The path from suspicion to diagnosis of people with Covid-19

O percurso da suspeição ao diagnóstico de pessoas com Covid-19

El camino de la suspicion al diagnóstico de las personas con Covid-19

RGE Revista Gaúcha de Enfermagem

Liliane Faria da Silva[a] iD
Emília Gallindo Cursino[a] iD
Euzeli da Silva Brandão[a] iD
Fernanda Garcia Bezerra Góes[b] iD
Jéssica Renata Bastos Depianti[c,d] iD
Laura Johanson da Silva[e] iD
Rosane Cordeiro Burla de Aguiar[a] iD

ABSTRACT

Objective: To know the therapeutic itinerary of people diagnosed with Covid-19 from suspicion to the diagnosis.

Method: Qualitative research. 65 people diagnosed with Covid-19 residing in Rio de Janeiro participated. Data collected using a semi-structured form sent via social media and processed in the software *Interface de R pour Analyses Multidimensionnelles de Textes Et de Questionnaires* by Descending Hierarchical Classification and Correspondence Factor Analysis.

Results: Three classes of text segments were obtained that revealed the therapeutic itinerary, with emphasis on the search for care; shortage of tests; need to return to the units for diagnosis and follow-up; and the path to confirmatory test.

Conclusion: The therapeutic itinerary of patients with Covid-19 showed weaknesses in the face of difficulties related to access to diagnostic tests and the organization of the system to meet the population's demand in the face of the pandemic.

Keywords: Coronavirus infections. Pandemics. Health services accessibility. Patients.

RESUMO

Objetivo: Conhecer o itinerário terapêutico de pessoas diagnosticadas com a Covid-19 da suspeição ao diagnóstico.

Método: Pesquisa qualitativa. Participaram 65 pessoas diagnosticadas com Covid-19 residentes no Rio de Janeiro. Dados coletados por meio de formulário semiestruturado enviado via mídias sociais e processados no *software Interface de R pour Analyses Multidimensionnelles de Textes Et de Questionnaires* pela Classificação Hierárquica Descendente e Análise Fatorial de Correspondência.

Resultados: Foram obtidas três classes de segmentos de texto que revelaram o itinerário terapêutico, com destaque para a busca de atendimento; escassez de testes; necessidade de retornos às unidades para o diagnóstico e acompanhamento; e, caminhos para realização do teste confirmatórios.

Conclusão: O itinerário terapêutico dos pacientes com a Covid-19 demonstrou fragilidades perante dificuldades relacionadas ao acesso aos testes diagnósticos e à organização do sistema para atendimento da demanda da população frente à pandemia.

Palavras-chave: Infecções por coronavírus. Pandemias. Acesso aos serviços de saúde. Pacientes.

RESUMEN

Objetivo: Conocer el itinerario terapéutico de las personas diagnosticadas con Covid-19 desde la sospecha hasta el diagnóstico.

Método: Investigación cualitativa. Participaron 65 personas diagnosticadas con Covid-19 que residen en Río de Janeiro. Datos recopilados mediante un formulario semiestructurado enviado a través de las redes sociales y procesados en el *software Interface de R pour Analyses Multidimensionnelles de Textes Et de Questionnaires* mediante clasificación jerárquico descendente y análisis de factores de correspondencia.

Resultados: Se obtuvieron tres clases de segmentos de texto que revelaron el itinerario terapéutico, con énfasis en la búsqueda de atención; escasez de pruebas; necesidad de regresar a las unidades para diagnóstico y monitoreo; y, rutas de prueba confirmatorias.

Conclusión: El itinerario terapéutico de los pacientes con Covid-19 mostró debilidades frente a las dificultades relacionadas con el acceso a las pruebas de diagnóstico y la organización del sistema para satisfacer la demanda de la población frente a la pandemia.

Palabras clave: Infecciones por coronavirus. Pandemias. Accesibilidad a los servicios de salud. Pacientes.

[a] Universidade Federal Fluminense (UFF), Escola de Enfermagem Aurora de Afonso Costa. Niterói, Rio de Janeiro, Brasil.

[b] Universidade Federal Fluminense (UFF), Departamento de Enfermagem. Rio das Ostras, Rio Janeiro, Brasil.

[c] Universidade Federal do Rio de Janeiro (UFRJ), Escola de Enfermagem Anna Nery. Rio de Janeiro, Rio de Janeiro, Brasil.

[d] Pesquisador autônomo. Rio de Janeiro, Rio de Janeiro, Brasil.

[e] Universidade Federal do Estado do Rio de Janeiro, Escola de Enfermagem Alfredo Pinto, Rio de Janeiro, Rio de Janeiro, Brasil.

■ Silva LF, Cursino EG, Brandão ES, Góes FGB, Depianti JRB, Silva LJ, Aguiar RCB

■ INTRODUCTION

In January 2020, the World Health Organization (WHO) declared a Public Health Emergency of International Concern (PHEIC) due to the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the new coronavirus, which causes Coronavirus Disease 2019 (Covid-19). At that time, 7.7 thousand cases were confirmed, with 170 deaths in China, the initial location for the spread of the virus, and 98 cases were from 18 other countries[1].

Since then, the worldwide spread of the new coronavirus is growing, with a record of 14,765,256 cases and 612,054 deaths by July 22, 2020 on the planet. In Brazil, the first case was notified on February 26, 2020 and, currently,2,118,646 confirmed cases and 80,210 deaths have been registered by July 22 this year[2].

In Rio de Janeiro, the first reported case was on March 5, 2020 and after the detection of circulation and community contamination of the virus in the state, there was a decree from the state government that determined isolation measures[3] in an attempt to slow down the transmission of the virus. Despite the measures, on July 22, 2020, there were 145,121 reported cases, with 12,293 deaths registered, one of the epicenters of the disease in the national scenario[4].

