PSYCHOMETRIC PROPERTIES OF THE COVID-19 BURNOUT SCALE IN BRAZIL

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Resumen

El presente estudio tiene como objetivo adaptar y analizar las propiedades psicométricas (evidencia de validez factorial y consistencia interna) de la Escala de Burnout COVID-19 en una muestra de profesionales de la salud brasileños. Se realizaron dos estudios (N total = 427). En el Estudio 1 [202 profesionales de la salud (mayores de 18 años), principalmente mujeres (82%) y psicólogos (31,2%)], un análisis factorial exploratorio apoyó la solución unifactorial y la idoneidad de los diez ítems. Además, también se presentó en el Estudio 2 [225 profesionales de la salud (mayores de 18 años), la mayoría mujeres (79,6%) y psicólogos (24,8%)] resultados del análisis factorial confirmatorio y parámetros del ítem (Teoría de Respuesta al Ítem) que corroboran la estructura unifactorial y validez convergente con la Escala de Ansiedad por Coronavirus. Los resultados indican que esta medida puede ser adecuada para su uso en investigación y en el escenario de evaluación de burnout.

Palabras Clave: Burnout, validación; análisis factorial confirmatorio

Abstract

The present study aims to adapt and analyze the psychometric properties (evidence of factor validity and internal consistency) of the COVID-19 Burnout Scale in a sample of Brazilian health professionals. Two studies were carried out (N total = 427). In Study 1 [202 health professionals (age over 18), mainly women (82%) and psychologists (31.2%)], an exploratory factor analysis support the one-factor solution and the suitability of the ten items. Moreover, was also presented in Study 2 [225 health professionals (over 18 years old), the majority of women (79.6%) and psychologists (24.8%)] results of confirmatory factor analysis and item parameters (Item Response Theory) that corroborate the unifactorial structure and convergent validity with the Coronavirus Anxiety Scale. The results indicate that this measure may be suitable for use in research and in the burnout evaluation scenario.

Keywords: Burnout, validation; confirmatory factor analysis

Introducción

The 21st century was marked by the experience of different epidemics, such as SARS-CoV, Middle East respiratory syndrome (MERS), Ebola in Africa, avian influenza (H5N1) and the influenza pandemic (H1N1). Each heavily impacting the affected regions and causing death and concern. However, at the end of 2019, the population of China was faced with a disease whose high speed of spread and high capacity to cause deaths motivated the World Health Organization (WHO) to declare the outbreak of coronavirus COVID-19 (SARS-CoV-2) as a global pandemic in March 2020 (World Health Organization, 2020).

The rapid spread of the pandemic in several countries has demanded that the world authorities implement security measures that range from hygiene guidelines (e.g., use of masks and alcohol gel) to the implementation of social distancing and isolation measures (Kupfer-schmidt & Cohen, 2020). With these measures, many countries (including Brazil) restricted the movement of people, causing the work, educational and interrelational routine to undergo sudden changes (Asmundson & Taylor, 2020).

Some people, when subjected to quarantine, may have problems of a psychological nature due to uncertainties and changes in daily life (Brooks et al., 2020). These modifications can potentiate the increase in stress, anxiety and fear levels, for example (Arslan et al., 2020). However, some professionals, such as those in public security, basic services (e.g., energy, food) and health, remained with their activities, being exposed to the risks arising from the pandemic.

Health professionals, in non-pandemic situations, are already prone to psychological illnesses due to the experience of critical situations that increase psychological demands when dealing with a series of unfavorable conditions that can generate psychological suffering (e.g., stress, anxiety, depression; Weaver et al., 2018). In pandemic contexts, it has already been observed that the group of health professionals is susceptible to increased psychological problems, both in the short and long term, as was the case with health professionals during the severe acute respiratory syndrome (SARS) crisis in 2004, who had not only chronic stress but also higher levels of depression and anxiety (McAlonan et al., 2007).

