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ARAŞTIRMA / RESEARCH

Reliability and validity of the Turkish version of the Subjective Health Complaints Inventory

Subjektif Sağlık Şikayetleri Envanterinin Türkçe versiyonunun güvenirliği ve geçerliliği

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Abstract

Purpose: This study aims to evaluate the reliability and validity of the Turkish version of the Subjective Health Complaints (SHC) inventory, which can be used to monitor health complaints experienced by the hospital support staff.
Materials and Methods: In this methodological study, data were collected from 240 hospital support staff working in five different hospitals in Turkey. Participants were asked demographic questions and administered a Turkish translated SHC inventory. Construct validity was confirmed using exploratory and confirmatory factor analysis. Internal consistency was assessed by calculating the Cronbach's alpha and split-half reliability coefficients.
Results: The Turkish SHC inventory with 29 items showed acceptable content validity, construct validity, and internal consistency reliability (Cronbach's alpha = 0.905). Confirmatory factor analysis confirmed the original five-dimensional structure of the scale. Model fit indices implied a good model-data fit: the normed chi-square value of 1.488 ($\chi2$ = 513.423, df=345); error of root mean square approximation of 0.045; comparative fit index of 0.939 and standardized root mean square residuals of 0.060.
Conclusion: The findings assert the reliability and validity of the Turkish SHC inventory, and recommend its use as a suitable tool for monitoring health complaints experienced by health service workers.

Keywords:. Health, hospital, health personnel, validation study

Öz

Amaç: Bu çalışmanın amacı, hastane destek personelinin yaşadığı sağlık şikayetlerini izlemek için kullanılabilecek subjektif sağlık şikayetleri (SHC) envanterinin Türkçe versiyonunun güvenilirliğini ve geçerliliğini değerlendirmektir.
Gereç ve Yöntem: Bu metodolojik çalışmada, Türkiye'de beş farklı hastanede görev yapan 240 hastane destek personelinden veri toplanmıştır. Katılımcılara demografik sorular ve Türkçe'ye çevrilmiş SHC envanteri uygulanmıştır. Yapı geçerliliği, açımlayıcı ve doğrulayıcı faktör analizleri ile doğrulanmıştır. İç tutarlılık, Cronbach alfa ve iki yarı güvenirlik katsayıları hesaplanarak değerlendirilmiştir.
Bulgular: 29 maddeden oluşan Türkçe SHC envanteri kabul edilebilir içerik geçerliliği, yapı geçerliliği ve iç tutarlılık güvenilirliği göstermiştir (Cronbach alfa = 0.905). Doğrulayıcı faktör analizi, ölçeğin orijinal beş boyutlu yapısını doğrulamıştır. Model uyum indeksleri, iyi bir model-veri uyumunu göstermiştir: normlu ki-kare değeri 1.488 ($\chi2$ = 513.423, df=345); yaklaşık hataların ortalama karekökü 0.045; karşılaştırmalı uyum indeksi 0.939 ve standartlaştırılmış kök ortalama kare hatası 0.060 olarak elde edilmiştir.
Sonuç: Bulgular, Türkçe SHC envanterinin güvenilirliğini ve geçerliliğini ortaya koymaktadır ve sağlık hizmeti çalışanlarının yaşadığı sağlık şikayetlerinin izlenmesi için uygun bir araç olarak kullanılmasını önerilmektedir

Anahtar kelimeler: Sağlık, hastane, sağlık personeli, validasyon çalışması

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INTRODUCTION

Subjective health complaints (SHC) are defined as nonspecific health complaints that cannot be directly linked to any verifiable organic disease[1]. These complaints may lead to a reduction in work efficiency in the working population due to both short-and long-term absences due to sickness and resignation from work[2]. It has been reported that up to 70% of the working-age population have at least one SHC during their working life[3]. Furthermore, 20-40% of workers with SHC have complaints that have become chronic and have affected their productivity at work[3,4]. Among the working population, health services have the highest rate of SHC among many other occupation groups[5].

Employees with good physical and mental health are more likely to have greater productivity and provide a greater standard of care or service than employees with poorer health[6]. Observing and monitoring health problems faced by health service workers is therefore an important step towards increasing the quality of care they provide, as well as improving their own personal well-being. Additionally, for the efficient and effective operation of healthcare services, there is a need to expand the scope of the research focusing on the evaluation criteria of health complaints of health workers to ensure that the health workforce is healthy[7].

