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Validity and Reliability of the Turkish Version of Team Effectiveness Questionnaires: Patient and Provider Perceptions

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ABSTRACT

Objective: To adapt the Patient/Family-Perfections of Team Effectiveness (Patient-PTE) Questionnaire and Provider-Perceptions of Team Effectiveness Questionnaire (Provider-PTE) into Turkish and to test their validity and reliability.

Methods: The sample of this methodological study included patients receiving inpatient treatment and care at a training and research hospital and their families (n1=230), and nurses and physicians (n2=260). After the questionnaires' language and content validity were confirmed, their construct validity was examined by test-retest and internal consistency.

Results: The original structure of the questionnaires was preserved in their Turkish versions. In construct validity, significant differences were determined according to the characteristics of the participants in both questionnaires. A statistically significant difference was detected when the mean scores of low and high functioning teams were compared for the sensitivity of the questionnaires.

Conclusion: Turkish versions of the questionnaires were considered valid and reliable. The Patient-PTE can be used to assess team processes and perceived outcomes of care from the patients' and their families' perspectives. The Provider-PTE can be used to assess interdisciplinary team processes and perceived care outcomes.

Keywords: Teamwork, perception of team effectiveness, patient, provider, validity, reliability.

1. INTRODUCTION

In the provision of health services, healthcare professionals have to work together to ensure that patients receive the care they need (1). The transition from professional care to patient-centered care challenges healthcare professionals' traditional roles and boundaries (2). Especially since the care of critically ill patients is complex, teamwork becomes even more important in the provision of quality and safe care (3).

There is growing interest in how to improve teams' functioning and performance in healthcare around the world because poor teamwork is considered as the key factor in adverse events occurring in patient safety (4). Team performance is assessed through system-based indicators including physical examination rates, waiting times and access to care. However, team-based processes are required to understand patient outcomes better. The processes here are defined as the level of interactions between patients and service providers. Processes that include teamwork, communication and patient participation are considered as cornerstones in the provision of effective care (5).

Teamwork is the process in which team members try to achieve the common goals of the organization by combining their knowledge, experience and skills with each other (6). Teamwork in health services is the provision of quality health care by at least two healthcare professionals in cooperation and coordination with patients and their relatives in line with the common goals in the care plan (7). A number of processes such as communication, harmony, coordination, decision-making, problem solving, and focusing on the needs of patients and their families affect team functioning (8).

Differences in healthcare professionals' education levels, attitudes and expectations, fields they work in, and working hours suggest that teamwork in health is difficult. Turnover rates of healthcare professionals can be high, and they may not know each other's authority (9). Shift work, patients'

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transfer to another service/institution, or frequent change of healthcare personnel due to human resources procedures may negatively affect team functions (10).

In a study, it was emphasized that in a self-assessment tool developed to measure interdisciplinary team effectiveness, only healthcare professionals' perspectives were addressed, and that patients' opinions should be considered to assess team effectiveness as well (11). Kash et al. reviewed 22 articles in which team effectiveness was measured and emphasized that for healthcare settings, tools which are more valid should be developed. They also stated that patient outcomes should be considered more comprehensively when team effectiveness is measured (12). Assessing the team's effectiveness as perceived by patients encourages active patient participation and prioritizes patient needs, allowing for personalized, holistic care. It also improves the patient-caregiver relationship and allows for standardized monitoring of patient outcomes and improved quality of care (13).

Although measurement tools used to assess healthcare professionals' evaluations of teamwork in health care are available in Turkish literature, there is no measurement tool used to assess patients and families evaluate the team effectiveness of healthcare professionals who provide care to them (14,15,16,17). In this context, the aim of this study was to adapt the Patient/Family-Perceptions of Team Effectiveness Questionnaire (Patient-PTE) developed by Kilpatrick et al. to assess the team effectiveness of healthcare providers as perceived by patients or their families and the Provider-Perceptions of Team Effectiveness Questionnaire (Provider-PTE) to assess the team effectiveness as perceived by healthcare providers into Turkish and to conduct the psychometric analyses of these questionnaires (5,18).

