CLINICAL RESEARCH / KLİNİK ARAŞTIRMA

The Protection Scale of Healthcare Professionals and Their Families in Pandemia: A Scale Development Study Specific to COVID-19

Salgın Durumunda Sağlık Çalışanlarını ve Ailelerini Koruma Ölçeği: COVID-19 Özelinde Ölçek Geliştirme Çalışması

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Abstract

Objective: In this study, "The Protection Scale of Healthcare Professionals and Their Families in Pandemia" (SHPFP) was developed specifically to the Coronavirus disease-2019 (COVID-19) pandemic to determine the protection levels and efficiencies of the measures taken in healthcare institutions.

Methods: This study is of a methodological type. In scale studies, it is recommended to reach the number of participants 5-10 times more than the number of items in the item pool. The scale included 22 items and was applied to 220 participants. Therefore, 35 physicians, 148 nurses and 37 health technicians, were determined as the sample using a stratified random sampling method. The predictive factors for SHPFP were developed between the dates of June-September 2020. The internal consistency of the tool was examined using Cronbach's alpha, and factor structure and discriminant validity by exploratory and confirmatory factor analyses. The test-retest reliability was measured by intraclass correlation coefficient.

Results: The KMO sample suitability coefficient of the scale was found as 0.876, and Barlett's Sphericity test as χ^2=2715,998 (df=231). The tool having 22 items at first was reduced to 21 items in 5 factors describing 66.78% of the total variance. These five factors, of which the scree plot eigenvalue of 1.0 and above, are "business processes", "participation in decisions", "work environment", "informing and isolation" and "psychological support".

Conclusion: SHPFP, developed in this study, can be used in healthcare institutions to determine the protection levels and efficiencies of the measures taken due to the pandemic to protect healthcare staff and their families.

Keywords: COVID-19, healthcare institutions, healthcare professionals, pandemic, protection scale

Öz

Amaç: Bu çalışmada, "Salgında Sağlık Çalışanları ve Ailelerini Koruma Tedbirleri Ölçeği" (SSÇKÖ), Koronavirüs hastalığı-2019 (COVID-19) pandemisi özelinde, sağlık kuruluşlarında alınan tedbirlerin sağlık çalışanları ve ailelerini koruma düzeylerini ve etkinliklerini belirlemek amacıyla geliştirilmiştir.

Yöntem: Bu çalışma metodolojik bir tiptedir. Ölçek çalışmalarında, madde havuzundaki madde sayısının 5-10 katı kadar katılımcı sayısına ulaşılması önerilmektedir. Ölçek 22 maddedir ve 220 katılımcıya uygulanmıştır. Bu nedenle 35 hekim, 148 hemşire ve 37 sağlık teknisyeni tabakalı rastgele örnekleme

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Öz

yöntemi kullanılarak örneklem olarak belirlenmiştir. SSÇKÖ'nün yordayıcı faktörleri Haziran-Eylül 2020 tarihleri arasında geliştirilmiştir. Aracın iç tutarlılığı Cronbach's alfa, faktör yapısı ve ayırıcı geçerliliği ise açımlayıcı ve doğrulayıcı faktör analizleri ile incelenmiştir. Test-tekrar test güvenilirliği, sınıf içi korelasyon katsayısı ile ölçülmüştür.

Bulgular: Ölçeğin KMO örneklem uygunluk katsayısı 0,876 ve Bartlett's Sphericity testi χ^2=2715,998 (df=231) (p<0,001) olarak saptanmıştır. İlk 22 maddelik araç, toplam varyansın %66,78'ini açıklayan 5 faktör içinde 21 maddeye indirgenmiştir. Scree plot özdeğeri 1,0 ve daha üzeri olan bu 5 faktör; "iş süreçleri", "kararlara katılım", "çalışma ortamı", "bilgilendirme ve izolasyon" ve "psikolojik destektir".

Sonuç: Bu çalışmada geliştirilen SSÇKÖ ile sağlık kuruluşlarında pandemi nedeni ile alınan tedbirlerin sağlık çalışanlarını ve ailelerini koruma düzeylerini ve etkinliklerini belirlemede kullanılabilir.

