Protective measures for healthcare professionals by the COVID-19 health belief model

Sağlık çalışanlarında COVID-19 sağlık inanç modeline göre koruyucu önlemler

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ABSTRACT

Objective: The Health Belief Model (HBM) is an effective instrument in explaining and measuring behaviors protecting and improving the health. It was aimed to evaluate the compliance of healthcare professionals (HCP), who are on the front-line in the combat with COVID-19 pandemic, with protective measures according to the HBM.

Methods: The present study is a cross-sectional study, which was carried out in the period in the first wave of epidemic in a province in the central Anatolian region of Turkey, with 316 ambulance medics serving. Compliance with protective measures was evaluated with an online form. The questionnaire consisted of questions related to the sociodemographic characteristics of the individuals (age, gender, marital status, etc.), variables related to health beliefs (chronic diseases, smoking and alcohol addiction, COVID-testing, etc.), the protective measures they applied during the COVID-19 process (staying at home, washing hands, wearing masks, etc.), and the COVID-19 HBM Scale questions created by the researchers through a literature review.

ÖZET

Amaç: Sağlık İnanç Modeli (SİM), sağlığı koruyan ve geliştiren davranışları açıklamada ve ölçmede başarılı, etkin bir rehberdir. Çalışmada, COVID-19 pandemisiyle mücadelede ön safta bulunan sağlık çalışanlarının koruyucu önlemlere uyumunun SİM'e göre değerlendirilmesi amaçlandı.

Yöntem: Çalışma COVID-19 pandemisinin 12-24. haftasında Türkiye'nin Orta Anadolu bölgesinde bir ilde ön safta yer alan ambulansta hizmet veren 316 sağlık çalışanında gerçekleştirilen kesitsel tipte bir araştırmadır. Koruyucu önlemlere uyum online form ile değerlendirildi. Anket formu, kişilerin sosyodemografik özellikleri (yaş, cinsiyet, medeni durum, vb.), sağlık inançları ile ilişkili değişkenleri (kronik hastalıklar, sigara ve alkol bağımlılığı, COVID-testi yaptırma vb.) COVID-19 sürecinde uyguladıkları koruyucu önlemler (evde kalma, el yıkama, maske takma vb.) ile ilişkili sorular ve araştırmacılar tarafından literatür taraması ile oluşturulan COVID-19 SİM Ölçeği sorularından oluştu.

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Results: In the study group, 63.0% of participants were female and the ages ranged from 20-60. The mean age ±Standard Deviation (SD) was calculated to be 32±6.9 years. After the analyses of the COVID-19 HBM, which consists of four sub-dimensions (perceived threat, perceived barriers, perceived benefit, cues to action, and self-efficacy) and includes 20 items, the scale explained 57.8% of the total variance. Factor loads of the items ranged from 0.44 to 0.89, and their total correlations ranged between 0.22 and 0.61. The Cronbach's alpha value was found to be 0.85. Overall, 71.8% of the participants were found to implement all the protective measures. In the study group, among those implementing all the protective measures, the scores of perceived threat (*p*=0.001) and benefit (*p*=0.006) sub-dimensions and the total score (*p*=0.001) were found to be higher. The COVID-19 HBM scale score was found to be higher in those who were diagnosed with COVID-19, those who had a test, those who had an increased level of anxiety, and those who thought the pandemic would last longer than a year.

Conclusion: The COVID-HBM Scale developed in the study is a valid and reliable. According to the health belief model among healthcare professionals, perceiving COVID-19 as a threat and believing in the benefits of preventive measures is important for better control of the disease.

Key Words: COVID-19, health belief model, healthcare professionals

Bulgular: Çalışma grubunun %63.0'ü kadın ve yaşları 20-60 arasında değişmekte olup ortalaması ±Standart Sapma 32±6.9 yıl idi. COVID-19 SİM geçerlik ve güvenirlik analizleri sonrasında dört alt alandan (Algılanan tehdit, Engel algısı, Yarar algısı, Eyleme geçiriciler ve Öz-yeterlilik) oluşan 20 madde içeren ölçek, toplam varyansın %57.8'ini açıkladı. Maddelerin faktör yükleri 0.44-0.89, toplam korelasyonları 0.22-0.61 arasında değişmekteydi. Ölçek Cronbach alfa değeri 0.85 bulundu. Çalışma grubundaki bireylerin %71.8'i tüm koruyucu önlemleri uygulamaktaydı. Çalışma grubunda tüm koruyucu önlemleri alanlarda algılanan tehdit (*p*=0.001) ve yarar (*p*=0.006) alt alanlarından ve ölçek toplamından (*p*=0.001) alınan puan daha yüksek bulundu. COVID-SİM ölçek puanı bir yakınına COVID-19 teşhisi konulanlarda, test yaptıranlarda, kaygı düzeyi artanlarda ve pandeminin bir yıldan uzun süreceğini düşünenlerde daha yüksek tespit edildi.

