Validation of the COVID-19 Fear Scale for Community Health Agents

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Abstract

The COVID-19 pandemic defined a new social dynamic, due to the intensification of feelings of fear, especially the fear of getting infected and of infecting loved ones, which imposed new challenges upon Primary Health Care (PHC) system and the work of the Community Health Agent (CHA) program, highlighting the need for an instrument to assess fear and its impacts on the physical-emotional aspects and on the work reality of these professionals. Thus, the objective of this study was to develop and validate a scale for assessing the fear of COVID-19 among CHAs. This methodological study was developed with the CHAs of the northern Minas Gerais health macro-region, from July to October 2020. The elaboration of the items was carried out by the authors based on constructs of feelings of fear and the anxiety and fear assessment scales identified in the literature. An exploratory and confirmatory factor analysis was performed in order to verify the validity of the constructed instrument. The scale showed satisfactory levels of adjustment in the analyses carried out, demonstrating adequacy of the data for the achievement of construct validity. Two indicators refuted the one-dimensionality of the scale. The elaborated and validated scale will be able to subsidize the definition of strategies directed to the CHA program, in order to guide their work within the community, in addition to acting preventively in the identification of mental health problems in the context of a pandemic.

Keywords: Community Health Agent. COVID-19. Fear. Validation Studies.

INTRODUCTION

The Unified Health System (UHS) in Brazil has the Family Health Strategy (FHS) as its priority action for the expansion and consolidation of Primary Health Care (PHC). The FHS teams have sought to reorganize PHC across the country, by reorienting the work process, expanding resolution, and working with an emphasis on promoting the health of people and communities. These teams must be composed, at a minimum, of a doctor, nurse, nursing assistant and/or technician, and a community health agent (CHA)[1]. The latter, the CHAs, are fundamental professionals for the proposed model, as their tasks incorporate cultural competence, community orientation, and bonding between the healthcare team and the families assisted in the territory[2].

Studies aimed at the CHA population demonstrate that these professionals have compromised their general and mental health as-

sociated with the performance of their work activities. Often, CHAs are prone to acquiring different diseases due to their proximity to unsanitary conditions and occupational exposure[3,4]. Added to this context, at the beginning of 2020, the arrival in the country of a new pandemic disease, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), or simply COVID-19, caused by a new type of coronavirus, imposed new challenges on the work of the CHA, particularly due to the high rate of transmission, morbidity, and mortality.

The first case of COVID-19 was registered in Brazil in February 2020 and as happened in other parts of the world, it quickly defined new social behaviors, including intensified feelings of fear, especially the fear of getting infected and of infecting loved ones[5]. Unlike what happened in other situations, such as the zika virus outbreak, a study suggests that the CHAs did not play a central role in combating COVID-19, nor was a national policy formalized that contemplated the training and direction of these workers for this role6. Furthermore, no studies were identified that evaluated the psycho-emotional implications or the fear reported by these professionals in this new occupational context.

To measure the levels of fear related to CO-VID-19 in the general population, a scale was developed by a group of Iranian researchers, Fear of COVID-19 Scale (FCV-19S)[6]. This instrument has already been validated in several studies, with different populations[5,7,8], including some Brazilian studies[9,10], and has demonstrated robust psychometric properties such as internal consistency and reliability, concerning the knowledge of the psychological impact of COVID-19 among the adult population.

Results from the application of the FCV-19S showed that being a healthcare professional is associated with higher levels of fear[11,12]. Thus, it is reasonable to assume that the CHAs, due to their quick and easy contact with the population, also experienced daily fear due to the risk of exposure and contagion, reinforcing the need for an instrument that could assess this feeling and be adequate to the occupational reality of these professionals. Knowing the perception and desires of these professionals is a relevant strategic measure for healthcare managers, so this study aimed to develop and validate a scale to assess fear of COVID-19 especially aimed at CHAs.

METHODS

Procedures

This is a methodological study, part of the project entitled "Working and Health Conditions of Community Health Agents in the North of Minas Gerais during the COVID-19 pandemic", developed by the State University of Montes Claros - UNIMONTES and whose main objective was to identify the working conditions, health, and feelings of the CHAs in the north of Minas Gerais in the context of the COVID-19 pandemic.