Anahtar Kelimeler: COVID-19, sağlık kuruluşları, sağlık çalışanları, salgın, koruma ölçeği

Introduction

The Coronavirus disease-2019 (COVID-19) pandemic was first started in China in November-December 2019, and afterwards, it has affected the entire world[1,2]. The announcement of the first case in Turkey was made on March 11, 2020[3,4].

Thousands of physicians and healthcare staff are infected in hospitals, Oral and Dental Health Hospitals/Centers, Public Health Centers, Primary Care Clinics, Tuberculosis Dispensaries, Family Practice Centers, and during contact tracing. As of today, more than 120000 healthcare professionals have been diagnosed with COVID-19 and 216 healthcare professionals have lost their lives[5]. Viewing the figures across the world, 1,320 healthcare staff in Mexico, 1,077 in the USA, 649 in the UK, 634 in Brazil, 631 in Russia and 573 in India have died from COVID-19[6].

Healthcare service is a team work, and hundreds of thousands of healthcare professionals in many occupational groups such as physicians, dentists, pharmacists, nurses, health officers, midwives, health technicians, medical secretaries the team work facing the risks of disease and epidemics in all processes of healthcare services from triage to contact tracing and from diagnosis to treatment. This risk of epidemic is not limited only them, but their families also face the risk of infection and it causes vital problems and losses[7,8]. While healthcare staff's living away from homes and families in the context of the measures taken against the risk of infection is a protective and necessary practice for their relatives, this situation also brings a psychological load in addition to their work load. In a study by Kang et al.[9] in Wuhan, China it was determined that 71.3% of healthcare professionals experienced subthreshold and mild, 22.4% moderate and 6.2% serious levels of mental disorders after the COVID-19 pandemic.

Therefore, the difficult working conditions and work order of healthcare professionals should be made appropriate for the struggle with the pandemic, measures should be taken on time and efficiently, necessary supervisions should be carried out and personal protective equipment should be provided on time. Some efforts such as hiring more healthcare staff, adopting a strict infection inspection, providing personal protective equipment and providing practical guidance have been made to reduce the pressure and workload on the healthcare professionals in China[10].

In the context of necessary measures, ensuring the security of healthcare staff, meeting their needs and supporting them is are important issues for managing the pandemic process efficiently. In this process, it is important to protect the healthcare professionals', who work devotedly with the measures taken in healthcare institutions to provide the best healthcare service, and their families' health. There is no standardized scale to determine the protection levels and effectiveness of the measures taken in healthcare institutions for healthcare staff and their families due to the pandemic.

In this study, "The Protection Scale of Healthcare Professionals and Their Families in Pandemia" (SHPFP) was developed specifically to the COVID-19 pandemic to determine the protection levels and efficiencies of the measures taken in healthcare institutions.

Materials and Methods

Study Design

This methodological study was conducted at Sivas Numune Hospital between the dates of June-September 2020.

Study Population

The population of the study included total 1.573 healthcare professionals (253 physicians, 1.026 nurses and 258

healthcare technicians. In scale studies, it is recommended to reach the number of participants 5-10 times more than the number of items in the item pool[11,12]. Therefore, 35 physicians, 148 nurses and 37 health technicians, 220 participants were determined as the sample using a simple stratified random sampling method. Based on voluntariness, physicians, nurses and health technicians working at isolation clinics, intensive care units and emergency service in Sivas Numune Hospital were included in the study.

Data Collection Tools

"Personal Information Form" for obtaining the socio-demographic characteristics and information about the working life of the individuals included in the research group was used as the data collection tool in the research. SHPFP was developed.

Statistical Analysis

A comprehensive literature review from different national and international sources was conducted to form the preliminary draft of the scale. First, based on the literature review and the practices in the healthcare facilities of the Ministry of Health, a 38-item pool was prepared especially related to the measures taken in healthcare institutions to protect healthcare professionals in the COVID-19 period in the research.

