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Physical activity and sitting time in adults after positive diagnosis for COVID-19: a cross-sectional study

Atividade física e tempo sentado em adultos após diagnóstico positivo para COVID-19: um estudo transversal

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ABSTRACT

This study aimed to: a) investigate the most common signs and symptoms reported by people infected by the COVID-19, b) compare total time and weekly level of physical activity of people between pre- and post-infection period, and c) examine the association between physical activity levels and signs and symptoms reported during the disease cycle. Twenty-two adult people (14 males and 8 females, mean age 37.9 ± 16.8 years) living in Ribeirão Preto, Brazil participated in this study. Participants received a positive diagnosis for COVID-19 by PCR. Physical activity and sitting time was assessed using the International Physical Activity Questionnaire. Variables such as body mass index and the clinical condition of the disease (signs and symptoms) were collected. The most frequent signs and symptoms reported by active and inactive individuals, respectively, were loss of taste (77.8% and 25%), headache (66.7% and 25%), coughing (66.7% and 25%), difficulty breathing (61.1% and 25%), and sore throat (61.1% and 75%). A 120-minute reduction (p = 0.010) in the total time of weekly physical activity and a 155-minute reduction (p = 0.003) of weekly moderate physical activity was observed in the pre- and post-diagnostic COVID-19 infection comparison. There was further an association between difficulty breathing and being physically inactive (*odds ratio* = 0.222; 95%CI: 0.094 – 0.527). Our findings suggest that COVID-19 had a negative impact on physical activity and that being physically active may reduce the likelihood of presenting with difficulty breathing if infected with the SARS-CoV-2 and associated disease COVID-19.

Keywords: Physical exercise; Screen time; SARS-CoV-2; Signs and symptoms.

RESUMO

Este estudo teve como objetivo: a) investigar os sinais e sintomas mais comuns relatados por pessoas infectadas por COVID-19, b) comparar o tempo total e o nível semanal de atividade física das pessoas no período pré e pós-infecção, c) examinar a associação entre os níveis de atividade física e os sinais e sintomas relatados durante o ciclo da doença. Participaram deste estudo 22 pessoas (14 do sexo masculino e oito do feminino, idade média 37,9 ± 16,8 anos) residentes na cidade de Ribeirão Preto, Brasil. Todos receberam diagnóstico positivo para COVID-19 via PCR. A atividade física e o tempo sentado foram avaliados por meio do Questionário Internacional de Atividade Física. Variáveis como índice de massa corporal e o quadro clínico da doença (sinais e sintomas), foram coletadas. Os sinais e sintomas mais frequentes foram perda do paladar (77,8% e 25%), dor de cabeça (66,7% e 25%), tosse (66,7% e 25%), dificuldade para respirar (61,1% e 25%) e dor garganta (61,1% e 75%), para indivíduos ativos e inativos, respectivamente. Uma redução de 120 minutos (p = 0,010) no tempo total de atividade física semanal e de 155 minutos (p = 0,003) de atividade física moderada semanal foi observada na comparação pré e pós-diagnóstico por COVID-19. Houve associação entre dificuldade para respirar e ser fisicamente inativo (odds ratio = 0,222; IC95%: 0,094 – 0,527). Nossos resultados sugerem que a COVID-19 teve impacto negativo na atividade física e que pessoas fisicamente ativas podem reduzir a probabilidade de apresentar dificuldade para respirar quando diagnosticadas por COVID-19.

Palavras-chave: *Exercício físico; Tempo de tela; SARS-CoV-2; Sinais e sintomas.*

Introduction

The rapid and uncontrollable widespread of the SARS-CoV-2 associated disease COVID-19 – throughout the globe in combination with its potential severity, led the World Health Organization (WHO) to declare the novel coronavirus a global pandemic. Currently, there is an increase effort from health organizations and public authorities to contain the advance and spread of the virus[1]. COVID-19 is characterized by its high level of transmission capacity and induction of severe respiratory infection[2-3].

