



Development of protocols for the work of physical education professionals in the context of the COVID-19 pandemic

Desenvolvimento de protocolos para a atuação dos profissionais de educação física no contexto da pandemia da COVID-19

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ABSTRACT

The objective of this study was to develop two instruments – a quick-question survey and a flowchart, both related to COVID-19 in asymptomatic and pre-symptomatic periods – in order to identify biological risk factors and define sociocultural and behavioral profiles for users of fitness centers and people who engage in leisure-time physical activities, either freely or systematically. For the methods, the instruments were structured from the model proposed by Pasquali (2010). Although there are some protocols and questionnaires focused on biological issues, there are no protocols for a qualitative investigation of sociocultural aspects, specifically behavioral ones, related to the spread of COVID-19. By extrapolating the biological interface, the results of this study present procedures that can help Physical Education professionals with their decision making and, at the same time, contribute to the guidance, education and safety of users, so that they understand the importance of individual and collective co-responsibility.

Keywords: Behavior; Pandemic; Fitness center; Health; Psychometry.

RESUMO

O objetivo do estudo foi elaborar dois instrumentos, sendo um questionário de perguntas rápidas e um fluxograma, ambos relacionados à COVID-19 em períodos assintomáticos e pré-sintomáticos, para identificar fatores de riscos biológicos e delinear perfis sociocultural e comportamental dos usuários de academias de musculação e de práticas de atividades físicas de lazer, livre ou sistematizada. Para os métodos, a estruturação dos instrumentos baseia-se no modelo proposto por Pasquali (2010). Embora existam alguns protocolos e questionários voltados às questões biológicas, não há protocolos de investigação qualitativa dos aspectos socioculturais, especificamente comportamentais, relacionados com a disseminação da COVID-19. Ao extrapolar a interface biológica, os resultados do estudo apresentam procedimentos que possam auxiliar os profissionais de Educação Física nas tomadas de decisões e, ao mesmo tempo, contribuem na orientação, educação e segurança dos usuários, de modo que compreendam a importância da corresponsabilidade individual e coletiva.

Palavras-chave: Comportamento; Pandemia; Academia de ginástica; Saúde; Psicometria.

Introduction

In order to protect the population, several researchers and Physical Education professionals, both from the Health field, advise physical activity, which can substantially contribute to the population's health^{1,2}. However, given the current scenario of the Coronavirus (COVID-19) pandemic, a disease caused by the SARS-CoV-2 virus (new coronavirus), work environments need to be prepared to safely receive the public, including fitness centers, the Expanded Center for Family

Health and Primary Care (NASF-AB), and other places intended for physical activity.

At the beginning of the pandemic, many places were closed, as was the case of fitness centers, the Expanded Center for Family Health and Primary Care (NASF-AB) and other places intended for physical activity, in order to prevent crowding and a possible increase in transmission rates, cases of and deaths by COVID-19. It is noteworthy that several researchers and Physical Education professionals, both in the Health field, ad-

wise physical activity, which can substantially contribute to the population's health.

Today, most of these places has already reopened, and to ensure the safety of users, several protocols have been designed with the aim of promoting personal hygiene practices and, consequently, mitigating the spread of the virus^{3,4}. From this perspective, the Regional Council of Physical Education of the 4th Region (CREF4/São Paulo) prepared a document entitled "Procedures for Reopening Fitness Centers", with a view to reducing the risk of infection with the virus inside fitness centers. To this end, CREF4/São Paulo advises the general cleaning of these establishments, mandatory use of Personal Protective Equipment (PPE), and compliance with preventive operational measures. The latter include using an electronic non-contact thermometer, availability of hand sanitizer, limitation of users, delimitation of their space inside fitness centers, wearing masks, etc⁵.

However, with regard to the reopening of fitness centers and places intended for physical activity, there is no evidence in the national literature of questionnaires that seek to qualitatively identify the human behavior of users, which is of paramount importance when it comes to minimizing the spread of the virus. In this scenario, Brazil has already faced the first and second waves of the pandemic, but there are possibilities for a third one due to a decrease in restrictive measures, low vaccination coverage, and the circulation of the Delta variant, which is more contagious⁶.

Therefore, the objectives of this study were to prepare a quick-question survey and a flowchart, both related to COVID-19 in asymptomatic and pre-symptomatic periods, in order to identify biological risk factors and define sociocultural and behavioral profiles for users of fitness centers and people who engage in leisure-time physical activities, either freely or systematically. It is expected that the procedures to be presented can help Physical Education professionals with their decision making, taking into account the appropriate guidelines, education and safety of users, in the sense of understanding the importance of individual and collective co-responsibility with regard to the necessary care during the context of the pandemic. Furthermore, this may help fitness centers not close again in the case of a third wave of the pandemic.

Methods

For the surveys to be prepared, the model for ques-

tionnaire building and validation proposed by Pasquali⁷ was used, which is divided into three stages: theoretical, empirical and analytical. The first stage comprises a search in the literature for the preparation of the survey items. In the current study, databases of the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM)^{3,4,8,9,10} were used to build the items of the survey, which was composed of quick questions and the development of a flowchart. These organizations have great academic prestige for health and have been publishing information about COVID-19 since the beginning of the pandemic. Thus, this study gathered the main instructions and guidelines related to COVID-19, and a qualitative data analysis was conducted, as provided for in the theoretical stage proposed by Pasquali⁷.

Quick-question survey

The quick-question survey is composed of questions related to biological risk factors, which can be symptomatic, pre-symptomatic and asymptomatic¹¹. The user must answer, sign and date the quick-question survey every day before engaging in leisure-time physical activity, either freely or systematically, in a fitness center or in any space intended for physical activity. By completing the survey, the user can be classified with one of three colors: green, yellow or red, depending on the possibility of them spreading the virus. However, if it is the user's first contact with the quick-question survey, it will not be possible to classify them with the color yellow, since yellow indicates that there has been a change in the user's routine or social circle. It should be noted that the quick-question survey must be applied before the flowchart.