In the study, each item was analyzed in detail and the SHPFP preliminary pool was formed. "Expert Assessment Form" was transmitted to 8 qualified experts in the field via e-mail. The experts declared their opinions for each item as "appropriate," "appropriate but minimal changes are required" and "not appropriate". Content validity ratios (CVR) were determined by the Lawshe method. Minimum CVR criteria revealed by Veneziano and Hooper were used in the assessment[13]. CVR was 0.65 according to the 8 experts. Therefore, 16 items with a CVR value negative, "0" and below 0.65 were excluded. The content validity index of the draft scale with the remaining 22 items was 0.80, since the draft scale was not divided into subgroups. Here, the content validity of the entire scale created is statistically significant since CGI>CGO (0.80>0.65) (p<0.05).

Selected items were subjected to pre-test and item analysis, and the final version of SHPFP was developed. SHPFP was applied to a target population of 60 people for item analysis performed using Cronbach's alpha statistics to evaluate the internal consistency of the scale. Items with 0.70 or more

according to Cronbach's alpha were kept in the preliminary draft of the SHPFP after the content validity was determined. The latest version of the SHPFP was applied to a large population to explore areas and establish test norms. The construct validity of the scale was determined by factor analysis. Exploratory (EFA) and confirmatory factor analyses (CFA) were conducted to evaluate the areas and factor structure of SHPFP. Twenty-two items were subjected to EFA. Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity tests were used to determine the suitability of the sample size for factor analysis. The Kaiser criterion (Eigenvalues>1) and Scree test were used to determine the appropriate number of factors. The loadings of the items were found using the Varimax rotation technique and validity and reliability (internal consistency coefficient) analyses were carried out coordinately.

For the CFA, fit indices used to evaluate the goodness of fit: χ^2/standard deviation (SD) value <5 acceptable <2 perfect[14], Goodness of Fit Index (GFI) ≥0.90 acceptable[15-18], Root Mean Square Error of Approximation (RMSEA) <0.08 acceptable[19], Tuckere Lewis index (TLI) ≥0.90 acceptable[15-18], Incremental Fit Index (IFI) ≥0.90 acceptable[15-18], Root Mean Square Residuals (RMR) ≤0.10 acceptable[14,20] and Comparative Fit Index (CFI) ≥0.90 acceptable[15-18].

The final 21-item SHPFP with the relevant analysis emerged under five sub-scales: "work processes", "participation in decisions", "working environment", "informing and isolation" and "psychological support". A 5-point Likert scale was standardized in scale scoring to obtain data with the answers ranging between 1 (strongly disagree) and 5 (strongly agree).

In obtaining the data, the 5-point Likert type scale was standardized in scale scoring in the questionnaire with answers ranging from 1 (strongly disagree) to 5 (strongly agree). Scores between 1 and 2 were used to indicate the decreasing state of being in disagree with the item, scores between 3 and 5 were used to indicate the increasing state of being agreed with the item. All items are affirmative expressions. The minimum score in the scale scoring was 21, and the maximum score was 105. Cronbach's alpha value of the scale is 0.92.

It was considered sufficient to have 30 people for test-retest application[21-23]. The draft scale was conducted on 40 selected healthcare professionals similar to the sample group for test-retest reliability. Two weeks after the first practice, the same people were asked to fill the scale form again. Test-retest reliability was measured using Intraclass Correlation

Coefficient (ICC) according to the total scores obtained from the two questionnaires. ICC reliability is interpreted according to the following criteria: <0.5 (weak), 0.5 and 0.75 (moderate), 0.75, and 0.9 (good) and >0.9 (perfect). The IBM Statistical Package for Social Sciences 22 and IBM AMOS 22 package software was used for statistical analysis.

Results

67.3% of the individuals included in the research group were female, 32.3% were between the age range of 30-39, 69.5% were married, 45.0% had Bachelor's degree, 67.3% was nurse, 90.9% had a nuclear family structure and 31.8% had 7 people in the family. It was determined that 72.7% of the healthcare professionals worked in isolation rooms and 25.9% of them worked in the profession for between 1 and 5 years. It was found that 35.4% of the healthcare professionals smoked cigarets and 17.8% of them drank alcohol. Thirty-two (14.5%) healthcare professionals had a chronic disease; 21.9% of them had hypertension and 12.5% had asthma, diabetes and hypothyroid. It was determined that 9.1% of healthcare professionals use drugs continuously (Table 1).