The elaboration of the assessment items was carried out by the authors based upon the concepts of feelings of fear and scales assessing anxiety and fear identified in the literature. Therefore, scales of fear of death[13,14], cancer[15], dentists[16,17], falls[18], and anxiety scales[19,20,21] were analyzed. The definition of the items also took into account the context of the pandemic, with great media coverage, an aspect not identified in previous scales, and the working conditions of the CHAs.

In the process of constructing the scale, the authors had access to the Fear of COVID

Scale (FCV-19S)[7] instrument; however, in this study, the translation and cultural validation of the original scale were not carried out, which have already been presented in other national studies[9,10]. A new instrument was elaborated and it was verified that it presented items very similar to the free translation of the FCV-19S scale, recording two additional items in relation to physical-emotional aspects and three items referring to the perception of risk inherent to the work of the CHA.

The elaborated scale was sent to a team of six professionals ("judges") of expert knowledge, five physicians (all with doctorates), and one psychologist (with a master's degree). The proposed scale was evaluated by the team concerning the clarity of each question and concerning the relevance and coherence with the proposed construct. For each item in each question, the evaluators registered their perception as "adequate", "partially adequate", or "inadequate", being able to register suggestions for new wording of the question, if they so wished. Questions that received an assessment of "inadequate" or "partially adequate", without proposals for adjustments by at least three respondents were excluded. The considerations of the team of expert judges were analyzed and the suggested adjustments were accepted, when proposed by up to two evaluators.

The second version of the instrument was submitted for validation in a pilot test with 15 CHAs (who did not make up the structural validation sample) in order to analyze the perceptions of individuals regarding the instrument. All items were considered clear and understandable for the group of respondents. After this assessment, the instrument was considered suitable for the next step. The scale at this time consisted of 11 items with affirmative sentences followed by options for recording agreement on a Likert-type scale, with 5 points (completely disagree, partially disagree, neither disagree nor agree, partially disagree, neither disagree nor agree, partially agree, completely agree). Two dimensions were defined a priori: one linked to the physical and emotional aspects associated with the fear of COVID-19 (items 1 to 8) and another referring to the risk inherent in their work (items 9 to 11).

To define the final scores, the answers were scored from 1 to 5, according to the order presented. Thus, the higher the score, the greater the perception of fear of the disease.

Participants

The study was developed with the CHAs of the healthcare macro-region of Northern Minas Gerais, Brazil, from July to October 2020. For the construct validation process, the study included data from the CHAs of 36 municipalities of the Northern Minas Gerais health macro-region. To prepare the sampling plan, two domains were considered: host municipalities and other municipalities. The northern region of Minas Gerais has 86 municipalities, of which 13 are host municipalities for the microregions. The CHA population in the region totaled 3747 agents, 1862 of which are from the host municipalities and 1885 from the other municipalities. Thus, all the host municipalities were selected in that domain, and 23 municipalities were randomly selected in the other municipalities domain. To define the sample size, considering that the study included other objectives, the following parameters were considered: estimated prevalence of 50% (which provides the largest sample size), 95% confidence level, and 4% margin of error, with correction for a finite population. Correction for the design effect was performed, adopting deff = 2.0, and to compensate for possible non-responses and losses, an increase of 12% was established. The minimum sample size was estimated at n= 1167 CHAs, with n1= 567 (48.6%) agents from the host municipalities and n2= 600 (51.4%) from the other municipalities in the north of Minas Gerais.

Instruments

In the final composition of the instrument answered by the CHAs, in addition to the scale to be validated, questions related to socio-demographic and work characteristics were inserted (gender, age group, marital status, skin color, education, length of service, employment relationship, number of people accompanied), as well as issues that addressed working conditions, such as the availability of personal protective equipment (PPE) and the monitoring of users with flu syndrome.

Data collection

The application of the instrument occurred remotely, considering the pandemic period. Initially, telephone contact was made with the health secretary or PHC manager of each chosen municipality, where the objectives of the study were explained, as well as the data collection instrument, the analysis, and the resulting information. The managers who consented to the research authorized the inclusion of teams drawn from their municipality in the project, upon acceptance of the research through an Institutional Agreement Term (TCI), prepared through the virtual platform and whose link for acceptance was sent by email to them. After the electronic signature of the acceptance, the managers provided the telephone contacts of the nurses of each FHS unit, which, after being clarified about the research objectives and the knowledge of the municipal manager, forwarded the link to the CHAs of their team to access the questionnaire.

