinement, as well as the implementation of health promotion and disease prevention strategies, especially CVDs, which are the leading causes of death in Brazil and worldwide.

It also seems clear that more studies, investments, and forward-looking actions are needed to make the right decisions and ensure that the entire population is adequately

cared for in situations such as those experienced during the COVID-19 pandemic.

STUDY LIMITATIONS

The difficulty in finding important data, especially regarding the patient's lifestyle habits, including physical activity, eating habits, patient weight, and behavioural risk factors, was a limiting factor in this study. There was a great deal of variation in the filling out of the medical records analysed, characterising a lack of standardisation of information on clinical history and lifestyle patterns, as well as the absence of much essential information, which made it difficult to interpret the data obtained. The illegibility found in some medical records was an additional factor of difficulty and is characterised by disrespect for the patient, the true owner of the medical record, and by the recklessness of the team's professionals, as it hinders administrative, clinical, legal, teaching, and research processes. Other important limitations were the numerical and regional size of the sample, since the study focused on a single region analysing medical records from a single hospital, which does not necessarily represent a national standard and could represent a bias in the study. It is worrying to note that information regarding the anamnesis and physical examination was absent or incomplete.

AUTHORS' CONTRIBUTIONS:

We describe contributions to the papers using the taxonomy (CRediT) (<https://casrai.org/credit/>) provided below:

Conception and design of the research: Neiva CM, Carvalho VM, Sigliano MM, Sigliano LM.; *Acquisition of data, analysis and interpretation of data and writing of the manuscript:* Sigliano MM, Carvalho VM, Sigliano LM, Moraes AR; *Statistical analysis:* Santana CAA, Augusto VG; *Critical revision of the manuscript regarding important intellectual content:* Santana CAA, Neiva CM.

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