2. METHODS

2.1. Study Aim and Design

The aim of this study, which is within the scope of methodological research, is to adapt the Patients/Family Perception of Team Effectiveness Questionnaire and the Providers-Perception of Team Effectiveness Questionnaire into Turkish and to conduct validity and reliability analyses.

2.2. Sample Population and Sampling

Patients/families receiving inpatient treatment and care in a training and research hospital, and physicians and nurses working in this hospital comprised the population of the present study. The hospital has been operating since 2013. It is a tertiary hospital with a capacity of 800 beds. There were 522 physicians and nurses working at the hospital during the period the study was conducted. Since the study was conducted during the pandemic, the researchers were not informed about the number of monthly inpatients. To calculate the sample size, it was planned to reach 10-fold the number of the items in both questionnaires, as stated in the literature (19). Thus, 230 patients or patient relatives and 260 nurses and physicians determined by convenience sampling method constituted the sample of the study. The inclusion criteria for the patient/family sample were as follows: receiving inpatient treatment and care in the hospital for at least two nights, being literate in Turkish, and not having any psychiatric diagnosis. The Patient-PTE Questionnaire was responded by the patients, but if they had hearing or vision problems, or when they were asleep or were referred to the consultation or radiological imaging unit when the questionnaire was administered, their families who stayed with the patient for 2 days answered. The Provider-PTE Questionnaire was applied to nurses and physicians who treat and care for these patients.

2.3. Data Collection

The study data were collected with the Patient/Family Descriptive Information Form, Healthcare Professionals Descriptive Information Form, Patient-PTE Questionnaire and Provider PTE Questionnaire in March 2021 and April 2021.

2.3.1. Patient/Family Descriptive Information Form

The form prepared by the researchers includes eight items questioning the demographic characteristics of the patient/family.

2.3.2. Patient-PTE Questionnaire

The Patient-PTE Questionnaire developed by Kilpatrick et al. consists of total 23 items. The questionnaire consists of the sub-dimensions "Perception of Team Effectiveness Scale" (17 items, 1-17) and "Outcomes" (6 items, 18-23). The "Perception of Team Effectiveness Scale " consists of three sub-dimensions: "Trust" (item 5), "Role Clarity" (items 1,2) and "Team Processes" (items 3,4,6-17). The "Team Processes" sub-dimension is divided into seven sub-dimensions: "Perception of Team Effectiveness" (item 6), "Decision Making" (items 7,14), "Communication" (items 8-10), "Coordination" (items 12,13,17), "Cohesion" (item 11), "Problem Solving" (item 15) and "Patient/Family Focus" (items 3,4,16). Although the questionnaire was used as a 7-point Likert scale in the original study (5), it was later revised as a 6-point Likert scale. In this study, the items of the questionnaire were evaluated as a 6-point Likert scale (1: Strongly disagree, 6: Strongly agree). Items 10, 16, and 20 are reverse scored. Higher scores indicate that patients/families have a higher perception of team effectiveness. The Cronbach's Alpha internal consistency coefficient was 0.94 for the "PTE-Overall", 0.92 for the "Team Processes" and 0.76 for the "Outcomes" dimensions (5).

2.3.3. Healthcare Professionals Descriptive Information Form

The form prepared by the researchers includes 10 items which question the demographic characteristics of healthcare professionals.