The initial clinical picture of the disease is characterized as Flu Syndrome (FS), whose syndromic diagnosis depends on clinical-epidemiological investigation and physical examination. The main signs and symptoms are wide ranging and can range from a simple cold to severe pneumonia. People may experience fever, cough and difficulty breathing. Among the most common complications, the following stand out: severe acute respiratory syndrome (SARS), acute cardiac injury and secondary infection. Lethality among hospitalized patients varies between 11% and 15%[5].

In view of the impossibility of confirming whether FS is caused by SARS-CoV-2 or another virus, uniform conduct is recommended for all cases of FS in the context of Primary Health Care (PHC) and the Family Health Strategy (FHS). In this context, the diagnostic and therapeutic management of people with FS must follow the following steps: 1. Identification of a suspected case of FS and Covid-19; 2. Measures to avoid contagion in the different health care scenarios; 3. Stratification of the severity of the FS; 4. Mild cases: therapeutic management and home isolation; 5. Severe cases: stabilization and referral to urgent/emergency or hospital services; 6. Immediate notification; 7. Clinical monitoring; 8. Measures of community prevention and support for active surveillance[6].

Immediate recognition of the disease is essential to ensure timely treatment[7]. Therefore, it is recommended that people who present more severe symptoms, especially related to breathing difficulties, go to hospitals for treatment aimed at treating complications, a fact that has intensified the demand for care and results in an increased flow of hospitalizations in hospital units[7].

Given these considerations, it is highlighted that from the appearance of the first signs and symptoms of illness until the diagnostic confirmation, there is a trajectory to be followed by the person in search of care called therapeutic itinerary[8–9].

Studies on therapeutic itineraries help to understand the behavior regarding care and the way health services work and are used. The path taken and its multiple repercussions, if they do not happen properly, can result in a late diagnosis[8–9], which is especially worrying when it comes to becoming ill with viruses with high transmission power and with serious potential, such as the new coronavirus.

Any initiative that looks forward to understand the path that individuals are taking to obtain the diagnostic confirmation of Covid-19 is valid, in order to clarify whether this therapeutic itinerary is compatible with the flow indicated by the health authorities. Studies in this area are especially justified because it is a little-known disease, for which public policies and assistance strategies still need to be properly designed with a view to reducing mortality from this cause. Therefore, the objective of the study was to know the therapeutic itinerary of people diagnosed with Covid-19 from suspicion to diagnosis.

■ METHOD

Qualitative, descriptive and exploratory research developed using an online form. The participants were people diagnosed with Covid-19, over 18 years of age and residents in Rio de Janeiro, these being the inclusion criteria of the study. Health professionals were excluded, as they may have access to health services other than the general population.

The data were collected between May 12 and June 11, 2020. People were invited to participate in the study through social media such as Facebook, Instagram, and WhatsApp. For such end, research was published in the Facebook and Instagram feed and stories of the researchers in charge and the research groups. On WhatsApp, it was shared among research groups and/or close contacts. These strategies were used to achieve greater reach in terms of dissemination and participation in the study.

Thus, when accepting the invitation, the participants clicked on a link, received more information about the research, had access to the Free and Informed Consent Form (ICF) and the semi-structured form.

The form contained closed questions to characterize the participants, related to: demographic, clinical and therapeutic itinerary characterization, including, gender, age, presence of comorbidity, signs of symptoms identified at the beginning of the disease, time in days from the beginning of the symptoms until the search for care in a health service, type of health service sought for first care, need for hospitalization or not, place of residence, and presence or absence of other family members with confirmed diagnosis. The second part of the form was made up of open questions: how was the path taken to have the diagnosis of Covid-19? What were the facilities and difficulties encountered on this path?

The responses from the forms were submitted to lexicographic analysis, using the software *Interface de R pour Analyses Multidimensionnelles de Textes Et de Questionnaires* (IRAMUTEQ)[10] by the Descending Hierarchical Classification (DHC) and Correspondence Factor Analysis (CFA), to understand the different lexical worlds of the responses of the participants and thus achieve the proposed objective.

IRAMUTEQ is free software that enables qualitative data processing, through text statistics, produced, for example, from interviews and documents. In DHC text segments are grouped according to the presence or absence of words, constituting different semantic contexts, therefore, a stable and definitive classification is established, through classes (clusters) that, simultaneously, present similar terms to each other, as well as different of the text segments of the other classes, using chi-square tests (χ^2). Meanwhile, the CFA presents on a Cartesian plane the different words and the positioning of the classes, based on the frequencies and correlation values (χ^2) of each word in the textual *corpus*[10–11].

In the preparation of the textual *corpus*, variables that represented characteristics of the participants were used, namely: Gender - 1 (male) and 2 (female); Ag - age 1 (up to 19 years old), 2 (20 to 29), 3 (30 to 39), 4 (40 to 49), 5 (50 to 59), 6 (60 to 69) and 7 (70 to 79); PED - pre-existing disease, 1 (yes) and 2 (no); Tes - specific test performed for Covid-19, 1 (yes) and 2 (no); Net - service network, 1 (public) and 2 (private); UT - First aid unit, 1 (BHU), 2 (hospital), 3 (telephone service) and 4 (office); NOP - number of places that needed to go for assistance; and, Res - administrative area of residence in the State of Rio de Janeiro, 1 (*Metropolitana*), 2 (*Costa Verde*), 3 (*Baixada Litorânea*) and 4 (*Norte Fluminense*). So, here is an example of the command line based on the characteristics of one of the participants: **** * P_2 *Gender_2 *Ag_4 * PED_2 *Tes_1 *Net_1 *UT_2 *NOP_1 *Res_3.