In light of the social distancing and shelter-in-place orders to contain the rapid spread of the virus advocated for several countries, encouraging individuals to

maintain a physically active lifestyle as a measure of health promotion is essential during this period where countries attempt reopening amid significant fluctuation in the number of cases. Studies conducted in different parts of the globe at the beginning of the pandemic demonstrated that individuals tend to reduce physical activity levels and increase sitting time[4–6]. In fact, reduced levels of physical activity and increased sitting time, whether, watching TV or spending time in front of electronic devices, have been associated with increased body weight in children[7], adolescent[8], adults and older adults[9], and increased risk of cardiovascular mortality[10]. On the other hand, the risk of developing cardiovascular diseases and mortality is reduced in individuals with physically active lifestyle habits[11]. Furthermore, it has been shown that the risk of upper respiratory tract infection by the new coronavirus is potentially higher in the presence of an impaired immune system[12]. In this sense, the recommended level of physical activity (150 - 300 minutes/week) proposed by various countries including Brazil[13,14], is indicated as a beneficial measure to improve immunity[15,16].

The American College of Sports Medicine recently released a guide suggesting that moderate-intensity physical activity should be maintained in the period of isolation and social distancing as a measure to minimize the effects of COVID-19 diagnosis, stressing the importance of being physically active[17]. This beneficial effect of physical activity in the context of the COVID-19 pandemic was reported in a study that found lower rates of hospitalization, intensive care, and mortality in physically active compared to inactive American adults (3.2% versus 10.5%, 1% versus 2.8% and 0.4% versus 2.4%, respectively) [18]. A Brazilian study developed in Manaus evaluated the effects of social/physical distancing among older adults and have found a decrease of 40% of active people, an increase on sitting time (60 minutes), and a reduction on quality of life (0.2 SF-6D score)[19].

Currently, there is little evidence in the literature investigating the impact of physical activity levels (active or inactive) and sitting time prior to the diagnosis of COVID-19 on the clinical signs and symptoms presented in the disease cycle. Understanding such impact will reinforce the beneficial impact of a physically active lifestyle on the severity of the disease, and the importance of maintaining recommended levels of physical activity and reducing sitting time in periods of pandemic. Thus, the present study aimed to: a) investigate the most common signs and symptoms reported by individuals infected by the COVID-19, b) compare total time and weekly level of physical activity of people between pre- and post-infection period, and c) examine the association between physical activity levels and signs and symptoms reported during the disease cycle. We hypothesized a reduction in physical activity level after COVID-19 diagnosis, and the existence of an inverse association between physical active level and severity of signs and symptoms caused by the SARS-CoV-2 infection.

Method

This cross-sectional study was approved by the Institutional Review Board of the School of Nursing - University of São Paulo at Ribeirão Preto (CAAE n. 39645220.6.0000.5393) in compliance with human subjects guidelines from the Resolution of the National Council of Health (CNS) 466/12 (SAÚDE, 2012) and the Declaration of Helsinki. The study was further approved by the Research Project Evaluation Committee of the Health Department of Ribeirão Preto (document 462/2020). The Health Department of Ribeirão Preto made available information (name, telephone and e-mail) from the study participants. This manuscript followed the guidelines from The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) conference list[20].

The research was conducted in the city of Ribeirão Preto, São Paulo, Brazil on April 2021. The inclusion criteria included: aged 18 years or over (both sex) with a positive diagnosis for COVID-19 on February 2021. The exclusion criteria included: participants with any conditions of immunological compromise, including long-term use of corticosteroids, chemotherapy, HIV positive, organ transplant and who needed hospitalization due to the complications of the disease.

From a total population of 1,738 people diagnosed with COVID-19 in Ribeirão Preto on February 2021, and to achieve a power range of 0.75 to 0.80 with a standard error of estimate (maximum 5 minutes) and significance level of $p < 0.05$ for detecting differences between physical activity and sitting time in minutes in the moment pre- and post-COVID-19 diagnosis, a sample size of 20 to 30 participants was recommended. The Power and Sample Size Program® version 3.043 was adopted for sample size calculation. Considering a total of 1,738 people who received a diagnose with COVID-19 in Ribeirão Preto on February 2021, a

randomization was performed via Microsoft Excel® to select participants which received a call or messages during the period of data collection (1st to 8th April 2021). To achieve the sample size recommended, a total of 200 participants were contacted and considering the inclusion criteria and interest in being part of the study, the total sample consisted of 22 participants. Figure 1 shows the data collection and selection of study participants.