Below is the color classification, in accordance with the risk of spreading the disease, for the quick-question survey.

- Green: Low risk. The user can exercise in the fitness center if they have completed the flowchart in the last 14 days. Otherwise, they must complete the flowchart.
- Yellow: Moderate risk. There has been a change in routine, so the user must complete the flowchart again, for a revalidation as to whether or not they can enter the fitness center. However, it is worth remembering that classification with the color yellow will not be possible on the first day or for new users,

as it will be the user's first contact with the fitness center, so it is not possible to observe whether there has been a change in routine.

- Red: High risk. The user presented any COVID-19 symptom, so they must undergo a diagnostic test to check if they contracted the virus, in accordance with the guidelines of the Ministry of Health¹².

Flowchart

The flowchart contains questions based on behavioral actions, since the dissemination of the disease may be related to human behavior and social issues¹³. The flowchart is intended to identify whether the user exhibits risk behaviors for leisure-time physical activity, freely or systematically, inside fitness centers. The flowchart questions are quick. Just as the quick-question survey, the flowchart ranks users by color: green, yellow, and red.

The flowchart must be completed, signed and dated on the first day of the user's return to the fitness center. However, unlike the quick-question survey, it must be reapplied every 14 days.

The term "risk behavior" was adopted to classify the degree of exposure that the user presents in their daily activities. Below is the color classification, in accordance with the risk behavior for the spread of the disease, referring to the flowchart, using the colors green, yellow and red:

- Green: Low risk. The user has not exhibited any risk behavior and is free to engage in leisure-time physical activity, either freely or systematically.
- Yellow: Moderate risk. The user has exhibited one to two risk behaviors. For up to two yellow answers, the user is free to engage in leisure-time physical activity, either freely or systematically. For three or more yellow answers, it is recommended that the user go to a health center for an appointment and, if necessary, a diagnostic test. If the test is positive, they must stay in social isolation for at least 14 days. If the test is negative, they must show the document to the fitness center's staff or the Physical Education professional.
- Red: High risk. The user has presented COVID-19 symptoms, so they should go to a health center for an appointment and, if necessary, a diagnostic test. If the test is positive, they must stay in social isolation for at least 14 days. After this period, the user can return to the fitness center, but must complete the flowchart again. If the test is negative, they must

show the document to the fitness center's staff or the Physical Education professional.

After the items are built, Pasquali⁷ suggests testing them. The author suggests two possibilities – evaluation by the committee of judges, and semantic analysis. The judges must be experts in the field, as they have the role of assessing whether the items are suitable or not. According to Pasquali⁷, an agreement of 80% among the judges can serve as a decisive criterion regarding the relevance and acceptance of the built item. As for the semantic analysis, the purpose is to find out, through interviews with the target audience, for whom the instrument is intended with regard to the clarity and relevance of each item, as well as whether there is any difficulty and possible need for adaptation.

The empirical stage comprises data collection, which will allow estimating the psychometric properties of the surveys. The last stage refers to the statistical analysis of the data. Such analysis, based on Pasquali⁷, consists of measuring reliability or internal consistency through Cronbach's alpha.

However, this investigation concluded the first stage of a theoretical nature. To complete the empirical stage, the suggestion is that both the quick-question survey and the flowchart be applied by a receptionist at the fitness center, observing the minimum distance of 1.5 meter between the applicator and the user, as well as the use of masks and hand sanitizers.

Data were collected by means of qualitative and quantitative approaches. For the analysis, descriptive statistics were used in order to describe the collected data, through the Content Validity Index (CVI), mean and standard deviation (SD). The CVI measures the percentage of judges who agree on certain aspects of the survey, as well as the items that compose it. Based on the study by Alexandre and Coluci¹⁴, the CVI analyzes each item individually and the entire set of questions in the survey. For the authors, the appropriate cutoff point for this analysis is 0.80 (80%). To calculate the CVI, the formula proposed by Alexandre and Coluci¹⁴ was used, namely: $CVI = \text{Number of answers } 4 \text{ or } 5 / \text{total number of answers}$. As for the semantic analysis, the mean and SD of each item were described from the data obtained through the evaluators.

For the committee of judges, a quantitative analysis was conducted, that is, it was determined which items would stay, be changed or be removed, based on their clarity and relevance, using the Likert scale. In addition,

a qualitative and quantitative analysis was performed, which includes the analysis of the judges' suggestions regarding the items. These analyses were carried out in July 2020. For the second group of evaluators, in their turn, the objective was to verify the understanding and structuring of the items (quantitative analysis, based on the Likert scale) and, subsequently, whether there were suggestions for rewriting and/or restructuring the items (qualitative analysis). These analyses were carried out in August 2020.

The quick-question survey and the flowchart were sent to six judges with the purpose of assessing whether the built items were suitable in terms of their clarity and relevance (Table 1). Thus, six professors with ex-

tensive knowledge in the Health field composed the committee of judges.

With regard to the quantitative assessment, the judges were asked to assign the following values to each item, both for the quick-question survey and the flowchart (Table 1): 1 (remove item); 2 (bad); 3 (I do not know); 4 (good, but needs adjustments); and 5 (great). In addition, there was a complementary space for possible suggestions from the judges (qualitative assessment) (Chart 1).

Results

Table 1 shows the quantitative analyses, and Chart 1, the qualitative analyses of all items weighted by the

Table 1 – Assessment by the committee of judges on the relevance and clarity of the quick questions and the flowchart.