2.3.4. Provider-PTE

The Provider-PTE Questionnaire developed by Kilpatrick et al. consists of total 26 items. The questionnaire consists of the sub-dimensions "Perception of Team Effectiveness Scale" (19 items, 1-19) and "Outcomes" (7 items, 20-26). "Perception of Team Effectiveness Scale" consists of four sub-dimensions: "Trust" (item 4), "Role Clarity" (items 1,2), "Team Meeting" (items 7,12) and "Team Processes" (items 3,5,6,8-11,13-19). The "Team Processes" sub-dimension is divided into seven sub-dimensions: "Perception of Team Effectiveness" (item 5), "Decision Making" (items 14,16), "Communication" (items 8-10), "Coordination" (items 18,19), "Cohesion" (item 11), "Problem Solving" (items 15,16) and "Patient/Family Focused" (items 3,13,17). The items of the questionnaire were evaluated as a 6-point Likert scale (1: Strongly disagree, 6: Strongly agree). Items 10, 17, and 23 are reverse scored. Higher scores indicate that healthcare providers have a higher perception of team effectiveness. The Cronbach's Alpha internal consistency coefficient was 0.91 for the "PTE-Overall", 0.88 for the "Team Processes" and 0.72 for the "Outcomes" dimensions (18).

2.4. Ethical Considerations

Permission to adapt the questionnaires were obtained from the author who developed them via e-mail. Ethics committee approval was received from Istanbul University-Cerrahpaşa Social and Humanities Research Ethics Committee (Date: September 13, 2020, Number: 134). Institutional permission was obtained from the hospital where the study was to be conducted. Written informed consent was obtained from the participants.

2.5. Cultural Adaptation Procedure

2.5.1. Language Validity

The questionnaires were adapted according to the ISPOR (International Society for Pharmacoeconomics and Outcome Research) Guidelines (20). The original questionnaires were translated into Turkish by three people with a good command of both English and Turkish independently of each other. The three translations were evaluated by the researchers and the first Turkish versions were created. The first Turkish versions were translated back to English by a translator. The original versions were compared with the back-translated versions by the researchers, and necessary revisions were made. Then the back-translated questionnaires were sent to the first author who developed both questionnaires via e-mail. The author approved the questionnaires without any need for correction.

2.5.2. Content Validity

In order to evaluate the content validity of the questionnaires, the opinions of 10 healthcare professionals specialized in nursing (three nursing academicians, two staff nurses) and medicine (two physicians, three academicians) were obtained. They rated the items of the questionnaires using the Davis method as follows: 1=not relevant, 2=somewhat relevant, 3=quite relevant, 4=highly relevant. The content validity index (CVI) was calculated by dividing the number of experts who ticked 3 and 4 for each item by the total number of experts.

2.5.3. Pilot Study

The patients to whom the questionnaire was first applied stated that the questionnaire items were understandable. The nurses and physicians among the professionals who received expert opinions stated that there was no incomprehensible item in the questionnaire. A separate pilot study could not be conducted because minimal contact between people was required due to the pandemic.

2.6. Data Analysis

Data were analyzed using the SPSS version 21.0. The content validity of the data was determined with the CVI. Mean, standard deviation, minimum and maximum values were used to analyze the descriptive data. While the intra-class correlation coefficient (ICC) was used for test-retest analysis, the Cronbach's Alpha coefficient was used for reliability. In establishing construct validity, factor analysis was not performed because the criterion that the dimensions should include at least three items to conduct factor analysis was not met (22,23). As in the original study, the known-groups validity method was used for both questionnaires (5,18). In this method, a type of construct validity, the measurement tool's ability to distinguish between different known groups is measured (21). In order to examine the known group validity, the following hypotheses were made, similar to the hypotheses in the original questionnaires development study (5,18). It was assumed that there would not be a significant difference between the scores obtained from the PTE-Overall and Outcomes dimensions by the patients according to the degree of kinship, sex and marital status variables, but that there would be a significant difference according to education level, clinic and reason for hospitalization variables. It was assumed that there would not be a significant difference between the scores obtained from the PTE-Overall and Outcomes dimensions by the healthcare providers according to age, sex and marital status variables, but that there would be significant differences according to education level, type of profession, unit they work in, and length of service in the profession and institution variables.