In the analysis and interpretation of the data, the active forms of each class of text segments were recovered, including nouns, adverbs, adjectives and unrecognized forms, for example the acronyms, with emphasis on those obtained in the chi-square test (χ^2) a value ≥3.84, therefore, p<0.05, which indicates the associative strength between words in their respective class.

As for ethical aspects, the study was approved by the Research Ethics Committee (REC), CAAE: 31201420.6.0000.5243 and Statement: 4.012.631.

Participants were assured about the secrecy, anonymity, and confidentiality of the information. The ICF, which was made available online and, by selecting the option "I read and agree to participate in the survey", made it possible to give consent. To participant identification, it was used an alphanumeric code with the letter P followed by a number by order of participation in the research.

■ RESULTS

The study included 65 people, among them were 49 women and 26 men, aged between 18 and 79 years old, being up to 19 years old (2); from 20 to 29 (10); 30 to 39 (24); 40 to 49 (17); 50 to 59 (6); 60 to 69 (4); from 70 to 79 (2). As for the presence of pre-existing disease, 49 denied and 16 affirmed. Among the participants, 45 people were tested for Covid-19 and 20 were not. As for the service network, 38 sought service in the private network and 27 in the public network. The first place of care in 29 cases was the hospital, 21 initially sought telephone assistance for the first orientations, nine sought BHU and in six cases the office. As for the number of places that sought for diagnosis, 49 went to one place, 11 to two places, five to three places. As for the administrative area of residence in Rio de Janeiro, 58 people reside in *Metropolitana*, four in *Costa Verde*, two in *Baixada Litorânea* and one in *Norte Fluminense*.

Through the processing of IRAMUTEQ, using basic statistics, the textual *corpus* was composed by 65 texts, which are equivalent to the number of participants. In addition, 2189 words were identified, among which, 493 distinct forms and 268 hapaxes (single occurrence), with a mean by text of 33.68 words. With the DHC there was a distinction of the textual corpus in classes, by classifying 80 text segments, among 83 found, therefore, with 96.39% of use.

In this directive, the grouping into clusters of text segments with similar and associated vocabularies, and distinct from others, led to the formation of three stable classes, illustrated in the Dendrogram (Figure 1), which shows the relationships between these classes and the percentage of each in relation to the total of the analyzed *corpus*.

In the Dendrogram, initially, the textual corpus was separated into two *subcorpus*, of which, one was formed by Class 3 in blue (26.25%), and the other by a new subdivision encompassing Class 1 in red (47.5%) and Class 2 in green (26.25%), these two interconnected. Based on this classification, the text segments were thoroughly analyzed in order to understand their associations and to denominate each one of the classes.

Class 1 – From symptoms to the search for care and the clinical diagnosis of Covid-19

This class comprised the largest number of text segments and in it the active forms that presented statistical significance in decreasing order were: doctor, symptom, feeling, Covid-19 and ease. In addition, the variable that had the greatest significance in the class was related to not performing a specific test for Covid-19 (*Tes_2), followed by the age range between 40 and 49 years (*Ag_4); which is consistent with its semantic content that pointed out to the clinical confirmation of the disease.

The first terms listed (doctor, symptom, feeling) indicated the initial movement of the participants in the therapeutic itinerary, as they sought assistance based on their symptoms. Thus, in view of the suggestive symptoms and medical care, they obtained the diagnosis based on the clinical picture or on imaging exams.

I had a lot of weakness, fever, cough and I realized that they were symptoms of Covid-19, so I went to the UPA. (P42)

When I started to have symptoms, I thought it was sinusitis, but after 3 days I realized that I had totally different symptoms, nausea, vomiting, diarrhea, a lot of head
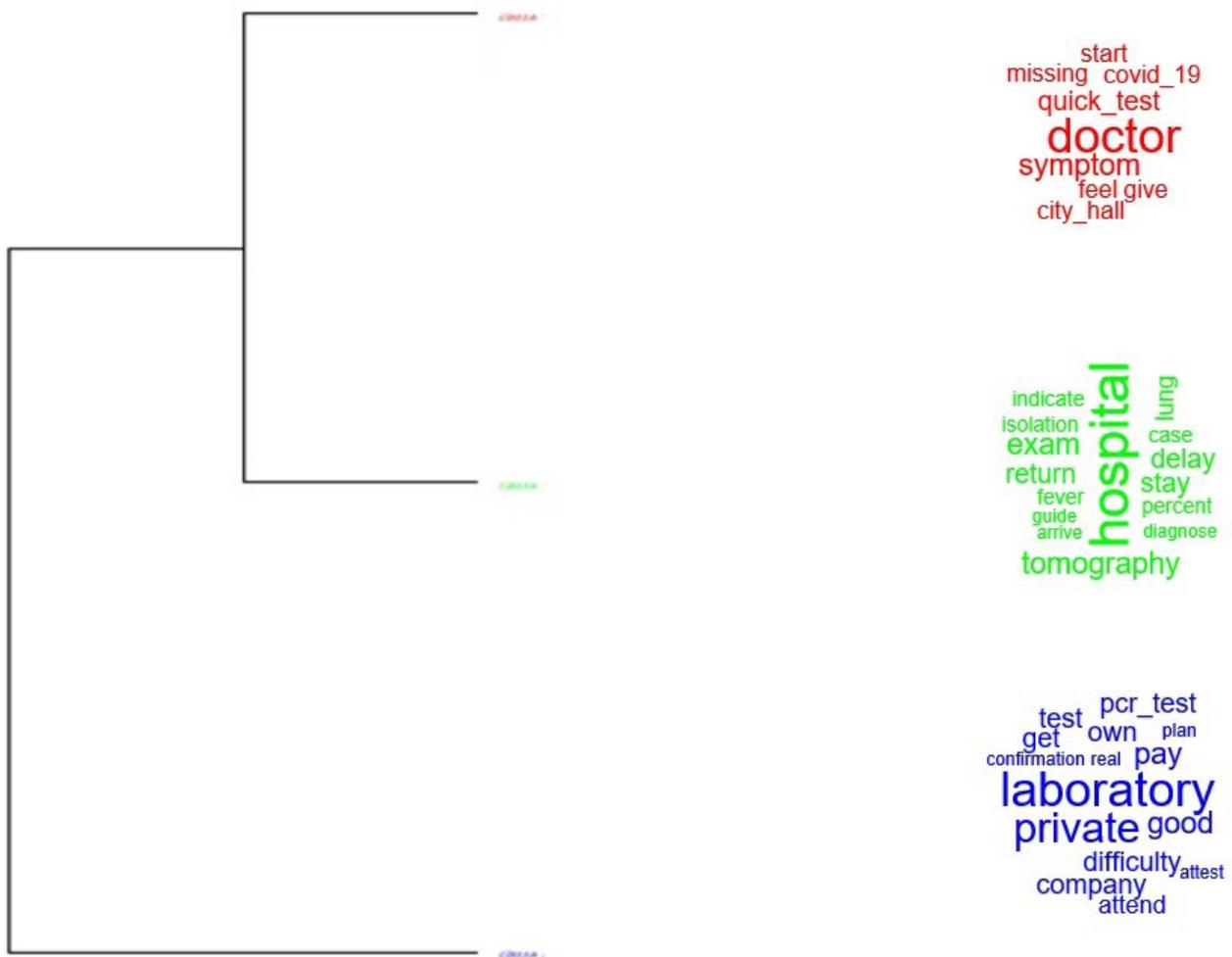