Quick questions		Judges						CVI (%)	Mean CVI per question (%)	Mean score	Standard deviation
Item*	Criterion	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5**	Judge 6				
1	R	5	5	5	5	5	5	100	100	5.0	0.0
	C	5	5	5	5	5	4	100		4.8	0.8
2	R	5	5	5	4	4	5	100	100	4.7	1.3
	C	5	5	5	4	4	5	100		4.7	1.3
3	R	5	5	5	5	4	5	100	100	4.8	0.8
	C	5	5	5	5	4	5	100		4.8	0.8
4	R	5	5	5	5	4	5	100	100	4.8	0.8
	C	5	5	5	5	4	5	100		4.8	0.8
5	R	4	5	5	5	5	5	100	100	4.8	0.8
	C	4	5	5	5	5	5	100		4.8	0.8
6	R	5	5	5	5	4	5	100	90	4.8	0.8
	C	2	5	5	5	4	4	80		4.2	6.8
Flowchart		Judges						CVI (%)	Mean CVI per question (%)	Mean score	Standard deviation
Item	Criterion	Judge 1	Judge 2	Judge 3	Judge 4	Judge 6					
1	R	5	5	5	5	5	100	100	5.0	0.0	
	C	5	5	5	5	5	100		5.0	0.0	
2	R	5	5	5	5	4	100	100	4.8	0.8	
	C	5	4	5	4	5	100		4.6	1.2	
3	R	5	5	5	5	5	100	100	5.0	0.0	
	C	5	5	5	5	5	100		5.0	0.0	
1L	R	5	5	5	5	5	100	100	5.0	0.0	
	C	4	5	5	5	5	100		4.8	0.8	
2L	R	5	5	5	5	5	100	100	5.0	0.0	
	C	4	4	5	5	5	100		4.6	1.2	
3L	R	5	5	5	5	4	100	100	4.8	0.8	
	C	4	5	5	5	5	100		4.8	0.8	
4L	R	5	5	5	5	5	100	100	5.0	0.0	
	C	4	5	5	5	5	100		4.8	0.8	
5L	R	5	5	5	5	5	100	100	5.0	0.0	
	C	5	5	5	5	5	100		5.0	0.0	

Continue...

Continue from **Table 1** – Assessment by the committee of judges on the relevance and clarity of the quick questions and the flowchart.

Flowchart		Judges					CVI (%)	Mean CVI per question (%)	Mean score	Standard deviation
Item	Criterion	Judge 1	Judge 2	Judge 3	Judge 4	Judge 6				
5La	R	5	5	5	5	5	100	100	5.0	0.0
	C	4	5	5	5	5	100		4.8	0.8
1W	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	5	5	5	5	100		5.0	0.0
1Wa	R	5	5	5	5	5	100	100	5.0	0.0
	C	4	5	5	5	5	100		4.8	0.8
2W	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	5	5	5	5	100		5.0	0.0
3W	R	5	5	4	5	5	100	100	4.8	0.8
	C	5	5	5	5	5	100		5.0	0.0
4W	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	5	5	5	5	100		5.0	0.0
5W	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	4	5	5	5	100		4.8	0.8
6W	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	5	5	5	5	100		5.0	0.0
1H	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	5	5	5	5	100		5.0	0.0
1Ha	R	5	5	5	5	5	100	100	5.0	0.0
	C	4	5	5	5	5	100		4.8	0.8
1Hb	R	5	5	5	5	5	100	100	5.0	0.0
	C	5	4	5	5	5	100		4.8	0.8

Legend: *The numbering of the items does not correspond to the final version, as they went through changes proposed by the judges and evaluators; **Judge 5 only participated in the evaluation of the quick-question survey because he was from the biological sciences field; R = relevance; C = clarity; CVI = content validity index; L = leisure, W = work, H = house; Source = research data.

committee of judges.

All questions had a CVI above 80%, as suggested by Alexandre and Coluci¹⁴, regarding the relevance and clarity of all items.

As for the suggestions, all were evaluated, and relevant changes were considered in order to optimize the clarity and relevance of each item in the quick-question survey and in the flowchart. Some suggestions that were deemed not relevant were also included in the discussion due to the recognition of their relevance for the present study.

After the suggestions from the committee of judges, a new version of the quick-question survey and the flowchart was prepared, then subjected to semantic analysis, which was conducted by 30 participants with a mean age of 36.97 ± 11.09 years. Among them, 76.7% were employed or self-employed, 10% were retired, 6.7% were students, 6.7% were unemployed, 46.7% completed higher education, 20% had a specialization degree, 20% had a master's degree, 10% were PhDs, and 1% completed high school.

In the semantic analysis, the items are evaluated as to their intelligibility. In other words, it is verified whether the items are understood by the segment of the population with the lowest level of skills, and according to Pasquali⁷, the difficulty in understanding each item should not constitute a complicating factor for the answer. For this analysis, the following criteria were considered: level of understanding, and structuring of each item.

For the level of understanding criterion, the evaluation was performed using a scale, which ranged from 1 (I did not understand anything); 2 (I did not understand some parts); 3 (I do not know if I understood); 4 (I understood, but it needs adjustments) to 5 (I totally understood).

For the structuring criterion, the evaluation was also performed using a scale to check whether the item could be rewritten in a different way, which ranged from 1 (remove item); 2 (the item must be completely rewritten); 3 (I do not know); 4 (the item must be partially rewritten); 5 (The item does not need to be

Chart 1 – Accepted suggestions, from the assessment by the committee of judges on the relevance and clarity of the quick-question survey and the flowchart.