Currently, with the increase in cases and the need for hospital care for people affected by CO-VID-19, changes in the work context have been required that have increased the group's exposure to pathologies not only of a physical but also a psychological nature (Gómez-Durán et al., 2020; Luz et al., 2021). In this context, there was an increase in working hours, stress due to the absence of intervention protocols and material resources and specific fears of the pandemic (e.g., contaminating oneself and contaminating others; De Kock et al., 2021).

Thus, in the context of the COVID-19 pandemic, burnout can be an element that will reduce motivation and boost feelings of helplessness, hopelessness and resentment (Queen & Harding, 2020). Research on burnout related to COVID-19 in healthcare professionals has identified a prevalence of 30-70% in study participants (Barello et al., 2020; Denning et al., 2021; Jalili et al., 2021; Matsuo et al., 2020). While in Italy, healthcare professionals reported burnout along with symptoms of high emotional distress, physical symptoms and work-related pressure (Barello et al., 2020). Similar to the finds in Spain (Madrid and Las Palmas) were 10.6% of participants refer high Burnout levels in the three Burnout's sub-scales: emotional exhaustion, professional realisation and depersonalisation. Medium-high levels represent 31.8% of the sample, showing that 42.4% of participants suffer Burnout in one form or another (Rodríguez & Coloma, 2019).

Exposure to a stressful work environment, added to the increased workload and uncertainties underlying the current pandemic, can contribute to the promotion of the so-called Burnout Syndrome (Vagni et al., 2020). Burnout is a consequence of prolonged exposure to demands that make the individual reach their mental, emotional and physical limits, especially in the context of work (Maslach & Leiter, 2016). It encompasses three dimensions: emotional exhaustion (burnout, loss of energy, and burnout), depersonalization (or cynicism; negative reactions towards people) and reduced personal fulfillment (or ineffectiveness; refers to negative self-evaluation and decreased productivity) (Maslach & Leiter, 2016).

Although different definitions have been identified on the subject, a widely used definition considers it as a state of physical, emotional and mental exhaustion (Pines & Aronson, 1988; Schaufeli

& Enzmann, 1998). Some definitions consider a one-dimensional nature with a focus on exhaustion (Pines & Aronson, 1988) others enter into the three-factor model (Maslach, 1982), but have in common the concept of that burnout is harmful to the psychological health of those who present high dimensions of the construct (McCormack et al, 2018).

Among the measures used, in addition to the well-known Maslach Burnout Inventory, the Burnout Scale (BS; Pines & Aronson, 1988) is highlighted. This instrument was designed for workers and non-workers, and originally consisted of 21 items (7-point scale), organized in a unidimensional factorial structure (e.g., Schaufeli & Van Dierendonck, 1993) that assess the levels of physical, emotional and mental exhaustion with internal consistency indicators greater than 0.90 (Pines & Aronson, 1988). The BS is correlated with the emotional exhaustion dimension (BS) of the Maslach Burnout Inventory, considered central in the assessment of burnout (Malach-Pines, 2005; Schaufeli & Van Dierendonck, 1993) and justifying its use with the one-dimensional.

In order to meet a demand from researchers and professionals who needed a short instrument that favored faster application and correction. The 10 items were selected from the EB based on theoretical aspects, selecting the content items that assess levels of physical, emotional and emotional exhaustion, giving rise to the short version of the Burnout Scale (BS-S; Malach-Pines, 2005). The research identified a unifactorial structure in the sample of Jewish Israeli participants (α = .87), Arab Israelis (α = .85) and in the total sample (α = .86). Furthermore, it showed a negative correlation with life satisfaction (r = -.35), optimism (r = -.39) and job satisfaction (r = -.34).

The measure was validated for other contexts, such as Turkish (Çapri, 2013), which identified a unifactorial structure through a principal component analysis. For the French context (Lourel, 2007), whose results of confirmatory factor analysis (GFI and AGFI = 1.00; RMSEA = .03 (CI: .00 to .08), internal consistency (α = .86) and temporal stability (test-retest reliability = .87) also corroborated the unifactorial structure. And for the Chinese, which identified a factor, with an indicator of homogeneity of .80 and reliability (split-half) of .78 .