Figure 1 – Dendrogram of the Descending Hierarchical Classification. Rio de Janeiro, Brazil, 2020
Source: Research data, 2020.

and back pain and shortness of breath. I went to the emergency room, there was an x-ray and blood test, no specific test was done. (P30)

After the symptoms persisted, the doctors who were only suspicious before, made me sure it was Covid-19, there were many days of prostration and after an apparent improvement I started pneumonia and the Covid-19 spot appeared in my lung. (P39)

The doctors looked at the lung x-ray. (P7)

In this context, the participants pointed out some barriers to carrying out a specific test for the disease, making evident the scarcity of confirmatory tests in the care units:

I went to the doctor and he gave me a blood test, but to my surprise it wasn't Covid-19's. He claimed that to be able to do such a test it was a lot of bureaucracy, a lot of paperwork to complete, as the test for Covid-19 was scarce. (P32)

The doctor said that because of the symptoms I had felt, everything was indicating to Covid-19, there is not facility to do this test. (P33)

I didn't take the test, neither in a health center nor in a hospital, it was missing. (P16)

In order to have access to the confirmatory test, one participant called a person of his contact and another reported having pressured the doctor to make the request:

I had to, through the knowledge of a person, request a test after 20 days of symptoms, the same positive for IgG and IgM. (P46)

I had to ask the doctor to do tests, to testify to me the symptom of doing tests and the test to prove it. (P56)

Class 2 – Returns to care units for the diagnosis and follow up of Covid-19

In this class, the active forms that presented Qui2 ≥3.84 in decreasing order were: hospital, tomography, exam, return, stay, delay, case, isolation, lung, fever. In addition, the variable that had the greatest significance in the class was the number of places that the person went to have the diagnosis, with emphasis on two places (*NOP_2).

Among the most evident words in this class are hospital, tomography, exam and return. The verb return is close to the prominent variable of the class, which demonstrated

the need to go to more than one location, in the itinerary covered, to obtain the Covid-19 diagnosis.

First, the private hospital did not diagnose, after two transfers, then I got the diagnosis. This delay made me go to hospitals several times. (P8)

I went to the health center, they medicated me and I came home, then I went to the hospital there, I did X-rays and CT scans and they diagnosed me. (P16)

I was first diagnosed with tonsillitis, but my amygdala was not inflamed. Two days later the fever didn't go down, I went to a hospital and they did a blood test and saw that it was a viral infection, after that, on the fifth day I went to another hospital where, due to the symptoms, they diagnosed me with Covid-19. (P34)

In the path of the itinerary, some participants indicated that they had worsened their clinical condition and thus needed to return to the health unit to monitor the evolution:

From then on, I only got worse and on the fifth day I returned to the hospital, where the initial exams and chest tomography were repeated, which showed lung impairment of 25 to 50%. (P19)

I went and did a CT scan and several blood tests. The tomography showed that 25% of the lungs were impaired, which was not a case of hospitalization, the doctor ordered to continue with the cough medicine at home and if I didn't get better to return. (P30)

After two days with a high fever, I went to the hospital, then the medication was changed. Two days after I returned, as it was still persistent at this time, other tests were performed, including tomography. (P59)

The participants also highlighted some observations regarding the difficulties in the service units, such as queues; delay in attendance and exams; and overload of services.

