


# Tuberculosis and COVID-19 Related Stigma: Portuguese Patients Experiences

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## Abstract

**Background:** Tuberculosis (TB)-related stigma has been well-documented. Since the emergence of the coronavirus disease 2019 (COVID-19), different organizations have been alerted to the fact that stigma could arise again. Due to stigma's negative effects, this qualitative study aimed to explore the stigma felt by patients by evaluating the following: COVID-19 stigma and its temporal progression through the pandemic; stigma perceived by different patients with TB before and during COVID-19 pandemic; and difference perceived by individuals who contracted both diseases.

**Methods:** A semi-structured interview was developed according to the available literature on the theme. It was performed individually in 2022 upon receiving signed informed consent. Participants were recruited with a purposive sampling approach by searching medical records. Those who currently or previously had pulmonary TB and/or COVID-19 were included. Data were subjected to thematic analysis.

**Results:** Nine patients were interviewed, including six (66.7%) females. The median age of patients was 51±14.7 years. Four participants (44.4%) had completed high school and four (44.4%) were never smokers. Three had both TB and COVID-19. Four only had TB and two only had COVID-19. Interviews identified eight main themes: knowledge and beliefs, with several misconceptions identified; attitudes towards the disease, varying from social support to exclusion; knowledge and education, assumed as of extreme importance; internalized stigma, with self-rejection; experienced stigma, with discrimination episodes; anticipated stigma, modifying actions for avoiding stigma; perceived stigma, with judgment by others prevailed; and temporal evolution of stigma.

**Conclusion:** Individuals expressed strong stigma for both diseases. De-stigmatization of respiratory infectious diseases is crucial for limiting stigma's negative impact.

**Keywords:** Tuberculosis; Tuberculosis, Pulmonary; COVID-19; Adult; Outpatients; Social Stigma; Stereotyping; Judgment; Qualitative Research; Portugal



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## Introduction

The concept of stigma was first introduced by Goffman<sup>1</sup> in 1963. It refers to individuals' features that make them diminish and unfit for mainstream society. Infec-

tious diseases-related social stigma can be defined as a negative association between a person or group of people who share certain characteristics and a specific disease, leading to labeling, stereotyping, discrimination, and other negative behaviors towards others.<sup>2</sup>

This can affect people with the disease, their caregivers, family, friends, and communities.<sup>2</sup> These individuals may experience rejection from their colleagues, leading to disease concealment and avoidance of health-care services, resulting in anxiety, sadness, poor quality of life, and low efficacy of infectious disease outbreak management.<sup>2,3</sup> Stigma can be reflected both in attitudes and experiences. It includes perceived perception of judgment by others, anticipated fear of being biased if their condition becomes known, internalized feeling of shame and self-rejection, application of stigma to oneself, and experienced stigma (exclusion and isolation by other community members or household and discriminatory acts and behaviors).<sup>3,4</sup>

Social stigma seems to be a common feature of different infectious diseases such as human immunodeficiency virus (HIV) and tuberculosis (TB).<sup>3</sup> Before coronavirus disease 2019 (COVID-19), TB was the leading cause of death from a single infectious agent.<sup>5</sup> Delays in seeking treatment and premature termination of treatment are crucial obstacles to TB control, with stigma being one of the suggested causes.<sup>6,7</sup> Some studies have reported the prevalence and impact of stigma on TB. The first study in 1976 compared employer attitudes toward rehabilitated convicts, mentally ill patients, and TB patients and evaluated effects of stigmatization through questionnaires measuring social distance and employment offers.<sup>8</sup> In 2016, a study conducted in India, among 3,823 respondents from a general population, 73% had stigmatizing and 98% had discriminatory attitudes towards TB patients, reflecting its high prevalence.<sup>9</sup>

Since its first report in November 2019, COVID-19 has rapidly spread worldwide through person-to-person transmission. The World Health Organization (WHO) declared it a pandemic in March 2020.<sup>10,11</sup> Measures of transmission control included lockdown, social distancing, mask-wearing, and respiratory hygiene.<sup>12,13</sup> This global public health emergency has raised some previously discussed stigma-related issues. Although such issues have not been sufficiently explored, there are reports showing that patients often experience social stigma such as discrimination, devaluation, stereotyping, isolation, discrediting, prejudice, humiliation, and/or aggressive attitude.<sup>14</sup>

Due to health and other implications secondary to stigma, it is important to assess the stigma felt by patients who have contracted TB and/or COVID-19 to explore its main dimensions and manifestations. Stigma perceived by patients who have experienced COVID-19 and its temporal progression through the pandemic, stigma perceived by different patients with TB before

and after the COVID-19 pandemic, and difference perceived by the same individual who has contracted TB and COVID-19 all need to be described. Thus, the aim of this study was to evaluate these topics, exploring experiences of patients with TB, COVID-19, or both TB and COVID-19.