Currently, Yildirim and Solmaz (2020) validated

the Burnout Scale for COVID-19 (BS-COVID-19) adapted from the shortened version of the Burnout Scale (BS-S). The authors changed the wording of the original items (Malach-Pines, 2005) replacing the part that mentions "your work" with "COVID-19" and changing the response format to a 5-point Likert scale ranging from 1 (never) to 5 (always). Higher scores on the measure indicate higher levels of burnout related to COVID-19. The results of exploratory and confirmatory factor analysis (NFI = .94; CFI = .96; RMSEA = .10 and SRMR = .05) indicated the adequacy of the one-factor model (α = .92), as well as the positive correlation between BS-COVID-19 and stress (r = .71) and negative correlation with resilience (r = -.56) (Yildirim & Solmaz, 2020).

In this direction, Moroń et al. (2021) sought to adapt BS-COVID-19 to the Polish context, with the results corroborating the unifactorial structure (χ^2=116.521; gl=31; CFI = .95; TLI = .94; RMSEA = .080 (90IC% = .065-.096) originally observed by Yildirim and Solmaz (2020). In addition to identifying that stress and burnout in the face of COVID-19 were correlated with high levels of depression, anxiety and stress, evidencing the risk that high levels of burnout and stress against COVID-19 can bring the population's mental health.

In this way, the Burnout Scale for COVID-19 (BS-COVID-19) presented good psychometric indicators, being considered in the aforementioned studies a useful tool to assess burnout linked to COVID-19. Furthermore, in view of the current scenario related to the situation of the pandemic in Brazil and in the world, it is estimated that the evaluation of burnout with professionals, especially in the health sector, is necessary. Thus, since research that validated the measure in the Brazilian context has not yet been identified, the present study aims to present evidence of validity and internal consistency of BS-COVID-19 in a sample of Brazilian health professionals.

Study 1: Method

Participants and Procedure

A convenience sample composed by 202 health professionals (age over 18), mainly women (82%) with the second dose of vaccine (90.1%), psychologists (31.2%; Nursing technician 8,6%;

Biomedical 1,4%; Dentist 5,6%; Nurse 10,3%; Pharmacist 8,2; Physiotherapist 14,7%; Speech therapist 9,3%; Doctor 5,1%; Nutritionist 7,9%), who had not contracted COVID-19 at the time of the research (64.4%) and who, when contaminated, had slight symptoms (20.8%). Participants were Brazilians, and to gather data, we advertised the survey link on social media (e.g., WhatsApp, Instagram, specific health professionals groups), using the snowball sampling method (Dusek et al., 2015). The link for participating in the research was made available for the period of 30 days. Prior to completing the survey, participants were required to read and agree with the terms of free and informed consent. We received approval for the research from the Ethical Committee for Scientific Research of the Federal University of Mato Grosso do Sul (CEP/UFMS). Participation was voluntary and the average time to complete the instrument was around 5 minutes.

Material

To translate the English version into Portuguese, we consider the International Test Commission guidelines and used the back-translation procedure (ITC, 2017) First, a bilingual researcher translated the COVID-19 Burnout Scale (COVID-19-BS; Yıldırım & Solmaz, 2020) for Brazilian Portuguese. Following that, another researcher (also bilingual) undertook the back-translation translating the items back into English. Finally, a third researcher compared both translations and and did not suggest any substantial changes for the Brazilian Portuguese version. The semantic validation was verified with ten high school students and the COVID-19-BS (Portuguese version) did not require any substantial amendments.