The recruitment and selection of participants took place via the WhatsApp® mobile app (messages sent by the researchers) and via phone call. It is important to highlight that three attempts were performed for those who did not answer the call or reply to the invitation message. Additionally, participants who did not complete the interview have decided to stop due to personal option.

During data collection, researchers identified themselves and presented details of the research, making a brief report on the objectives, risks, procedures and benefits. If there was consent to participate through WhatsApp® messages or telephone contact, participants received the Informed Consent Form (by e-mail or WhatsApp® messages) and then responded to the survey instruments by interview in a telephone call.

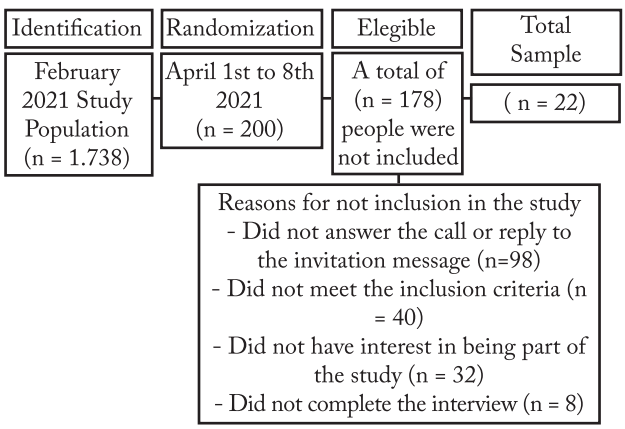

Figure 1 – Flowchart of data collection and selection of study participants. Ribeirão Preto, São Paulo, 2021.

Two questionnaires were used for data collection: 1) Profile of the person diagnosed with COVID-19 and; 2) International Physical Activity Questionnaire (IPAQ-short form). The profile of the person diagnosed with COVID-19 was developed by the researchers of this study and validated according to the content following the guidelines described elsewhere[21] and can be found as a supplemental file.

This questionnaire included questions such as age, marital status, sex, education, self-reported skin color, paid activity, family income, body mass, height, body mass index and the clinical condition of the disease (signs and symptoms). The IPAQ-short form has been validated for the Brazilian population[22] and was used to assess physical activity level and sitting time of the participants. The IPAQ was administered to measure participant's physical activity level and sitting time in two periods, first - the week prior to the COVID-19 diagnosis and, second - in the seven days prior to the interview date (at least 31 days after COVID-19 diagnosis).

This instrument assesses the domains and intensity of physical activity – including walking - and sitting time that individuals perform as part of their everyday lives. The IPAQ groups and conceptualizes the categories, as follows: a) Sedentary: does not perform any physical activity for at least 10 continuous minutes during the week; b) insufficiently active: practice physical activities for at least 10 continuous minutes per week, but not enough to be classified as active. c) Active – meets the following recommendations: a) vigorous physical activity: ≥ 3 days/week and ≥ 20 minutes/session; b) moderate activity or walking: ≥ 5 days/week and ≥ 30 minutes/session; c) any added activity: ≥ 5 days/week and ≥ 150 minutes/week; and, d) Very active - meets the following recommendations: a) vigorous activity: ≥ 5 days/week and ≥ 30 minutes/session; b) vigorous activity: ≥ 3 days/week and ≥ 20 minutes/session + moderate activity and/or walking ≥ 5 days/week and ≥ 30 min/session. For comparison purposes, in this study, participants were grouped into two groups: insufficiently active (sedentary and insufficiently active) and active (active and very active)[23].