## Materials and Methods

To understand how patients perceived their personal experience of contracting TB and/or COVID-19 in the context of stigmatization, a qualitative research was adopted through semi-structured interviews. Qualitative research “focuses on a phenomenological model in which reality is rooted in the subjects; perceptions; the goal is to understand and find meanings through verbal narratives and observations rather than through numbers.”<sup>15</sup> The base was a phenomenological approach, which allows participants to tell, describe, and articulate their narratives in-depth with greater details about what they had lived through with TB and/or COVID-19 disease-related experience.<sup>16</sup>

Participants were recruited with a purposive sampling approach. With this approach, the researcher relies on his/her judgment when choosing members of the population to participate in the study.<sup>16</sup> Inclusion criteria were: (1) at least 18 years old and (2) currently or previously had TB disease (with lung involvement) and/or COVID-19 disease. Infection without disease was not considered.

Participants were identified by searching medical records available in a dedicated TB center (Pulmonary Diagnosis Center of Vila Nova de Gaia, Northern Region of Portugal), including physical and online clinical data. A semi-structured interview guide was developed based on published literature on the theme. It was reviewed by the coordinators (Aguiar A and Duarte R) of this study. The interview included data on demographic characteristics such as sex, age, and education level. HIV status and habits of smoking, alcohol, and drugs were also inquired.

The subsequent interview comprised five open-ended questions, with some short-answer questions integrated for better sequencing (Appendix 1). Explored domains included their experience while ill, focusing on stigma experiences in several contexts; possible life experiences in stigmatizing others (if it had already happened); knowledge and perceptions of diseases and treatment; adherence to treatment; and structural and health systems issues. Participants were also asked to talk freely about their perceptions about stigma and to give recommendations to mitigate it. When

applicable, in individuals that contracted both diseases, the experience was compared between them.

Participants were first briefed regarding the aims and purposes of this study. A one-to-one interview with participants was conducted in person or by telephone call according to patients' preference. It was performed in a consultation room of a dedicated TB center that was previously referred during 1 month in 2022. Participants were allowed to select their ideal time for the interview. Each interview took 20 minutes on average. The conversation was audio recorded using the researchers' cell phones. It was password protected. Transcripts of interviews were utilized for analysis after being verified for comprehensiveness and completeness. All audio recordings were transcribed accurately *verbatim* by two researchers (Alfaiate A and Rodrigues R) at the end of each interview period. The interviews were performed in Portuguese and then translated into English by the same researchers who are bilingual.

Content analysis was undertaken by Alfaiate A and Rodrigues R. First, transcriptions were read various times. The protocol chosen for the analysis of interviews was the protocol described by Braun and Clarke<sup>17</sup> (2006) called thematic analysis. Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) in data. It enables a more detailed structuring of the dataset.<sup>17</sup> Generated themes were compared against the data regularly to ensure that the data saturation point had been reached. The endpoint was reached when data collected were sufficient to account for the emerging themes. Due to personal constraints, three of those who had previously agreed to participate in this study did not attend. Interviews were stopped with a final sample size of nine participants. Agreement about themes and subthemes produced was achieved among researchers.

This study was approved by the Ethics Committee of the Institute of Public Health of the University of Porto, Portugal (reference: CE21196). It was conducted in agreement with the standards of the Helsinki declaration. Before each interview, each participant was informed about the study's goals and their ability to withdraw at any time without prejudice. Written informed consent was collected. The respondent's information was kept private. No data that might be used to identify a participant was provided.