The scale version resulting from the back-translation was composed of 10 items (e.g., 1. When you think about COVID-19 overall, how often do

Table 1. *Factorial Structure of the Portuguese version of the COVID-19-BS.*

Items content	Factor Loadings	h²
1. Tired [Cansado(a)].	.66	.66
2. Disappointed with people [Desapontado(a)]com as pessoas.	.68	.67
3. Hopeless [Desesperançado(a)].	.84	.80
4. Trapped [Preso(a)].	.71	.69
5. Helpless [Desamparado(a)].	.84	.76
6. Depressed [Deprimido(a)].	.86	.91
7. Physically weak/sickly [Fisicamente fraco(a)/doente].	.79	.73
8. Worthless/like a failure [Inútil/um fracassado(a)].	.76	.80
9. Difficulties sleeping [Dificuldade para dormir].	.74	.70
10. "I've had it"? ["Eu tive isso"?]	.63	.49
McDonald's ordinal Omega (ω)	.90	
Cronbach's alpha (α)	.90	
UniCo	.99	
ECV	.92	
MIREAL	.19	

you feel tired?) using a 5-point Likert scale ranging from 1 (never) to 5 (always). In the original study (Yıldırım & Solmaz, 2020), it was identified satisfactory internal reliability (Cronbach's alpha of .92) and validity (NFI =.94, CFI =.96, RMSEA = .10 and SRMR = .05). In addition to the COVID-19-BS, participants answered demographic questions (e.g. gender, profession).

Data Analysis

We used the software Factor 10.10.03 (Lorenzo-Seva & Ferrando, 2006) to perform the Exploratory Factor Analysis (EFA). The Hull Method was used with a factor retention criterion, which aims to identify the factorial structure that best adjusts to the data (Lorenzo-Seva et al., 2011). For that, the *Robust Diagonally Weighted Least Squares* (RDWLS) method was used to extract the factor, considering a minimum saturation of |.30| (Gorsuch, 1983).

We calculated indicators of Unidimensionality Unidimensional Congruence (UniCo > .95), Explained Common Variance (ECV > .85) and Mean of Item Residual Absolute Loadings (MIREAL < .30; Ferrando & Lorenzo-Seva, 2018). To measure the reliability of the scale, we used McDonald's Omega (ω) and Cronbach's alpha (α) (>.70; Hayes & Coutts, 2020).

Results

The Hull Method indicated a one-dimensional structure (CFI = .99). Therefore, we performed the EFA (KMO = .92 and Bartlett, χ^2 (45) = 1258.2, *p* <.001; RDWLS), fixing the structure in one factor and the results clearly showed a solution of one factor (Table 1).

As shown in Table 1, the items presented loadings above |.30|, varying from .63 (Item 10. "I've had it"? ["Eu tive isso"?]) and .86 [Item 6. Depressed (Deprimido/a)], resulting in an eigenvalue of 5.71, explaining 79% of the total variance. The internal consistency for the measure (McDonald's omega, ω = .90; Cronbach's alpha, α = .90; Fornell & Larcker, 1981; Gouveia & Soares, 2015) was above the recommended in the literature (.70). And the unidimensionality indicators (UniCo = .99; ECV = .92; MIREAL = .19; Ferrando & Lorenzo-Seva, 2018) supported the unidimensionality of the scale.

Study 2: Method

Participants and Procedure

In this study, we considered 225 Brazilian health professionals (over 18 years old), the majority of women (79.6%), psychologists (24.8%), who were not contaminated by COVID-19 (63%) and who, among those contaminated, they had slight symptoms (27.4%). The same ethical and data collection procedures as in Study 1 were considered. On average, it took 10 minutes to complete the participation in the research.

Material

The participants received a online survey containing the demographic questions (e.g., gender, profession), COVID-19-BS (described in Study 1) and the Coronavirus Anxiety Scale (CAS; Lee, 2020). This scale is a mental health screener designed to mensurament dysfunctional anxiety associated with the COVID-19 crisis, it is composed of 5 items using a 5-point scale that ranged from 0 (Not at all) to 4 (Nearly every day over the last 2 weeks). The original version had a reliability indicator of .93 (cronbach's alpha). In this study, the reliability indicators were .90 (Cronbach's alpha and omega).