Waiting in line for exams, confusion at the hospital, as they were overloaded with work. (P17)

They measured pressure and saturation. The service takes a long time, because I arrived at 10 am and left at 7 pm without eating anything. (P27)

Although in the hospital there was a separate sector for the care of people with suspicion, there were a large number of patients for care, which could cause the professionals' attention to be focused on the most severe cases. (P59)

Others highlighted the guidelines received, whether in person or by phone, regarding home isolation and observation of the evolution of the condition:

48 hours after the appearance of the first symptoms, I went to the hospital, the exams did not change, and I was instructed to do home isolation and return to the hospital if there was a worsening in five days. (P19)

After four days I called 136, and according to my symptoms the attendant said it was Covid-19. She instructed me to remain in isolation for 14 days and only look for a hospital in case of shortness of breath or fever above 38. (P30)

Class 3 – The paths for performing the Covid-19 diagnostic test

In this class, the statistically significant active forms in decreasing order were: laboratory, private, pay, own, difficulty, get, test, company, good, PCR test, attend, plan. Unlike class 1, here the variable that had the greatest significance was the relative to the performance of a specific test for Covid-19 (*Tes_1), followed by the age range between 20 and 29 years (*Ag_2).

Participants signaled the different paths they took to gain access to the Covid-19 confirmatory test, even with a health plan. Thus, in view of the difficulty of offering the specific test in the health network, people turned to private laboratories.

I went to a private laboratory and did the blood test on my own, in fact I didn't have much ease, having to pay for a test that should be done for free with everyone with suspicion. (P15)

Private laboratory came to my house to collect swab for PCR test, difficulty in being tested. (P13)

After a month of having passed badly I did the blood test in a private laboratory. (P64)

After attempts at hospitals and laboratories under the health plan, which did not attend due to lack of tests, I managed to get a private laboratory that attended, I wanted to do it considering that my daughter-in-law had a positive test by the PCR test method. (P12)

I had to pay 295 BRL in the private network for not being able to do it at the public network. (P54)

Even in private laboratories, some participants reported the difficulty of scheduling the exam.

I consulted my private doctor over the phone and he asked for the confirmation test. After trying hard to get the PCR test done at home by the private laboratory, I had to pay 410 BRL for each person in the family to make the test. (P5)

Collection was performed for testing at home, we were unable to get a date to perform the test in time for the PCR test effectiveness window. We only did it because we have financial conditions, if we hadn't, we wouldn't have done it. High price and little exam availability. (P21)

In the first attempts, hospitals and laboratories did not attend, even private, due to the lack of materials. (P12)

I went to the doctor who ordered exams but finding a laboratory that would provide prompt care was very difficult. Most of them had a protocol that made access difficult, and the available date was always far ahead. (P38)

There were participants who signaled facilities due to the fact that they had paid and scheduled tests by the companies they work for, noting that in hospitals only the people most severe were being tested:

I called the company I work for and they scheduled the test at my home. Being able to test at home without paying anything for the company, so I had no difficulties. (P6)

The company I work for paid for the test privately and the result came in two days by email. In the emergency I went to, it only performed tests in cases of more severe symptoms. (P61)

I did an on-board PCR test, it was easier for me to provide services to the company that did the test. (P23)

After the DHC, the formation of the classes was confirmed through the Correspondence Factor Analysis (CFA), which recovered the different words and positioned the classes on a Cartesian plane, according to figure 2.

Through CFA, it was confirmed that the classes have words associated internally and distinct from the other two classes, since few words from each group were dispersed to
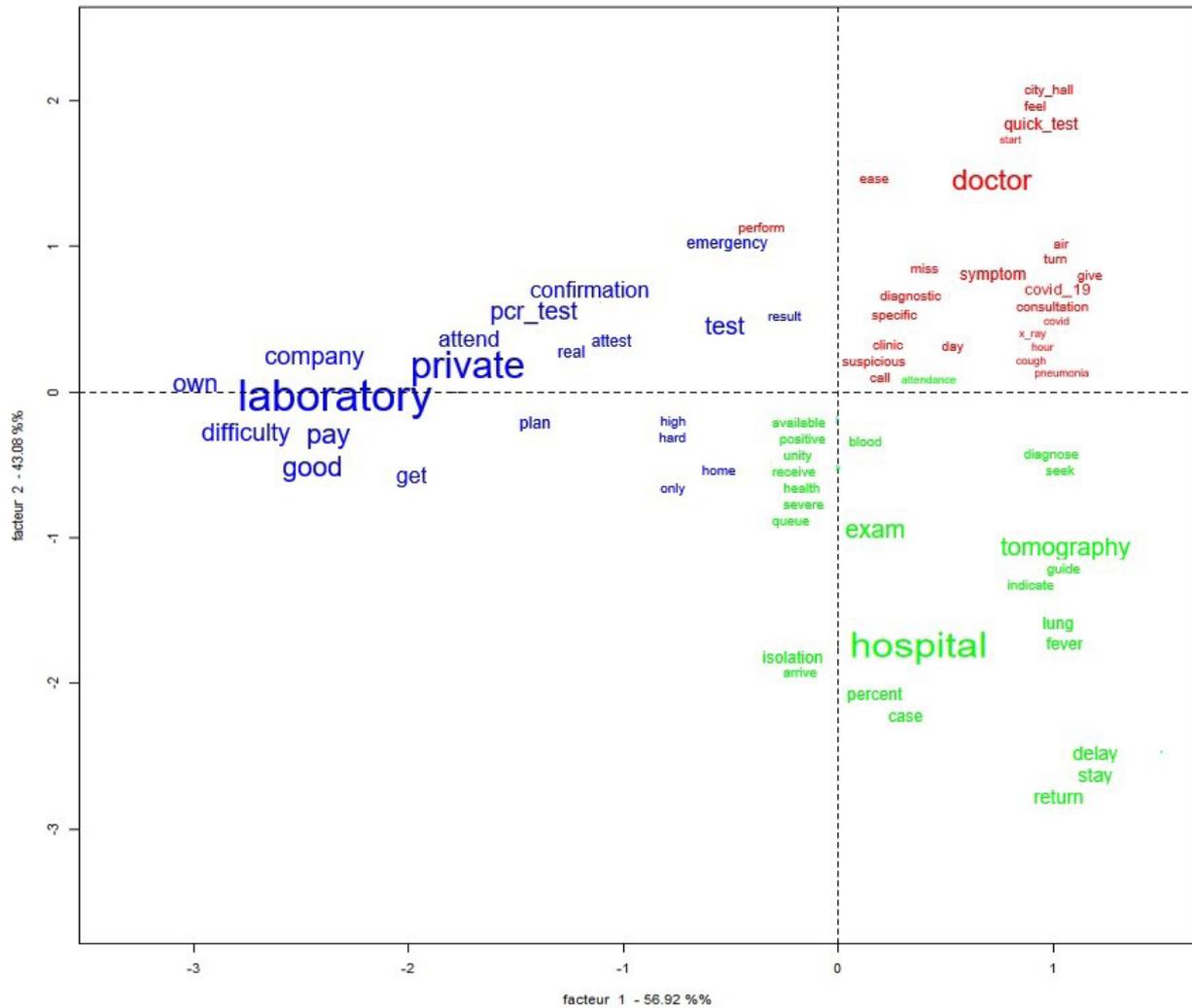
Figure 2 – Correspondence Factor Analysis. Rio de Janeiro, Brazil, 2020
Source: Research data, 2020.