	Item	Accepted suggestions
Quick-question survey	1	Add a sub-item, in case of fever (>37.3°) in the last 14 days. I only recommend carrying out the evaluation if the answer to my question is negative.
	2c	Add abnormal feeling of tiredness, gastrointestinal symptoms; sore throat is not a common symptom of COVID-19 Add a sub-item if these symptoms were present in the last 14 days
	2d	Add a sub-item if these symptoms were present in the last 14 days
	3	Add a sub-item if these symptoms were present in the last 14 days
	4	Add social distancing and hand sanitization
Flowchart	5	Explain the meaning of routine. Add “or has another person with whom you have close contact on a regular basis (e.g.: work)” had any change in routine. Add “or living with you” had any change in routine. Everyone should respond to this item, as everyone is subject to routine changes.
	2	Inform which the risk groups are. Specify “whether from the risk group”. Expand the “risk group” category with other individuals who are also in the risk group.
	4	Add “or someone close to you that makes you be...”. Move item to position number 2.
	1L	Change to “you attending parties or meetings in groups with people you do not see on a regular basis?”.
	2L	Add “with other people you do not see on a regular basis?”
	3L	Add “do you keep the social distance and frequently sanitize your hands?”. Add “hand sanitization”.
	4L	Add “you see on a regular basis train anywhere?”
	5La	Change to “these people you have visited (wear masks; are in the risk group; in isolation; work outside the home)?” Change to plural – “these people”.
	1 Wa	COVID-19.
	2W	Add “Does your employer provide...” Add “face shield, space isolation equipment; space arrangement that allows a distance of 1.5m to 2m”.
	5W	Add “use/have used”.
	1Ha	Add “anyone living with you...”. Add a question about whether the person has had contact with anyone infected with COVID-19.
	1Hb	Correct to “the people with whom...”.
	1Hc	I judge the question redundant with the suggestion I made in Part I (Leisure) and irrelevant in the context. Correct “social distancing”.

Source: Research data.

rewritten) - Table 2.

Regarding understanding and structuring, only one question had a CVI below 80% (structure of question 5La, with 77%). The authors found that the question was not clear and made the necessary changes, as they judged it relevant.

Besides the scales for assessing understanding and structuring, there was additional space for general suggestions. Chart 2 displays the accepted suggestions for validating the final version of the quick-question survey and the flowchart.

In addition to the suggestions for semantic restructuring, the replacement of two flowchart items was considered, due to the redundancy of the questions.

Thus, question 4 “Do you have a disease or someone close to you that makes you be in a hospital environment frequently” was replaced by question 3 “Have you been to the hospital in the last 14 days?” (Figure 1), and question 1Hb “In the last 14 days, have you had contact with anyone with symptoms of COVID-19?” was replaced by question 1Ha “In the last 14 days, has anyone living with you had symptoms of COVID-19?” (Figure 1).

After the stages described above, the final version of the quick-question survey (Figure 2) and the flowchart (Figure 1) were obtained, completing the theoretical stage.

Thus, the survey and flowchart prepared are presented below:

Table 2 – Semantic assessment on the understanding and structuring of the quick questions and the flowchart.

Quick Questions (Items*)	Understanding – mean	CVI understanding (%)	Structure – mean	CVI structure (%)	Mean CVI per question (%)
1	4.47	90	4.30	83	87
2a	4.60	93	4.63	93	93
2c	4.70	93	4.70	93	93
2d	4.57	93	4.57	93	93
3	4.90	97	4.77	97	97
4	4.80	97	4.80	97	97
5	4.17	73	4.13	73	73
Flowchart (Items*)					
1	4.60	93	4.53	87	90
2	4.87	93	4.73	93	93
3	4.63	93	4.53	90	92
1L	4.63	90	4.63	90	90
2L	4.60	87	4.60	87	87
3L	4.97	100	4.93	100	100
4L	4.70	90	4.70	90	90
5L	4.83	97	4.83	97	97
5La	4.60	87	4.40	77	82
1W	4.90	97	4.90	97	97
1Wa	4.67	93	4.67	93	93
2W	4.33	83	4.17	80	82
3W	4.77	93	4.80	93	93
4W	4.50	87	4.33	80	83
5W	4.63	90	4.63	87	88
4W	4.80	100	4.80	97	98
1H	4.70	90	4.70	90	90
1Ha	4.63	90	4.67	90	90
1Hb	4.73	93	4.73	90	92

Legend: *The numbering of the items does not correspond to the final version, as they were change por porta (?) of the judges and evaluators; CVI = content validity index; L = leisure, W = work, H = house; Source = research data.

Discussion

The present study aimed to develop two instruments – a quick-question survey and a flowchart, both related to COVID-19 in asymptomatic and pre-symptomatic periods – in order to identify biological risk factors and define sociocultural and behavioral profiles for users of fitness centers and people who engage in leisure-time physical activities, either freely or systematically.

Given the pandemic scenario, the first and most effective security measure to prevent the spread of the virus is social isolation¹⁵. However, social isolation for long periods represents a significant cost to people's livelihoods, education and mental health, as well as to the global economy¹⁶. Furthermore, social isolation is even more difficult for the population with low income, lower level of education, and worse housing conditions^{16,17}.

However, at the beginning of the pandemic, the recommendation was to close non-essential busi-

nesses, as well as fitness centers, in order to prevent the spread of the virus⁵. On the other hand, several documents reinforced the importance of leisure-time physical activity, either freely or systematically, of light to moderate intensity, for the population during quarantine⁸. In this direction, fitness centers, as well as Physical Education professionals, offered the option of online training through social networks, since engaging in leisure-time physical activity, either freely or systematically, can contribute to physical health, in addition to attenuating the negative symptoms arising from quarantine¹⁸.

Nonetheless, it should be made clear that leisure-time physical activity, whether free or systematic, cannot be conceived in a simplistic manner or deemed as the cure to all ills; health is very complex and directly influenced by different conditioning factors and underlying determinants of the human dimension¹⁹. Thus,

Chart 2 – Suggestions accepted with regard to the understanding and structuring of the items.