## Results

### 1. Sample characteristics

A total of nine participants were interviewed, including six (66.7%) females. Age ranged from 25 to 76 years

with a median age of 51 years (standard deviation:  $\pm 14.7$ ). Four (44.4%) participants had completed high school. Four (44.4%) were never smokers. Additionally, consumption of alcoholic beverages or other drug habits was not reported. None of them had HIV diagnosis. Regarding participants' medical diagnosis, three had both TB and COVID-19 disease, four had only TB and two had only COVID-19. Six of those TB cases occurred before the beginning of the COVID-19 pandemic and two had TB during the COVID-19 pandemic (some participants had TB more than once). Four cases of COVID-19 occurred in 2020 and one occurred in 2021. Participants' details are provided in Table 1.

Disease severity of TB and COVID-19 differed widely. It was not necessarily related to age or comorbidities. Participants were at different stages of TB treatment at the interview moment. All had already recovered from COVID-19.

### 2. Qualitative analysis

Analysis of interviews identified eight main themes: (1) knowledge and beliefs (including transmission and pre-

**Table 1.** Characteristics of study participants

| Variable                     | Value         |
|------------------------------|---------------|
| Sex                          |               |
| Woman                        | 6 (66.7)      |
| Men                          | 3 (33.3)      |
| Age, yr                      | 51 $\pm$ 14.7 |
| Education degree             |               |
| Elementary school            | 3 (33.3)      |
| High school                  | 4 (44.4)      |
| Graduation                   | 1 (11.1)      |
| Master's degree              | 1 (11.1)      |
| Smoking habits               |               |
| Never smokers                | 4 (44.4)      |
| Past smokers                 | 2 (22.2)      |
| Smokers                      | 3 (33.3)      |
| Alcoholic habits/other drugs | 0             |
| HIV                          | 0             |
| Experienced diseases         |               |
| TB (only)                    | 4 (44.4)      |
| TB and COVID-19              | 3 (33.3)      |
| COVID-19 (only)              | 2 (22.2)      |

Values are presented as number (%) or mean $\pm$ standard deviation.

HIV: human immunodeficiency virus; TB: tuberculosis; COVID-19: coronavirus disease 2019.

vention); (2) attitudes towards the disease; (3) knowledge and education; (4) internalized stigma; (5) experienced stigma; (6) anticipated stigma; (7) perceived stigma; and (8) temporal evolution of stigma.

The following is a summary of these eight themes presented by participants. At the time of involvement in this study, participants' ages were provided.

### 1) Knowledge and beliefs

Knowledge about TB emerged in a wide spectrum ranging from basic knowledge about the disease to never having heard of it or thinking that it no longer exists. However, all participants had at least essential notions about COVID-19, mainly from media reports.

A 42-year-old male had TB. When asked what knowledge he had at his diagnosis date regarding TB, he said: "Zero, I didn't know anything. My wife knew that TB exists, but I didn't know." (male participant; 42-year-old; TB in December 2019).

Another participant mentioned that "What I knew was what was reported in the television, I didn't know anything else..." (female participant; 57-year-old; COVID-19 in January 2021).

Diseases associated knowledge and beliefs shaped individuals' diagnosis reactions. Some participants reported increased knowledge and even changed their disease perception after contracting them. For instance, "When I was first told I had TB I was a little apprehensive because I didn't know what it was, or I didn't think it existed anymore... and since I had already had the vaccine, I thought I was immune (...) when I had the pulmonology consultation, I was very enlightened and my idea changed completely." (female participant; 48-year-old; TB in December 2019).

### (1) Transmission and prevention

Misconceptions about transmission and preventive measures were detected as non-relevant ways of transmitting TB. These ideas seemed to be related to old cultural concepts.

A 35-year-old male participant had TB in 2008 and 2021 and COVID-19 in October 2020. When asked about measures to take while he had TB disease in 2008, he said: "At the time we didn't have much of a culture of wearing a mask... the care was more about the utensils that the person used." (male participant; 35-year-old; TB in 2008 and 2021; COVID-19 in October 2020).

Concerning COVID-19, it is harder to perform a knowledge evaluation. Questions regarding virus transmissions, including the risk of transmission from asymptomatic individuals and contact with contaminated

inanimate surfaces, are still not completely clear. Insufficient knowledge and contradictory information about SARS-CoV-2 transmission and protective measures are translated in attitudes described in the interviews: "A lady, who was a very good friend of my mother, started trying to go upstairs to meet her and I said I'm sorry because I didn't want her to go up there and she said—well, now because of the virus—and I said yes, and my mother has had it... and she ran down the stairs... my mother was no longer infectious..." (female participant; 48-year-old; TB in December 2019).