Among health service workers, there are many non-health trained workers in health industries, called health management and support workers, who do not provide health services directly to the population but help the health system function without interruption[8]. This group accounts for 33% of all health workers globally and includes managers, computer programmers, accountants, office personnel, security, cleaning, laundry, and kitchen personnel working at the hospital[9]. Support staff perform several tasks that often affect their health. Consequently, they have many work-related health complaints. However, hospital support staff are generally overlooked in discussions or research on the health of the labor force. In particular, attention to the issue of SHC among health support workers is limited in Turkey[10-13].

The health problems of health service providers in Turkey have been measured using several measurement tools[10,11,13,14]. However, these studies were conducted in relation to a specific health complaint, pain, or disorder, rather than evaluating the general health and well-being of individuals. Eriksen, Ihlebaek and Ursin[15] developed a SHC inventory, with the aim of determining the prevalence of commonly reported SHC. The SHC inventory was based on a systematic and easy scoring system that recorded the severity of 29 subjective health complaints. However, the scoring results did not reveal any qualifications for illness or medical diagnoses. The SHC inventory was also made available in Norwegian, Dutch, English, and Swedish by the authors of the original inventory [15]. The literature review showed that Turkish reliability and validity of the SHC inventory has not yet been conducted. In this study, we translated and adapted the SHC inventory into Turkish. Therefore, this study aimed to evaluate the reliability and validity of the Turkish version of the SHC inventory using data collected from hospital support staff.

MATERIALS AND METHODS

The research was carried out in a methodological research design. Data were collected during a multi-center study between May and July 2016 through face-to-face interviews in a comfortable time frame and atmosphere for employees. The study population comprised hospital support staff working in a training research hospital at a university, an oral and dental health clinic and three public hospitals in the Central Anatolia region of Turkey.

This study was approved by the Ahi Evran University Ethics Committee (2016-03/13). The volunteer participants verbally expressed their interest in participating in the study and approved the written informed consent form. To ensure the confidentiality of the responses, the forms filled out by the researchers were put in sealed envelopes and then placed in a closed box. This study complied with the 1964 Declaration of Helsinki, as revised in 2000.

Study sample

A total sample size close to 200 was suggested to be appropriate[16], with a minimum of five respondents per item[17]. In line with these recommendations, we collected data from 240 participants using a convenience sample. The occupations of the participants recruited in this study were classified according to the definitions of the World Health Organization[8]. The sample consisted of medical secretaries, computer hardware technicians, data entry clerks, hospital security guards, cleaners,

kitchen helpers, ambulance drivers, cafeteria cooks, healthcare project managers, and hospital admission clerks. The eligibility criteria for the study were as follows: (i) being older than 18 years, (ii) able to understand Turkish and (iii) able to complete the scale independently.

Measures

Personal Information Form

The form included 24 questions (13 multiple-choice and 11 open-ended) about age, gender, educational background, marital status, job title, working years, and working schedule (i.e., in shifts or office hours).

Subjective Health Complaints (SHC) Inventory

Eriksen, Ihlebaek, and Ursin[15] developed the SHC inventory using the Ursin Health Inventory (UHI) in 1999. Using SHC inventory, subjective health complaints can be scored systematically, easily, and safely. The SHC consists of 29 items related to subjective somatic and psychological complaints. The items of subjective health complaints were scored on a four-point scale according to the severity of the complaint (0:none, 1:very little, 2:little and 3:severe). The minimum obtainable total score is 0 (perfect) and the maximum score is 87 (very poor)[18].

The SHC inventory consists of five sub-scales: *1. Musculoskeletal pain* (8 items: headache, neck pain, back pain, low back pain, arm pain, shoulder pain, migraine and leg pain; maximum score=24), *2. Pseudoneurology (7 items*: palpitation, hot flashes, sleep problems, fatigue, dizziness, anxiety, and sadness/depression; maximum score=21), *3.Gastrointestinal problems* (7 items: heartburn, stomach discomfort, ulcer/indigestion, stomach pain, gas problems, diarrhea, and constipation; maximum score=21), *4. Allergy (5 items:* asthma, difficulty breathing, eczema, allergy, and chest pain; maximum score=15), and *5. Flu* (2 items: cold/flu and cough; maximum score=6). In the original study, the internal consistency coefficients for all 29 items was 0.82 in women and 0.75 in men[15]. Cronbach's alpha was found to be 0.83 in the study by Thygesen et al. In our study, Cronbach's alpha was 0.905.

Translation and cross-cultural adaptation of the scale

Forward and backward translation method was used to maintain equivalence between the original and translated versions of the inventory. First, the SHC inventory was translated from English to Turkish by five Turkish native speaker lecturers who worked in the field of health sciences (three nurses and two medical doctors) and knew English well. After a consensus was obtained on the translated version, the scale was translated back to English by a linguist who spoke both English and Turkish at a native level. Another linguist and an independent nursing faculty member then compared the back-translated and original versions of the inventory and reached a consensus that there were no differences between the two versions. The understandability of each item was approved by 30 participants who completed the inventory but were not included in the study sample. The final version of the translated inventory is presented in Appendix-1.