Dimensions for sensitivity analysis of the questionnaires were coded as follows; Scores 1-4 (Strongly Disagree, Disagree, Slightly Disagree, Slightly Agree) "low-functioning teams", and scores 5-6 (Agree, Strongly Disagree) "high-functioning teams". While the Independent Samples t-test was used to compare two groups, the one-way ANOVA was used to compare more than two groups. In cases where the assumption of homogeneity of variances was not met in the Levene test ($p < .05$), Welch and Brown-Forsythe tests were used instead of ANOVA. For the p value in the analysis, as stated by Kilpatrick et al., the binary combination was taken into account and α value was calculated by dividing by the number of groups (5).

3. RESULTS

3.1. The patient/families' sociodemographic characteristics

The participants' mean age was 33.04 (SD=14.98) years. Of them 71.7 were women, 51.3% were patients, 52.2% were married and 23.5% had an associate degree. Of the patients, 66.1% were hospitalized in surgical wards due to surgical diseases (58.3%). Their mean length of hospitalization was 6.98 (SD=7.58) (min=2, max=49) days.

3.2. The nurses and physicians' sociodemographic characteristics

The participants' mean age was 37.15 (SD=7.49) (min=21, max=65) years. Of them, 46.9% were in the age group of 36-45 years, 73.8% were women, 70% were married, 49.6% had an undergraduate degree, 77.3% were nurses, 22.7% physicians, 52.3% worked in surgical units, 52.3% had a length of service in the profession ranging between 11 and 25 years, 73.5% had a length of service in the institution ranging between 1 and 10 years, and 53.1% worked in shifts. Their average weekly working time was 44.09 hours (SD=6.919) (min=10, max=64).

3.3. Content Validity

By calculating the scores given by each health professional to the items in the questionnaires, the item CVI values for both of the overall questionnaires and its items were determined as 0.98 and > 0.80. The questionnaires were finalized according to the health professionals' suggestions regarding the understandability of the items.

3.4. Construct Validity

3.4.1. Findings on the Construct Validity of the Patient-PTE

The comparison of the scores obtained from the PTE-Overall and Outcomes dimensions of the Patient-PTE according to the degree of kinship variable revealed a significant difference only in the trust sub-dimension (t=-1.973; p = .05). There was a significant difference between the participants' trust and outcomes dimensions scores in terms of the marital status variable ($p < .05$). There were statistically significant differences between PTE-Overall and Outcomes scores in all the sub-dimensions according to education level and diagnosis at the hospitalization variables. There were statistically significant differences between the participants' PTE-Overall and Outcomes scores in terms of all the variables except for the clinic they were hospitalized in and role clarity variables ($p < .05$) (Table 1). However, there was no statistically significant difference between the participants' age, sex, number of hospitalization days, and their PTE-Overall and Outcomes scores ($p > .05$).

Table 1. *Findings for known group comparison of Patient-PTE scores*

	Sub-Dimensions		Trust	Team Processes	Role Clarity	PTE-Overall	Outcomes
Patient-PTE	Degree of Kinship	t	-1.973	-0.352	-0.292	-0.565	-0.796
		p	**.050***	.725	.770	.572	.427
	Marital Status	t	4.125	1.125	-0.568	1.261	2.610
		p	**< .001***	.262	.571	.208	**.010***
	Education Level	F	13.294	7.161	5.821	9.339	7.731
		p	**.001***	**.001***	**.001***	**.001***	**.001***
	Reason for Hospitalization	F	3.908	4.729	2.472	4.934	61.741
		p	.000	.000	.011	.000	.000
	Clinic	F	2.382	2.619	a	2.797	3.771
		p	**.025***	**.013***		**.009***	**.001***

**p < .05; t, Independent Samples T Test; F, ANOVA; a Because at least one group has 0 variance, robust equality of means tests cannot be performed for role salience.*