Data were entered in Microsoft Excel® and validated using double key data entry and verification. This procedure was used to ensure the highest accuracy and quality of the data collected. The variables sex, self-reported skin color, education level, family income and signs and symptoms of COVID-19 were presented by absolute (n) and relative (%) frequency. The Shapiro-Wilk test was used to verify the normality of data distribution. Variables with normal distribution were expressed as mean, standard deviation and 95% confidence interval. Variables not presenting a normal distribution were expressed as median, minimum and maximum values and 25p-75p interquartile range. To compare the level of physical activity and sitting time in the pre- and post-COVID-19 diagnosis, the non-parametric Wilcoxon test for dependent samples was used. To assess the as-

sociation between physical activity level (active and inactive) and the signs and symptoms presented during COVID-19, the likelihood ratio chi-square test was used and the risk estimate (odds ratio) also from chi-square test was verified. All analysis were performed using SPSS version 20 (IBM Corporation, Armonk, NY, USA) a significance level was set at $\alpha = 5\%$.

Results

The final analytic sample consisted of 22 participants, eight females (36.4%) and 14 males (63.6%), with a mean age of 37.9 ± 16.8 years. Twenty out of 22 participants (90.9%) declared themselves white, while two (9.1%) declared to be brown. Regarding anthropometric variables before the COVID-19 pandemic, the values of body mass (kg), height (cm), and body mass index (kg/m^2) were 85.5 (± 22.9; 95%CI: 74.1 – 96.9), 167.7 (± 9.4; 95%CI: 163.0 – 172.4), and 30.2 (± 6.4; 95%CI: 27.0 – 33.4) for the active group, respectively; and 76.3 (± 11.4; 95%CI: 58.0 – 94.5), 167.5 (± 6.2; 95%CI: 157.6 – 177.4), and 27.3 (± 4.8; 95%CI: 19.6 – 35.0) for the inactive group, respectively.

More than 50% of the participants (n = 12), reported a high school degree (54.5%) and had a family income between R$ 908 and R$ 2.862. In terms of the signs and symptoms, the most reported symptoms among participants were: loss of taste (77.8% and 25%), headache (66.7% and 25%), coughing (66.7% and 25%) difficulty breathing (61.1% and 25%) and sore throat (61.1% and 75%), for active and inactive individuals, respectively. Table 1 displays in detail information in terms of the sociodemographic and clinical characteristics of the COVID-19 separated by activity level.

Table 2 displays the results of time spent in physical activity (walking, moderate, vigorous and total) and sitting time before and after COVID-19, separated by activity level (active and inactive). Before the COVID-19 diagnosis, 18 participants (81.8%) were classified as physically active and after diagnosis, the number of physically active individuals decreased to 14 (63.6%). Four individuals (18.2%) were considered inactive before infection and after COVID-19 this number increased to eight individuals (36.4%).

Figure 2 shows the comparison of total time and weekly level of physical activity of people between pre- and post- COVID-19 diagnosis. A 120-minute reduction (p = 0.010) in the total time of weekly physical activity and a 155-minute reduction (p = 0.003) of weekly moderate physical activity was observed in the pre- and post- COVID-19 diagnosis comparison. There were no statistically significant differences in values in minutes of walking, vigorous physical activity and sitting time (data not shown).

Follow up analysis examining the influence the of the physical activity level on signs and symptoms pre-

Table 1 – Absolute and relative values of participants regarding education level, family income and signs and symptoms during COVID-19 disease, grouped into active and inactive (n = 22). Ribeirão Preto, São Paulo, 2021.

Variables	Active (n = 18)		Inactive (n = 4)	
	n	%	n	%
Education level				
Illiterate	0	0.0	1	25.0
Elementary incomplete	0	0.0	0	0.0
Complete Elementary	2	11.1	0	0.0
Incomplete high school	0	0.0	0	0.0
Full medium	11	61.1	1	25.0
Incomplete higher	2	11.1	0	0.0
Graduated	2	11.1	2	50.0
Incomplete Graduate	0	0.0	0	0.0
Complete postgraduate	1	5.6	0	0.0
Family income (in reais)				
Up to 908	1	5.6	1	25.0
Between 908 to 2862	9	50.0	3	75.0
Between 2,862 to 5,724	3	16.7	0	0.0
Between 5,724 to 9,540	2	11.1	0	0.0
Between 9,540 to 14,310	1	5.6	0	0.0
Signs and symptoms during infection				
by SARS-CoV-2	5	27.8	2	50.0
Fever	10	55.6	1	25.0
Headache	12	66.7	1	25.0
Muscle pain	7	38.9	1	25.0
difficulty breathing	11	61.1	1	25.0
Coughing	12	66.7	1	25.0
loss of taste	14	77.8	1	25.0
loss of smell	6	33.3	4	100.0
Stomach upset	7	38.9	2	50.0
Diarrhea	5	27.8	1	25.0
Nausea	3	16.7	1	25.0
Vomiting	6	33.3	2	50.0
Chest pain/pressure	8	44.4	2	50.0
Coryza	8	44.4	2	50.0
Sore throat	11	61.1	3	75.0