To control the completion of the questionnaires, the National Register of Healthcare Establishments (NRHE) was used, which provides the names, professional category, and date of admission of all members of the family health strategy teams. Workers who were on sick leave or on vacation and those who were away from occupational activities for other reasons were excluded.

Statistical analysis

To assess the constructed instrument's validity, an exploratory factor analysis (EFA) was initially performed, followed by a confirmatory factor analysis (CFA). In the EFA, to verify whether the data matrix was factorable, the Kaiser-Meyer-Olkin (KMO) criterion and the Bartlett Sphericity Test were evaluated, it was expected that a KMO value would be above 0.7 and Bartlett's test is statistically significant (p < 0.05)[22]. The analysis was implemented using a polychoric matrix and the Robust Diagonally Weighted Least Squares (RDWLS) extraction method, due to the ordinal character of the response pattern. The decision on the number of extracted factors was performed using the Parallel Analysis technique with random permutation of the observed data[23], using the Robust Promin rotation[24]. The adequacy of the model was evaluated using the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI). The parameters considered to assess the overall fit of the model were CFI, TLI ≥ 0.9[25].

The one-dimensionality of the instrument was verified using the UniCo (Unidimensional Congruence) and ECV (Explained Common Variance) indicators. To be considered one-dimensional, the instrument must present values of UniCo > 0.95 and ECV > 0.80.

The H-index determines the adequacy of the representation of the common factor by the set of items through values that vary from zero to one. Values >0.80 suggest a well-defined latent variable, probably stable in different studies, while a low H values suggest an ill-defined latent variable, probably unstable in other studies[26]. Thus, to assess the stability of the factors, the latent H and observed H indices were used, with the latent H indices verifying the identification of the factor by the variables that compose it, and the observed H indices referring to the replicability of the instrument.

In this evaluation, the FDI (Factor Determinacy Index) was also used, which is res-

ponsible for assessing the extent to which the scores represent the latent trait and whose values around 0.80 are considered adequate for research and values above 0.90 suggest good performance for individual assessments. Additionally, the overall reliability of the instrument was assessed, evaluating the overall internal consistency by calculating Cronbach's alpha, assuming satisfactory values when equal to or greater than 0.7[27].

The CFA was used to ratify the dimensional structure extracted in the EFA. To assess the quality of the adjusted measurement model, the ratio between the chi-square and the degrees of freedom (χ^2/g.l.), the Goodness of Fit Index (GFI), the TLI, the CFI, and the Root Mean Square Error of Approximation (RMSEA) were used. The parameters considered for evaluating the overall fit of the model were χ^2/g.l. < 5; CFI, GFI, TLI $\geq$ 0.9, and RMSEA <0.08[25].

For data analysis, the FACTOR software and the Statistical Package for Social Science (IBM - SPSS) software were used.

Ethical Considerations

For the execution of this study, all ethical requirements were respected. Before its implementation, the research project was evaluated and approved by the Research Ethics Committee of the State University of Montes Claros under opinion No. 4.101.139. All CHAs who participated in the study registered their agreement, signing the Informed Consent Form, digitally.

RESULTS

The results of the validation process of the COVID-19 Fear Scale instrument for CHAs are described in three steps.

1st Step: Content Validation and Face Validation

The first step consisted of content validation and face validation. After the item development process, content validation was achieved through the collaboration of six judges from related areas. The scale in its first version then had 13 affirmative items, followed by a Likert-type scale, with five response options. The considerations of the team of expert judges led to minor adjustments in the wording of some items and the removal of two items ("The coronavirus disease is the scariest I have ever known" and "I am worried about the coronavirus most of the time"). There was a suggestion to add one more item regarding the use of personal protective equipment, but it was not accepted, as it was not considered relevant to all judges and authors. Items that remained on the scale achieved positive evaluation by all judges (100% Content Validity Index).

The second version of the instrument was approved in a pilot test with 15 CHAs, in the face validation stage, and no difficulties were mentioned in terms of understanding the questions or filling out the instrument.

The final instrument (11 items) was applied to 1,220 CHAs. Table 1 portrays the sociodemographic characteristics and working conditions of the study participants. Most of the group consisted of women (n = 1038; 85.1%), aged between 26 and 40 years old (n = 703; 57.6%), brown (n = 893; 73.2%), married or in a stable union (n = 766; 62.8%), and with a high school education (n = 785; 62.8%). It is also observed that 72.6% (n = 907) reported that their income remained the same when compared to the period prior to the pandemic.