Table 2. *Findings for known group comparison of Provider-PTE scores*

	Sub-Dimensions		Trust	Team Processes	Role Clarity	Team Meeting	PTE-Overall	Outcomes
Provider-PTE	Age	t	0.127	1.587	2.627	1.123	1.642	4.971
		p	.881	.207	.077	.327	.196	**.008***
	Marital Status	t	-1.894	-2.692	-2.158	-2.505	-2.283	-0.433
		p	.061	**.005***	**.032***	**.008***	**.002***	.665
	Education Level	F	4.704	1.486	1.163	4.649	1.977	2.884
		p	**.006***	.219	.324	**.007***	.118	**.036***
	Type of Profession	t	0.190	0.370	2.165	-0.790	0.553	-0.402
		p	.850	.712	**.032***	.430	.581	.688
	Unit They Work	F	1.366	2.395	0.699	5.685	2.243	2.304
		p	.254	.069	.572	**.001***	.084	.089

**p < .05; t, Independent Samples T Test; F, ANOVA*

3.4.2. Findings on the Construct Validity of the Provider-PTE

The comparison of the scores obtained from the PTE-Overall and Outcomes dimensions of the Provider-PTE according to the age variable revealed a significant difference only in the Outcomes dimension ($p < .05$). The comparison of the scores obtained from the PTE-Overall and Outcomes dimensions in terms of the marital status variable revealed that there were significant differences in the role clarity, team meeting and team processes sub-dimensions. The comparison of the scores obtained from the PTE-Overall and Outcomes dimensions in terms of the educational status variable revealed that there were significant differences in the trust, team meeting and outcomes sub-dimensions. The comparison of the scores obtained from the PTE-Overall and Outcomes dimensions in terms of the participants' professions variable revealed that there were significant differences only in the role clarity sub-dimension. The comparison of the scores obtained from the PTE-Overall and Outcomes dimensions in terms of the unit they work in variable revealed that there were significant differences only in the team meeting sub-dimension. There was no significant relationship between the scores obtained from the PTE-Overall and Outcomes dimensions and the variables such as sex, length of service in the profession, length of service in the institution and weekly working hours ($p > .05$).

3.5. Comparison of PTE-Overall and Outcomes Scores with PTE Scores in Low and High Functioning Teams

The sensitivity of the questionnaires was assessed with the PTE scores of the high (5-6) and low (1-4) functioning teams. According to the analysis results, there was a significant difference between the low and high functioning teams in terms of their mean scores for all the sub-dimensions ($p < .05$) (Table 3).

3.6. Reliability

To determine the internal reliability of the questionnaires, Cronbach's Alpha coefficients were calculated. Cronbach's Alpha coefficients were 0.77 for the team processes, 0.83 for the PTE-Overall and 0.81 for the Outcomes dimensions of the Patient-PTE, whereas they were 0.86 for the team processes, 0.92 for the PTE-Overall and 0.79 for the Outcomes dimensions of the Provider-PTE.

Test-retest analysis was performed to determine the invariance of the questionnaires. The questionnaires were re-administered to 25% of the patients/families (n_1=58) one week after the first application. The analysis results demonstrated that the dimensions' ICC values ranged between 0.75 and 0.95 ($p < .05$). The questionnaires were re-administered to 25% of the healthcare professionals (n_2=65) 15 days after the first application. The analysis results demonstrated that the dimensions' ICC values ranged between 0.86 and 0.95 ($p < .05$) (Table 4).