other quadrants. It is also verified that the most important words of the classes, with bigger χ^2, appear bigger in their respective quadrants.

Thus, in class 1 (red), the terms "symptom" and "doctor" are highlighted and allocated with a certain proximity to each other, reaffirming how it started the itinerary for confirming the diagnosis of Covid-19, however, many times, without the specific test, but through the clinic and imaging exams, revealing a different and own path for 20 participants.

In class 2 (green), when interpreting the text segments associated with the words present in the class, the need to look for different places for diagnostic confirmation among 16 participants draws attention, which guaranteed a very particular semantic context for the formation of this class. It is

noteworthy that the terms "stay", "delay" and "return" remained more distant from others in the Cartesian plane, without approximation with terms of other classes, indicating their specific presence in this semantic context, whose textual segments referred essentially to delays and the comings and goings on that path.

Finally, in class 3 (blue) the words "laboratory" and "private" are also highlighted in the Cartesian plane, which corroborates the findings regarding the specific test for Covid-19, among 45 individuals. However, it is noteworthy that, in many situations, the exam was performed by its own means, resulting in the creation of a specific and distinct class from the others, and demonstrating a differentiated itinerary from other people.

■ DISCUSSION

The results showed that the first signs and symptoms of Covid-19, as well as their persistence, determined the search for medical assistance, in health services, for the diagnostic confirmation of the disease, being this, the beginning of the therapeutic itinerary.

Some participants reported that Covid-19's diagnosis was based on the clinical picture or on imaging tests such as radiography or Computed Tomography (CT). In this context, studies indicate that chest radiography has not been recommended as a first-line imaging modality in view of Covid-19's suspicion. Regarding chest CT, its role in screening is not well defined, but it has a relevant role in the early detection and management of pulmonary manifestations. Thus, an integrated analysis of clinical, laboratory and radiological aspects should be recommended, aiming at the early diagnosis of the disease[12], which was not evidenced in the analyzed lexical content.

The research results also highlighted that some participants did not have access to the specific diagnostic test, as many reported that there was no ease or was missing. This finding differs from that recommended by the scientific literature, which states that the reverse-transcriptase polymerase Chain Reaction test (RT-PCR) is the standard test of reference for the definitive diagnosis of Covid-19 infection[13].

The low testing of suspected cases of Covid-19 in Brazil makes it difficult to analyze the actual number of infected people, therefore, the evolution of the disease in the different states in the country. Underreporting can lead to increased spread of the virus, which limits effective actions to combat and manage cases[14]. It is noteworthy that 21 participants sought first telephone assistance and thus may have received information regarding the importance of social isolation for 14 days, when they are symptomatic even without being tested, a factor that helps in reducing the transmission of the disease.

At the beginning of Pandemic, the Ministry of Health (MH) recommended testing only in severe cases, that is, in individuals who presented FS with dyspnea or signs of severity, such as oxygen saturation <95% in ambient air, respiratory distress or increased respiratory rate, worsening clinical conditions of underlying disease and hypotension[6].

However, on the 24th of June, posteriorly the end of the data collection for this study, a note was published on the official website of the Ministry of Health, highlighting that mild cases should be tested using the RT-PCR test. Measure resulting from the increase in cases in the countryside regions, which culminated in a search for greater surveillance of the disease in the national territory[15].

It is noteworthy that in this action, the groups are prioritized for testing in the following order: health and security professionals; elderly, cardiac patients, chronic kidney, immunosuppressed, respiratory diseases, diabetics and high-risk pregnant women; children under two years old, indigenous, pregnant and puerperal women; elderly in long-term care facilities; and, population deprived of their liberty[15]. In this sense, individuals who have mild symptoms of Covid-19, not meeting these criteria, may still have difficulties in finding answers regarding their diagnosis.

However, studies indicate a worsening of the condition with the appearance of complications, from the 10th day after the onset of symptoms, and in these cases, it is recommended to return to the health service for adequate treatment[6–7], which is consistent with the report of some participants.

Due to the lack of access to the Covid-19 confirmatory test, some participants had to use their own resources to perform the exam. In contrast, for others, access was facilitated by employment, that is, some companies provide tests for employees suspected of having the disease.