Statistical analysis

Descriptive statistics were used to summarize the data. The construct validity of the inventory was assessed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Prior to factor analysis, the adequacy and compatibility of the inventory ontent and sample size were confirmed with Bartlett's sphericity test value of $\chi 2=3024.479$ ($df=406$, $p<0.001$) and Kaiser–Meyer–Olkin (KMO) value of 0.860 (criterion >0.7)[19].

The factor structure and loadings of the inventory were analyzed using CFA. A factor was deemed important if its eigenvalue exceeded 1.0, and factor loadings less than 0.4 were suppressed. To assess the hypothesized measurement structure in the CFA, the following model indices were calculated as recommended in the literature[20]: model chi-square score (χ^2), normed chi-square (χ^2/degrees of freedom), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), non-normed fit index (NNFI), standardized root mean square residuals (SRMR), and root mean square error of approximation (RMSEA).

Internal consistency was assessed by calculating Cronbach's alpha and split-half reliability coefficients for the total inventory, as well as for each subscale. Cronbach's alpha of at least 0.70 was considered acceptable[21]. We tested the scale's stability using the Spearman Brown and Guttman split-half coefficients by splitting the inventory into two halves with all odd-numbered items versus all even numbered ones[22]. Corrected item-to-total correlations were also calculated in order to have another measure to ensure item-scale consistency. The criterion was items with

values smaller than 0.30, which should be removed from the scale[16]. Statistical analyses were performed using the lavaan package in R version 4.0.4[23] and STATA version 16.0[24].

Table 1. Characteristics of 240 hospital support staff participated in the study.

	n	%
Gender		
Male	143	59.6
Female	97	40.4
Marital status		
Married	182	75.8
Single	42	17.5
Divorced	16	6.7
Education		
Elementary	37	15.4
Middle school	52	21.7
High school	111	46.3
University	40	16.6
Job Title		
Clening staff	121	50.4
Medical secretary	43	17.9
Security guard	30	12.5
Data entry clerk	24	10.0
Waiter/waitress	10	4.2
Other	12	5.0
Work schedule		
Shift work	93	38.7
No shift work	147	61.3
	Mean ± sd	*Median (min-max)*
Age (in years)	38.0 ± 8.9	36 (20-61)
Work experience (in years)	9.6 ± 7.9	7 (1-32)

RESULTS

Of the 240 hospital support staff who participated in the study, 40.4% were female and 59.6% were male and the mean age of the participants was 38.0 ± 8.9 years. The participants' characteristics are presented in Table 1

Content validity

The finalized Turkish translated form was evaluated for content validity using the Davis technique[25] by a committee of six experts in the field of health sciences. First, the experts were asked to rate each item in terms of understandability and comprehensibility on a four-point scale (1, the item is appropriate; 2, the item needs minor revision; 3, the item needs major revision; and 4, the item is inappropriate). The content validity index (CVI) for each item was then calculated by dividing the number of experts who gave a rating of 3 points or above by the total number of experts. The content of the scale is considered valid if the average CVI across all items is greater than 0.80[25]. The CVIs of the items were found between 0.80 and 0.90, with an average CVI of 0.88.

Construct validity

A forced five-factor solution was chosen based on previous applications of the scale to increase its interpretability[15]. These five factors accounted for 54.2% of the total variance, with an eigenvalue of 1.371. Twenty-nine items were grouped into five categories. Factor loadings indicating the strength of the relationship between each dimension and item are presented in the path diagram in Figure 1. Results of the CFA showed factor-loadings of all items are varied between the range of 0.40 and 0.88. In addition, the greatest correlation was observed between musculoskeletal pain and the

pseudoneurology sub-dimensions (0.59). The fit indices obtained from CFA are shown in Table 2, along with their assessment criteria for the goodness of fit of the model. The ratio of the obtained chi-square statistics to the degrees of freedom was 1.488 ($\chi 2$=513.423, df=345), CFI=0.939, NNFI=0.928, RMSEA=0.045, and SRMR=0.06.

Internal consistency

Cronbach's alpha (α) coefficient was 0.905 for the SHC total score, while alpha varied between 0.676 and 0.850 for the sub-scales (Table 2). The total item correlations ranged from 0.394 to 0.606. Internal consistency was also confirmed by split-half reliability statistics (Spearman-Brown coefficient=0.742, Guttman split-half coefficient=0.710).