3.7. Findings on Team Effectiveness in Healthcare

The mean scores the participants obtained from the PTE-Overall (4.47±0.61) and Outcomes (4.76±0.85) dimensions of the Patient-PTE were above the average. They obtained the highest mean score from the trust sub-dimension (4.87±1.20), and the lowest mean score from the team processes sub-dimension (4.39±0.59). The mean scores the obtained from team processes sub-dimension, the highest mean score from the perception of team effectiveness (4.97±0.95) and the lowest from the patient-family focus (3.60±0.92). The mean scores the participants obtained from the PTE-Overall (4.40±0.71) and Outcomes (4.61±0.69) dimensions of the Provider-PTE were above the average. They obtained the highest mean score from the trust sub-dimension (4.66±1.08), and the lowest mean score from the role clarity sub-dimension (3.62±1.36). The mean scores the obtained from team processes sub-dimension, the highest mean score from the coordination (4.94±0.82) and the lowest from the communication (4.10±0.72) (Table 5).

Table 3. *Findings for comparison of PTE-overall and outcomes scores with team effectiveness perception questionnaire scores in low and high functioning teams*

	Sub-Dimensions	PTE	n	M	SD	t	p
Patient-PTE	Trust	Low (1-4)	51	3.78	1.189	-8.364	**< .001***
		High (5-6)	179	5.18	1.014		
	Role Clarity	Low (1-4)	51	4.10	1.166	-5.296	**< .001***
		High (5-6)	179	5.03	0.882		
	Team Processes	Low (1-4)	51	3.64	0.596	-10.898	**< .001***
		High (5-6)	179	4.61	0.393		
	Outcomes	Low (1-4)	51	3.78	0.873	-9.657	**< .001***
		High (5-6)	179	5.04	0.605		
Provider-PTE	Role Clarity	Low (1-4)	58	2.81	1.154	-10.033	**< .001***
		High (5-6)	202	3.85	1.338		
	Trust	Low (1-4)	58	3.52	1.013	-5.366	**< .001***
		High (5-6)	202	4.99	0.867		
	Team Meeting	Low (1-4)	58	3.28	0.983	-7.359	**< .001***
		High (5-6)	202	4.48	1.114		
	Team Processes	Low (1-4)	58	3.77	0.782	-9.067	**< .001***
		High (5-6)	202	4.74	0.446		
	Outcomes	Low (1-4)	58	4.03	0.796	-7.703	**< .001***
		High (5-6)	202	4.88	0.525		

**p < .05; t, Independent Samples T Test; PTE, Perceptions of Team Effectiveness; M, mean; n, number; SD, standard deviation*

Table 4. *Test-retest results of questionnaires*

	Sub-Dimensions	Test	Retest	ICC	95% Confidence Interval	p
		M ± SD	M ± SD		Lower Limit-Upper Limit	
Patient-PTE	Trust	5.12 ±1.18	5.08 ±1.01	0.91	0.855-0.949	**< .001***
	Team Processes	4.39 ±0.66	4.46 ±0.56	0.96	0.932-0.976	**< .001***
	Role Clarity	4.84±1.14	5.06±0.66	0.75	0.580-0.853	**< .001***
	PTE-Overall	4.48±0.67	4.57±0.55	0.95	0.930-0.976	**< .001***
	Outcomes	4.83±0.95	4.81±0.71	0.91	0.862-0.952	**< .001***
Provider-PTE	Trust	4.92±0.853	4.87±0.718	0.91	0.856-0.946	**< .001***
	Team Processes	4.68±0.510	4.70±0.362	0.93	0.890-0.959	**< .001***
	Role Clarity	3.71±1.457	3.78±1.325	0.95	0.924-0.972	**< .001***
	Team Meeting	4.29±1.030	4.20±0.804	0.95	0.919-0.970	**< .001***
	PTE-Overall	4.55±0.573	4.56±0.418	0.95	0.917-0.969	**< .001***
	Outcomes	4.85±0.488	4.90±0.311	0.86	0.781-0.918	**< .001***