The difficulty in accessing health services, the lack of material inputs and human resources, characterizes a failure in health care and violates the principles of the Unified Health System (*Sistema Único de Saúde* - SUS) of the universality of access, equity and integrality of care. Unfortunately, this is not an exclusive reality of the pandemic caused by the coronavirus, as other studies point out the difficulty of accessing SUS services in several situations[16–17].

Regarding the need to go to more than one location to seek the diagnosis of Covid-19, this situation is also not exclusive to people with this disease. Studies on therapeutic itineraries, on tuberculosis and cancer, reveal that the demand for care is characterized by comings and goings between the different health services, in addition to difficulties in obtaining results of confirmatory tests and diagnosis. All of these difficulties make patients seek the private service and pay for all procedures on their own in an attempt to shorten the time to establish the diagnosis[8–9,18], similarly to what was found in the present study.

Thus, it can be seen that the therapeutic itinerary of patients with Covid-19 was permeated by difficulties in this journey, both for those who sought care in public and private institutions. This demonstrates the weakness in health systems in meeting the needs of the population, especially in this pandemic context, in which the timely diagnosis helps in the management of cases and in the reduction of the spread of the virus among the population.

In this sense, it is seen that although the health conditions are different, the reports regarding the therapeutic

itineraries of patients who live with the diseases are similar, demonstrating the non-integrality of care. Thus, with regard to Covid-19 in Brazil, Primary Health Care with the other levels of care, whether in the public or private sphere, is essential in facing and implementing efficient strategies to combat the pandemic[19], which could contribute significantly to a less tortuous path.

In addition, even though paying for the diagnostic test, there were reports of difficulties to do it in the private network, be it the RT-PCR or the serology exam, in addition to the very high cost and the lack of coverage by health plans.

In this regard, it is important to mention that the National Supplementary Health Agency (*Agência Nacional de Saúde Suplementar* - ANS) published a note on June 29, 2020 regarding the mandatory coverage for serological tests of Covid-19 by health plans, in outpatient and hospital follow-up[20]. Such action was approved through Resolution No.458, of June 26, 2020, which can be a facilitator of the therapeutic itinerary of a population group, in the search for the diagnosis of the disease.

It is noteworthy that most of the participants in this study used the private health network, which is a limitation of the research, which demonstrates the need for further studies aimed at public health institutions, aiming at strengthening the SUS and improving coping and fighting to this pandemic.

■ CONCLUSION

The therapeutic itinerary of patients with Covid-19 demonstrated weaknesses in view of the difficulties related to access to confirmatory tests. Such fact led to clinical and imaging diagnosis, among several participants, without the use of the confirmatory test (RT-PCR), which is the standard reference test for diagnosis. Furthermore, the path of some participants was characterized by comings and goings until the diagnosis was confirmed, which sometimes was only achieved at the expense of the participant himself or through employment bond.

The difficulties encountered in seeking care in public and private institutions demonstrate the fragility of health systems in meeting the needs of the population, especially in the initial context of the pandemic in the Brazilian scenario, in which the timely diagnosis would assist in the management of cases and decrease in spread of the virus among the population. As the implementation of new measures in both the public and private spheres, modified the conduct in relation to the tests and the coverage of the same by the health plans at the end of the data collection, it is suggested the continuation of studies that evaluate the therapeutic itinerary in face of these important measures.

In this sense, knowing the therapeutic itinerary of patients with Covid-19 helps in the elaboration of public policies and institutional strategies that meet the real needs of the population, whether in combating this pandemic and other infectious diseases. In addition, it is also able to subsidize the production of informative technologies that indicate the flow to be traveled by the person with suspicion of Covid-19, an important product to promote a reorganization of the care processes related to health problems and other serious acute respiratory syndromes both in Rio de Janeiro and in other Brazilian states.

■ REFERENCES

1. World Health Organization (CH) [Internet]. Geneva: WHO; c2020 [cited 2020 Jul 07]. Coronavirus disease (COVID-19); [about 1 screen]. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019

2. World Health Organization (CH). Geneva: WHO; c2020 [cited 2020 Jul 07]. Coronavirus Disease (COVID-19) Dashboard; [about 1 screen]. Available from: https://covid19.who.int/

3. Governo do Estado do Rio de Janeiro (BR). Decreto nº 46.973 de 16 de março de 2020. Reconhece a situação de emergência na saúde pública do estado do Rio de Janeiro em razão do contágio e adota medidas enfrentamento da propagação decorrente do novo coronavírus (COVID-19), e dá outras providências. Rio de Janeiro; 2020 [cited 2020 Jul 07]. Available from: https://www.legisweb.com.br/legislacao/?id=391123

4. Conselho Nacional de Secretários de Saúde (BR) [Internet]. Brasília, DF: CONASS; c2020 [citado 2020 jul 07]. Painel CONASS COVID-19; [about 1 screen]. Available from: http://www.conass.org.br/painelconasscovid19/

5. Chen N, Zhou M, Dong X, Qu J, Gang F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. The Lancet. 2020;395(10223):507-13. doi: https://doi.org/10.1016/S0140-6736(20)30211-7

6. Ministério da Saúde (BR). Protocolo de manejo clínico para novo coronavírus (2019-nCoV). Brasília, DF: Ministério da Saúde; 2020 [cited 2020 Jul 07]. Available from: https://portalarquivos2.saude.gov.br/images/pdf/2020/fevereiro/11/protocolo-manejo-coronavirus.pdf

7. Lima CMAO. Information about the coronavirus disease (COVID-19) [editorial]. Radiol Bras. 2020;53(2):5-6. doi: https://doi.org/10.1590/0100-3984.2020.53.2e1

8. Lima BC, Silva LF, Góes FGB, Ribeiro MTS, Alves LL. The therapeutic pathway of families of children with cancer: difficulties faced in this journey. Rev Gaúcha Enferm. 2018;39:e20180004. doi: https://doi.org/10.1590/1983-1447.2018.20180004