Data Analysis

We performed the Confirmatory Factor Analysis [CFA; JASP (Jeffrey's Amazing Statistics Program) version 0.12.2; Han & Dawson, 2020) and Item Response Theory (IRT; R Development Core Team, 2016 and package MIRT - Multidimensional Item Response Theory). We adopted the Diagonally Weighted Least Squares (DWLS) estimator and considered with indicators of model fit (Byrne, 2010): (1) Comparative Fit Index (CFI) and (2) Tucker-Lewis Index (TLI), which must be higher than .90 or close to .95; and (3) Root Mean Square Error Approximation (RMSEA) and its 90% confidence interval (90% CI), which are preferable to be .06 or less.

To analyses the parameters of the items via item response theory [IRT; (i.e., discrimination, difficulty, and level of information], we applied the Graded Response Model (grm function; Samejima, 1969). The item discrimination indexeswas evaluated considering the levels: 0 = no discrimination, .01 to .34 = very low discrimination, .34 to .64 = low discrimination, .65 to 1.34 = moderate

discrimination, 1.35 to 1.69 = high discrimination, and higher than 1.70 = very high discrimination (Baker, 2001). And the item threshold (also known as item difficulty) was evaluated using theta values [low theta (b1-4) indicates that the item is "easier" to answer, and a higher theta indicates an item that is more "difficult" to answer; Baker, 2001)]. Finally, we also assessed how much information an item shares with the total information of the COVID-19-BS (Item Information Curves) and how well and in what range of the latent trait, the scale can discriminate individuals (Test Information Curve) about COVID-19 burnout.

Finally, we assessed the reliability of the COVID-19-BS (McDonald's omega, Cronbach's alpha and Composite Reliability; Fornell & Larcker, 1981; Gouveia & Soares, 2015). Also, we assessed convergent validity through Pearson's correlations between the COVID-19-BS and the Coronavirus Anxiety Scale (Lee, 2020). We expected positive and significant relations between burnout related to COVID-19 and coronavirus anxiety.

Results

Confirmatory Factor Analysis

Considering the structure observed by Yıldırım and Solmaz (2020), and the findings of Study 1, we tested the factor structure of the COVID-19-BS with the ten items loading on the same general factor to Confirmatory Factor Analysis. The results showed satisfactory fit indexes: CFI = .99; TLI = .99; RMSEA = .019 (90% CI = .001 - .053). All items presented saturations (lambda) varying from .53 (Item 02) to .86 (Item 06). A summary of the findings for both COVID-19-BS is shown in Table 2. These results suggest that, overall; the theoretical model fits the data.
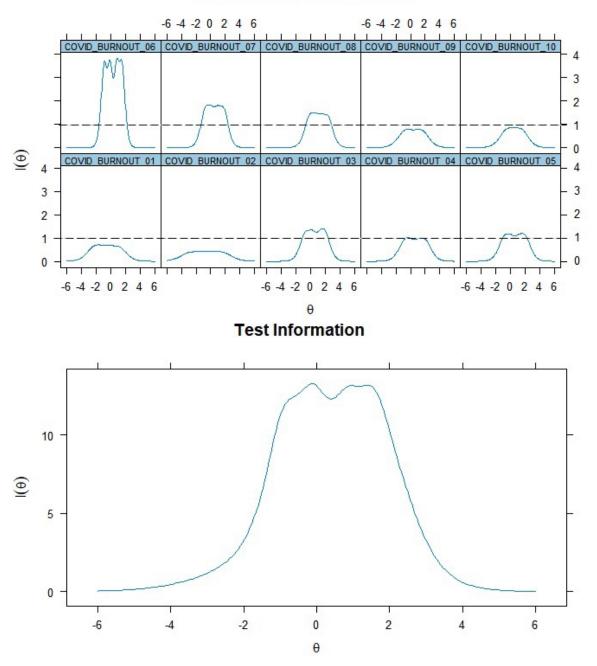
Item Response Theory (IRT)

Moreover, we performed an IRT to evaluate the items parameters by testing the capacity of the ten items to discriminate between the participants with differents levels of COVID-19 burnout, the spread in the thresholds (5-point response scale = 4 thresholds) and how much these items contribute individually to the overall measure. All the results are shown in Table 2.