Sonuç: Çalışmada geliştirilen COVID-SİM ölçeği geçerli ve güvenilir bir ölçektir. Sağlık çalışanları arasında sağlık inanç modeline gore COVID-19'u bir tehdit olarak algılamak ve önleyici tedbirlerin yararına inanmak hastalığın daha iyi kontrol altına alınması için önemlidir.

Anahtar Kelimeler: COVID-19, sağlık inanç modeli, sağlık çalışanları

INTRODUCTION

Healthcare professionals are in the primary risk group during healthcare delivery in COVID-19 and similar future outbreaks, as they may acquire the infection and transmit the infection to health care recipients (1). As in the MERS and SARS outbreaks, healthcare professionals were primarily affected by the COVID-19 pandemic (2). In different studies carried out around the world, COVID-19 positivity among healthcare professionals varies between 3.5 and 38.0% (3-6). In Turkey, it was determined that, of 1,900,000 COVID-19 cases reported as of February 2021, 120,000 (6.3%) cases were healthcare professionals and 375 healthcare professionals have lost their lives (7,8).

Besides protecting and improving the health and explaining the reasons for individuals' behaviors,

the Health Belief Model (HBM) is also an effective reference in explaining and measuring the factors motivating or preventing the individuals from coping with health problems (9). The general acceptance and popularity of the health belief model arise from its high predictive power and it has been designed to explain the reasons why individuals do not comply with the protective behaviors. In general, HBM consists of five sub-dimension, which are the combination of susceptibility and severity that is named "perceived threat", behaviors developed against the risk named "perceived benefit" and "perceived barrier", and the sub-dimensions of "cues to action" and "self-efficacy" mobilizing the individual against the risk (10).

The COVID-19 pandemic has again shown the importance of control measures for the transmission modes of infection. These measures can be successful only when adopted by the individuals. Since they are directly exposed to infected papers, their works are more difficult, and they have higher rates of anxiety, depressive mood, and high insomnia, those working at the frontline have to comply with the rules more than other healthcare professionals. Individuals' beliefs, values, tendencies, and habits play important role in their right and wrong behaviors (11,12).

In the present study employing the HBM model, it was aimed to determine the compliance of healthcare professionals, who are on the front line in the struggle with the COVID-19 pandemic, with the protective measures.

MATERIAL and METHOD

Designed as a cross-sectional study, the present study was carried out during the first wave of epidemic (12th - 24th weeks) in Turkey on the ambulance medics working in a province in the Central Anatolia region. Ethical approval and administrative permissions were obtained before the study. The study group consists of 316 (75.0%) of 420 ambulance personnel. Data were collected online due to the pandemic. The questionnaire was sent to the working group three times and the participants were encouraged using verbal warnings.

Data Collection Instruments

The questionnaire form consisted of items questioning the sociodemographic characteristics of individuals, variables related to their health beliefs, protective measures they applied during the COVID-19 process, and the COVID-19 HBM Scale, which was developed by the researchers with literature review.

Development of the COVID-19 HBM

In the preparation of the COVID-19 HBM Scale, the factors and scales explaining the health belief models of different groups were analyzed and 30 relevant items were determined (13,14). The suitability and understandability of each scale item were evaluated by 8 experts (5 public health specialists, 3 emergency medicine specialists, and 2 paramedics). The content validity rates of the scale ranged between 0.8 and 1.0 and the content validity index was found to be 0.94.

Internal consistency (Cronbach's alpha) coefficient and Inter-Class Correlation (ICC) analyses were used in assessing the reliability of this scale. The items having total item correlations higher than 0.20 were considered reliable (15). Cronbach's alpha coefficients of 0.40 and below were considered to be not reliable, 0.40-0.60 to be reliable at low level, 0.60-0.80 to be very reliable, and 0.80-1.00 to be highly reliable (16). Eight items in the scale were excluded because their total item correlations were lower than 0.20.

