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Evaluation of the validity and reliability of the Revised Professional Practice Environment Scale for Turkish society

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Abstract

Background: Professional practice environment is a concept comprising autonomy, teamwork and professional motivation.

Aim: We aimed to validate and demonstrate the reliability of the Turkish version of the Revised Professional Practice Environment Scale in this study.

Methods: The study has a methodological design with a sample of 306 nurses working in university hospitals located in two different regions in Turkey. The data of the study were collected between July 2019 and January 2020 using introductory information form and the Revised Professional Practice Environment Scale. In the analysis of the data, Cronbach alpha reliability coefficient was employed using SPSS 22.0 and Amos 23.0, whereas exploratory factor analysis, confirmatory factor analysis and Pearson correlation analysis were applied to test the construct validity.

Results: The Cronbach alpha value obtained for the whole scale was 0.89, ranging between 0.68 and 0.86 for the subscales. RMSEA, SRMR, GFI and χ^2/df, which account for the fit indices of the 29-item and 6-factor structure of the scale, were at an acceptable level.

Conclusion: We concluded that the Revised Professional Practice Environment Scale is a valid and reliable measurement tool fit for use in Turkish environments.

KEYWORDS
nurse, practice environment, reliability, validity

Summary statement

What is already known about this topic?

- Professional practice environment is a concept comprising autonomy, teamwork and professional motivation.
- Administrators in health institutions need valid and reliable assessment tools to identify the weak points and strengths in nurses' practice environments.

What this paper adds?

- The Revised Professional Practice Environment Scale is a valid and reliable measurement tool fit for use in Turkish environments.

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- The Revised Professional Practice Environment Scale is eligible for use in terms of evaluating the professional practice environment of Turkish nurses.

The implications of this paper

- Nursing services can make an assessment of the practice environment of clinical nurses for nursing care and can provide support in line with their needs using this scale, thus facilitating the provision of quality care to the community.

1 | INTRODUCTION

With the recent technological and political developments affecting the health system, the nursing profession has moved from a traditional to professional model (Karadas et al., 2018). However, nurses may still face some problems and uncertainties in their practice environment while all these developments are taking place, which may be negatively affecting the nurses' views and attitudes towards professionalism together with their commitment to the profession as a whole. De Vliegher et al. (2011) emphasized that the reason for nurses' leaving the profession may be related to the professional identities of nurses and that it is important for nurses to develop professional identities for the enhancement of their professional commitment. It was found in a study in Turkey that the reasons for nurses leaving their jobs are directly related to the practice environment. The same study also concluded that the most important reason for the decrease in nurse workforce was the unhealthy practice environments in addition to the unfavourable conditions provided for nurses, which is adversely affecting the performance of nurses, patient care outcomes and patient safety (Aydin et al., 2020).

A professional practice model constitutes the basis of quality nursing practice (Slatyer et al., 2016). Considering the basic roles undertaken by nurses in health services, it appears that creating a healthy practice environment for nurses is of big priority (Kocaman et al., 2018). Professional practice environment defined in this context is a concept consisting of autonomy, teamwork and professional motivation as a whole. In a systematic review, it was emphasized that the elements of patient safety and well-being of the nurse are necessary for the formation of a positive practice environment (O'Hara et al., 2019).

Studies in the literature have shown that the professional practice environment in hospitals is directly related to better quality and safer patient care outcomes and higher job satisfaction to be enjoyed by nurses (De Brouwer et al., 2017). Therefore, creating a productive and healthy practice environment for nurses can help eliminate the existing concerns about the quality of care. Parallel to this finding, other studies were conducted to examine the effect of the supportive professional practice environment on the professional practice behaviour patterns of nurses. Suhonen et al. (2014) found that nurses' perception of leadership, autonomy and control over practice are the significant determinants when providing individualized patient care for the elderly. Spence Laschinger et al. (2016) found in their longitudinal study that perceived unit/clinical support in professional practices is positively associated with perceptions of effectiveness in strengthening the unit/clinic commitment as they strive to meet the patient care needs. The study found that the new nurses' job satisfaction and career attitudes are related to the perception of work environment factors that support professional practice behaviours and high quality patient care (Spence Laschinger et al., 2016). Given these associations between structural strengthening and supportive practice environments and professional practice environment support, it can be said that the effect of structural strengthening on the professional/occupational practice behaviours of nurses can be increased by creating a supportive professional practice environment.

In research conducted in Turkey, nurses were revealed to evaluate the different aspects of their work environment as poor to moderate (Arslan et al., 2017; Samur & Intepeler, 2017). In a study by Altınoz and Demir (2017) conducted with intensive care nurses in this country, half of the nurses defined their practice environment as bad and they also stated that as the working year increased, the job satisfaction decreased and the risk of mental illness increased as the satisfaction from the practice environment decreased. In the study examining the reasons for leaving the profession by nurses, it is seen that the percentage of dissatisfaction with the practice environment is quite high (Yurumezoglu & Kocaman, 2016).