With regards to work, 60.6% (n = 739) were hired, 40.1% (n = 489) had worked for between one and five years, and 65.2% (n = 795) worked with less than 500 people, with the majority not accompanying patients with flu syndrome (n = 771, 63.2%). For 53.1% (n = 648) personal protective equipment (PPE) was offered in limited quantities.

Table 1 – Sociodemographic characteristics and working conditions of CHAs in northern Minas Gerais, 2020.

Variables	(n)	(%)
Sex		
Male	182	14.9
Female	1038	85.1
Age		
Up to 25 years	165	13.5
26 to 40 years	703	57.6
41 years or older	352	28.9
Skin color		
Brown	893	73.2
Black	127	10.4
Whites	179	14.7
Yellow/Indigenous	21	1.7
Marital status		
Married/Stable union	766	62.8
Divorced/Widowed	99	8.1
Single	355	29.1
Education		
Incomplete high school	54	4.4
Complete high school	764	62.6
Incomplete higher	143	11.7
Complete higher	259	21.2
Service time		
Less than a year	82	6.7
Between one and 5 years	489	40.1
Between 5 and 10 years	245	20.1
More than 10 years	404	33.1
Employment Relationship		
Contract/CLT Employee	739	60.6
Government Employee/Permanent	481	39.4
Number of people registered in your micro region		
Less than 500 people	795	65.2
Between 500 and 750 people	393	32.2
Over 750 people	32	2.6

to be continued...

... continuation table 1

Variables	(n)	(%)
Do you monitor patients with flu syndrome?		
Yes	449	36.8
No	771	63.2
Availability of PPE in the workplace		
Adequate amount	470	38.5
Limited quantity	648	53.1
There is no availability	102	8.4

Source: Direct survey data.

2nd Stage: Exploratory Factor Analysis

In the second stage, the factorial structure of the COVID Fear Scale for CHAs was evaluated using the EFA (Table 2), showing adequate KMO values (0.891) and Bartlett's sphericity test, whose p-value was less than 0.001, demonstrating adequacy of the data to evaluate the construct validity. Two indicators refuted the one-dimensionality of the scale, through the overall evaluation of the items: UniCo below 0.95 (0.887) and ECV below 0.85 (0.842). Thus, the authors maintained the two dimensions originally designed for the instrument.

The factor loadings of each of the items (rotated matrix) are presented in Table 2. It was verified that the items do not have cross-loading patterns, that is, none of them presents a factorial load above 0.30 in more than one factor. The factor loading of item 9 was 0.435 for the first dimension and 0.081 for the second, causing it to be shifted from the "Risks Inherent to Work" dimension to the "Physical-emotional Aspects" dimension.

It was also found that the composite reliability of the factors was adequate (above 0.70) for both factors. The measure of replicability of the factor structure, measured by the H index, suggests that the factors can be well identified by the variables that compose it (Latent H index > 0.80), but the factor "Risk inherent to work" may not be replicable in future studies (Observed H Index < 0.80). The FDI values were, respectively, greater than and equal to 0.90 for "Physical-emotional aspects" and "Inherent risk at work", which indicates that both are adequate for research and for individual assessments[28]. The internal consistency of the instrument was generally satisfactory based upon Cronbach's alpha (0.875).

Table 2 – Evaluation criteria and Factorial Structure of the COVID-19 Fear Scale for CHAs. Northern Minas Gerais, 2020.

Evaluation criteria	Physical-emotional aspects	Inherent Risk at Work
Items		
1-I am very afraid of the coronavirus	0.663	0.115
2-I feel uncomfortable whenever I think about the coronavirus.	0.725	0.083

to be continued...

