

Psychometrics of the Persian Version of the Team Assessment Questionnaire in Providing Care for Heart Failure Patients

Abstract

Background: Teamwork in the health care domain is the preferred mode of care delivery. Few instruments have been developed to assess teamwork in the field of health care, particularly in Iran. This study aimed to validate the Persian version of the Team Assessment Questionnaire (P-TAQ) in care for Congestive Heart Failure (CHF) patients. **Materials and Methods:** In this cross-sectional study, the validity (face, content, and construct validity) and the reliability (internal consistency and stability) of the cross-cultural adaptation of the Persian version of the Team Assessment Questionnaire (P-TAQ) were assessed. **Results:** The P-TAQ had adequate face and content validity. The confirmatory factor analysis confirmed the seven dimensions of the questionnaire. The internal consistency of the P-TAQ was 0.91, and the Intraclass Correlation Coefficient (ICC) was 0.89. **Conclusions:** The P-TAQ is a valid questionnaire in terms of dimensions and items. Assessing teamwork is an essential component of delivering adequate care. By examining the status of teamwork using this questionnaire, it is possible to promote teamwork and to understand its strengths and weaknesses. Future research is necessary to better understand the P-TAQ so that it can be used for the assessment of teamwork outcomes regarding patient safety, cultural barriers, and medical errors.

Keywords: Health care team, Iran, psychometrics, questionnaire, validation study

Introduction

The complexity of care provision and the need for skillful health care providers for Heart Failure (HF) patients have increased. Very few can meet all the complex needs of these patients.^[1] Therefore, teamwork in the health care domain is an essential process required for delivering high quality and integrated care because different disciplines with various specializations can better achieve treatment goals. Many studies have shown the necessity of teamwork and its positive effects.^[2,3] For example, the result of Farzi's study showed that medication errors might occur due to a lack of interprofessional collaboration between the health care team and the patient and the patient's family. The collaboration within the health care team and direct communication with patients can have a great impact on patient outcomes.^[4]

One of the chronic progressive diseases in which teamwork is essential is Heart Failure (HF).^[5,6] HF is a leading cause of

readmission into hospitals and is associated with high postdiagnosis morbidity and mortality.^[5] Patients with HF usually require numerous hospitalizations and a vast range of health care services.^[3] These chronically sick patients require interprofessional teams to address their various health care needs because they need many providers to address their different health problems, so the interprofessional health care teams are the preferred mode of care delivery.^[5] Although teamwork is a vital component of the health care setting,^[7] few instruments in Iran can measure teamwork in a reliable, professional, and economical way. The questionnaires used to study teamwork in Iran generally focus on one aspect of teamwork, such as the relationship between team members, their collaboration, or team attitude.^[8] These questionnaires are in two categories: some are researcher-made and evaluate working conditions in groups^[9,10] and others, such as the Jefferson scale, which focuses on physician-nurse collaboration, are translated

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from nonspecialized questionnaires and are not specifically designed for teamwork.^[11]

So far, no comprehensive model or definition of teamwork has been provided covering all aspects of teamwork in care and treatment.^[12] The current definitions are not valid or reliable and do not have scientifically sound support.^[13] The TAQ is one of the world's most standard and most widely used questionnaires assessing the different dimensions of teamwork.^[14] As HF patients experience both acute and chronic conditions,^[6] the care and treatment team of these patients was chosen as the target group so that the translated questionnaire assessed in this study can be used for both acute and chronic diseases later. Therefore, the lack of a specialized and valid questionnaire for assessing teamwork in patient care motivated us to validate the Persian version of the Team Assessment Questionnaire (TAQ).

Materials and Methods

This cross-sectional study had a methodological design and was conducted to validate the TAQ in the health care teams in Kerman and Bam, in southeast Iran. All the six university hospitals that had heart departments were considered for the study from March to October 2019.