Distribution of occurrences of subjective health complaints

A descriptive analysis of responses to the SHC inventory was conducted (Table 3). The participants were classified into two categories: "any subjective complaints" and "substantial subjective complaints" A participant who scored above 0 for any item on a sub-scale, was defined to have "any subjective complaints". The criterion for substantial complaints was scoring above 1 on at least one of the items and minor (score 1), some (score 2), or severe complaints (score 3) for all other items included in the subscale[18].

Table 2. Results of the reliability and validity analyses of Turkish SHC Inventory.

Construct Validity		
Model fit indices from CFA	Fit values	Assessment criteria for model fit[a]
CFI	0.939	≥0.95 good; ≥0.90 acceptable
GFI	0.874	≥0.95 good; ≥0.90 acceptable
AGFI	0.841	≥0.95 good; ≥0.90 acceptable
NNFI	0.928	≥0.95 good; ≥0.90 acceptable
RMSEA	0.045	≤0.05 good; ≤0.08 acceptable
SRMR	0.060	≤0.05 good; ≤0.08 acceptable
Chi-square/df	1.488	≤2 good; ≤5 acceptable
Reliability		
Subscale	Number of items	Cronbach's Alpha (α)
SHC total	29	0.905
Musculoskeletal pain	8	0.842
Pseudoneurology	7	0.796
Gastrointestinal problems	7	0.850
Allergies	5	0.759
Flu	2	0.676

[a]Criteria were taken from Hu and Bentler [30], Cole[27], Schumacker and Lomax[31]. CFA, Confirmatory Factor Analysis; CFI, comparative fit index; GFI, goodness-of-fit index; AGFI, adjusted goodness-of-fit index; NNFI, non-normed fit index; RMSEA, root mean square error of approximation; SRMR, Standardized Root Mean Square Residuals; df, degrees of freedom, SHC, Subjective health complaints.

Table 3. Distribution of occurrence of substantial subjective health complaints among hospital support staff (n=240).

	Any Complaints[a]		**Substantial Complaints[a]**	
	n	%	*N*	%
Musculoskeletal pain	185	77.1	39	16.3
Pseudoneurology	180	75.0	9	3.8
Gastrointestinal problems	135	56.3	8	3.3
Allergies	94	39.2	7	2.9
Flu	97	40.4	60	25.0

[a]Any complaints (score above 0 on at least one item) and substantial complaints (score above 1 on at least one of the items and some complaints (1, 2, or 3) on all the other items).