**p < .05; ICC, Intraclass correlation coefficient; M, mean; n, number; SD, standard deviation*

Table 5. *Findings on team processes in healthcare*

	Dimensions	Sub-Dimensions		M ± SD	Min-Max
Patient-PTE (n=230)	PTE-Overall	Trust		4.87 ±1.20	1-6
		Team Processes		4.39 ±0.59	2-6
			PTE	4.97 ±0.95	1-6
			Decision making	4.71 ±0.97	1-6
			Communication	4.26 ±0.69	1-6
			Coordination	4.74 ±0.85	1-6
			Cohesion	4.93 ±0.98	1-6
			Problem solving	4.42 ±1,05	1-6
			Patient/family focus	3,60 ±0.92	1-6
		Role Clarity		4.82±1.02	1-6
		PTE-Overall		4.47±0.61	1-6
	Outcomes	Outcomes		4.76±0.85	2-6
Provider-PTE (n=260)	PTE-Overall	Trust		4.66±1.08	1-6
		Team Processes		4.53±0.67	2-6
			PTE	4,88±0,92	1-6
			Decision making	4,63±0,95	1-6
			Communication	4,10±0,72	2-6
			Coordination	4,94±0,82	1-6
			Cohesion	4,76±1,09	1-6
			Problem solving	4,19±1,08	1-6
			Patient/family focus	4,64±0,79	2-6
		Role Clarity		3.62±1.36	1-6
		Team Meeting		4.21±1.19	1-6
		PTE-Overall		4.40±0.71	2-6
	Outcomes	Outcomes		4.61±0.61	2-6

**p < .05; M, mean; n, number; SD, standard deviation; min., minimum; max., maximum; PTE, perception of team effectiveness*

4. DISCUSSION

In the present study, two questionnaires developed in English to determine the team effectiveness of patients/families and healthcare professionals were adapted to Turkish, and their validity and reliability were tested. The results of the Turkish language validity study of the questionnaires conducted in line with the ISPOR Guidelines demonstrated that the Turkish versions were linguistically valid (20). The content validity study of the questionnaires was performed based on the scores given to the items in the questionnaires by 10 experts. CVI values of the questionnaires and the items were above 0.80, indicating that the Turkish versions provided content validity (24).

Since the structure of the questionnaires did not meet the criterion that the dimensions should include at least three items, the known groups validity method was used instead of factor analysis, as in the original questionnaires (5). In this regard, the scores obtained by the patients and healthcare professionals from the PTE-Overall and Outcomes dimensions, which constitute the PTE questionnaire, were compared according to the characteristics of the patients and healthcare professionals. Compared with the PTE-Overall and outcomes scores, a significant difference was found between the kinship degree variable of the patients and only the trust sub-dimension, and between the marital status variable and the trust and outcomes sub-dimensions. In this context, these hypotheses were partially accepted. As predicted, no difference was found between the patients' sex variable and the Team Effectiveness Perception Scale and Outcomes scores. A significant difference was found between the Team Effectiveness Perception Scale and Outcomes scores and the patients' educational status, reason for hospitalization and clinic they were hospitalized in. According to the results, the Patient-PTE questionnaire was mostly accepted except for the degree of kinship and marital status variables. Similarly, no significant difference was determined between the male and female participants in the construct validity of the original questionnaire for patients. Unlike the results of the present study, in other studies, the marital status of the patients/families did not lead to a significant difference. However, variables such as clinical expertise, educational status and reason for consultation led to a difference (5).

A statistically significant difference was also found between the scores of healthcare providers from the PTE-Overall and Outcomes sub-dimensions, and it was observed that variables such as age, marital status, education level, type of profession and unit worked in caused differences. However,

variables related to the characteristics of the participants such as sex, years of work in the profession and institution did not cause a statistically significant difference in any dimension. In the construct validity study of the original questionnaire, the sex variable did not cause a statistically significant difference, while variables such as type of profession and time spent in the team caused a statistically significant difference (18). According to the results, the hypothesis determined for the Provider-PTE questionnaire was accepted only for sex, education level, type of profession and unit worked in healthcare workers. By evaluating these results, it was accepted that both questionnaires had known group validity.