	Suggestions
Quick-question survey	<p>Observe and, if necessary, advise that they seek medical assistance.</p> <p>Change sense of taste to “flavor”.</p> <p>Group questions 1, 2, 3 and 4</p> <p>Change item 3 to “When you leave your house, do you wear face protection, socially distance and frequently sanitize your hands?”</p> <p>Change item 4 to “When you return to your house, do you sanitize your mask, shoes and clothes?”</p> <p>Change item 5 to “Have you, or has someone you see on a regular basis (e.g.: work or family), had any change in routine?” and clarify the meaning of routine.</p>
Flowchart	<p>“COVID-19”.</p> <p>Advise that people in the risk group also need to exercise.</p> <p>Change item 3 of part I to “Have you been to the hospital...”.</p> <p>Change item 1L to “Are you attending parties or meetings with people you do not see on a regular basis?”.</p> <p>To item 3L, add “In your leisure time, do you wear a mask when you leave the house...”.</p> <p>Change item 4L to “Do people you see on a regular basis train elsewhere?”.</p> <p>To item 5L, add “In the last few days...”.</p> <p>Change item 5La to “Did these people you visited wear a mask and keep the social distance?”.</p> <p>Add “cold store” to item 1Ta.</p> <p>Change “Lottery” to “Lottery kiosk”, and “Dilation” to “Distancing”.</p> <p>Change item 3W to “Do all employees where you work wear a mask?”</p> <p>Change item 4W to “At work, do you keep a physical distance while talking to people?”</p> <p>Change item 5W to “Do you use/have you used public transport to work?”.</p> <p>Change item 6W to “Is there natural-air circulation where you work?”.</p> <p>Change item 1Ha to “In the last 14 days, has anyone living with you had symptoms of COVID-19?”</p>

Legend: L = leisure, W = work, H = house; source = research data.

it is understood that, in order to control the transmission of COVID-19, even with vaccination, significant changes in individual and collective behavior are essential²⁰. The start of mass vaccination in Brazil delayed and, consequently, extended the crisis and slowed down the recovery of the economy, because, due to the high risk of infection, many establishments remained closed for a long period of time, such as fitness centers²¹. Currently, with the vaccination process in progress, most establishments have resumed their activities, and to ensure everyone’s safety, it is necessary to understand and monitor how different individuals perceive the risk and what makes them act in accordance with it.

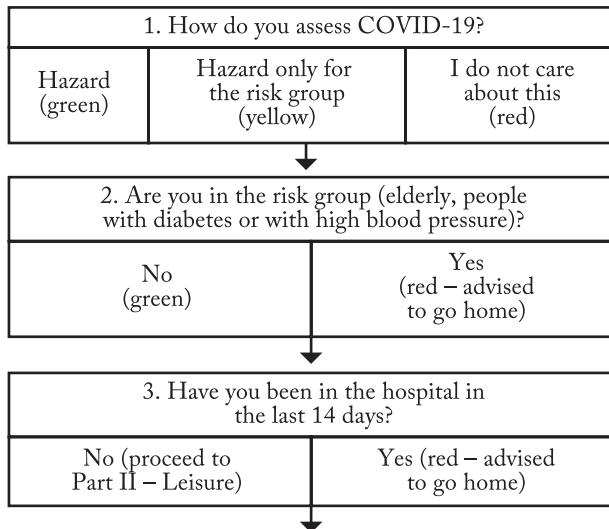
Most studies on COVID-19 involving fitness centers describe the importance of hygiene to prevent the spread of the virus¹⁸. However, the sociocultural and behavioral aspect of users is extremely relevant²². They mentioned that people usually do not recognize the risk they face before the virus, that being in social isolation

goes against human nature, and that people usually act while posing a risk on themselves and on others²². This conclusion shows that human behavior directly influences the dissemination of COVID-19, and the present study brings this relationship between biological risk factors and sociocultural and behavioral aspects.

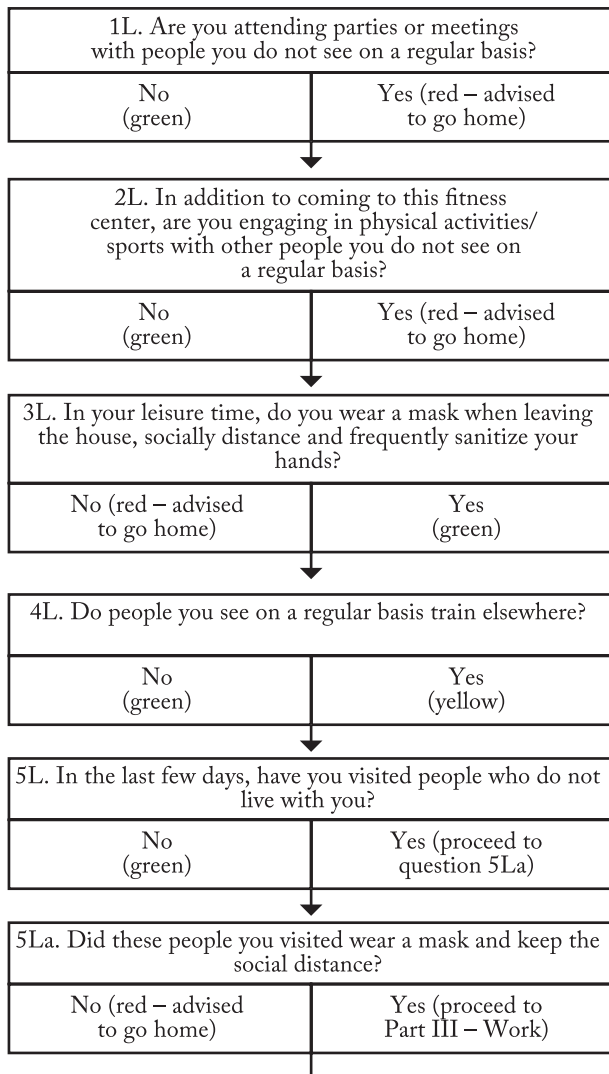
Nevertheless, so far, there is a paucity in the literature of studies related to intervention procedures that identify human behavior during the pandemic. Furthermore, other aspects related to behavioral changes need to be studied and understood. However, most commercial places, specifically fitness centers, are back in business. Therefore, it is suggested that these places take proper hygiene measures, as recommended by WHO and CREF⁵.