Overall, regarding TB, patients wondered where they might have contracted the disease. Regarding COVID-19, they had a more concrete idea of where they might have contracted it.

### 2) Attitudes towards the disease

Some participants mentioned that a TB or COVID-19 patient should not be put aside and that support provision should be essential. "We appear to put people aside because they have that kind of disease. It's absurd for us to think that way because today it's that person and tomorrow it could be me." (male participant; 66-year-old; TB in 2019; COVID-19 in December 2020).

Also, family and social support were reported as essential disease coping points. Most patients described good family support and important relationships beyond family, providing encouragement and support, particularly for those whose social groups formed their main support network.

One 35-year-old interviewee who found himself alone on TB treatment in Portugal in 2021 noted: "The health team who gave me my medication at home helped me in every way, they helped take out the trash, etc." (male participant; 35-year-old; TB in 2008 and in 2021; COVID-19 in October 2020).

Indeed, relationships with health-care professionals were enhanced by clear and easily accessible two-way communication: (1) willingness to adapt, including flexibility in communication style as by digital appointments and (2) collaborative decision making. There was no reference to discrimination by health professionals.

On the other hand, social support absence and social exclusion were described: "I think people move away from us... I think that. I think that and I feel that." (female participant; 58-year-old; COVID-19 in November 2020).

Respondents also showed respect for their community. There were reports of attitudes that they witnessed and considered incorrect: "I came to the consultations and noticed that there were people wearing masks even though there was no COVID-19 at the time in the place we were. I knew it was TB. When I was outside, I

saw people leaving the consultation and taking off their masks. I commented that at home... There are a lot of people walking around with TB without getting any care.” (female participant; 51-year-old; TB in 2019).

### 3) Knowledge and education

When asked about how they would define stigma, most respondents indicated their perception of what disease-related stigma was, although some were not aware of this issue. Participants assumed that access to education and knowledge about these diseases was very relevant as means of reducing their stigma. Many expressed this: “Stigma is people moving away from us. They put us in a little corner. I think it’s because of fear and lack of knowledge that make people do that. They stay away from the ones who are sick.” (female participant; 58-year-old; COVID-19 in November 2020).

For TB, the lack of available information was also reinforced, showing the importance of continuing investments in health education in these fields: “This TB thing nowadays... is practically not even talked about... but it exists, it exists.” (female participant; 76-year-old; TB in childhood and later suspicion of relapse).

### 4) Internalized stigma

Some respondents described feelings of shame and self-rejection in relation to TB and COVID-19 diagnoses: “I was very affected when I found out that I was positive (for COVID-19). I created a stigma about myself. I put the blame on myself and blamed myself for everything that was happening (...) Regarding TB, I got into the same process—infected people around me etc. It was mostly me stigmatizing what was going on, not others (...) I think self-rejection is a little bit inevitable.” (female participant; 25-year-old; COVID-19 in August 2020; TB in September 2020).

The same respondent also evidenced an interesting comparative point, highlighting the negative connotation of the TB word: “Although both TB and COVID-19 are world diseases, saying COVID-19 and TB carries a completely different weight. The word TB has a very, very heavy weight and people generate stigma around it. Even I felt the word as stigmatizing despite everyone trying to demythologize the disease around me, including health professionals, for me the word TB had a huge weight.” (female participant; 25-year-old; COVID-19 in August 2020; TB in September 2020).

Besides, some respondents considered essential to talk about the disease without hiding it. However, some showed reluctance to talk about the diagnosis: “Sometimes it’s even chicer actually say—look, I have a lung infection, instead of saying TB.” (male participant;

35-year-old; TB in 2008 and 2021; COVID-19 in October 2020).

Even when they were no longer at risk of infecting others, some patients remained isolated, usually from family and friends, especially from youngsters, out of dread of transmitting the disease. Aside from the nearly non-existent risk of illness transmission, one respondent was secluded from his family for several months. As one participant mentioned when recalling a buddy who had TB in 2016, these self-isolation practices could have negative impacts on the patient’s social relationships: “I remember perfectly, back those days, he self-stigmatized himself, felt very bad and isolated himself a lot. Then when he had to react, that is, get back to normality, for him, it was very, very complicated.” (female participant; 25-year-old; COVID-19 in August 2020; TB in September 2020).