...continuation table 2

Evaluation criteria	Physical-emotional aspects	Inherent Risk at Work
3-I've been having nightmares because of the coronavirus.	0.856	-0.121
4-My hands get cold when I think about the coronavirus.	0.894	-0.093
5-I am afraid of losing my life because of the coronavirus.	0.740	0.073
6-I get nervous when I watch news about the coronavirus.	0.691	0.127
7-I lose sleep, worried about catching the coronavirus.	0.888	-0.054
8-I feel my heart race when I think about the possibility of catching the coronavirus.	0.858	-0.002
9-I'm afraid of losing work because of the coronavirus.	0.431	0.081
10-I'm afraid of contaminating my family with the coronavirus because of my work.	-0.192	0.835
11-My work leaves me very exposed to the coronavirus.	-0.000	0.825
Composite Reliability	0.924	0.816
H index - latent	0.941	0.809
H index - observed	0.895	0.614
FDI	0.970	0.900
Cronbach's alpha	0.875	

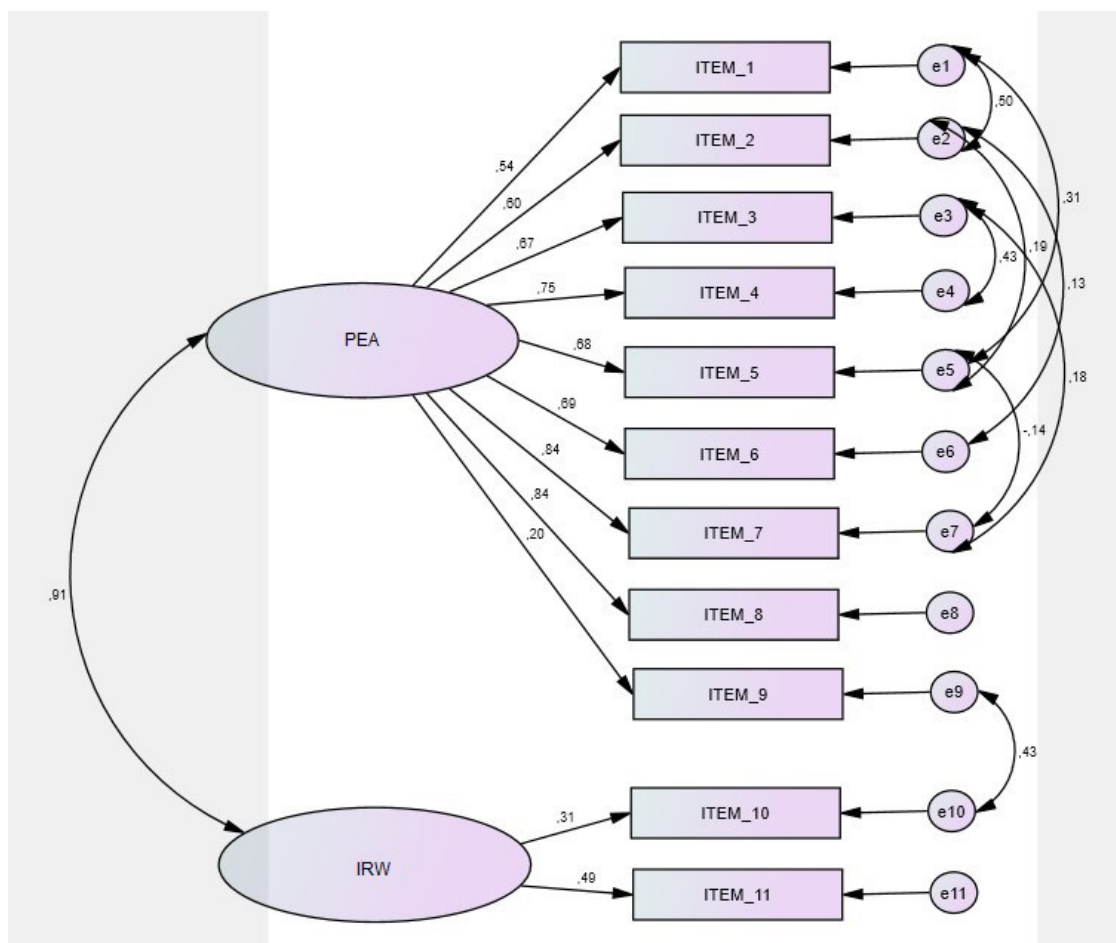Source: Directly from study data.

3rd Stage: Exploratory Factor Analysis

In the CFA, registered in figure 1, the model presented adequate adjustment indices (RMSEA, CFI, and TLI). However, items 9 and 10 displayed factor weights below the recommended value (0.50) and were correlated with each other (r=0.91), which is not desirable, considering that they are items with different factors. A new CFA was then carried out, with the removal of item 9, as shown in figure 2, which presented adequate adjustment indices (RMSEA, CFI, and TLI) and without reported correlation between the items.