KMO and Bartlett's Sphericity tests were performed to determine the suitability of the sample size for factor analysis. The KMO sample suitability coefficient of the scale was determined as 0.876 and Bartlett's Sphericity test as χ^2=2715,998 (df=231) (p<0.001). These data are suitable for factor analysis.

The eigenvalue coefficient is considered in sizing the items with a factor load above 0.40[24]. The Kaiser criterion, the scree test, was used to determine the suitable factor number. Five factors with a scree plot eigenvalue of 1.0 and above were determined.

The total described variance of the scale was determined as 66.78%. The eigenvalues of the subscales revealed because of the factor analysis of the scale and the variance amount described are given in Table 2.

In Table 3, item analysis after the reliability (internal consistency coefficient) analysis is given. It is preferred that the item total correlation coefficient is above 0.50. The coefficient of item 7 is 0.265 and is below the cut-off point.

CFA, which is the second step of the construct validity test of the 5-factor construct emerged in the explanatory factor analysis was performed. Regression coefficients, which are the factor loads of the observed variables (items) to the latent variables (factors) were determined. The values here

Table 1. Demographic and socio-cultural characteristics of the individuals included in the research group		
Characteristics	**Number**	**%**
Gender		
Female	148	67.3
Male	72	32.7
Age		
20-29	70	31.8
30-39	71	32.3
40-49	65	29.5
50-59	14	6.4
Marital status		
Married	153	69.5
Not married	67	30.5
Education status		
High school	24	10.9
Associate degree	54	24.5
Bachelor's degree	99	45.0
Post graduate	8	3.6
PhD/specialty in medicine	35	15.9
Profession		
Physician	35	15.9
Nurse	148	67.3
Health technician	37	16.8
Family structure		
Nuclear family	200	90.9
Extended family	20	9.1
Number of the people in the family		
Alone	23	10.5
1	34	15.5
2	37	16.8
3	70	31.8
4	41	18.6
5	10	4.5
6 and above	5	2.3
Chronic disease status		
Yes	32	14.5
No	188	85.5
Using drugs continuously		
Yes	20	9.1
No	200	90.9
Unit		
Isolation room	160	72.7
Intensive care unit	60	27.3

Table 1. Continued		
Characteristics	**Number**	**%**
Total working period (year)		
1-5	57	25.9
6-10	45	20.5
11-15	38	17.3
16-20	29	13.2
21 years and above	51	23.2

should not be below 0.50. The factor load of the 7th item was determined as 0.43 (Figure 1). Also, as can be seen in Table 3, total correlation coefficient of the 7th item was 0.265, below the cut-off point. Therefore, the 7th item was excluded from the scale.

The CFA fit index was within acceptable range: χ^2/df=1,800 (chi-square=313.260, df=174, p<0.001), CFI=0.945, TLI=0.934, RMSEA=0.060, RMR=0.080, GFI=0.900, IFI=0.946. The value of ICC for a two-way effect model using one-parameter absolute consistency is 0.91 (95% confidence interval: 0.86, 0.94).

Mean, SD and EFA and CFA factor loads of the items obtained from the final scale and the Cronbach's alpha values of the factors are given in Table 4.

Discussion

In this study, "SHPFP" was developed specifically to the COVID-19 (SARS-CoV-2) pandemic to determine the protection levels and efficiencies of the measures taken in healthcare institutions and it was confirmed.