It was apparent that patients’ beliefs were a main cause of self-discrimination, reinforcing the importance of population information. Indeed, after seeking medical help and learning about diseases, some people’s internalized stigmas began to dissipate. Aside from stigma, these patients did not avoid or postpone their medical appointments.

### 5) Experienced stigma

Patients who intentionally or unintentionally exposed their diagnosis received different reactions. Overall, the acceptance by peers was good, including family, friends, and co-workers. In contrast, some social interactions in the face of infectious diseases were harder. Situations of exclusion, isolation, and discrimination by the household and/or community members were reported, with different valorization by interviewees. There were reports of avoidance attitudes by community members because they saw them as contagious. Social rejection was a large part of the negative experience respondents went through in the community. Additionally, regarding COVID-19, the anxiety caused by confinement, many unknowns surrounding the disease, and the fear of being infected gave rise to stigma. Discrimination and rejection episodes, even if momentary, had substantial negative effects on individuals in terms of confidence and sense of identity. A 58-year-old female participant who had COVID-19 in November 2020 said: “One friend of mine came over. I made her a shopping list and I noticed... I passed her the list out the window and I noticed... it seemed like she was pulling away. I think people were afraid of the closeness... and with masks, we were wearing masks! I put gloves, didn’t touch anything directly, even on the list, when making the list! And everything was disinfected, but I

felt that.” (female participant; 58-year-old; COVID-19 in November 2020).

Some participants mentioned that themselves, especially before they had contracted these diseases, had stigmatized others: “If I saw a person wearing a mask on the street, I was the one taking refuge and running away.” (female participant; 48-year-old; TB in 2019).

### 6) Anticipated stigma

While living with TB or COVID-19, several participants were afraid of being stigmatized, which caused them to change their behaviors. Some people said they hid their diagnosis or avoided talking about it in the public or in certain situations because they thought it would be embarrassing. “Regarding TB, in my village, there were many people who never knew I had it because I was sure they were going to have that reaction... so much that I did not go there for a long time because I wouldn’t appear there with a mask... I know there’s a lot of information that lacks.” (female participant; 48-year-old; TB in 2019).

Despite some experiences related to stigma, participants showed determination to complete the treatment. They also complied with measures recommended by health professionals. “I took the treatment (of TB) very seriously (...) The important thing for me was to do what I was asked to do to get cured.” (male participant; 66-year-old; TB in 2019; COVID-19 in December 2020).

### 7) Perceived stigma

The perceived stigma refers to the demonstration of feelings of judgment by others. Some interviewees reported that: “People would ask... I avoided talking (...) People here in the building thought it was strange that nurses came here every day, but I only commented with one or two neighbors. I didn’t speak up much to avoid embarrassment.” (female participant; 48-year-old; TB in 2019).

These kinds of thoughts lead to high perceived stress that might promote negative coping behaviors such as isolation from society, which in turn may further aggravate the degree of perceived stigma.

### 8) Temporal evolution of stigma

In terms of TB-related stigma over the years, concerns about peer discrimination may stem from times when TB was usually much more difficult to cure and brought profound changes to the lives of communities. A 76-year-old participant with pre-pandemic TB said: “My father practically lived his life in sanatoriums, I barely knew him (...) People also don’t assume what they have anymore, they don’t look for a tuberculous person

anymore...” (female participant; 76-year-old; TB in childhood and later suspicion of relapse).

Besides a noted reduction in TB-related stigma through the years, particularly with the COVID-19 pandemic and the respiratory infectious disease pseudo-normalization, there is still a perception of TB as a stigma generator. Also, as the pandemic progresses, a reduction in COVID-19-related stigma was found. In patients who had contracted both diseases, there were differences in the way of facing them. They generally faced COVID-19 more naturally. “At my time (January 2021), there were already many COVID-19 infections without much prejudice... but for certain infections like TB, people will stay away, make comments (...) Tuberculosis, tuberculosis, yes, I think there is more prejudice against tuberculosis than now with COVID-19, there still is.” (female participant; 57-year-old; COVID-19 in January 2021).

Some interviewees mentioned situations connected to stigma actions and thoughts before the pandemic emerged. One of the most reported topics was mask use, besides mandatory isolation which could also cause social discomfort. “For me, it was a little bit complicated, I was not used to walking around with a mask; nowadays it’s a normal act, but at first it was quite hard for me, I’m not going to say the contrary.” (male participant; 42-year-old; TB in 2019).