Table 2 – Time spent in physical activity (walking, moderate, vigorous and total; minutes per week) and sitting time (minutes per day) before and after COVID-19 diagnosis, separated by activity level (active and inactive). Ribeirão Preto, São Paulo, 2021.

Variables	Pre COVID-19 diagnosis							
	Active (n =18)				Inactive (n = 4)			
Physical activity (min)	Median	Minimum and Maximum	25p - 75p	Shapiro-Wilk	Median	Minimum and Maximum	25p - 75p	Shapiro-Wilk
Walk	150.0	0 – 2880	0 – 255	0.001	0.0	0 – 70	0 – 52.5	0.001
Moderate activity	150.0	0 – 5040	120 – 802.5	0.001	-	-	-	-
Vigorous activity	0.0	0 – 3360	0 – 127.5	0.001	-	-	-	-
Total physical activity	710.0	160 – 5040	207.5 – 1592.0	0.001	0.0	0 – 70	0 – 52.5	0.001
Sitting time	2340.0	180 – 7200	1170.0 – 3210.0	0.092	2180.0	1440 – 7200	1620.0 – 5950.0	0.33
Variables	Post COVID-19 diagnosis							
	Active (n =14)				Inactive (n = 8)			
Physical activity (min)	Median	Minimum and Maximum	25p - 75p	Shapiro-Wilk	Median	Minimum and Maximum	25p - 75p	Shapiro-Wilk
Walk	75.0	0 – 2880	0 – 420.0	0.001	0.0	0 – 40	0 – 22.5	0.001
Moderate activity	105.0	0 – 5040	0 – 720.0	0.001	0.0	0 – 80	0 – 22.5	0.001
Vigorous activity	0.0	0 – 3360	0 – 120.0	0.001	0.0	0 – 40	0 – 15.0	0.001
Total physical activity	670.0	120 – 5040	195.0 – 2745.0	0.005	15.0	0 – 90	0 – 70.0	0.028
Sitting time	2520.0	240 – 4800	1680.0 – 3180.0	0.963	2400.0	240 – 7680	562.5 – 7140.0	0.057

sented during COVID-19 disease, the likelihood ratio chi-square test revealed an association between the presence of "difficulty breathing" and being physically inactive (X^2 (1) = 9.772; p = 0.002). The statistically significant inverse association (Phi r = -0.62; p = 0.010) and the odds ratio (odds ratio = 0.222; 95%CI: 0.094 – 0.527) suggest that being physically active previously to the COVID-19 diagnosis reduces the possibility of breathing difficulties in individuals infected with the SARS-CoV-2.

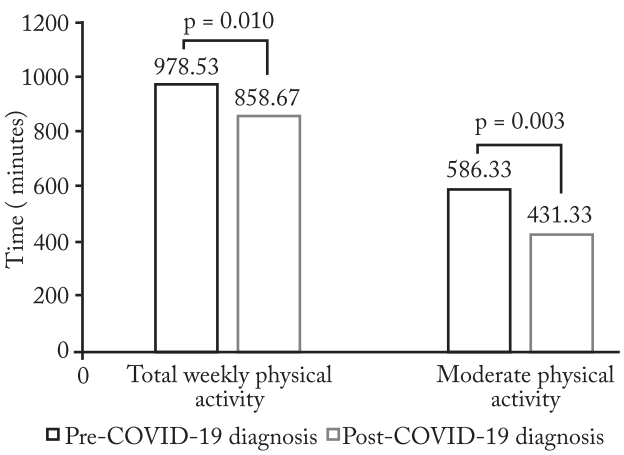

Figure 2 – Comparison of total time of weekly physical activity and moderate physical activity between pre- and post- COVID-19 diagnosis. Ribeirão Preto, São Paulo, 2021.