As a result of the studies on the subject, it has been emphasized that the areas that need improvement should be defined in order to create an optimal practice environment (Warshawsky & Havens, 2011). For this purpose, administrators in health institutions need valid and reliable assessment tools to identify the weak points and strengths of their nurses' practice environments. By measuring how the practice environment is perceived by nurses, some practices can be created to increase the quality of nursing care processes and patient outcomes (Aslan & Gokdemir, 2019).

For this reason, it was aimed to perform the Turkish validity and reliability of the 'Revised Professional Practice Environment Scale' developed by Erickson et al. (2009) as a multidimensional scale based

on components of professional clinical practice in the acute care setting, used to evaluate the professional practice environment of nurses.

2 | METHODS

2.1 | Design

This study was conducted in a methodological design to evaluate the Turkish psychometric properties of the Revised Professional Practice Environment (RPPE) Scale. The study was conducted with nurses working in two university hospitals located in two different regions of Turkey (Black Sea and Aegean Regions) between July 2019 and January 2020.

2.2 | Samples and settings

The study population was nurses working in the university hospitals where the data were collected. No sample selection method was used, and the entire population was invited to the study. The number of individuals to be included in the sampling was determined on the basis of 5 to 10 times the number of items in the scale recommended for methodological research (Capik, 2014; Tabachnick & Fidell, 2019). The total number of items in the Professional Practice Environment Scale was 39, and the sample of the study consisted of 309 clinical nurses who voluntarily agreed to participate at the time of the study. The mean age of the participants was found to be 31.54 ± 6.88 (min = 22, max = 55) years, whereas 88% were female, 57% were single, 63.4% were undergraduate graduates. Total working time in the profession was 9.88 ± 7.05 (min = 1, max = 33) years, 34.6% worked in internal services, 89% were service nurses and 59.9% worked shifts between 08.00–16.00/16.00–08.00.

2.3 | Ethical consideration

The permission for the study was obtained in order both to adapt and use the scale in Turkish via e-mail from the researcher who developed it. Ethics committee approval of the study (Ethics commit decision number: 3186GOA 2017/16-36) and institutional permission were obtained from the universities where the data were collected. The objectives of the study were explained to the participants, the research team was introduced to them as their informed consent was obtained verbally by explaining to them that the participation was voluntary and they could withdraw from the study whenever they wanted, adding that their information would remain confidential, and they were also informed that the data obtained would only be used for scientific purposes. The stages of the study were conducted in accordance with the ethical principles stated in the Declaration of Helsinki (2008).

2.4 | Instrument/tool

2.4.1 | Introductory information form

This form includes nine questions investigating such components as age, gender, marital status, vocational education, unit of work, position, and total working time in the unit and profession.

2.4.2 | Revised Professional Practice Environment Scale

The scale focuses on examining the work environments of healthcare professionals. The revised version of the scale was developed by Erickson et al. (2009). The original scale consists of 39 items related to the professional practice environment with eight subscales which are disagreement and conflict, leadership and autonomy in clinical practice, internal work motivation, control over practice, teamwork, communication with patients, cultural sensitivity and physician-staff relations (Erickson et al., 2009). Each item in the scale is evaluated as a 4-point Likert with designed answers *strongly agree* (4) and *strongly disagree* (1). The items numbered 17, 18, 19 and 20 are scored in reverse order in the scale. Increasing scores indicate increasing professional attitudes towards the professional practice environment. The total score Cronbach alpha coefficient of the original scale is 0.93 Erickson et al. (2009).

2.5 | Cultural/linguistic adaptation of the tool

The original scale was translated into Turkish by two independent language experts who speak English and Turkish fluently. After creating a common text from both translations, it was forwarded to five experts from different disciplines of nursing experienced in methodological research and then expert opinion was taken for translation made from English into Turkish. Following these stages, the expert opinions were compared and a trial Turkish form of the scale was obtained. Finally, the joint translation version was back-translated from Turkish into English by an independent linguist fluent in Turkish and English.

2.6 | Data collection procedure

After completing such procedures as the translation, expert opinion and back translation stages, the prepared trial form and introductory information form were used for data collection and the implementation period took 5 min. It was aimed to reach 390 people for the study, and the rate of access was over 78.4% (n = 306). The statistical methods used in the study regarding the validity and reliability of the scale are presented in Table 1.

2.7 | Statistical analyses

The data of the research were analysed using SPSS (IBM Corporation, Armonk, NY, USA) and Amos 23. In item analysis, t-test was used in independent groups to determine whether lower-upper 27% scores were distinctive. The construct validity of the scale was performed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Principal components analysis was used in the exploratory factor analysis, and the data were analysed using the varimax rotation method. To determine the appropriateness of exploratory factor analysis, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was used. By using Bartlett sphericity test, the significance of intervariable correlation coefficients was determined. In confirmatory factor analysis, GFI (goodness of fit index), AGFI (adjusted goodness of fit index), CFI (comparative fit index), IFI (incremental fit index), RMSEA (root mean square error of approximation), SRMR (standardized RMR), NFI (normed fit index), TLI (Tucker–Lewis index) and χ^2 and χ^2/SD fit indices were used.