When asked for suggestions on how to reduce the stigma, disseminating information in schools or educational sessions for all ages, having meetings with testimonials who had experienced these diseases; and having patients themselves exposing their diagnoses without shame were some of their proposals. “It’s easier for people who have lived through the diseases to explain than professionals.” Having made an interesting comparison, “it has more impact when we hear a testimony from World War II than to read Anne Frank’s diary.” (female participant; 25-year-old; COVID-19 in August 2020; TB in September 2020).

## Discussion

To the best of our knowledge, this is the first qualitative study presenting stigma experiences of patients with TB and/or COVID-19 in Portugal, comparing them and analyzing temporal progression of this disease’s related stigma.

The conceptualization of stigma recognizes four components (anticipated, perceived, experienced, and internalized stigma) that could interact with each other’s.<sup>4</sup> Based on interviewees’ answers, all these components of stigma were addressed by respondents.

Previous studies have identified several factors contributing to the stigma associated with infectious diseases, such as people's knowledge, distribution of myths and stories by the mass and social media, and psychosocial variables such as risk perception and fear of being infected.<sup>18</sup>

Aspects found in these interviews regarding TB, including social stigma, discrimination, and exclusion, have already been reported in the literature.<sup>19,20</sup> In a qualitative study on 410 pulmonary TB patients, the prevalence of perceived stigma among them was 57.1%.<sup>19</sup> In another evaluation in 2021, having TB and being 'on treatment' were often experienced as disruptive. In addition to incapacitating symptoms, side effects, and stigma, many participants also had to balance income loss or reduction, unstable housing, social isolation, worsening mental health, and injured relationships.<sup>20</sup>

Among studies conducted on COVID-19-related stigma, few qualitative studies were found. One study found that after 30 COVID-19 survivors were interviewed in November 2020, COVID-19-related stigma was prevalent.<sup>21</sup> The commonest forms of stigma were social rejection and labeling, consistent with our results. Similar findings were described by another qualitative study which indicated that survivors of COVID-19 experienced suspicion and isolation by the community.<sup>22</sup> COVID-19-related stigma might be attributed to the unpredictable nature of the virus, perceived risk of infection, and fatality.

Our results also resonate with habitual kinds of stigma stated by other infectious disease survivors.<sup>23</sup> During our interviews, we discovered that several COVID-19 participants' stated experiences were identical to those of TB patients. Discrimination was aided by social separation, frequent hand washing, public usage of face masks, and increased ventilation in indoor settings. Although the stigma associated with pandemics is a well-known phenomenon, due to its contextual character, the manner in which it manifests itself may vary depending on the culture in which it exists.<sup>24</sup> In our study, stigma towards COVID-19 was described as decreasing over the months of the pandemic evolution. Although this pseudo-normalization of some preventive measures and actions could be transposed to other respiratory infectious diseases, this was not entirely true for our respondents regarding TB. A largely negative and stigmatizing connotation is still attributed to TB. There are serious outcomes of health-related stigma and discrimination. Stigmatizing language found in our interviews such as "tuberculous person" has also been used during the current pandemic as

"corona case."<sup>23</sup> Such judgmental terminologies can influence thoughts and attitudes through diseases. Besides, stigma experiences could affect individuals' attitudes toward their illness and commitment to care. All participants complied with the proposed measures. However, COVID-19-related stigma can be disadvantageous to early recognition and treatment as it inhibits health-seeking behaviors, weakens adherence, leads to mental problems, and eventually undermines efforts to neutralize the pandemic.<sup>23</sup> The same applies to TB, where the stigmatization attached to the disease and the discrimination against those affected are described as obstacles in the "end tuberculosis strategy" of WHO.<sup>7,25</sup>

Delayed infectious diseases diagnosis has been associated with more severe disease, while late notification of an infectious patient can enable a fast spread in the population. The issue of non-disclosure was commonly reported during the outbreak of COVID-19.<sup>14</sup> When people avoid groups or geographic areas related to infectious diseases, this can pose significant economic losses. Thus, stigma is more than a simple negative outcome of infectious diseases.<sup>18</sup> Misconceptions regarding the etiology, transmission, and outcome of TB have been commonly described in the literature.<sup>26,27</sup> They are major contributors to stigma. They were found in our study. For COVID-19, it is harder to recognize as adjustments in disease knowledge are still emerging. However, interviewees denoted a higher information availability about COVID-19 than for TB. Undeniably, respondents gave particular importance to education for both diseases. Education, clear and honest communication, and the use of non-discriminatory language have the potential to significantly improve the knowledge, attitudes, and behaviors related to COVID-19 and TB and reduce stigma.<sup>4</sup>