Principal component analysis (PCA) and Varimax rotation were used in Exploratory Factor Analysis (EFA) for the structural validity. In factor analysis, Kaiser-Meyer-Olkin (KMO) was found to be 0.844, and Bartlett's test result was $p<0.001$. Two items having factor loads below 0.30 were excluded from the scale. Confirmatory Factor Analysis (CFA) was used after the EFA. R studio program was used in assessing how compatible the factor structure of the scale was. In the confirmatory factor analysis, PNFI (Parsimony Normed Fit Index), PGFI (Parsimony Goodness of Fit Index), Root Mean Square Error of

Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) among the most widely used fitness indiceswere calculated. PNFI and PGFI> 0.50 and RMSEA and SRMR <0.08 were used as criteria for the acceptability levels of fit indices (17).

Scoring

As a result, the scale items consist of 5-point Likert-type 20 items and four sub-dimensions ranging between 1-Strongly agree and 5-strongly disagree. The scores obtained from the sub-dimensions of the scale range between 7 and 35 for the "Perceived threat", 3 and 15 for the "Perceived barriers", 5 and 25 for the "Perceived benefits", 5 and 25 for the "Cues to action and Self-efficacy". The minimum score that could be obtained from the scale was 20, whereas the maximum total score was 100. It shows that as the score obtained from the scale increases, the perception of that area increases.

Data Analysis

Statistical analysis was performed using Statistical Package of Social Sciences (SPSS) 15.0 package program and R studio program. Mean, SD, number and percentage (%) were used to evaluate the descriptive properties of the data. Exploratory and confirmatory factor analysis was used to establish the validity and reliability of the COVID-19 HBM scale. Kolmogorov-Smirnov test was used for determining if the total scale scores showed normal distribution. Since the data did not show normal distribution, Mann-Whitney U and Kruskal Wallis analysis were employed. The significance level was set at $p<0.05$.

The study was approved by the Eskişehir Osmangazi Universty Ethics Committee (Date: 05.11.2020 and Number: E-25403353-0.50.99-107512).

RESULTS

Female participants constituted 63.0% (n=199) of the study group and their ages ranged between 20 and 60 with the mean age ±SD of 32 ±6.9 years.

Of the healthcare professionals, 82.6% were in the age group of 25-44 years and 40.0% had an associate degree. Of the individuals in the study group, 7.3% (n=23) were physicians, 32.9% (n=104) paramedics, 54.4% (n=172) emergency medical technicians, and 5.4% (n=17) other (midwife, officer). Years of work ranged between 0 and 34 years, whereas the mean ± SD was found to be 10.78 ± 5.96.

At the end of factor analysis, it was determined that the scale consisting of four sub-dimensions explained 57.8% of the total variance. The factor loads of the items varied between 0.44 and 0.89 and total correlations between 0.22 and 0.61. Cronbach's alpha coefficient was found to be 0.85. Cronbach's alpha value was calculated to be 0.81 for "perceived threat" sub-dimension, 0.60 for "perceived barrier" sub-dimensions, 0.91 for "perceived benefit" sub-dimensions, and 0.70 for "cue to action" and "self-efficacy" sub-dimensions. In the study group, the mean value ±SD of the scores obtained from the scale was found to be 78.5 ±7.3, the median value to be 80.0, and the extreme values to be 41 and 90. As a result of the CFA; even though$x2/df$ value (3.72) was not below 3, SRMR (0.09) was excellent, RMSEA (0.08), PGFI (0.065) and PNFI (0.67) values showed an acceptable fit. The COVID-19 HBM Scale factor load, item total correlation value, and the percentage of agreement with the items in the study group are given in Table 1.

While 71.8% of the individuals in the study group were applying all protective measures, the most frequently applied protective measure was to wear a mask (96.4%), followed by complying with the physical distance rules (94.1%), washing hands (91.9%), staying at home (90.9%), and cleaning the frequently contacted areas during the day (77.9%). Among the measures that were not implemented, cleaning of the frequently contacted places during the day ranked first (22.1%), followed by staying at home (9.1%).

In the study group, the scores obtained from "perceived threat" and "perceived benefit" sub-dimensions among all protective measures were higher ($p=0.001$). It was determined that those taking

all the preventive measures had a higher score from the preventive measures in COVID-19 HBM scale when compared to those not taking them (*p*=0.001). The distribution of the scores of the study group from the scale sub-dimensions by the status of implementing the protective measures is given in Table 2.