The total variance of SHPFP, which is scored with 5-point Likert scale (1- "strongly disagree; 5- "strongly agree") and includes 21 items, is 66.78%, and it has five subscales: "Work processes," "participation in decisions," "work environment," "informing and isolation" and "psychological support." SHPFP has been proved to be a simple and applicable scale suitable for standardized measurements in terms of
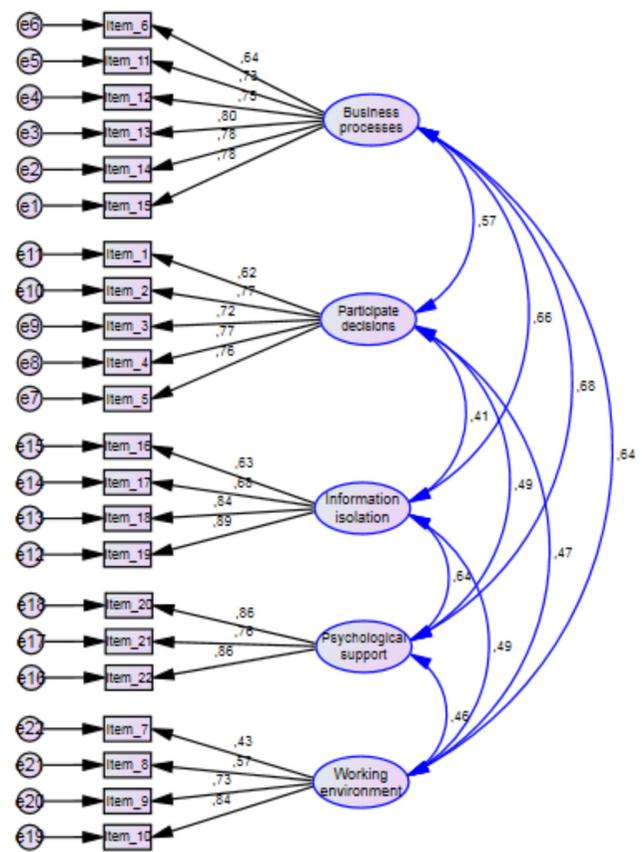

Figure 1. The confirmatory factor analysis and standardized factor loads of the 22-item scale

psychological scale characteristics. Also, it has revealed a good reliability and validity in evaluating the effects of the measures taken in healthcare institutions on protecting healthcare professionals and their families.

The first subscale deals with the identification of business processes in accordance with the pandemic process and its management, creating an algorithm and the correct communication channels on this issue. In the research conducted by the Istanbul Chamber of Commerce[4] to

Table 2. The eigenvalues of the determined factors and their variances described				
Factor number	**Identified factor subject**	**Firs eigenvalues**	**The percentage describing the total variance (individual)**	**The percentage describing the total variance (cumulative)**
1	Work processes	8.540	38.820	38.820
2	Participation in decision	2.113	9.605	48.425
3	Informing and isolation	1.578	7.172	55.597
4	Psychological support	1.255	5.704	61.301
5	Work environment	1.207	5.487	66.788

Table 3. The item analysis of the scale (n=220)				
Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
15	66.65	222.958	0.622	0.915
14	66.56	224.905	0.625	0.915
13	66.91	223.002	0.689	0.914
12	66.76	222.565	0.653	0.915
11	66.85	221.623	0.655	0.915
6	66.78	225.075	0.625	0.915
2	67.22	223.608	0.502	0.918
3	67.11	222.180	0.550	0.917
1	67.26	223.108	0.444	0.920
4	67.27	222.519	0.565	0.916
5	67.09	222.253	0.589	0.916
19	66.69	219.192	0.635	0.915
18	66.64	222.843	0.586	0.916
16	66.64	227.210	0.508	0.917
17	66.64	226.579	0.550	0.917
20	67.15	219.334	0.629	0.915
22	67.03	220.593	0.651	0.915
21	67.14	221.680	0.590	0.916
9	66.69	227.641	0.479	0.918
10	66.75	224.031	0.599	0.916
7	66.61	234.631	0.265	0.922
8	66.69	227.413	0.446	0.919

evaluate the working conditions of the state hospitals in İstanbul, the question that "Has an algorithm been created in your unit regarding the evaluation of patients, taking samples, treatment, or referrals in your institution?" was answered by 48.4% of the employees as "yes, delayed" and by 8.8% as "no". In the same study, it has been determined that 40.4% of the physicians have difficulty with the diagnostic code for polymerase chain reaction (PCR) (–) patients with COVID-19 while being discharged, and 47.6% have difficulty with the death code. The second subscale deals with whether the contributions of unit supervisors and employees are provided for the decisions in the definition of the operations and situations posing risk to employees in terms of epidemic contamination in the pandemic process. In the research conducted by the İstanbul Chamber of Commerce[4], it has been determined that 56.4% of the employees have answered as "no" to the question that "Have the contributions of healthcare professionals been received when pandemic measures and work order are established in your institution?". The third