Thus, it is suggested that the quick-question survey be applied every day before users enter fitness centers. The flowchart, in its turn, must be applied every 14 days, after the first contact with the survey. If the participant

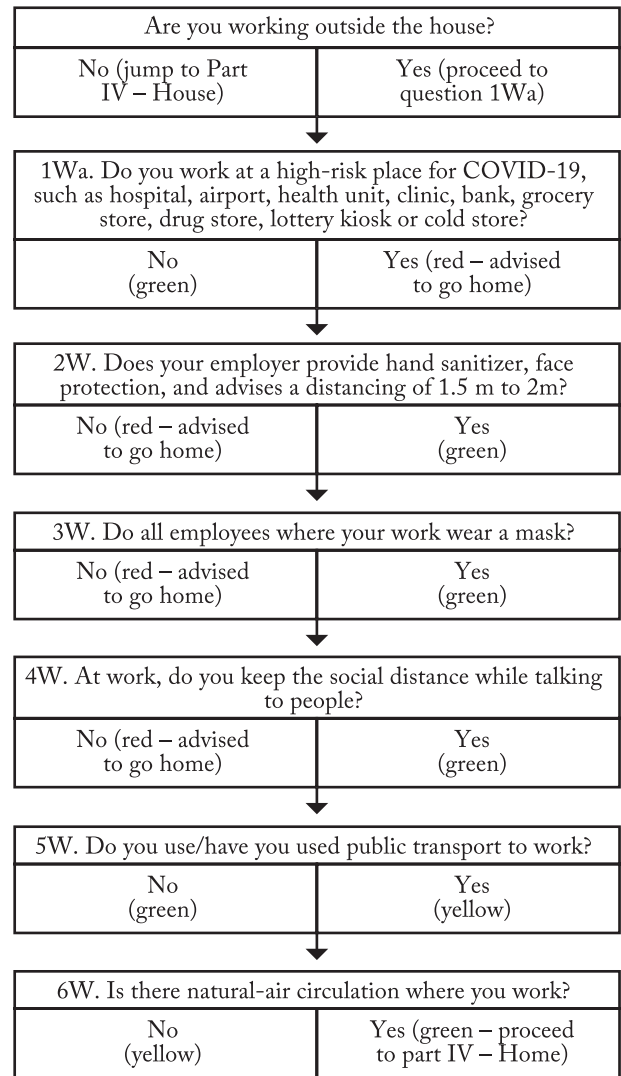
Part I – General questions



Part II – Leisure



Part III – Work



Part IV – Home

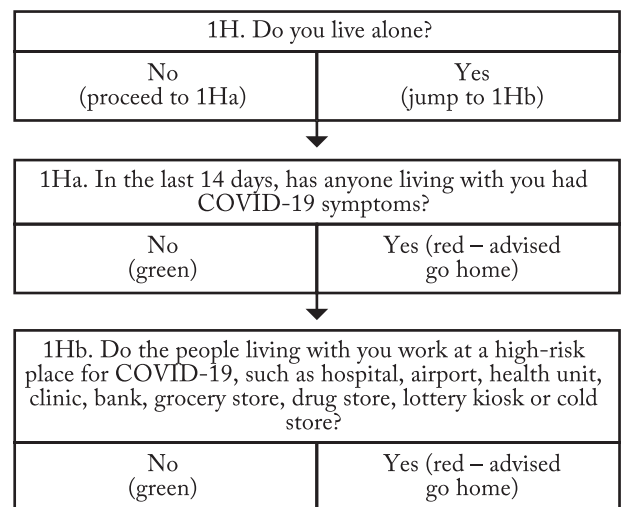


Figure 1 – Flowchart

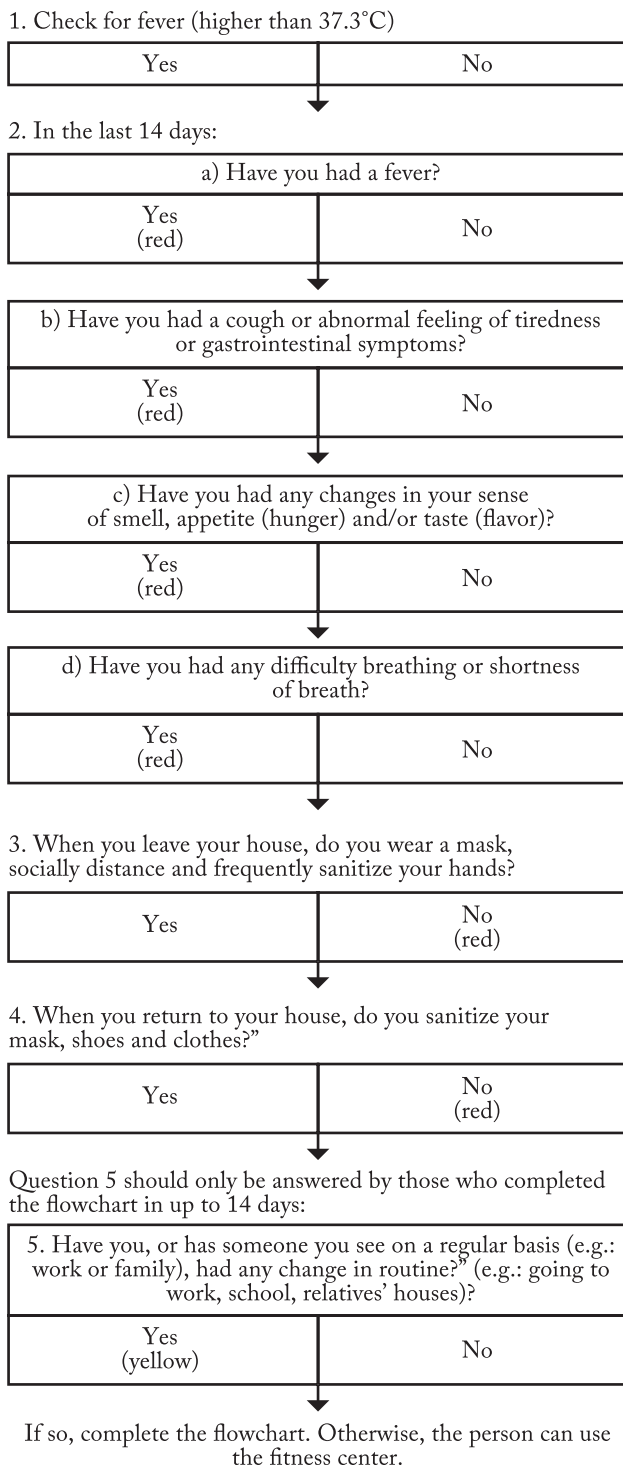


Figure 2 – Quick-question survey

answers in the quick-question survey that there has been any change in their routine – for instance, they have returned to the office or school –, they must answer the flowchart questions again, even without having completed the 14 days. In order to facilitate the application of the protocols, one suggestion is that the

quick-question survey and the flowchart be completed from a smartphone application or an online form. This way, the user will be able to complete them in advance, avoiding crowding upon arriving at the fitness center.

The qualitative approach is intended to provide greater safety for users of fitness centers or similar places. Thus, based on the results of the evaluations, it is advised that fitness centers provide different schedules and rooms, based on the users' profiles. The suggestion is that individuals with similar behaviors or pace of life can train at the same time and/or in the same rooms and, thus, feel safer.

Although some fitness centers and places meant for leisure-time physical activity, whether free or systematic, do not have a structure to implement this type of strategy in several environments simultaneously, it would be important to organize the schedules in order to serve users with greater safety. Furthermore, it is known that several answers classified as yellow refer to work or other behaviors that cannot be changed. Thus, the research instruments do not intend to exclude, on the contrary, the idea is to include everyone safely. In addition to the possible divisions of schedules and environments in fitness centers, in accordance with behavioral and sociocultural protocols, it is recommended that other safety protocols suggested by CREF⁵ and/or by state and municipal decrees be considered.

It is understood that the current proposal may not be easily feasible in all fitness centers and places meant for leisure-time physical activity, whether free or systematic, at first. However, there is the possibility of a third wave, with an increase in transmission rates, number of cases and deaths by COVID-19. Therefore, it is imperative to reinforce the importance of this proposal being implemented in these environments in order to prevent the transmission of the virus. Protecting users of fitness centers, Physical Education professionals and all employees is essential.