Table 1. COVID-19 HBM Scale total score distribution, factor load, total item correlation value, and item agreement percentages in the study group

	Factor load	Item total correlation	Item participation percentage (%)
Perceived threat			
1. COVID-19 has high mortality rate	0.757	0.413	62.0
2. The transmission mode of COVID-19 is high	0.549	0.467	91.1
3. I think being diagnosed with COVID-19 would a very serious condition	0.746	0.546	76.6
4. If I get COVID-19, it would be more serious than other diseases	0.742	0.556	61.7
5. If I am diagnosed with COVID-19, I would be afraid that I might die	0.613	0.478	40.2
6. If I am diagnosed with COVID-19, I would be worried that it might have long-lasting effects on my health	0.584	0.462	73.4
7. If I don't get COVID-19, I think I would live longer and healthier	0.508	0.482	50.9
			Cronbach's alpha value: 0.81
Perceived barriers			
8. I think other individuals like me will be diagnosed with COVID-19	0.587	0.322	52.2
9. If I'm diagnosed with COVID-19, I would be worried that I will infect those around me	0.611	0.235	94.3
10. If the pandemic continues, I think I would be diagnosed with COVID-19	0.810	0.220	51.9
			Cronbach's alpha value: 0.60
Perceived Benefits			
11. I can protect myself from COVID-19 by washing my hands regularly with soap and water	0.867	0.552	81.3
12. If I use a mask, I can protect myself from COVID-19	0.876	0.530	87.0
13. If I stay at home when I am out of work, I can protect myself from COVID-19	0.843	0.598	87.3
14. If I pay attention to the social distance principles, I can protect myself from COVID-19	0.885	0.605	88.3
15. Paying attention to the precautions will protect my family from COVID-19	0.626	0.458	93.7
			Cronbach's alpha value: 0.91
Cues to action and self-efficacy			
16. Television programs help protecting myself from COVID-19	0.443	0.327	60.1
17. My manager helps me protecting myself from COVID-19	0.776	0.311	95.6
18. Obligatory measures help me protecting myself against COVID-19	0.734	0.428	90.8
19. If I pay attention to all precautions, I can really be protected from COVID-19	0.518	0.452	71.2
20. I have the ability to follow all the preventive instructions against the disease	0.605	0.386	86.4
			Cronbach's alpha value: 0.70
		COVID-19 HBM Scale Cronbach's alpha value: 0.85	

Table 2. Distribution of the scores obtained from the scale sub-dimensions in the study group by the status of implementing the protective measures

Sub-dimensions	Complied Median (Min-Max)	Ignored Median (Min-Max)	P (z/KW); *p*
Perceived threat	27 (12-35)	25 (11-35)	**3.639; 0.001**
Perceived barriers	12 (6-15)	12 (7-15)	0.711; 0.477
Perceived benefits	21 (9-25)	20 (12-25)	**2.745; 0.006**
Cues to action and self-efficacy	20 (12-25)	20 (8-25)	1.656; 0.098
COVID-19 HBM Scale Total Score	80 (53-100)	76 (51-100)	**3.549; 0.001**

As a result of the univariate analysis, the scores obtained from the COVID-19 HBM Scale increased among those with no change in anxiety level, those having a COVID-19 test, those having a relative diagnosed with COVID-19, and those thinking that COVID-19 will last longer than the first 1 year found high. The distribution of the scores obtained from the COVID-19 HBM scale according to some variables in the study group is given in Table 3.

"Perceived barrier" score in COVID-19 HBM scale was found to be higher among those with anxiety level increasing during the COVID-19 pandemic (*p*=0.017), those having relatives diagnosed with COVID-19 (*p*=0.028), and those thinking that the COVID-19 pandemic process would last long (*p*=0.031). The perceived threat in the COVID-19 HBM scale was found to be associated with an increase in anxiety during the pandemic (*p*=0.001).

In COVID-19 HBM scale, a weak correlation was found between perceived threat and perceived barrier (r=0.394, *p*<0.001), between perceived threat and perceived benefit (r=0.285, *p*<0.001), between perceived threat and cues to action and self-efficacy (r=0.282, *p*<0.001), besides the very weak correlation between perceived benefit and perceived barrier (r=0.112, *p*<0.05), and moderate (r=0.530, *p*<0.001) correlation between perceived benefit and cues to action and self-efficacy.