In original questionnaires, sensitivity is defined as the ability of the tool to detect a meaningful change. Although there is no method on which a consensus has been reached to assess responsiveness, in questionnaires, it is hypothesized that there will be differences between low – and high-functioning teams.

In both questionnaires, low – and high-functioning teams were evaluated with their PTE scores. Significant differences have been determined between the low – and high-functioning teams regarding their scores for the trust, team processes, role clarity and outcomes sub-dimensions (5,18). In the present study, in the comparison made for the sensitivity of the questionnaires, a statistically significant difference was determined between the low – and high-functioning teams in all the sub-dimensions. This result, together with the findings of content and known group validity, shows that the scale is valid.

The reliability of the questionnaires is determined by the test-retest method and Cronbach's Alpha internal consistency coefficient. In the present study, the ICC values of the sub-dimensions of the questionnaires ranged between 0.75 and 0.95 for the Patient-PTE, between 0.86 and 0.95 for the Provider-PTE. Since the values were above 0.75, it was concluded that there was a good level of correlation between the two applications. While the Cronbach's Alpha coefficients of the subscales of the Patient-PTE ranged between 0.72 and 0.84 in the original study of the questionnaires, they ranged between 0.77 and 0.83 in the present study (5). As for the Cronbach's Alpha coefficients of the sub-dimensions of the Provider-PTE, they ranged between 0.79 and 0.92 both in the present study and in the original study of the questionnaires (18). Accordingly, the Cronbach's Alpha values of the questionnaires were determined as good and very good, suggesting that the questionnaires were reliable.

In the present study, the mean scores obtained from the PTE-Overall and Outcomes dimensions of the Patient-PTE and Provider-PTE were slightly above the average and close to each other. While the highest score was obtained from the trust sub-dimension of both the Patient-PTE and Provider-PTE, the lowest score obtained from the role clarity sub-dimension.

In Kilpatrick et al.'s study, while the Patient-PTE scores were similar to those in the present study, in the Provider-PTE, the lowest scores were obtained from the role clarity and team processes sub-dimensions (5,18). Trust is important in the relationship between patients and healthcare professionals. Patients who highly trust in healthcare professionals comply with the recommended care and treatment better, take their medications regularly, their chronic disease management improves, and they make better use of health services, including sticking to their appointments (25). Presence of trust between healthcare professionals and patients also affects patients' trust in the healthcare system. Trust between healthcare professionals is an important element for teamwork and interdisciplinary cooperation (26). Trust positively affects effective team communication, performance, job satisfaction and sense of citizenship (27,28). Trust reduces burnout levels, stress levels, absenteeism and staff turnover in employees. Trust helps employees understand their and other employees' roles within the team and helps individuals develop their roles. It also improves team processes (28). Role ambiguity whose is lower than other dimensions' creates uncertainty about what the job descriptions of healthcare professionals are, how they will achieve their performance targets and how their performance will be evaluated, which affects healthcare professionals' motivation, work commitment and job satisfaction (29). The results of the present study show that there is a need for initiatives to improve team processes and outcomes in healthcare, especially role ambiguity.

5. CONCLUSION

In the present study, the Patient-PTE and Provider-PTE were adapted into Turkish and determined as valid and reliable measurement tools. While the Patient-PTE can be used to assess patients' and their families' perspectives of team processes and perceived care outcomes, the Provider-PTE is used to assess interdisciplinary team processes and perceived care outcomes. Patients' and healthcare professionals' PTE should be assessed periodically, and the effect of the improvements made in line with the results obtained on the teamwork effectiveness should be measured and monitored as well. It is recommended that team effectiveness and outcomes should be monitored as the team structure and members change. By evaluating patients' PTE, its relationship with quality indicators such as patient safety, health outcomes, patient experience, patient satisfaction and loyalty can be investigated. By evaluating healthcare professionals' PTE, its relationship with variables such as performance, job satisfaction, intention to stay and organizational commitment can be investigated.

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