Cronbach's alpha was used to test the internal consistency both for the instrument and for each of the factors resulting from the factor analysis. The item-total item correlations and mean inter-item correlations were included in the analysis.

3 | RESULTS

3.1 | Descriptive statistics of the Revised Professional Practice Environment Scale

The mean Revised Professional Practice Environment Scale sub-score scores were 2.69 ± 0.5 in *handling disagreement and conflict* subscale, 3.01 ± 0.5 in *leadership and autonomy in clinical practice*, 2.85 ± 0.7 in *the internal work motivation* and 2.29 ± 0.6 in *control over practice* subscale, whereas 2.68 ± 0.6 in *teamwork* and 2.94 ± 0.6 in the *cultural sensitivity* subscales (Table 2).

3.2 | Validity and reliability analysis results

3.2.1 | Content validity

Davis technique was used for the language content validity of the scale (Davis, 1992). Davis (1992) technique grades expert opinions in 4-choice levels: (a) 'The item is appropriate', (b) 'The item should be slightly revised', (c) 'The item should be seriously revised' and (d) 'The item is not appropriate'. In this technique, the 'content validity index' of the item is obtained by dividing the number of experts who mark

TABLE 1 Statistical methods used in the examination of psycholinguistic and psychometric properties of the scale

Examination of psycholinguistic and psychometric properties		
Validity	Language validity	Translation from English to Turkish
		Back translation from Turkish to English
	Content/scope validity	Taking expert opinions (5 experts)
		Calculation of content validity index using Davis technique
	The suitability of the sample size	Kayer Mayer Olkin analysis
	Internal criterion validity	Lower and upper group mean scores
		Examination by t test in independent groups
	Structure validity	Explanatory factor analysis
		Confirmatory factor analysis
Reliability	Internal consistency reliability coefficient	Calculation of Cronbach alpha reliability coefficient
	Item analysis	Pearson correlation analysis

Revised Professional Practice Environment Scale	$\bar{x}$ ± SD	Median	Min	Max
Handling disagreement and conflict	2.69 ± 0.5	2.8	1	4
Leadership and autonomy in clinical practice	3.01 ± 0.5	3.0	1	4
Internal work motivation	2.85 ± 0.7	3.0	1	4
Control over practice	2.29 ± 0.6	2.2	1	4
Teamwork	2.68 ± 0.6	2.7	1	4
Cultural sensitivity	2.94 ± 0.6	3.0	1	4

TABLE 2 Revised Professional Practice Environment Scale point distributions

(a) and (b) options for the items by the total number of experts, then this value is accepted as the criterion of 0.80 (Davis, 1992). The index values obtained from five experts for the language content validity of the scale range between 0.82 and 1.00. Therefore, it can be said that the language content validity indices of the Revised Professional Practice Environment Scale are sufficient.

3.2.2 | Validity analysis

According to the findings of the exploratory factor analysis, the Revised Professional Practice Environment Scale KMO coefficient was found to be 0.876, and Barlett test result was $\chi^2 = 3966.900$, $p < 0.001$. The factor loads of the scale ranged between 0.415 and 0.838, and the total explanation variance was 62.900 (Table 3).

After confirming the suitability of the data for factor analysis, EFA was performed using principal components analysis and varimax rotation methods in order to examine the factor structure of the scale. Initially, 39-item and 8-factor structure of the scale was examined in parallel with the original scale. In this new structure, item analysis findings and confirmatory factor analysis model fit indices were not within the desired limits. As a result of this finding, a total of 10 items with an explanation variance less than 0.40 (original scale items 21, 22 and 27), which also loaded on more than one factor (items 10, 12, 14, 15, 31, 32 and 37 in the original scale), were excluded from the model (Cokluk et al., 2018; Samuels, 2016). Factor analysis was performed again after the items excluded from analysis. When the resulting pattern was examined, the remaining 29 items had a 6-factor pattern. As a result of the confirmatory factor analysis of this model, the model fit was found to be within acceptable limits with values of 2.484 if RMSEA 0.062; GFI 0.851; χ^2/df ($p < 0.001$), which means that model fit was acceptable (Byrne, 2016; Gurbuz & Sahin, 2018; Kline, 2016). Further improvements are still being made in the model. While doing so, variables that reduce compliance are determined, and new covariances are created for those with high covariance among residual values (e8-e9; e10-e11; e21-e22). Table 5 shows that the accepted values for fit indices are presented in the renewed fit index calculations. The fact that NFI, CFI, IFI and TLI indices are over 0.90 with GFI and AGFI values over 0.85 and RMSEA values are below 0.08 correspond to an acceptable fit (Byrne, 2016; Gurbuz & Sahin, 2018; Kline, 2016). When looking at the appropriateness of fit indices in the Revised Professional Practice Environment Scale based on the first level multi-factor analysis results, it was seen that they are at an acceptable level with RMSEA 0.067; NFI 0.79; CFI 0.86; IFI 0.87; GFI 0.85; TLI 0.85 AGFI 0.80; and χ^2/df 2.398 ($p < 0.001$) (Table 5). The first level multifactorial CFA results of the scale are presented in Figure 1. According to this, the scale was accepted with its structure consisting of six subscales and 29 items. It is seen that the lowest factor load value of the scale is 0.42, whereas the highest is 0.84.