DISCUSSION

The scale was developed in order to determine the factors associated with the compliance of healthcare professionals, who are fighting the COVID-19 pandemic, with the protective measures by the sub-dimensions of HBM model. It was found that the factors associated with the protective behavior of healthcare professionals regarding the COVID-19 pandemic can be evaluated by using the HBM model.

As a result of the EFA conducted to test the structural validity of the scale designed in parallel with the purpose of the study, the scale was divided into four sub-dimensions. Factor loads of the items in the scale ranged between 0.44 and 0.89 indicating that the scale is accepted as a good measure. The scale having Cronbach's alpha coefficient of 0.85 is highly reliable. As a model with 20 items and 4 sub-dimensions developed using EFA, the "COVID-19 HBM Scale for Preventive Measures against COVID-19" was found to have a good fit with CFA. Moreover, the percentage of total variance explained was 57.8%. The rates of explained variance in all sub-dimensions and in the total of the scale were higher than 40.0% and it proves the structural validity of the scale (15-18). The scale was designed in five dimensions as in the HBM, but EFA and CFA gathered the "cues to action" and "self-efficacy" sub-dimensions in the

Table 3. Distribution of the scores obtained from the COVID-19 HBM scale by some of the variables in the study group

Variables	Mean(SD)	Median (Min-Max)	Test value (z/KW); p
Age group (year)			
18-24	78.6 (6.9)	78.0 (61.0-93.0)	
25-44	78.5 (9.0)	79.0 (51.0-100.0)	0.016; 0.992
45 and above	78.8 (8.9)	77.5 (62.0-93.0)	
Gender			
Female	79.2 (8.1)	80.0 (53.0-97.0)	**1.751; 0.080**
Male	77.5 (9.8)	76.0 (51.0-100.0)	
Occupation			
Doctor	78.4 (10.4)	78.0 (62.0-95.0)	
Paramedic	79.6 (8.5)	80.0 (53.0-100.0)	3.621; 0.305
Emergency medical technician	77.9 (8.9)	77.5 (51.0-100.0)	
Other (Midwife, officer...)	78.6 (8.9)	78.0 (69.0-98.0)	
Years of work			
0-5	78.3 (7.5)	78.0 (61.0-100.0)	
6-10	77.4 (9.2)	78.0 (51.0-100.0)	3.413; 0.182
11 and above	79.5 (8.9)	80.0 (53.0-100.0)	
Experiencing COVID-19 symptoms in the last 1 month			
No	78.6 (8.6)	78.0 (51.0-100.0)	0.134; 0.893
Yes	77.9 (11.2)	80.5 (58.0-94.0)	
Have COVID-19 testing status			
No	77.7 (8.5)	77.0 (53.0-100.0)	**2.085; 0.037**
Yes	79.4 (9.0)	80.0 (51.0-98.0)	
Quarantine status			
No	78.5 (8.9)	78.0 (51.0-100.0)	0.689; 0.491
Yes	79.2 (8.1)	80.0 (55.0-97.0)	
If a relative is diagnosed with COVID-19			
No	78.4 (8.9)	76.0 (51.0-100.0)	**3.549; 0.001**
Yes	80.6(7.1)	80.0(53.0-100.0)	
The estimated end of the pandemic			
0-1 year	68.3 (8.6)	70.5 (58.0-80.0)	**2.970; 0.003**
2 years and above	78.8 (8.7)	78.5 (51.0-100.0)	
Increased anxiety level			
No	75.4 (10.2)	74.0 (51.0-100.0)	**3.817; 0.001**
Yes	79.6 (7.9)	79.5 (53.0-98.0)	
Total	78.5(7.3)	80.0(41.0-90.0)	

same cluster. Gathering two relevant dimensions under a single dimension provided ease of use.

While 71.8% of the individuals in the study group were found to implement all the protective measures, the most common protective measure was determined as wear a mask with 96.4%. Rajoura et al. reported that 82.6% of doctors and 85.0% of nurses used masks in the workplace during the H1N1 influenza epidemic (19). The low frequency of protective measures might have arisen from low awareness, habit of wearing mask, and/or time constraints, and their importance not understood.