Results indicated that the all items' ability to discriminate between people were strong (>1.70, Baker, 2001) with an average of 3.14 (SD = 2.05), ranging from 1.19 (item 2) to 3.75 (item 6). The item threshold (difficulty parameters), describes where the item functions along the trait (Baker, 2001). In this case, low theta (b1-4) indicates that the item is "easier" to answer, and a higher theta indicates an item that is more "difficult" to answer. For this, we analised the difficulty para-

Table 2. *Factorial structure and parameters for the Portuguese version of the COVID-19-BS items with IRT*

Items	λ COVID-19-BS	Item Response Theory					
		a	b1	b2	b3	b4	$b_1 - b_4$ (M)
Item 1	.57	1.524	-2.339	-1.494	-.204	1.179	-.885
Item 2	.53	1.193	-2.942	-1.272	.263	1.652	-.854
Item 3	.73	2.160	-.756	.223	1.427	1.981	1.704
Item 4	.67	1.828	-.859	-.127	1.162	2.061	1.612
Item 5	.68	1.998	-.882	-.029	1.230	2.038	1.634
Item 6	.85	3.751	-.920	-.113	.837	1.547	1.547
Item 7	.76	2.508	-.782	-.006	.950	1.815	1.815
Item 8	.71	2.238	-.211	.535	1.435	2.403	1.919
Item 9	.61	1.609	-.912	-.235	1.042	1.655	1.349
Item 10	.63	1.660	-.670	.068	1.113	1.602	1.358

Note. λ = Factorial Loadings. M = mean.

Item information trace lines

Test Information

Figure 1. *Item and test information functions for the COVID-19-BS scale*

meters indicated that items 1 (M b1–b4 = -.885) and 8 (M b1–b4 = 1.919) presented the lowest and highest average thresholds, respectively.

We avaluate the Item Information Curves (IIC) and the results showed that most of the items were adequately informative, with Item 06 [Depressed] being the most informative and Item 02 the least informative. The Test Information Curve (TIC) summarizes the information functions more accurate on all the items along the latent trait continuum in the dimension burnout COVID-19 (Lo et al., 2015). As it can be seen in Figure 1, the burnout COVID-19 offered the maximum information at a θ score of approximately -2 for the +2 suggested a reasonable spread of discrimination across the latent range the general itens.

Reliability and Convergent Validity

To provide evidence of convergent validity for the COVID-19-BS (10 items), we assessed their correlations with the Coronavirus Anxiety Scale (CAS; which assesses the level of anxiety of respondents towards the coronavirus (COVID-19), presented positive and significant ($r = .38$, $p < .01$). Finally, we assess the reliability of the measure ($\omega = .89$; $\alpha = .89$; CR = .89) presented satisfactory levels (Gouveia & Soares, 2015).

Discussion

The COVID-19 pandemic has caused serious damage to the health of the world population, especially among health professionals who have closely experienced feelings of anxiety and stress in professional practice and have been substantially psychologically impacted (De Kock et al., 2021; Gómez- Durán et al., 2020). This is a favorable context for the emergence of a state of physical, psychological and emotional stress at work, described in the literature as burnout syndrome.

Faced with these demands, Yıldırım and Solmaz (2020) adapted the original measure by Malach-Pines (2005) to measure burnout against COVID-19. And the present study aimed to adapt the BS-COVID-19 to the sample of health professionals in the Brazilian context. Using robust statistical techniques (e.g., exploratory factor analysis, confirmatory factor analysis, item response theory), we identified solid psychometric evidence to consider the measure as being composed of a factor, the findings of which allow us to consider the interpretations of the research data valid and with satisfactory internal consistency indicators in accordance with the literature (Fornell & Larcker, 1981; Gouveia & Soares, 2015).