3.2.3 | Reliability analysis

The total Cronbach's alpha internal consistency reliability coefficient value of the scale was found as 0.91, and the Cronbach alpha values of the sub-scales ranged between 0.68 and 0.86. In order to determine the distinctiveness of the items in the scale, the raw scores obtained from the scale were ranked in a descending order, the mean scores of the groups in the lower 27% and upper 27% were compared with the independent group *t*-test. As a result of the comparison, it was seen that there was no statistically significant difference between the mean scores of lower and upper group items. Hence, it can be said that the scale is distinctive in terms of measuring the desired quality (Tables 4,5).

4 | DISCUSSION

The content validity indexes were found to be high as a result of the expert opinions received regarding the items of the Revised Professional Practice Environment Scale. According to the explanatory factor analysis, the KMO coefficient of the scale was 0.88, whereas the Bartlett sphericity test result was significant ($p < 0.05$). These data demonstrate us that the sample size is perfectly adequate to carry out the factor analysis and also that the data come from multivariate normal distribution (Chan & Idris, 2017). As a result of the analysis, the total explained variance of the scale was found to be 62.900. The total variance explained in the original scale was reported as 59.7% (Erickson et al., 2009). Explanatory variance rate ranging between 40% and 60% in the literature is considered adequate (Samuels, 2016).

The item analysis findings of the scale show that it has good distinctive properties, and the factor load value of an item in the literature scale is expected to be at least 0.30 or 0.40 (Samuels, 2016). Factor loadings in the Turkish version of the scale range from 0.42 to 0.84. In the original study of the scale by Erickson et al. (2009), the factor loads are between 0.34 and 0.87. In the Chinese version of the scale, the factor loads of the items are between 0.13 and 0.89 (Guarino et al., 2016). According to item analysis of the Revised Professional Practice Environment Scale, a total of 10 items with a factor load of less than 0.40 which were detected to load on more than one factor were removed and it was observed that there was no statistically significant difference between the mean lower 27% and upper 27% group item scores of the remaining items. Correlation values between the whole scale and its factors reveal that the internal consistency of the scale is high. In the Chinese version of the scale by Guarino et al. (2016), an item with a low factor load was removed from the scale.

The scale that was adapted to Turkish was originally developed in the United States of America. When the cultural distance between countries is evaluated according to the Human Development Index (HDI) published by the United Nations, it can be seen that the USA ranks 17th with 0.926, whereas Turkey ranks 54th with 0.820 in 2020. It is thought that the items derived from the Turkish adaptation

TABLE 3 Validity and reliability results of the Revised Professional Practice Environment Scale

Item	Scale items	Factor loading	x̄ ± SD	Min %27*–Max %27* t	p	Cronbach alpha if item deleted	% of variance
Factor 1: Handling disagreement and conflict							11.255
4	There is teamwork in the unit where I work (nurse, doctor, staff, etc.)	0.415	3.08 ± 0.68	−8.339	<0.001**	0.902	
12	The unit I work has positive relations with the other units of our hospital.	0.473	2.74 ± 0.75	−6.998	<0.001**	0.903	
17	It is the best approach to get everyone's opinion while solving any problem.	0.716	2.62 ± 0.79	−13.093	<0.001**	0.900	
18	All team members work to find the best solution.	0.749	2.64 ± 0.79	−11.217	<0.001**	0.901	
19	In case of any conflict, when everyone is happy with the decision, the conflict is considered settled.	0.591	2.36 ± 0.76	−4.039	<0.001**	0.906	
20	In case of any conflict, our managers use their experience and expertise to come up with the best solution.	0.650	2.59 ± 0.84	−11.045	<0.001**	0.901	
21	In case of any dispute or conflict, our staff reach a compromise	0.553	2.75 ± 0.67	−11.456	<0.001**	0.900	
Factor 2: Leadership and autonomy in clinical practice							13.030
1	The leader supports their staff working in teamwork	0.764	3.40 ± 0.71	−3.685	<0.001**	0.907	
2	My profession evaluates/controls/has the ability to control its practices	0.673	3.07 ± 0.62	−7.572	<0.001**	0.903	
8	My discipline controls its own practice	0.712	2.81 ± 0.83	−7.728	<0.001**	0.903	
10	Our unit supervisor is a good leader and manager	0.775	2.69 ± 0.84	−7.825	<0.001**	0.903	
11	When we are in a conflict with a physician, our supervisor	0.619	3.06 ± 0.55	−6.328	<0.001**	0.904	
Factor 3: Internal work motivation							11.710
22	My clinic lets me think I am self-developing	0.604	2.91 ± 0.73	−8.273	<0.001**	0.902	
24	My clinic has motivating conditions for me to do my job in the most suitable way.	0.670	2.51 ± 0.97	−12.568	<0.001**	0.901	
25	My clinic gives me the opportunity to gain new knowledge and skills.	0.746	2.94 ± 0.78	−12.143	<0.001**	0.900	
26	Since I am given responsibility in the environment I work in, my motivation increases.	0.836	3.03 ± 0.77	−11.280	<0.001**	0.901	
27	Working in this environment increases my desire for professional development	0.768	2.86 ± 0.86	−15.492	<0.001**	0.899	
Factor 4: Control over practice							10.825
3	I feel free to make important patient management and occupational decisions	0.641	2.42 ± 0.84	−8.233	<0.001**	0.903	
5	My clinic has supportive units to devote enough time to my patients.	0.651	2.47 ± 0.83	−10.561	<0.001**	0.901	