This study has some limitations. We decided to employ convenient sampling, which could lead to research bias. Although infected people and contacts were excluded from our study, the perceived stigma might have affected them as well. As this was a qualitative study that concentrated on respondents' perceptions, a mixed research approach could provide a fuller appraisal of the topic. Results of our population study are not generalizable. Nonetheless, this study delineated opinions of participants on their experience of stigma. The comment on how to decrease stigma represents a valuable knowledge for health policymakers to develop strategies for preventing stigma. Furthermore, continuous reporting of stigma confirms its existence and dimension. Respondents' narratives in this study are compatible with existing literature.

In conclusion, disease's stigma is a social process set to reject those who are considered to be a likely source of illness. It may present a danger to society. De-stigmatization of respiratory infectious diseases is therefore essential to reduce the level of non-disclosure, transmission, and discrimination with an increase in disease awareness among communities. Dissemination of knowledge and speed of transmission of COVID-19 contributed to stigma decline concerning this disease. For TB, there are still ingrained barriers that sustain a deep-rooted stigma, which should be addressed and deconstructed.

## Authors' Contributions

Conceptualization: Aguiar A, Duarte R. Methodology: Aguiar A, Duarte R. Formal analysis: Alfaiate A, Rodrigues R. Data curation: Alfaiate A, Rodrigues R. Validation: Aguiar A, Duarte R. Investigation: Alfaiate A, Rodrigues R. Writing - original draft preparation: Alfaiate A, Rodrigues R. Writing - review and editing: all authors. Approval of final manuscript: all authors.

## Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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## Appendix 1. Data collection instrument: interview

I, \_\_\_\_\_ (name of the interviewer), will conduct an interview to assess any stigma you might have experienced as a person with tuberculosis (TB) and/or Coronavirus disease 2019 (COVID-19) disease. You are free not to answer any question and to withdraw from the interview at any time without prejudice.

First, I would like to perform a brief clinical and sociodemographic evaluation, including:

Sex:

Age:

Occupation and education:

Smoking habits (pack year):

Drug addiction:

Alcoholic habits:

Human Immunodeficiency virus:

### 1. I would like you to tell me about the journey you experienced with the illness:

- How did you know you were sick? When was the diagnosis? What was the diagnosis? Do you know how or in what context you contracted the disease? Where were you diagnosed?
- What did you know about TB and/or COVID-19 before you contracted the infection(s) - did it influence your attitudes during your illness?
- What was your family and friends' reaction to your diagnosis?

### 2. Do you know the definition of stigma? What do you interpret stigma related to infectious diseases? (Give a brief definition of stigma to the patient after his response).

### 3. Regarding stigma:

- Overall, in any situation of your life, have you felt victimized by stigma? On the other hand, have you ever stigmatized others?
- Have you avoided going to Health Services for fear of stigma? (e.g., being ashamed that you might have that disease).
- Have you avoided talking about your illness with family/friends for fear of stigma? (e.g., fear of being shunned for having the disease).
- Have you had any professional repercussions from contracting this/these illnesses?
- In what places/circumstances did you experience stigma?  
(When applicable: Was it different in TB versus COVID-19? understand what or if anything has changed regarding stigma).

### 4. Other questions I would like you to answer:

- Do you think that knowledge about these diseases can help reduce stigma associated with them? If yes, please justify.
- Does the fact of having to be in social isolation increase the stigma associated with this condition(s)? Does wearing a mask increase the stigma associated with it?
- Did you have difficulty in accepting that you have this/these diseases for reasons related to stigma? Or because you were afraid of being discriminated against by others?
- Did you experience feelings of shame or self-rejection with the diagnosis of this/these illnesses?  
(When applicable: Was it different in TB versus COVID-19? understand what or if anything has changed regarding stigma).

### 5. What can be improved? (Even if you have not experienced stigma)

- In terms of behaviors of health professionals (language used, for example).
- In terms of informing the population.
- Do you have any recommendations?