Regarding the limitations, one of the difficulties in developing the current study was that other validated questionnaires with the same or similar objective were not found in the national literature, making a comparison with those prepared in this study impossible. In addition, the methodological part can be mentioned, as it presented only the theoretical stage proposed by Pasquali⁷. However, it is considered that the data from this study are urgent for fitness centers. Another limitation was that COVID-19 is a recent disease, so more studies are needed to understand how the virus behaves

in the long term. Another limitation is that, as is the case with all questionnaires, it is not possible to confirm the veracity of the information provided by the users, since the individuals' answers depend on their way of understanding the situation. It is recommended that future studies can develop the second and third stages proposed by Pasquali's methodology⁷, in addition to containing actions to make users aware of the importance of not going to certain places if they have any type of COVID-19 symptom.

Thus, it can be concluded that the article showed advances by creating an application protocol for fitness centers and places for leisure-time physical activity, whether free or systematic, related to aspects of sociocultural and behavioral risk, in addition to biological risk. In this sense, this protocol will be able to contribute to a possible decrease in the proliferation of the virus in fitness centers. Moreover, because these questionnaires were developed by Physical Education professionals, this article defends the importance of this category belonging to the Health field^{1,2}, granting this group authority to discuss and contribute to scientific and Physical Education professional knowledge in the Health field.

In addition to identifying the biological aspects related to COVID-19, the quick-question protocol and the flowchart proved to be satisfactory for identifying and qualitatively defining the users' sociocultural and behavioral profiles. Although WHO, the Ministry of Health and CREF⁵ developed guidelines for collaborators, employees and users of fitness centers to carry out the protocols, in order to make the environment safe, the proposal of this study goes beyond safety inside fitness centers and offers users a comprehensive, individualized and, at the same time, collective view of the use of these environments.

Given the challenging and critical scenario, and considering the possibility of a third wave of the pandemic, the application of the introduced protocol, in an ethical, responsible and safer manner, is expected to assist in the education of the served community regarding the necessary care with COVID-19 and, above all, qualitatively contribute to the instrumentalization of the procedural actions of Physical Education professionals who work in fitness centers and/or similar places, such as in the Public Health field – NASF-AB, for instance.

Conflict of interest

The authors declare no conflict of interest.