Discussion

This study investigated physical activity level reported by adult individuals living in Ribeirão Preto, Brazil pre and post-COVID-19 infection and the potential association between levels of physical activity and reported signs and symptoms of the diseases. The findings suggested a reduction in the number of active individuals and an increase in the number of inactive individuals when comparing pre- and post-COVID-19 diagnosis. There was a 22% reduction in the number of those classified as physically active while the number of inactive individuals doubled (Table 2). In addition, individuals reduced by more than two hours the time of moderate and total weekly physical activity when comparing the pre- and post-COVID-19 diagnosis (Figure 2). Lastly, our findings suggested that being physically active previously to the COVID-19 diagnosis can be a positive and protective factor to reduce the chances of respiratory distress during infection by the new coronavirus.

Data on COVID-19 previously published reinforce the findings of the present study. The decrease in the number of individuals classified as physically active may be related to prolonged symptoms and sequelae caused by disease. These changes are termed post-acute COVID-19 syndrome - for persistent symptoms after 3 weeks of infection - and chronic COVID-19 syndrome - for persistent symptoms for more than 12 weeks after infection[24]. These post-acute and chronic syndromes consist of impaired lung function and even fibrosis, in addition to musculoskeletal disorders that cause myalgia, thus causing limitations in the performance of daily physical activities. In addition to post-

acute and chronic syndromes, the social isolation and social distancing factors may have contributed to the reduction in the total time of moderate and weekly physical activity[25–27]. In addition, being physically active has been reported to reduce the chances of difficulty breathing during COVID-19 disease. Previous studies have demonstrated improvement in the immune system and a reduction in chronic inflammation in physically active individuals, which reduces the predisposition of respiratory infections, as well as a reduction in the severity and mortality of viral diseases[28–30]. Being physically active has also shown to promote improvements in other health parameters, including but not limited to: reductions in blood pressure levels, improvement in the insulin signaling cascade, increase in glucose transporter protein, reduction in triglycerides and control of body weight, factors that are considered comorbidities and complicating factors during and after COVID-19 disease[7,10].

Other important findings of this study related to the signs and symptoms reported by our young adult sample (37.9 years old; range 20 to 53 years old). The most frequent signs and symptoms reported by the participants were loss of taste, headache, coughing, difficulty breathing and sore throat (Table 1). Although the lungs are normally the first organ to be affected by the new coronavirus, it can also affect organs such as the brain, blood vessels, and the heart; triggering a series of signs and symptoms, not just respiratory ones[10].

Our investigation is one of the few to examine physical activity levels pre- and post-COVID-19 in Brazil using medical records to recruit participants. This could be viewed as strength. However, our study also has some limitations. The use of self-report questionnaire to gather information on physical activity is one of them. In addition, the cross-sectional nature of the study prevents us to establish a causal-and-effect relationship between physical activity level and signs and symptoms of COVID-19. Despite the limitations, our results may help in future public health policies and strategies to keep individuals active during periods where limiting the ability of individuals to perform physical activity are apparent. Future investigations should attempt to replicate this study focusing on expanding on the sample size and in the adoption of a more objectively measure of physical activity (e.g., accelerometer). In addition, future studies should investigate the potential mechanisms by which physical activity confers less chances of developing dyspnea and respiratory distress.

In conclusion: a) signs and symptoms related to organs other than the respiratory system were identified; b) COVID-19 negatively impacted the time of moderate and total weekly physical activity, reducing the number of active people after the infection; and c) there was further an association between difficulty breathing and being physically inactive.

Finding ways to maintain a physically active life is important for health promotion and can be a recommended prophylactic strategy in the context of the pandemic.

Conflict of interest

The authors declare no conflict of interest.