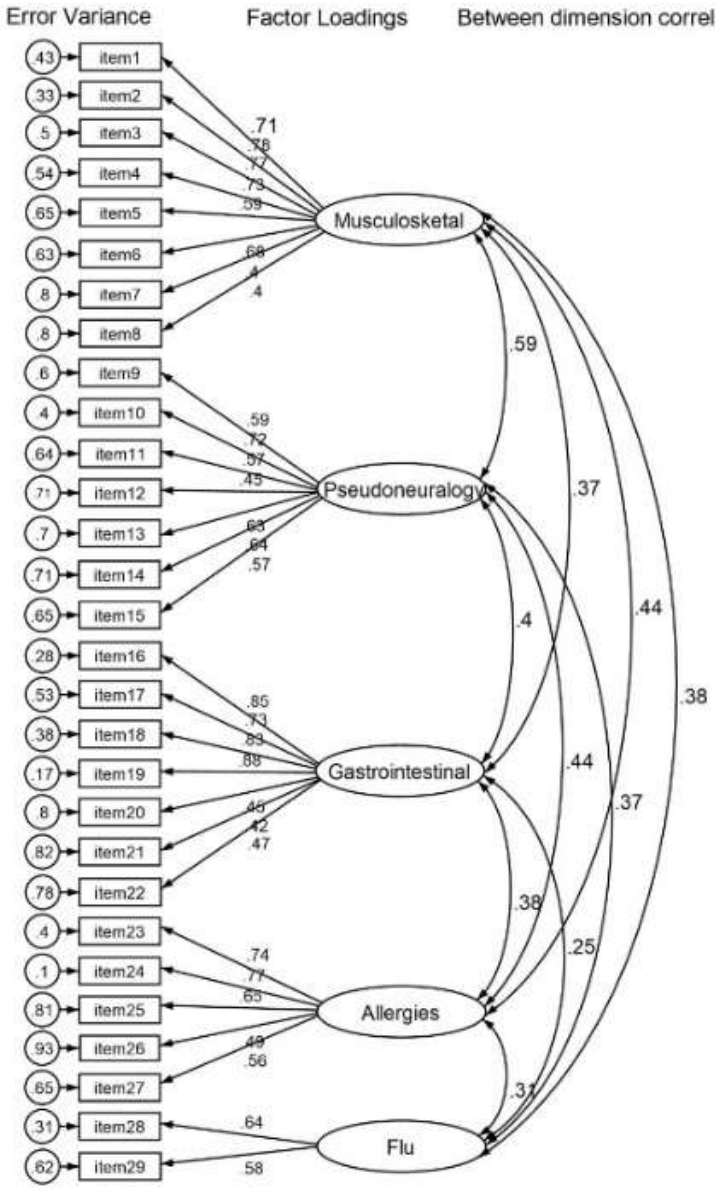

Figure 1. Path diagram of the five-dimension model with factor loading estimates, between-dimension correlations, and standardized error variances.

Musculoskeletal pain and pseudoneurology were reported in 77.1% and 75% of the patients, respectively. Gastrointestinal problems, flu, and allergy were reported by 56.3%, 40.4%, and 39.2% of the sample, respectively. Of the participants, 25.0% reported substantial flu-like complaints, 16.3% had substantial musculoskeletal pain, 3.8% had substantial pseudoneurology, 2.9% had substantial gastrointestinal problems, and 2.9% had substantial allergies. The most frequent complaints for which participants scored 1 or above were headache (53.8%), cold/flu (52.1%), coughing (51.7%),

tiredness (52.9%), upper back pain (47.1%), low back pain (45.8%), shoulder pain (44.6%) and leg pain during physical activity (43.8%).

DISCUSSION

This study was conducted to determine the validity and reliability of the Turkish version of the SHC inventory, which was originally developed by Eriksen et al.[15]. In this study, we translated and adapted the SHC inventory into Turkish. Construct validity of the inventory was identified using explanatory and confirmatory factor analyses. Initially, the suitability of the data for factor analysis was approved by Kaiser-Meyer-Olkin (KMO) value of 0.860 and a statistically significant Bartlett test[19], which indicated that the data set was suitable for factor analysis at a "good" level. The KMO value of the original inventory was 0.83[15].

The EFA findings showed that the amount of variance captured by the five-factor solution was 54.2%. In the literature, it is recommended that the proportion of variance accounted for by the model should be at least 50%[26]. The factor loadings of items ranged from 0.40 to 0.88. When the loading of each item is at least 0.40 and there are at least three strong loadings for each factor, the model suggests a good estimation when the sample size is approximately 200, as is the case in this study[26]. These findings indicate that the Turkish SHC inventory has a five-factor structure, which is consistent with the original five-factor scale[15].

The adequacy of the model fit was confirmed by a normed chi-square value of 1.488, which indicates a good fit, given that it is smaller than two[27]. In the CFA analysis, various goodness-of-fit indices were calculated to assess how well the sample data supported the predicted factor structure and whether it could be generalized to the population. CFI and NNFI confirmed an acceptable model fit. GFI and AGFI values were in the range of 0.80 and 0.90 and can be considered to have a borderline "acceptable" fit. RMSEA and SMRM were 0.045 and 0.060, respectively, indicating values within the acceptable range. Here, we note that the adequacy of the model fit should be interpreted as a combination of all the statistical findings obtained in the factor analysis[20]. Therefore, even if a fit index appears to be good, it does not necessarily indicate that the model fit is also good.

Cronbach's alpha was used to determine the internal consistency of the scale, which was calculated as 0.905, implying a high level of reliability. The reliability coefficients of the sub-dimensions were mostly within the acceptable range for all factors of the SHC scale, except for the alpha value for the flu. In our study, the following Cronbach's alpha values were obtained for the sub-dimensions: musculoskeletal pain, 0.842; pseudoneurology, 0.796; gastrointestinal problems, 0.850; allergies, 0.759; and flu, 0.676. These values were 0.74, 0.73, 0.62, 0.58, and 0.67, respectively, in the original scale[15], and while Ihlebaek et al.[28] reported the reliability coefficients of the sub-dimensions as 0.75, 0.67, 0.61, 0.43, and 0.58, respectively. The strongest correlations were observed between musculoskeletal pain and pseudoneurology sub-dimensions (0.59), allergies and musculoskeletal pain (0.44) and allergies and pseudoneurology (0.44). A strong relationship in the sub-scales of these symptoms can be attributed to musculoskeletal pain and allergies as well as pseudoneurological symptoms such as fatigue, insomnia, and depression.