TABLE 3 (Continued)

Item	Scale items	Factor loading	$\bar{x} \pm SD$	Min %27*–Max %27* t	p	Cronbach alpha if item deleted	% of variance
6	I have enough time and opportunity to discuss patient management problems with the team.	0.674	2.45 ± 0.82	−8.384	<0.001**	0.903	
7	There are enough staff to provide quality patient care in the unit I work in.	0.796	2.13 ± 0.88	−8.869	<0.001**	0.904	
9	We have enough staff to carry out the job	0.660	1.96 ± 0.83	−10.027	<0.001**	0.902	
Factor 5: Teamwork							9.354
13	My unit cannot get the cooperation needed from other departments in the hospital.	0.778	2.71 ± 0.76	−3.843	<0.001**	0.908	
14	Other units of the hospital do not care about the opinions of my clinic.	0.838	2.71 ± 0.78	−6.428	<0.001**	0.905	
15	Negative relationships with other departments of the hospital hinder the effectiveness of our clinic.	0.838	2.68 ± 0.75	−4.943	<0.001**	0.906	
16	When employees disagree, they ignore the matter and act as if it was resolved.	0.640	2.62 ± 0.76	−6.027	<0.001**	0.906	
Factor 6: Cultural sensitivity							6.726
23	When I do less work than I should, I feel bad and unhappy	0.632	2.92 ± 0.89	−6.801	<0.001**	0.906	
28	Staff members are sensitive to diverse patient populations for whom they serve	0.680	2.89 ± 0.78	−9.868	<0.001**	0.902	
29	Our staff respect all members of the healthcare team	0.765	3.00 ± 0.82	−8.381	<0.001**	0.903	
Total explained variance (%)							62.900

Note: $n = 306$, *$n_1 = n_2 = 83$, **$p < 0.001$.
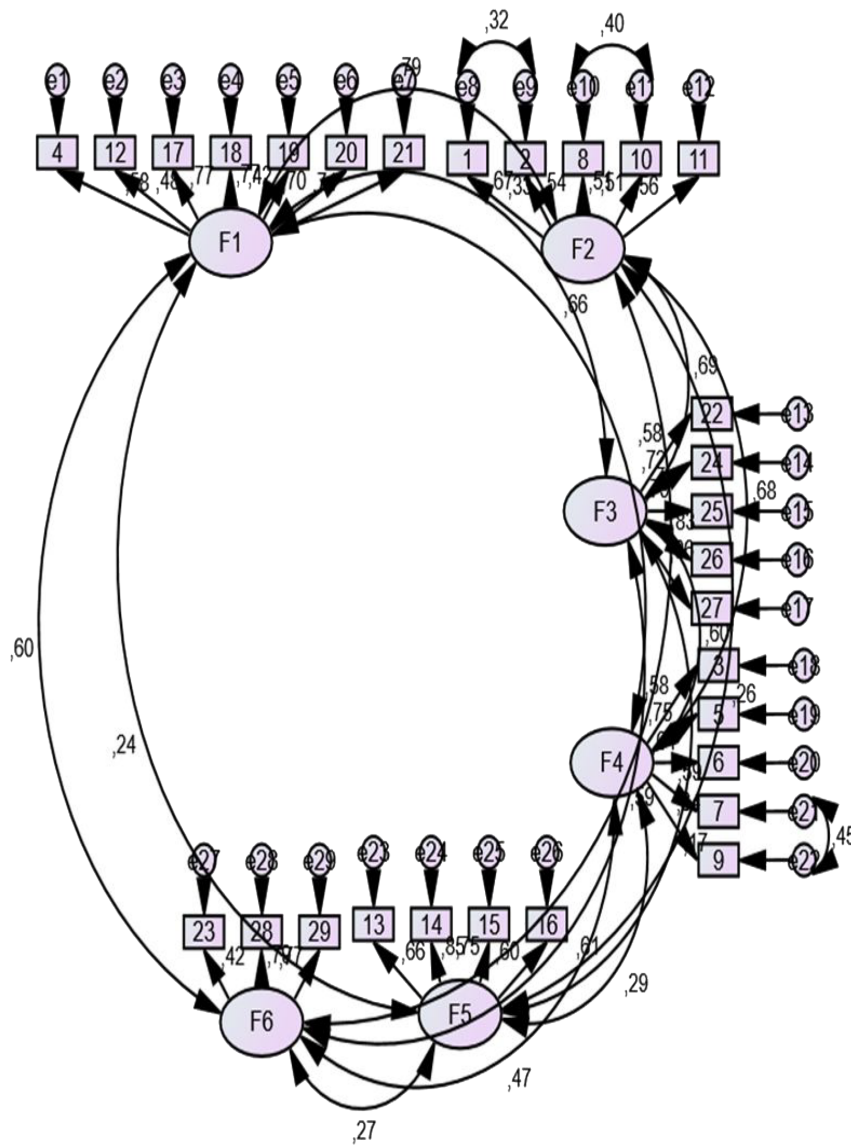
TABLE 4 Internal consistency of the six-factor structure of the Revised Professional Practice Environment Scale