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Author's contributions

Ramos ABM; Gomide EBG; Santos AP, participated in the design of the manuscript, analysis and interpretation of data. Miguel ND; Alves TC; Trapé AA; Sebastião E, participated in the writing of the manuscript and critical review of the content. All authors have read and agree with the final version of the manuscript.

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Supplementary Material

Questionnaire: Profile of the person diagnosed with COVID-19

- **Identificação** - Neste primeiro momento, gostaríamos que você se identificasse, respondendo apenas 4 questões.

01- Data de nascimento: ...../...../.....

02- Sexo: ( ) Masculino ( ) Feminino

03- Cor da pele: ( ) Branca ( ) Preta ( ) Amarela ( ) Parda ( ) Indígena

04 - Cidade/Estado em que reside ou residia quando fez o diagnosticado pela COVID-19

- **Bloco 1** - Este primeiro bloco é composto por 18 perguntas sobre como foi sua internação pela COVID-19

01 – Qual exame você realizou para confirmar o diagnóstico da COVID-19?
( ) PCR. ( ) Teste sorológico. ( ) Outro.

02 - Em qual local foi realizado o diagnóstico pela COVID-19?
( ) Hospital ( ) UPA ( ) Consultório Médico ( ) Farmácia ( ) Laboratório Particular ( ) UBS ( ) Outros

03 - Você precisou de internação após contrair a COVID-19?
( ) sim ( ) não

04 - Se sim, quanto tempo, em dias (aproximado ou exato) você permaneceu no hospital? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

05- A internação foi feita através do SUS ou Convênio Particular?
( ) SUS ( ) Convênio particular ( ) Não se aplica.

06 - A internação pela COVID-19 foi em qual Cidade/Estado? Caso a resposta seja "não", responder "não se aplica" nesta questão

07 - Teve dificuldade para respirar durante período de internação? (Caso não precisou de internação, selecione "Não se aplica"
( ) sim ( ) não ( ) Não se aplica.

08 - Como você classifica essa dificuldade para respirar durante a internação? (Caso não precisou de internação, selecione "Não se aplica")
( ) leve ( ) moderada ( ) grave ( ) Não se aplica.

09 - Você necessitou de suporte de oxigênio durante a internação? (Caso não precisou de internação, selecione "Não se aplica")
( ) sim ( ) não ( ) Não se aplica.

10 - Necessitou ser intubado durante a internação? (Caso não precisou de internação, selecione "Não se aplica")
( ) sim ( ) não ( ) Não se aplica.

11 - Se sim, quantos dias permaneceu intubado? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

12 - Houve evolução para óbito?
( ) sim ( ) não

13 - Você se lembra quais medicamentos utilizou no período de internação? (Caso não precisou de internação, selecione "Não se aplica")
( ) sim ( ) não ( ) Não se aplica.

14 - Se sim, quais medicamentos foram utilizados durante a internação? (Caso não precisou de internação, selecione "Não se aplica")
( ) dexametasona ( ) anticorpos monoclonais ( ) hidroxicloroquina ( ) cloroquina ( ) azitromicina ( ) remdesivir ( ) heparina ( ) corticoides ( ) plasma ( ) Lopinavir, Ritonavir, Interferon beta-1b e Ribavirin ( ) outros ( ) não se aplica.

15 - Quais medicamentos você utilizou durante os sintomas?
( ) Azitromicina ( ) Prednisolona ( ) Dexametasona ( ) Loratadina ( ) Ivermectina ( ) Hidroxicloroquina ( ) Nenhum ( ) Outros

16 - Além desses medicamentos, você utilizou algum diferente?
( ) Sim ( ) Não

17 - Se sim, quais medicamentos foram usados? Caso a resposta anterior for "não" , responder "não se aplica" nesta questão.

18 - Quais foram os sinais e sintomas que você sentiu? ( ) Dor de cabeça ( ) Dor muscular ( ) Dificuldade para respirar ( ) Tosse ( ) Perda de paladar ( ) Perda de olfato ( ) Desconforto estomacal ( ) Diarreia ( ) Náusea ( ) Vômito ( ) Dor/pressão no peito ( ) Coriza ( ) Dor de garganta ( ) Fadiga/cansaço ( ) Outros

- **Bloco 2** - Este bloco contém 19 perguntas que se remetem ao período anterior à sua internação pela covid-19.