The "perceived threat" in the HBM model refers to the perceived sensitivity and severity. When individuals perceive themselves as susceptible to the disease and perceive its severity, they perceive this disease as a threat and tendency to perform protective behavior increases too (20). The perceived threat regarding the COVID-19 expresses how sensitive the individuals are to preventive measures because they perceive COVID-19 as a serious disease. In the present study, the perceived threat was determined as a significant variable regarding determining protective behaviors against COVID-19. In the study carried out by Kwok et al., it was reported that 70.3% of the participants were susceptible to coronavirus and 72.6% found the disease dangerous in terms of perceived sensitivity (21). In the present study, it was determined that 65.1% of the healthcare professionals agreed with the perceived threat. With the healthcare professionals knowing the characteristics of COVID-19, the course of the disease, its permanent effects and how to protect themselves, improvement can be achieved in the perceived threat area.

Perceived barriers refer to the difficulties that individuals perceive in adopting and implementing the protective behaviors (20). The perceived barrier in preventive measures against COVID-19 can be affected by many variables such as mental state, personality traits, difficulty of obeying, need for patience, and leaving the habits (13). The perceived barriers in the present study were not identified as an effective

variable in determining the protective behaviors against COVID-19. However, its score was found to be high among those having anxiety increased during the COVID-19 pandemic, those having a relative diagnosed with COVID-19, and those thinking that the pandemic would last longer. In previous studies, the perceived barriers have been reported as a variable that affects the protective behaviors against COVID-19 (14,21).

Perceived benefit refers to the individual's belief that the protective behavior recommended to protect from the disease or to reduce the severity of the disease would be beneficial (20). If healthcare professionals think that the recommended measures such as the use of masks, social distance, and hand-washing are beneficial in terms of prevention against COVID-19, these measures would be applied and the healthcare professionals would be protected effectively. In the present study, the perception of benefit was identified as one of the effective areas in predicting the protective behaviors against COVID-19. In improving the perceived benefit, measures such as hand hygiene, use of personal protective equipment, and social distance are strong motivations for protecting individuals' families and themselves against COVID-19.

Cue to action are triggers for individuals to take action while self-efficacy is effective in successfully sustaining the behavior required to produce results (20). The mass media, manager of the unit, mandatory practices, and having self-efficacy are effective in implementing COVID-19 protective measures. In the present study, cues to action and self-efficacy were not found to be effective in determining protective behaviors against COVID-19. In the study carried out by Kwok et al., cues to action were reported as effective factors in developing protective behaviors against COVID-19 (21). Obligatory practices for healthcare professionals may have hindered the effect of this sub-dimension and resulted in a statistically non-significant difference (p=0.098). The mass media should be used for the development of "cues to action" and "self-efficacy" among healthcare professionals

and the motivation for protective measures should be maintained by administrative units.

In the present study, having a COVID-19 test and having a relative diagnosed with COVID-19 were found as variables that affect the HBM. If individuals perceive a condition as a threat, if they believe that the action will be beneficial, and if the expected benefits outweigh the barriers, then they take the action that they believe to reduce the risks (14,21). In the present study, it was determined that, when healthcare professionals perceive COVID-19 as a threat and believe in the benefit of protective measures, they adapt better to the preventive measures against COVID-19 within the context of HBM sub-dimensions.

Outbreaks may increase the anxiety in the community due to the risk of infection and death (22). In the present study, the scores obtained from the COVID-19 HBM scale were found to be higher among those having increased anxiety level and those having negative thoughts about the estimated ending date of COVID-19. It is necessary to develop behaviors that transform perceived barriers by triggering anxiety and perceived threat into perceived benefit. In this context, it is recommended to apply HBM in suppression of COVID-19 (22). In a different study, compliance with preventive measures was reported to be significantly associated with lower depression, anxiety, and stress (24).

In conclusion, a valid and reliable scale consisting of 20 items related with the preventive measures against COVID-19 health belief model was developed. In the COVID-19 pandemic, perceiving COVID-19 as a threat and believing in the benefit of preventive measures is important to better control the disease among healthcare professionals. Identifying the key components of COVID-19-related HBM can help effectively implementing COVID-19 measures and positive progress can be made with interventions to be developed. The scale needs to be studied in different groups and detailed studies on this subject.

AUTHOR CONTRIBUTIONS

All authors took part in the following stages: Conceived and designed the analysis; Collected the data; Contributed data or analysis tools; Performed the analysis; Wrote the paper.

ETHICS COMMITTEE APPROVAL

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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