The SHC inventory has been previously conducted in different study populations[18,28]. In our study, the most frequent complaint among the hospital support staff was musculoskeletal pain (77.1%). Ihlebaek et al., who conducted a study on the general population in Norway, obtained similar results, with 80.4% reporting musculoskeletal pain[28]. Musculoskeletal health problems are common in the society. For hospital support staff, the causes of musculoskeletal complaints are usually linked to their work, such as long working hours, excessive workload, repetitive movements, and few rest breaks are among the common causes[11,13]. In a previous study conducted on Turkish hospital staff, the prevalence of upper extremity pain has been found to be 47.6% in neck, 44.8% in back, 33.3% in shoulders, 22.9% in hand and wrist and 13.3% in elbow[13].

The second most common health complaint among hospital support staff was related to pseudoneurology (75.0%), which was higher than the previously reported prevalence of 65.1% in the general population[28]. Many psychosocial factors arising from work environment may affect mental and emotional status of hospital staff. Work environments that are tiring and stressful with high workload and low social support can result in several health complaints, such as insomnia and fatigue[11].

In our study, the prevalence of gastrointestinal disorders, allergies, and flu-like complaints was relatively higher than that reported by Ihlebaek et al.[28]. Several risk factors are attributed to gastrointestinal disorders in healthcare workers such as shiftwork, psychological factors, exposure to bacteria, age and gender[29]. In addition, many chemical substances in the hospital environment can be a source of allergies and subjects working in hospitals have an increased risk of exposure to respiratory infections.

Our findings support the reliability and validity of the Turkish SHC inventory, however the research has some limitations. First, the study was conducted only in the Central Anatolian region of Turkey using convenience sampling method. The lack of randomization in sample selection may have affected the generalization of the results of this study. Second, the study sample consisted of hospital support workers, which may not be representative of the general population of Turkey. Therefore, the external validity of the Turkish SHC inventory should be examined in further research to determine how the factor structure of the inventory would differ for other study populations and working groups in Turkey. Lastly, due to the lack of a valid and reliable instrument in Turkish that is closely related to the SHC inventory, convergent validity could not be assessed.

The Turkish version of the SHC inventory supports the stability of the original five-dimensional structure. Its appropriateness to Turkish culture is verified, and it can be used as a valid tool to evaluate the subjective health complaints of hospital support staff. The SHC inventory validated in this study, will aid in monitoring the health status of health workers and thus may increase the individual well-being of employees, patient satisfaction, work performance, and the quality of health services. It could bring benefits to future research studies and society as a whole by advancing the knowledge of subjective health complaints and providing a valuable data source.

Yazar Katkıları: Çalışma konsepti/Tasarımı: OK, MTK, GD; Veri toplama: GD; Veri analizi ve yorumlama: OK, MTK, GD; Yazı taslağı: OK, MTK, GD; İçeriğin eleştirel incelenmesi: OK, MTK, GD; Son onay ve sorumluluk: OK; Teknik ve malzeme desteği: MTK, GD; Süpervizyon: OK, MTK, GD; Fon sağlama (mevcut ise): yok.
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REFERENCES

1. Eriksen HR, Ihlebeak C. Subjective health complaints. Scand J Psychol. 2002;43:101-03.
2. Weerdesteijn KHN, Schaafsma F, Bonefaas-Groenewoud K, Heymans M, Van der Beek A, Anema J. Predicting return to work after long-term sickness absence with subjective health complaints: a prospective cohort study. BMC Public Health. 2020;20:1095.
3. Lerner D, Allaire SH, Reisine ST. Work disability resulting from chronic health conditions. J Occup Environ Med. 2005;47:253-64.
4. Cochrane A, Higgins NM, Rothwell C et al. Work outcomes in patients who stay at work despite musculoskeletal pain. J Occup Rehabil. 2018;28:559-67.
5. Eriksen W. The prevalence of musculoskeletal pain in Norwegian nurses' aides. Int Arch Occup Environ Health. 2003;76:625-30.
6. Adams JM. The value of worker well-being. Public Health Rep. 2019;134:583-86.
7. Joseph B, Joseph M. The health of the healthcare workers. Indian J Occup Environ Med. 2016;20:71-72.
8. WHO. Classifying health workers: Mapping occupations to the international standard classification. https://www.who.int/hrh/statistics/Health_workers_classification.pdf (accessed June 2021).
9. WHO. Health workers: A global profile. In: The World Health Report 2006. Geneva, WHO, 2006.
10. Sahin F, Yılmaz F, Sahin T, Soydemir R., Yılmaz Ö, Yamaç S et al. Musculoskeletal pain among healthcare personnel working in the hospital. Şişli Etfal hastanesi Tıp Bülteni. 2006;40:37-43.
11. Guneser R, Atalay E. Ambulans servisi çalışanlarının uyku kalitesi, iş stresi ve beslenme davranışlarının değerlendirilmesi. Hastane Öncesi Dergisi. 2020;5:143-56.
12. Cevizci O, Muezzin E. Sağlık çalışanlarında psikolojik belirtilerin ve psikolojik dayanıklılığın incelenmesi. Cyprus Turkish Journal of Psychiatry and Psychology. 2019;1:166-72.
13. Şirzai H, Doğu B, Erdem P, Yılmaz F, Kuran B. Work-related musculoskeletal diseases in hospital