01 - Antes do diagnóstico por COVID-19, fazia uso de algum medicamento?
( ) Sim ( ) Não

02 - Se sim, quais medicamentos você utilizava antes do diagnóstico de Covid-19? Caso a resposta anterior for "não" , responder "não se aplica" nesta questão.

03 - Para qual(is) objetivo(s) utilizava esse(s) medicamento(s)? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

04 - Antes do diagnóstico de COVID-19, tinha o hábito de fumar?
( ) Sim ( ) Não ( ) Ex fumante.

05 - Há quanto tempo tinha o hábito de fumar? (Dias, meses ou anos). Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

06 - Com que frequência fumava?
( ) Nunca ( ) 1 ou 2 vezes no ano ( ) Mensalmente ( ) Semanalmente ( ) Diariamente ou todos os dias

07 - Quantos cigarros por dia? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

08 - Antes do diagnóstico de COVID-19, fazia uso de bebidas alcóolicas?
( ) Sim ( ) Não

09 - Se fazia uso de bebidas alcóolicas, qual(is)? Caso a resposta anterior for "não" , responder "não se aplica" nesta questão.

10 - Há quanto tempo fazia uso de bebidas alcóolicas? (dias, meses ou anos). Caso a resposta anterior for "não" , responder "não se aplica" nesta questão.

11 - Com que frequência fazia uso de bebidas alcóolicas? ( ) Nunca ( ) 1 ou 2 vezes no ano ( ) Mensalmente ( ) Semanalmente ( ) Diariamente ou quase todos os dias

12 - Qual era a quantidade diária (litros)? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

13 - Você tem o diagnóstico médico de Hipertensão Arterial?
( ) Sim ( ) Não

14 - Há quanto tempo (anos)? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

15 - Você tem o diagnóstico médico de Diabetes Mellitus?
( ) Sim ( ) Não

16 - Há quanto tempo tem o diagnóstico médico de Diabetes Mellitus (anos)? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

17 - Qual é o tipo do seu Diabete *Melittus*?
( )Tipo I ( )Tipo II ( )Nenhum

18 - Antes do diagnóstico de Covid-19, apresentava alguma outra doença?
( ) Sim ( ) Não

19 - Se sim, qual(is)? Caso a resposta anterior for "não", responder "não se aplica" nesta questão.

- **Bloco 3** - Este bloco possui 9 perguntas que remetem ao período anterior à sua internação pela COVID-19

01- Qual é o seu peso (kg)?

02- Qual é a sua altura (cm)?

03- Nível de escolaridade
( ) Não se alfabetizou ( ) fundamental incompleto ( ) fundamental completo ( ) médio incompleto ( ) médio completo ( ) superior incompleto ( ) superior com-

pleto ( ) pós-graduação incompleto ( ) pós-graduação completo

04- Estado civil:
( ) solteiro (a) ( ) casado (a) ( ) divorciado (a) ( ) viúvo (a)

05 - Profissão/emprego/atividade remunerada que exercia antes do diagnóstico

06 - Renda familiar (média mensal) em reais
( ) até 908,00 ( ) mais de 908,00 a 2.862,00 ( ) mais de 2.862,00 a 5.724,00 ( ) mais de 5.724,00 a 9.540,00 ( ) mais de 9.540,00 a 14.310,00
( ) mais de 14.310,00 a 23.850,00 ( ) mais de 23.850,00 ( ) Prefiro não opinar

07 - Estado de saúde autorreferido antes do diagnóstico pela COVID-19
( ) Excelente ( ) Muito bom ( ) Bom ( ) Regular ( ) Ruim

08 - Você tomou a vacina contra o SARS-CoV-2 antes do diagnóstico da Covid-19?
( ) Sim ( ) Não

09 - Caso tenha tomado a vacina, quantas doses recebeu?
( ) Uma ( ) Duas ( ) Nenhuma