Factor	No. of items	Cronbach's α
Total	29	0.906
Handling disagreement and conflict	7	0.826
Leadership and autonomy in clinical practice	5	0.684
Internal work motivation	5	0.864
Control over practice	5	0.795
Teamwork	4	0.802
Cultural sensitivity	3	0.676

can be significantly explained by the existing cultural distance between the two countries (United Nations Development Programme, 2020). Accordingly, it is not unusual that the valid and reliable model of the scale, adapted to Turkish society to evaluate the professional practice environment, can differ from the original. In the Turkish adaptation of the scale, which originally consists of eight sub-dimensions, the six sub-dimension model, established by excluding communication about patient and staff relationships with physicians' sub-dimensions, was found valid and reliable. This might be due to the fact that the nurses included in the study sample considered the primary determinant of the professional practice environment as their professional responsibilities and interactions with their colleagues. This situation can be thought to be a result of the performance-based payment system introduced within the scope of the health transformation policy implemented in Turkey since 2003 (Cakiroglu & Seren, 2016).

Regarding the model fit, whereas a χ^2/df value below 3 is considered perfect fit, when between 3 and 5, it is considered good fit. As for RMSEA value, it is considered good fit if below 0.08, and also a SRMR value below 0.05 is considered good fit. On the other hand, NFI, CFI and IFI values of 0.90 and above are considered good fit, whereas GFI and AGFI values of 0.85 and above are considered

TABLE 5 Multi-factor confirmatory factor analysis fit index results of the Revised Professional Practice Environment Scale pre- and post-modification

	Chi-square	RMSEA	SRMR	NFI	CFI	IFI	GFI	TLI	AGFI
Pre-modification	$\chi^2 = 974.446$, $df = 362$, $p < 0.001$	0.074	0.041	0.76	0.83	0.84	0.83	00.81	0.78
Post-modification	$\chi^2 = 860.863$, $df = 359$, $p < 0.001$	0.067	0.038	0.79	0.86	0.87	0.85	.85	0.80

acceptable (Erkorkmaz et al., 2013; Kline, 2016; Tabachnick & Fidell, 2019). As a result of CFA, used to test the construct validity, more than one fit index is obtained and the accuracy of the model is evaluated not with a single fit index, but with all indices combined (Gurbuz & Sahin, 2018). When fit statistics are examined in this study, RMSEA, GFI, SRMR, CMIN and CMIN/DF values indicate an acceptable fit. When the model fit values and the factor loads of the scale items are evaluated together, it can be said that the 6-subscale and 29-item structure of the Revised Professional Practice Scale is both confirmed and has sufficient fit values (Byrne, 2016; Gurbuz & Sahin, 2018; Kline, 2016). Erickson et al. (2009) confirmed the 8-factor and 39-item structure of the scale in their study. The scale was adapted to Chinese society with 38 items and 8 subscales ($p < 0.001$, RMSEA < 0.08, CFI < 0.923, TLI = 0.945) (Guarino et al., 2016).

One of the methods for evaluating the internal consistency is the Cronbach alpha reliability coefficient. This measurement tool is considered relatively reliable if between 0.60 and 0.79, whereas it is considered highly reliable if between 0.80 and 1 (Bujang et al., 2018). In this study, the total Cronbach alpha coefficient of the scale was 0.91, and the values of the subscales ranged between 0.68 and 0.86. In the original study, the total Cronbach alpha value of the scale is 0.92, whereas its subscales range between 0.80 and 0.87 (Erickson et al., 2009).

4.1 | Limitations

The limitation of the study is that the test–retest reliability cannot be confirmed due to the issues related with the design. Parallel form validity could not be tested as there was no Turkish valid and reliable measurement tool parallel to the scale adapted for this study.