workers: Upper extremity problems. Şişli Etfal Hastanesi Tıp Bülteni. 2015;49:135-41.
14. Tokur Kesgin M, Bay B. Birinci basamak sağlık hizmetlerinde çalışan sağlıkçıların sağlıklarına ve çalıştıkları ortamdaki risk etmenlerine ilişkin değerlendirilmesi. Acıbadem Üniversitesi Sağlık Bilimleri Dergisi. 2019;10:676-82.
15. Eriksen HR, Ihlebæk C, Ursin H. A scoring system for subjective health complaints (SHC). Scand J Public Health. 1999;27:63-72.
16. DeVellis R. Scale Development: Theory and Applications, California, Sage, 2016.
17. Brown TA. Confirmatory factor analysis for applied research, New York, Guilford Press, 2015.
18. Thygesen E, Lindstrom TC, Saevareid HI, Engedal K. The Subjective Health Complaints Inventory: a useful instrument to identify various aspects of health and ability to cope in older people? Scand J Public Health. 2009;37:690-96.
19. Kaiser HF. An index of factorial simplicity. Psychometrika. 1974;39:31-36.
20. Bentler PM. Comparative fit indexes in structural models. Psychol Bull. 1990;107:238-46.
21. Cronbach LJ. Coefficient alpha and the internal structure of tests. Psychometrika. 1951;16:297-34.
22. Guttman L. A basis for analyzing test-retest reliability. Psychometrika. 1945;10:255-82.
23. Lavaan RY. An R package for structural equation modeling. J Stat Softw. 2012;48:1-36.
24. StataCorp. Stata Statistical Software: Release 16. StataCorp LLC, 2019.
25. Davis LL. Instrument review: Getting the most from a panel of experts. Appl Nurs Res. 1992;5:194-97.
26. Pituch KA, Stevens JP. Applied Multivariate Statistics for the Social Sciences: Analyses with SAS and IBM's SPSS. New York, Routledge, 2016.
27. Cole DA. Utility of confirmatory factor analysis in test validation research. J Consult Clin Psychol. 1987;55:584-94.
28. Ihlebaek C, Eriksen HR, Ursin H. Prevalence of subjective health complaints (SHC) in Norway. Scand J Public Health. 2002;30:20-29.
29. Kim HI, Jung S-A, Choi JY, Jung HK, Shim KN, Yoo K. Impact of shiftwork on irritable bowel syndrome and functional dyspepsia. J Korean Med Sci. 2013;28:431-37.
30. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Struct Equ Modeling. 1999;6:1-55.
31. Schumacker RE, Lomax RG. A Beginner's Guide to Structural Equation Modeling, New York, Routledge, 2010.

APPENDIX 1

SUBJEKTİF SAĞLIK ŞİKAYETLERİ ENVANTERİ - TÜRKÇE VERSİYONU

Aşağıdaki tabloda son bir aydır yaşamış olabileceğiniz sağlık problemleri ve şikâyetleri listelenmiştir. Sağlık problemleri ve şikâyetleri 0 dan 3' e kadar numaralandırılmıştır. 0 sağlık sorunu hiç yok, 1 sağlık sorunu çok az var, 2 sağlık sorunu biraz var ve 3 sağlık sorununun ciddi olduğu anlamına gelir. Siz de yaşadığınız sağlık problemleri ve şikâyetleri ilgili olarak size uygun olan numarayı işaretleyiniz.