subscale addresses the fair and transparent determination of the working environment according to the needs and risks of the workers during the pandemic process, and the establishment of resting periods in a way that does not lead to exhaustion and burnout. In a study by the İstanbul Chamber of Commerce[4], it was determined that 85.0% of the healthcare providers stated their institutions had COVID-19 polyclinics, but 51.6% of them reported that no preparation and training were performed previously for the pandemic. 28.2% of the healthcare providers stated that they were not given sick leave when PCR or IgM/IgG results were positive. The fourth subscale deals with the rules to be followed and points to take into account during the pandemic process, informing employees about the appropriate use of personal protective equipment and the definition of the isolation processes of the healthcare professionals having probable/final COVID-19 diagnosis. In the study by the İstanbul Chamber of Commerce, it was determined that the personal protective equipment of the 85.6% of the healthcare professionals was provided

Table 4. Mean, standard deviation, Cronbach's, a and factor loads for the items in the final scale (n=220)			
Items	Mean±SD	EFA	CFA
Work processes (α=0.88)			
15. Patient referrals, hospitalization, diagnosis, treatment, sample and patient transfer algorithms have been updated quickly when necessary and ensured announced.	3.40±1.11	0.81	0.78
14. Patient referrals, hospitalization, diagnosis, treatment, sample and patient transfer algorithms have been shared with employees.	3.49±1.01	0.80	0.78
13. It has been defined how employees can communicate with whom in which situation, other than medical consultancy.	3.14±1.01	0.69	0.80
12. Processes that can be managed remotely when necessary have been defined and implemented (E.g.; mobile visits of the employees who need to be in isolation or in quarantine).	3.29±1.08	0.65	0.75
11. Contact points have been defined where employees can receive medical consultancy when necessary. (E.g.; in hospitals, keeping communication facilities of the specialists and nurses open for the physicians and nurses having different specialties to access them easily when necessary).	3.20±1.12	0.64	0.73
6. Information flow has been ensured by employees for the immediate transmission of problems to the committee and top management, and information channels have been kept open continuously.	3.27±0.99	0.50	0.64
Participation in decisions (α=0.85)			
2. Employee representatives were included during area visits and committee meetings.	2.83±1.29	0.85	0.77
3. Operational steps and areas that increase the contamination risk of employees and open to improvement have been determined.	2.95±1.28	0.75	0.72
1. Employee safety committees have paid area and unit visits at least once a week to determine the processes and situations that pose a risk to employees in terms of COVID-19 (SARS-CoV-2) contamination.	2.79±1.47	0.73	0.62
4. The participation of employees was ensured in the determination and implementation of solutions.	2.78±1.23	0.71	0.77
5. Regulations and measures for the identified risks have been implemented immediately.	2.97±1.19	0.68	0.76
Work environment (α=0.75)			
9. Rest periods have been organized so as not to cause exhaustion and burnout.	3.37±1.10	0.76	0.73
10. Employees have been kept informed about the general situation and the process.	3.30±1.09	0.70	0.84
8. The work order has been determined in a fair and transparent manner according to the needs and risks of the people.	3.37±1.18	0.66	0.56
Informing and isolation (α=0.84)			
19. Employees have been informed about the appropriate use of personal protective equipment.	3.36±1.27	0.80	0.89
18. The processes of tracking and supplying the need of personal protective equipment have been determined.	3.41±1.17	0.77	0.84
16. The rules to be followed and the points to be considered have been distributed to the employees in a written form.	3.42±1.07	0.71	0.63
17. The isolation process of healthcare professionals probable/definite COVID-19 diagnosis has been defined.	3.42±1.03	0.70	0.68
Psychological support (α=0.87)			
20. Physical and mental support mechanisms have been established and ensured to be announced.	2.90±1.28	0.78	0.86
22. Throughout the province, points of collaboration and communication with other institutions that are necessary to work in coordination for safety and support of the employees have been defined.	3.03±1.18	0.75	0.86
21. Employees who need psychosocial support for themselves and their families have been directed to "Psychosocial Support Hotline" and "Psychosocial Support Provincial Coordination Center for Healthcare Professionals" that has been established within the structure of the governor's office	2.92±1.23	0.75	0.76
SD: Standard deviation, EFA: Explanatory factor analysis, CFA: Confirmatory factor analysis, COVID-19: Coronavirus disease-2019			