Thus, after the CFA, the scale proposed here, the COVID-19 Fear Scale for CHAs, was composed of 10 items, whose score can vary from 10 to 50 (each item ranging from one to five points). The final scale items, as well as the mean scores achieved for each item and their respective 95% confidence intervals, are shown in Table 3.

Figure 1 – Model 1 for Confirmatory Factor Analysis of the COVID-19 Fear Scale for Community Health Agents. Northern Minas Gerais, 2020.

PEA: Physical-Emotional Aspects
IRW: Inherent risk at work.
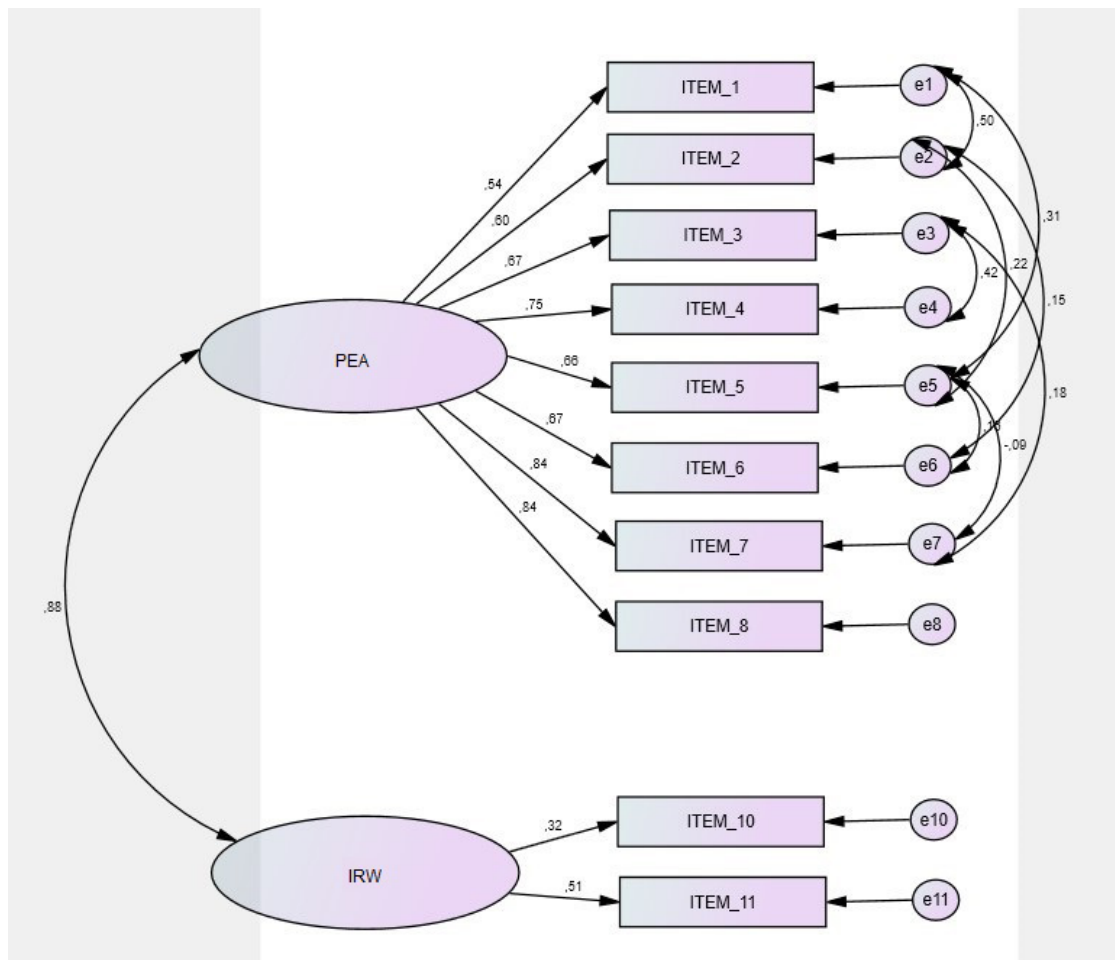   Model fit evaluation indices:
    X^2/gl= 4.48
    GFI = 0.977
    TLI=0.968
    CFI = 0.982
    RMSEA = 0.05 [0.04 - 0.06]; p-value = 0.229
Source: Directly from study data.