Son bir ayda yaşanılan sağlık problemleri ve şikâyetleri					
Sağlık problemleri ve şikâyetleri (doğru numarayı yuvarlak içine alınız)	**Hiç yok**	**Çok az**	**Biraz**	**Ciddi**	**Sağlık problemlerini ve şikâyetlerini yaşadığınız gün sayısı**
1.Soğuk algınlığı (Nezle)	0	1	2	3	
2.Öksürük	0	1	2	3	
3.Omuz ağrısı	0	1	2	3	
4.Boyun ağrısı	0	1	2	3	
5.Sırt ağrısı	0	1	2	3	
6.Kol ağrısı	0	1	2	3	
7.Baş ağrısı	0	1	2	3	
8.Bel ağrısı	0	1	2	3	
9.Yürüyüş, koşu, bahçe işleri ve benzeri fiziksel aktiviteler yaparken bacak ağrısı	0	1	2	3	
10.Migren (ataklar halinde ortaya çıkan, başın tek tarafına yerleşen, zonklayıcı baş ağrısı)	0	1	2	3	
11.Anksiyete (nedeni belli olmayan iç sıkıntısı)	0	1	2	3	
12.Üzüntü/depresyon	0	1	2	3	
13.Uyku problemleri	0	1	2	3	
14.Yorgunluk (Günlük etkinliklere başlamak için gerekli gücü bulamama, tükenmişlik duygusu yaşama)	0	1	2	3	
15. Çarpıntı	0	1	2	3	
16.Sıcak basması	0	1	2	3	
17.Baş dönmesi	0	1	2	3	
18.Mide rahatsızlığı	0	1	2	3	
19.Mide yanması	0	1	2	3	
20.Midede Ülser /Hazımsızlık(Midede dolgunluk, şişkinlik, ağrı,bulantı	0	1	2	3	
21.Mide ağrısı	0	1	2	3	
22.Gaz rahatsızlığı	0	1	2	3	
23.İshal	0	1	2	3	
24.Kabızlık	0	1	2	3	
25.Astım (nefes darlığı, hırıltılı solunum, öksürük bir arada bulunması)	0	1	2	3	
26.Solunum güçlüğü	0	1	2	3	
27.Alerji	0	1	2	3	
28.Egzama (kaşıntılı cilt iltihabı)	0	1	2	3	
29.Göğüs ağrısı, göğüste yanma, sıkışma, ağırlık hissi	0	1	2	3	

Beş Subjektif Sağlık Şikayetleri Envanterinin alt skalalarının yorumlanması

Ağırlık: Beş farklı alt ölçek alt ölçeklerdeki her bir öğenin de dahil olduğu ağırlık için ham puanların toplamı faktör analizi ile puanlanması önerilmektedir. Subjektif Sağlık Şikâyetleri Envanteri Norveç'te geliştirilmiştir ancak uluslararası da kullanılmaktadır. Envanter fiziksel ve psikolojik sağlık şikâyetlerini içeren 29 madden oluşur. Katılımcılardan son 30 gün boyunca deneyimlenen sağlık şikâyetlerinin 4'lü ölçekte işaretlemeleri beklenir. 0= hiç şikâyeti yok, 1= çok az şikâyeti var, 2= biraz şikâyeti var, 3= ciddi şikâyeti var. En fazla alınabilecek toplam puan 87'dir. Faktör analizi sonucu 29 madde 5 alt ölçek olarak gruplandırılmıştır.

1. Kas iskelet şikâyetleri 8 maddeden (baş ağrısı, boyun ağrısı, sırt ağrısı, bel ağrısı, kol ağrısı, omuz ağrısı, migren ve bacak ağrısı) ve toplam 24 alt ölçek puanından oluşmaktadır.
2. Psödonörolojik şikâyetler 7 maddeden (çarpıntı, sıcak basması, uyku problemleri, yorgunluk, baş dönmesi, anksiyete ve üzüntü/depresyon) ve en fazla 21 alt ölçek puanından oluşmaktadır.
3. Gastrointestinal şikâyetler 7 maddeden (mide yanması, mide rahatsızlığı, ülser/hazımsızlık, mide ağrısı, gaz rahatsızlığı, ishal ve kabızlık) ve en fazla 21 alt ölçek puanından oluşmaktadır.
4. Alerji 5 madde (astım, solunum güçlüğü, egzama, alerji ve göğüs ağrısı) ve en fazla 15 alt ölçek puanı
5. Grip şikâyetleri 2 madde (soğuk algınlığı/grip ve öksürük) ve en fazla 6 alt ölçek puanından oluşmaktadır.

Toplam puan hem süre hem de ağırlık dikkate alınarak ayrıca da hesaplanabilir. Toplam puanı elde etmek için ağırlık (0-3 üzerinde tek öğe) süre(gün sayısı /10) ile çarpılarak puanlanır. Hem ağırlık hem de süre de eşit ağırlık elde etmek için 10 a bölünmelidir. Maksimum puan ağırlık/ süre kas iskelet ağrısı için 72, Psödonöroloji ve gastrointestinal problemler için 63, allerji için 45 ve nezle için 18. (30 gün boyunca sorunu kaç kez yaşadığını soruyor. 0-30 arasındaki rakamı madde puanı ile çarpıyor. Çıkan rakamı her alt skalaya göre ortalamasını alıyor)