Author's contributions

Christofoletti AEM, coordinated the work, participated in the manuscript conception and design, analysis, data interpretation, writing of the manuscript and critical review of the content. Fukushima RLM, participated in the manuscript conception and design, analysis, data interpretation, writing of manuscript and critical review of the content. Fernandes MM, participated in the manuscript conception and design, analysis, data interpretation, writing of the manuscript and critical review of the content. Nunes HFP, participated in the conception and design, analysis, writing of the manuscript and critical review of the content. Metzner AC, participated in the conception and design, writing the manuscript and critical review of the content. Drigo AJ, supervised the work, participated in the manuscript conception and design, analysis, data interpretation, writing of the manuscript and critical review of the content.

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References

1. Brasil. Ministério da Saúde. Secretaria de Atenção Especializada à Saúde. Portaria nº 99, de 7 de fevereiro de 2020. Diário Oficial da União; 2020. Available from: <<http://www.in.gov.br/web/dou/-/portaria-n-99-de-7-de-fevereiro-de-2020-242574079>> [2021 may].
2. Brasil. Conselho Nacional de Saúde. Resolução nº 218, de 06 de março de 1997. Reconhecer como profissionais de saúde de nível superior as seguintes categorias. Diário Oficial da União; 1997. Available from: <<http://www.crprj.org.br/legislacao/documentos/resolucao1997-218.pdf>> [2021 may].
3. Cdc. Centers for Disease Control and Prevention. What to Do If You Are Sick – Mar. 17; 2021. Available from: <<https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html>> [2021 july].
4. Who. World Health Organization. A Guide to WHO's guidance on COVID-19 – July 17; 2020. Available from: <<https://www.who.int/news-room/feature-stories/detail/a-guide-to-who-s-guidance>> [2021 july].
5. CREF. Conselho Regional de Educação Física da 4ª região. Procedimentos de Reabertura de Academias. Available from: <<https://www.crefsp.gov.br/storage/app/arquivos/3e9b5bff9e2d1166bcd83fb1756c768d.pdf>> [2021 july].
6. Tokarski M. 3ª onda de covid-19: o recado que vem dos Estados Unidos [publicação na web]. Available from: <<https://exame.com/bussola/3a-onda-de-covid-19-o-recado-que-vem-dos-estados-unidos/>> [2021 September].
7. Pasquali L. Instrumentação Psicológica: fundamentos e práticas. São Paulo: Artmed; 2010.
8. Acsm. American College of Sports. Staying active during the coronavirus pandemic. Exercise is medicine; 2020. Available from: <https://www.exerciseismedicine.org/assets/page_documents/EIM_Rx%20for%20Health_%20Staying%20Active%20During%20Coronavirus%20Pandemic.pdf> [2021 july].

9. Organización Panamericana de La Salud. La estigmatización social asociada a la COVID-19; 2020. Available from: <<https://www.paho.org/es/documentos/estigmatizacion-social-asociada-covid-19>> [2021 june].
10. Sallis J, Pratt M. A call to Action: physical activity and COVID-19 [online]. American College of Sports Medicine, EIM Blog; 2020.
11. He X, Lau EHY, Wu P, Deng X, Wang J, Hao X, et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nat Med.* [online] 2020; 26(1):672–5.
12. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Análise em Saúde e Doenças não Transmissíveis. Guia de vigilância epidemiológica Emergência de saúde pública de Importância nacional pela Doença pelo coronavírus 2019 – covid-19 [recurso eletrônico]; 2021. Available from: <https://www.conasems.org.br/wp-content/uploads/2021/03/Guia-de-vigila%CC%82ncia-epidemiolo%CC%81gica-da-covid_19_15.03_2021.pdf> [2021 may].
13. Wu F, Zhao S, Yu B, Chen Y, Wang W, Song Z, et al. A new coronavirus associated with human respiratory disease in China. *Nature* [online] 2020; 579:265–9.
14. Alexandre NMC, Coluci MZ. Validade de conteúdo nos processos de construção e adaptação de instrumentos de medidas. *Ciênc. Saúde coletiva* 2011;16(7):3061-8.
15. West R, Michie S, Rubin GJ, Amlôt R. Applying principles of behaviour change to reduce SARS-CoV-2 transmission. *Nat Hum Behav* [online] 2020; 4(1):451–9.
16. Alegado S. Global cost of coronavirus could reach 4,1 trillion adb says – April 3; 2020. Available from: <<https://www.bloomberg.com/news/articles/2020-04-03/global-cost-of-coronavirus-could-reach-4-1-trillion-adb-says>> [2021 may].
17. Bezerra ACV, Silva CEM, Soares FRG, Silva JAM. Fatores associados ao comportamento da população durante o isolamento social na pandemia de COVID-19. *Ciênc. saúde coletiva* [online] 2020; 25 (Suppl 1): 2411-21. Available from: https://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232020006702411&cting=pt.
18. Andreucci CA. Gyms and Martial Arts School after COVID-19: When to Come Back to Train? *Advances in Physical Education* [online] 2020; 10(2):114–20.
19. Loch MR, Rech CR, Costa FF. A urgência da Saúde Coletiva na formação em Educação Física: lições com o COVID-19. *Ciênc. saúde coletiva* [online] 2020; 25(9):3511-3516.
20. Guimarães R. Vacinas Anticovid: um Olhar da Saúde Coletiva. *Ciênc. Saúde Coletiva* [online] 2020; 25(9):3579-85.
21. Mendonça H. Atraso do Brasil em começar vacinação contra covid-19 estende crise e retarda retomada da economia [publicação na web]. Available from: <<https://brasil.elpais.com/brasil/2020-12-30/atraso-do-brasil-em-comecar-vacinacao-contracovid-19-estende-crise-e-retarda-retomada-da-economia.html>> [2021 september].
22. Bavel JJV, Baicker K, Boggio PS et al. Using social and behavioural science to support COVID-19 pandemic response. *Nat Hum Behav* [online] 2020; 4(1):460–71.

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