Figure 2 – Model 2 for Confirmatory Factor Analysis of the COVID-19 Fear Scale for Community Health Workers. North of Minas Gerais, 2020.

PEA: Physical-Emotional Aspects
IRW: Inherent risk at work.
> Model fit evaluation indices:
> $X^2/gl= 4.55$
> GFI = 0.980
> TLI = 0.973
> CFI = 0.984
> RMSEA = 0.05 [0.04 - 0.06]; p-value = 0.268

Source: Directly from study data.

Table 3 – Descriptive analysis of the mean scores of items on the COVID-19 Fear Scale for Community Health Agents. Northern Minas Gerais, 2020.

Variables	Mean	95% CI
1-I am very afraid of the coronavirus	4.238	(4.18-4.29)
2-I feel uncomfortable whenever I think about the coronavirus.	3.998	(3.93-4.06)
3-I've been having nightmares because of the coronavirus.	2.268	(2.19-2.34)
4-My hands get cold when I think about the coronavirus.	2.311	(2.23-2.39)
5-I am afraid of losing my life because of the coronavirus.	3.802	(3.72-3.88)
6-I get nervous when I watch news about the coronavirus.	3.590	(3.51-3.67)
7-I lose sleep, worried about catching the coronavirus.	2.629	(2.54-2.71)
8-I feel my heart race when I think about the possibility of catching the coronavirus.	3.050	(2.96-3.14)
9-I'm afraid of contaminating my family with the coronavirus because of my work.	4.695	(4.66-4.73)
10-My work leaves me very exposed to the coronavirus.	3.279	(3.19-3.36)
Total Score (Fear of COVID among CHAs)	33.86	(33.33- 34.38)

*CI = Confidence Interval

Source: Directly from study data.

DISCUSSION

The fear of contracting COVID-19 or even contaminating close people has been recorded in other studies[5,7,8] as being responsible for raising anxiety levels and even exacerbating pre-existing mental disorders. With regards to the work of the CHA, studies place these professionals as important factors for the control and prevention of pandemics, emphasizing that the scope of their work can be modified, given the need to redefine their routine activities[2]. However, instruments capable of identifying the degree of fear of COVID-19, as well as its relationship with the work context of this population, were not found. Thus, this study made it possible to develop and analyze the validity of a COVID-19 fear assessment scale among CHAs that could support the definition of strategies aimed at this public, in order to direct the work within the community, in addition to acting preventively in identification of mental health problems in the context of the pandemic.

The content validation process of the COVID-19 Fear Scale among CHAs, although it

had a restricted number of judges, was supported by the existence of similar scales that facilitated the process[7,13-21]. It is relevant to note that suggestions and criticisms issued by specialists represent the most important qualitative step for the initial validation phase of an instrument. Face validation was conducted based on the perception of CHAs who were not selected for the study and who critically evaluated the clarity and understanding of the items, not listing any difficulties.

An exploratory factor analysis was important for the initial stage of the psychometric analysis process, that there was a factorable matrix based upon the recorded the KMO and Bartlett's sphericity test (p < 0.001) values[29].

Initially, item 9 ("I am afraid of losing my job because of the coronavirus") was part of the "Inherent risk at work" dimension. However, after analyzing the factor loading of the item, it was found that it was associated with the first dimension (Physical-emotional aspects). The results of the confirmatory factor analysis suggested a better structure after eliminating item nine. The finding is consistent with the fact that the item interferes with the two dimensions of the table and can be taken as a physical-emotional aspect of fear and/or as an aspect linked to the work condition. This validation stage represents a strong point of psychometric studies, particularly because the evaluated attribute is subjective, which may be linked to the respondent's interpretation and interference in measurement[30,31]. Thus, item 9 was removed, and the final instrument was composed of 10 items.

The results obtained here refuted, through two indicators, the one-dimensionality of the scale, maintaining the two factors originally idealized by the researchers and named Physical-Emotional Aspects and Inherent Risks at Work. A similar situation was also observed in other psychometric analyses of the FCV-

19S[5,7,9]. The CFA, in its second model, ratified a two-dimensional structure for the scale, initially extracted from the EFA, recording satisfactory values of CFI, GFI, TLI (all above 0.9), and RMSEA (below 0.1)[28].

This data probably reflects that the fear of COVID is not restricted to the impairment of health, but also to the impact of the disease on the economic and social conditions of the respondents. The wide dissemination of data related to the pandemic situation on television and social media may be responsible for these results, since constant exposure to information is capable of influencing well-being, even representing an additional risk factor for anxiety and depression[10].