5 | CONCLUSIONS

As a result, the Turkish psychometric properties of the Revised Professional Practice Environment Scale were examined and brought to the literature with this study. The Turkish adaptation of the scale was confirmed as 29 items and 6 subscales (S1). In the Turkish version, the scale subscales are *disagreement and conflict, leadership and autonomy in clinical practice, internal work motivation, control over practice, teamwork and cultural sensitivity*. The results obtained here reveal that the scale is valid and reliable in evaluating the professional practice environment. It may be suggested to increase the widespread effect of the scale by repeating its validity and reliability on larger samples living in different cultures.

5.1 | Implications for clinical practice

This scale, adapted to Turkish, serves to evaluate the professional practice environment of nurses. In particular, the managers of nursing services can ask clinical nurses to evaluate their practice environment by using this scale and strengthen them by providing support in line with their needs, thus facilitating for nurses to provide quality care to the society. Studies to improve the practice environment, which is considered as one of the factors affecting the process of quality care delivery of nurses, can be carried out. In addition, it is thought that determining the factors affecting the professional practice environment will guide prospective studies to increase the levels of professional satisfaction, motivation and institutional commitment of nurses.

CONFLICT OF INTERESTS

The authors have no funding or conflict of interests to disclose.

AUTHORSHIP STATEMENT

The manuscript has been read and approved by authors. Each of authors permits the copyright to the manuscript to *International Journal of Nursing Practice*.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

APPENDIX A

TABLE A1 Checklist for critical appraisal of studies reporting validity, reliability and responsiveness of outcome measures

Methods	Yes	No	Comments	Page
1. Is the purpose of the study clearly defined and focused on examining one or more measurement properties, that is, validity, reliability or responsiveness?	X		We aimed to validate the validity and reliability of the Turkish version of the Revised Professional Practice Environment Scale in this study.	1,5
2. Is the instrument described and is there a standardized protocol for administration and scoring which is described fully?	X		Revised Professional Practice Environment Scale The scale focuses on examining the work environments of healthcare professionals. The revised version of the scale was developed by Erickson et al. (2009). The original scale consists of 39 items related to the professional practice environment with 8 subscales which are; disagreement and conflict, leadership and autonomy in clinical practice, internal work motivation, control over practice, teamwork, communication with patients, cultural sensitivity and physician-staff relations (Erickson et al., 2009). Each item in the scale is evaluated as a 4-point Likert with designed answers _strongly agree_ (4) and _strongly disagree_ (1). The items numbered 17, 18, 19 and 20 are scored in reverse order in the scale. The increase in the scores obtained from the scale indicates an increased professional attitude towards the professional practice environment. The total score Cronbach alpha coefficient of the original scale is 0.93 Erickson et al. (2009).	6–7
3. Are the observers/testers appropriately trained or certified?	X		After completing such procedures as the translation, expert opinion and back translation stages are completed, the prepared trial form and introductory information form were used for data collection and the implementation period took 5 min. It was aimed to reach 390 people for the study, and the rate of access rate was over 78.4% ($n = 306$).	7
4. Were the data collected on an appropriate sample which is representative of the population to whom the measure will apply?	X		The universe of the study is made up of the nurses working in the university hospitals where the data were collected.	5
5. Is the sample size adequate? (Is there a power calculation?)	X		No sample selection method was used, and the entire population was invited to the study. The number of individuals to be included in the sampling was determined on the basis of 5–10 times the number of items in the scale recommended for methodological research (Capik, 2014; Tabachnick & Fidell, 2019). The total number of items in the Professional Practice Environment Scale was 39, and the sample of the study consisted of 309 clinical nurses who voluntarily agreed to participate at the time of the study.	5
Results: validity	Yes	No	Results	Page
6. Does the measure make intrinsic sense – face validity (expert opinion/consensus)?	X		Davis technique was used for the language content validity of the scale (Davis, 1992). Davis (1992) technique grades expert opinions in 4-choice levels: (a) 'The item is appropriate', (b) 'The item should be slightly revised', (c) 'The item should be seriously revised' and (d) 'The item is not appropriate'. In this technique, the 'content validity index' of the item is obtained by dividing the number of experts who mark (a) and (b) options for the items by the total number of experts, then this value is accepted as the criterion of 0.80 (Davis, 1992). The index values obtained from five experts for the language content validity of the scale range between 0.82 and 1.00. Therefore, it can be said that the language content validity indices of the Revised Professional Practice Environment Scale are sufficient.	8

TABLE A1   (Continued)