by their institutions and 14% provided their protective equipment by their own means. Additionally, it was stated that 65.4% of the healthcare workers were not conducted screen test by their institution during the pandemic process. The fifth subscale addresses creating physical and mental support mechanisms during the pandemic process and directing healthcare professionals and their families to "Psychosocial Support Provincial Coordination Center" when necessary. As working time, work load, duty conflict and loss of control of the healthcare professionals in their struggle with COVID-19 increase, this situation might cause stress and mental burnout by appreciation and motivation mechanisms to be ignored[25]. It is emphasized that accessing mental healthcare services for healthcare providers working in COVID-19 pandemic conditions is important to improve their physical health perceptions and to relieve their acute mental problems[9]. Healthcare providers with lower subscale scores are more likely to be unable to protect themselves and their families with the measures taken by healthcare institutions against COVID-19. In the study titled "A Viewpoint from Paris in the COVID-19 Pandemic" by Corruble[26], psychiatric teleconsultation hotlines have been established in France, where deaths are frequent, to help medical and non-medical hospital staff experience busy schedule, stress, difficult ethical decisions and multiple deaths to cope with mental health problems and the fear of quarantine and infection for themselves and their families. Being aware of the positive and negative effects of all these circumstances will ensure to investigate the differences to make the results more suitable or to avoid negative results.

CVR was calculated for each item separately from the Lawshe method, which was revealed by Veneziano and Hooper[13]. CVR is 0.80 for all 22 items, break point is above 0.65 and in accordance with the standards. The factor load with lower cut-off points below 0.40 was not detected in EFA conducted for 220 samples and 22 items. Factors with eigenvalues above 1 were accepted as significant[27], and 22 items were grouped under five factors. In the item analysis after the reliability (internal consistency coefficient) analysis, the item total correlation coefficient of the 7th item was 0.265, and the cutoff point was below 0.50. CFA was performed after EFA. Regression coefficients, which are the factor loads of the observed variables to the latent variables, were determined. The values here should not be below 0.50. The factor load of the 7th item is 0.43 and it is below 0.50, which is the cut-off point. Considering the item

total correlation coefficient of 0.265 of the 7th item, it was excluded from the scale. the developed model is necessary to be analyzed by the goodness of fit indices[28]. In this research, the GFI values in CFA analysis revealed that the tested model is applicable. Because of the reliability analysis, Cronbach's alpha value is 0.92. Test-retest test reliability ICC value is 0.91. It is found in the test-retest reliability analysis performed two weeks apart that the correlation coefficient value between the two practices is quite high. Accordingly, it is revealed that the relevant scale measures the same structure consistently.

Study Limitations

The study group consisted of healthcare professionals who encountered and provided service the most COVID-19 cases and their contacts in isolation clinics, intensive care units and emergency rooms. A standardized scale was not found to determine the protection levels and efficiencies of the measures taken in healthcare institutions due to the pandemic to protect healthcare workers and their families. In this study, it is aimed to develop a scale (SHPFP) that can be conducted specifically to COVID-19, and to all pandemic cases in general and in this context, our study is thought to contribute to the literature.

Conclusion

SHPFP, developed in this study, can be used to determine the protection levels and efficiencies of the measures taken in healthcare institutions due to the pandemic to protect healthcare professionals and their families. By using this scale, an assessment of the situation will be done, and the existing measures will be ensured to be reviewed based on this.

Ethics

Ethics Committee Approval: The study was approved by Sivas Cumhuriyet University, Ethical Committee of Non-Invasive Clinic Research (20/05/2020 dated and 15 numbered) and The Ministry of Health, Directorate General for Health Services Scientific Research Platform (consent code: 16T14_26_00).

Informed Consent: The healthcare professionals participating in the study at the institution where the consent was obtained were informed, all their questions were answered, and an informed consent form was obtained in accordance with the Helsinki Declaration.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: K.Y., Design: K.Y., Data Collection or Processing: K.Y., Analysis or Interpretation: K.Y., D.Ü., Literature Search: K.Y., D.Ü., Writing: K.Y., D.Ü.

Conflict of Interest: No conflict of interest was declared by the authors.

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