The first factor "Physical-Emotional Aspects" consisted of items that portrayed feelings of fear regarding COVID-19, most of which are part of the FCV-19S. The first item ("I am very afraid of the coronavirus") was the one with the highest average. A validation study of the FCV-19S in Brazil showed a positive correlation between fear of COVID-19 and anxiety[8], which reiterates that fear is a strong emotion that affects the mood and physical-cognitive responses of individuals, which can trigger depression, anxiety, and stress, in addition to influencing the adoption of positive attitudes and the tolerance for uncertainty[11].

The second factor comprised items that addressed the perception of risk inherent in working as a CHA. These items had a higher average, denoting that working in healthcare can contribute to increased levels of fear, which is ratified by other studies that indicate that the pandemic can trigger symptoms such as anxiety, depression, post-traumatic stress disorder, poor sleep, or even insomnia in healthcare professionals[8].

Regarding the scores achieved by the studied population, high scores were reported, showing that some participants manifest an

exacerbated fear of COVID-19. Although it has been reported that fear of COVID-19 may be lower among professionals who work on the front lines of fighting the pandemic, given their high level of knowledge and adoption of prevention practices[9], it turns out that this is not a reality for a significant number of CHAs, who presented high levels of scores in relation to fear of the disease.

In a pandemic scenario, CHAs can implement prevention measures more quickly, due to their proximity and trustful relationship with the community. Assessing how hesitant they feel about carrying out their activities is something to be considered by managers. Therefore, these professionals should be included in the estimates of PPE availability, in order to guarantee greater safety in the performance of their functions[32]. Although it was not the specific objective of this study, there was a low proportion of respondents who reported receiving an adequate amount of this equipment. This is worrying data, since the "Recommendations for the adequacy of the CHAs in the face of the current epidemiological situation regarding COVID-19", issued by the Ministry of Health in March 2020, determined the functions of the CHAs as actively searching for suspected cases of the flu syndrome, which emphasizes the need to use a surgical mask and appropriate PPE in visit patients with suspected illness at their residence[33].

The number of confirmed cases and deaths from COVID-19 has increased significantly since the end of data collection, with a further decline after the implementation of vaccination. In this context, many functions of the CHAs were changing, such as the increase in the number of professionals involved in monitoring patients with flu syndrome. Thus, it is reasonable to assume that there was greater mental suffering in this group with the increase in cases, which is particularly serious, conside-

ring the vulnerabilities of a CHA's relationship with their work[34-35].

The final instrument consisted of 10 items, divided into two factors, 8 items for the first factor ("Physical-Emotional Aspects") and two items for the second (Inherent Risks at Work). Factors consisting of two items can make it difficult to replicate in other contexts, which can be pointed out as a weakness of the instrument.

The limitations of this study refer to the fact that the questionnaire was applied in a single region of the country (the north of the state of Minas Gerais), which could be affected by issues related to the management of local services and cultural aspects of the population under study. In addition, given the pandemic situation and the recommendation for physical isolation, data collection was done remotely. Many studies also report as limitations the fact that the majority of the population submitted to validation of the scale was composed of women, clarifying that this gender may be more susceptible to the expression of feelings of fear[5,11].

Adequate coping with the pandemic involves PHC, whose permanent approximation of territories and communities positions it as essential for coping with the social disparities demonstrated and amplified by this virus[36]. Considered key actors in PHC, CHAs have great potential for intervention in this context. However, the continuous exposure of these professionals to stressful situations, as well as the absence of intersectoral policies aimed at these professionals, whether in the period prior to the pandemic or even during it, can negatively influence their work process[37]. Thus, the COVID Fear Scale for CHAs represents an important instrument to be used in the scenario presented and can assist in the creation and implementation of intersectoral actions aimed at minimizing the levels of fear in this public.

CONCLUSION

The developed instrument presented a good evaluation of its psychometric properties, proving to be valid and reliable to assess the fear of COVID-19 among CHAs. When considering the pandemic potential of COVID-19 and the large number of CHAs in Brazil (more than 250,000 professionals), measuring the level of fear among these workers and its implications on their service is essential. This knowledge may support the adoption of strategies that enable these professionals to work in this context in a safer way and with less suffering.

Author Statement CREdiT

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