The factor structure of BS-COVID-19 was initially evaluated through an exploratory factor analysis in Study 1, with results that corroborated the one-factor structure proposed by Yildirim and Solmaz (2020) who identified factor loadings ranging from .60 (item 1) to .88 (item 6). In this research, similar findings were found (.63/item 10 to .86/item 6) in addition to additional indicators of unidimensionality (Unidimensionality Unidimensional Congruence (UniCo > 0.95), Explained Common Variance (ECV > .85) and Mean of Item Residu-al Absolute Loadings (MIREAL < .30; Ferrando & Lorenzo-Seva, 2018) that added the pertinence of the unifactorability of the measure. The reliability of the scale was within the standards recommended by the literature (α and ω > .70, Fornell & Larcker , 1981; Gouveia & Soares, 2015) with scores (ω /α = .90) close to those reported by the original version (α = .92; Yildirim & Solmaz, 2020).

In Study 2, using more robust methods such as confirmatory factor analysis and item response theory, the one-factor structure was supported. In the original study, the indicators of the one-factor model (NFI = .94; CFI = .96; RMSEA = .10 and SRMR = .05) similar to those identified in this research (CFI = .99; TLI = .99; RMSEA = .019 (90% CI = .001 - .053).

Then, through the Item Response Theory (IRT), indicators of item discrimination, difficulty and information were evaluated. The results showed that all items showed high discrimination (> 1.70, Baker, 2001), highlighting their ability to distinguish people with different levels (eg, low, high) of burnout in the face of COVID-19.

Regarding the item difficulty parameter, it is considered appropriate to have items that are neither too easy nor too difficult (for example, between -1.5 and 1.5; Rothman, 2013). Our findings identified items that were outside these thresholds, with some of the items (6,4,5,3,7 and 8) being very difficult, resulting in 4 items at the target threshold (1, 2, 9 and 10; Mb1 – b4 ranging from -0.885 to 1.358). Such results suggest that, when responding to the items, the participants will not tend to totally agree or disagree with the items, but will present different responses. It is noteworthy that the items presented a considerable level of information for the complete measure, both individually and together.

Finally, we evaluated the convergent validity indicator of the measure through its relationship with the Coronavirus Anxiety Scale (CAS; Lee, 2020) and the positive and significant result indicated that health professionals who scored higher in one of the dimensions also presents in the other dimension. That is, for example, higher levels of burnout in the face of COVID-19 indicate higher levels of anxiety in the face of COVID-19.

Despite the promising results, as with any scientific endeavor, some limitations are identified.

The first refers to the time when the data were collected (August 20, 2021 to September 24, 2021), since measures had already been implemented that reduced restrictions due to the pandemic with the start of vaccination. Thus, it is not possible to present baseline data from the most critical moment of hospital capacity and to make comparisons between the levels of burnout in the face of COVID-19 in this research with the epicenter of hospitalizations and, consequently, greater labor demand from health professionals.

A second limitation involves using self-report measures. These instruments offer participants the possibility of giving biased answers, which do not correspond to reality, resulting from social desirability, generating responses that may have diverged from the true reflection of the levels of burnout in the face of COVID-19 and anxiety in the face of the coronavirus. In addition, one can assess psychometric indicators of BS-COVID-19 in different Brazilian contexts (e.g. frontline professionals and private practice), explore their temporal stability and correlate the measures with several other psychological variables (e.g., depression, stress, job satisfaction) to attest to its applicability.

Nevertheless, despite the limitations, the results extend the previous observations in the literature, presenting to the Brazilian context information from a measure that evaluates a construct of important analysis for the mental health of Brazilians, with indicators similar to the original research (Yildirim & Solmaz, 2020) that suggest the promising use of the measure in the interpretation of the construct.

Thus, the need for future studies considering larger samples is justified (for example, increasing the number of participants, including health professionals from different areas and with more equivalence in the groups by profession), the addition of a longitudinal design that allows the evaluation of the evolution of burnout in the face of COVID-19 in moments after the pandemic and the creation of normative tables that allow an adequate interpretation of the scale scores and expand the applicability of its use to assist professionals who deal with workers (for example, Human Resources).

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