Methods	Yes	No	Comments	Page
7. Does the measure sample the content/domain adequately?	X		According to the findings of the explanatory factor analysis, the Revised Professional Practice Environment Scale KMO coefficient was found to be 0.876 and Barlett test result was $\chi^2 = 3966.900$, $p < 0.001$.	9
8. Is there evidence of the test's construct validity?	X		After confirming the suitability of the data for factor analysis, EFA was performed using Principal Components Analysis and Varimax Rotation methods in order to examine the factor structure of the scale. Initially, 39-item and 8-factor structure of the scale was examined in parallel with the original scale. In this new structure, item analysis findings and confirmatory factor analysis model fit indices were not within the desired limits. As a result of this finding, a total of 10 items with an explanation variance less than 0.40 (original scale items 21, 22, 27) which also loaded on more than one factor (item 10, 12, 14, 15, 31, 32, 37 in the original scale) were excluded from the model (Cokluk et al., 2018; Samuels, 2016). Factor analysis was performed again after the items excluded from analysis. When the resulting pattern was examined, the remaining 29 items had a 6-factor pattern. As a result of the confirmatory factor analysis of this model, the model fit was found to be within acceptable limits with values of 2.484 if RMSEA 0.062; GFI 0.851; χ^2/df ($p < 0.001$), which means that model fit was acceptable (Byrne, 2016; Gurbuz & Sahin, 2018; Kline, 2016). Further improvements are still being made in the model. While doing so, variables that reduce compliance are determined, and new covariances are created for those with high covariance among residual values (e8-e9; e10-e11; e21-e22). Table 5 shows that the accepted values for fit indices are presented in the renewed fit index calculations. The fact that NFI, CFI, IFI, and TLI indices are over 00.90 with GFI and AGFI values over 0.85 and RMSEA values are below 0.08 correspond to an acceptable fit (Byrne, 2016; Gurbuz & Sahin, 2018; Kline, 2016). When looking at the appropriateness of fit indices in the Revised Professional Practice Environment Scale based on the first level multi-factor analysis results, it might be seen that they are at an acceptable level with RMSEA 0.067; NFI 0.79; CFI 0.86; IFI 0.87; GFI 0.85; TLI 0.85 AGFI 0.80; and χ^2/df 2.398 ($p < 0.001$) values (Table 5).	9
(i) Does the test discriminate between healthy and diseased groups (known-groups method)?		X	The scale focuses on examining the work environments of healthcare professionals.	6
(ii) Do the test values agree with the values of a similar test or gold standard (concurrent or convergent validity) or with a future outcome (predictive validity)?		X	Parallel form validity could not be tested as there was no Turkish valid and reliable measurement tool parallel to the scale adapted for this study.	13
If yes, then: (a) What is the strength of the correlation? (b) What are the confidence limits, if given?				-
(iii) What is the internal consistency (relevant where scales have multiple items that sum up to a total score)?	X		The total Cronbach's alpha internal consistency reliability coefficient value of the scale was found as 0.91, and the Cronbach alpha values of the sub-scales ranged between 0.68 and 0.86.	10
Results: reliability	Yes	No	Results	Page
9. What is the test–retest reliability?		X		
(i) Have appropriate statistical measures been used to assess agreement between two or more occasions using the same observer? (ii) What is the level of agreement (e.g. Kappa or ICC)? (iii) What are the confidence limits, if given?	X		Davis technique was used for the language content validity of the scale (Davis, 1992). Davis (1992) technique grades expert opinions in 4-choice levels: (a) 'The item is appropriate', (b) 'The item should be slightly revised', (c) 'The item should be seriously revised' and (d) 'The item is	8,10

TABLE A1 (Continued)

Methods	Yes	No	Comments	Page
			not appropriate'. In this technique, the 'content validity index' of the item is obtained by dividing the number of experts who mark (a) and (b) options for the items by the total number of experts, then this value is accepted as the criterion of 0.80 (Davis, 1992). The index values obtained from five experts for the language content validity of the scale range between 0.82 and 1.00. Therefore, it can be said that the language content validity indices of the Revised Professional Practice Environment Scale are sufficient. The content validity indexes were found to be high as a result of the expert opinions received regarding the items of the Revised Professional Practice Environment Scale.	
10. What is the intertester reliability?	X		All data were collected by the same expert. In the analysis of the data, the authors experienced in methodological research agreed.	
(i) Have appropriate statistical measures been used to assess agreement between two or more observers?	X			
(ii) What is the level of agreement (e.g. Kappa or ICC)?		X		
(iii) What are the confidence limits, if given?		X		
Results: responsiveness	Yes	No	Results	Page
11. Does the instrument capture clinical change?		X		
(i) What is the magnitude of the responsiveness of the instrument (e.g. effect size or standard response mean)?	X		The mean Revised Professional Practice Environment Scale sub-score scores were 2.69 ± 0.5 in handling disagreement and conflict subscale, 3.01 ± 0.5 in leadership and autonomy in clinical practice, 2.85 ± 0.7 in the internal work motivation, 2.29 ± 0.6 in control over practice subscale, whereas 2.68 ± 0.6 in teamwork and 2.94 ± 0.6 in the cultural sensitivity subscales (Table 2).	8
(ii) Is there evidence of floor or ceiling effects?		X	The increase in the scores obtained from the scale indicates an increased professional attitudes towards the professional practice environment.	