9. Oliveira AH, Pinto AGA, Lopes MSV, Figueiredo TMRM, Cavalcante EGR. Therapeutic itinerary of people with tuberculosis in face with their health needs. Esc Anna Nery. 2019;23(3):e20190034. doi: https://doi.org/10.1590/2177-9465-ean-2019-0034

10. Camargo BV, Justo AM. Tutorial para uso do software de análise textual IRAMUTEQ [Internet]. Florianópolis: Universidade Federal de Santa Catarina; 2013 [cited 2020 Jul 22]. Available from: http://www.iramuteq.org/documentation/fichiers/tutoriel-en-portugais

11. Souza MAR, Wall ML, Thuler ACMC, Lowen IMV, Peres AM. The use of IRAMUTEQ software for data analysis in qualitative research. Rev Esc Enferm USP. 2018;52:e03353. doi: https://doi.org/10.1590/S1980-220X2017015003353

12. Araujo-Filho JAB, Sawamura MVY, Costa AN, Cerri GG, Nomura CH. COVID-19 pneumonia: what is the role of imaging in diagnosis? [letter]. J Bras Pneumol. 2020;46(2):e20200114. https://doi.org/10.36416/1806-3756/e20200114

13. Xie X, Zhong Z, Zhao W, Zheng C, Wang F, Liu J. Chest CT for Typical 2019-nCoV pneumonia: relationship to negative RT-PCR testing. Radiology. 2020;296(2):E41-E45. doi: https://doi.org/10.1148/radiol.2020200343

14. Prado M, Bastos L, Batista A, Antunes B, Baião F, Maçaira P, et al. Análise de subnotificação do número de casos confirmados da COVID-19 no Brasil. Nota Técnica 7 – 11/04/2020 [Internet]. Rio de Janeiro: Pontifícia Universidade Católica do Rio De Janeiro, Núcleo de Operações e Inteligência em Saúde; 2020 [cited 2020 Jul 07]. Available from: http://www.supersuporte.com/myRpubs/ NT7_Subnotificacao_notaDia11-abr-2020.pdf

15. Ministério da Saúde (BR) [Internet]. Brasília; Ministério da Saúde; c2020 [cited 2020 Jul 08]. Saúde passa a testar casos leves de Covid-19; [about 1 screen]. Available from: https://antigo.saude.gov.br/noticias/ agencia-saude/47113-saude-passa-a-testar-100-dos-casos-leves-de-covid-19

16. Melo WS, Silva MJN, Oliveira VDF, Mariano SPS, Ferreira PJO, Monteiro FPM. Compreensão de uma comunidade rural acerca dos princípios do SUS: estudo sociopoético. Rev Enferm Atual In Derme.2019 [cited 2020 Jul 08];88(26). Available from: https://revistaenfermagematual.com.br/index.php/revista/ article/view/43

17. Lemos AL, Galvão EFC. A formação acadêmica do enfermeiro e os princípios organizacionais do SUS no âmbito da saúde integral a população negra. Rev Eletrôn Acervo Saúde. 2020;(45)e2943. doi: https://doi.org/10.25248/reas.e2943.2020

18. Souza KA, Souza, SR, Tocantins FR, Freitas TF, Pacheco PQC. The therapeutic itinerary of patient in oncological treatment: implications for nursing practice. Ciênc Cuid Saúde. 2016;15(2):259-67. doi: https://doi.org/10.4025/cienccuidsaude.v15i2.29896

19. Soeiro RE, Bedrikow R, Ramalho BDS, Niederauer AJS, Souza CV, Previato CS, et al. Atenção Primária à Saúde e a pandemia de COVID-19: reflexão para a prática. Inter Am J Med Health 2020;3:e202003010. doi: https://doi.org/10.31005/iajmh.v3i0.83

20. Agência Nacional de Saúde Suplementar (BR) [Internet]. Rio de Janeiro: ANS; 2020 [citado 2020 jul 01]. ANS inclui teste sorológico para Covid-19 no rol de coberturas obrigatórias 2020; [about 1 screen]. Available from: http://www.ans.gov.br/ aans/noticias-ans/coronavirus-covid-19/coronavirus-todas-as-noticias/5648-ans-inclui-teste-sorologico-para-covid-19-no-rol-de-coberturas-obrigatorias

■ **Authorship contribution:**

Conceptualization: Liliane Faria da Silva, Euzeli da Silva Brandão, Fernanda Garcia Bezerra Góes.
Methodology: Liliane Faria da Silva, Emília Gallindo Cursino, Euzeli da Silva Brandão, Fernanda Garcia Bezerra Góes, Jéssica Renata Bastos Depianti, Laura Johanson da Silva, Rosane Cordeiro Burla de Aguiar.
Project administration: Liliane Faria da Silva, Jéssica Renata Bastos Depianti.
Software: Liliane Faria da Silva, Fernanda Garcia Bezerra Góes.
Writing-original draft: Liliane Faria da Silva, Emília Gallindo Cursino, Euzeli da Silva Brandão, Fernanda Garcia Bezerra Góes, Jéssica Renata Bastos Depianti, Laura Johanson da Silva, Rosane Cordeiro Burla de Aguiar.
Writing-review & editing: Liliane Faria da Silva, Emília Gallindo Cursino, Euzeli da Silva Brandão, Fernanda Garcia Bezerra Góes, Jéssica Renata Bastos Depianti, Laura Johanson da Silva, Rosane Cordeiro Burla de Aguiar.

The authors declare that there is no conflict of interest.

■ **Corresponding author:**
Liliane Faria da Silva
Email: lili.05@hotmail.com