The Team assessment questionnaire and its Persian version. The original version of the TAQ was taken from the Agency for Health care Research and Quality (AHRQ).^[15] This questionnaire is used in different health care settings, including that of Norway.^[12] This institute tries to increase patient safety in health care systems using an evidence-based approach focused on teamwork.^[14] This questionnaire has already been translated into Icelandic too.^[16] The TAQ is a 55-item questionnaire using a 5-point Likert scale. It has seven dimensions, including team foundation (12 items), team functioning (6 items), team performance (4 items), team skills (6 items), team leadership (8 items), team climate and atmosphere (10 items), and team identity (9 items). The psychometric values of the original TAQ have been found acceptable in other studies.^[16,17]

With the permission of the AHRQ, we did a forward-backward procedure to translate the English version of the TAQ into Persian. The translation is a standard method of preparing questionnaires for cross-cultural application.^[18] We conducted the translation and cross-cultural adaptation research, according to Beaton et al.^[19] Each stage in the process of translation is described in detail below:

Stage 1 (forward translation): Two translators were chosen. One was familiar with the concepts of teamwork, and the other had no background information in this field. They translated the questionnaire into Persian separately.

Stage 2: The two translators and a writer compared the translations and reached a consensus on the discrepancies.

Stage 3 (backward translation): Two bilingual nurses translated the Persian questionnaire back to English. Neither was aware of the previous stages.

Stage 4: The researchers, the translators, a specialist in psychometrics, a physician, and two nurses reviewed all the translations, and the differences were discussed.

Stage 5: After adjusting the translations and considering expert suggestions, the researcher prepared the final Persian version of the TAQ (P-TAQ). In this stage, they checked whether the content of the translated version exactly corresponds with that of the original version.^[15]

Finally, Item 5, "Everyone on the team has a clear and vital role," was divided into two items because in Iranian culture, "clear role" and "vital role" have different meanings. Thus, the total number of P-TAQ items increased to 56.

For checking face and construct validity and reliability, the health care providers (nurses and physicians of the heart departments of Kerman and Bam Universities of Medical Sciences) were considered. The inclusion criteria were willingness to participate in the study (informed consent) and having worked for more than 3 years in the university hospitals' heart wards. For content validity measurement, Kerman and Bam Universities of Medical Sciences faculty members with different experience levels (up to 5 years) were selected. As in factor analysis, the sample size should be four or five times the number of all items studied,^[20] the maximum sample size was calculated (more than 280). The eligible participants were selected using convenience sampling in all phases except construct validity, where the census was used. The self-declaration questionnaires were distributed among the participants in different shifts. Sampling lasted from August to November 2018. Some participants failed to return the questionnaire (18 persons). The final response rate was 93.50%.

Face validity

In this study, we assessed face validity qualitatively and quantitatively. In the qualitative method, the questionnaire was assessed by 15 persons from the target community, and their opinion about clarity, feasibility, readability, consistency of style, and formatting of the P-TAQ was collected in the face to face interviews. In the quantitative stage, the 56 items in the questionnaire were scored based upon a 5-point Likert scale. The Impact Score (IS) (frequency × importance) was calculated. The items were adopted if they had an impact score higher than 1.5.^[21]

Content validity

Content validity reflects the degree to which the instrument spans the domain of the construct's theoretical definition.^[22] The content validity of the questionnaire was evaluated by ten faculty members of Kerman and Bam Universities of Medical Sciences. Content Validity Ratio (CVR) and Content Validity Index (CVI) were assessed.

CVR assesses the relevance and ensures that the most relevant content (item necessity) is selected.^[23] The formula was used to calculate the CVR for the total scale after the participants replied to the items. According to Lawshe's table, an acceptable CVR value for ten specialists was 0.62.^[24]

CVI assesses the relation and simplicity of an item to the content represented in the questionnaire.^[25] Both Item-level CVI (I-CVI) and Scale-level CVI (S-CVI) were calculated. The minimum score of 0.78 was considered acceptable for both I-CVI and S-CVI.^[26]

Construct validity

For construct validity, 403 nurses, physicians, and other team members completed the questionnaire. The data were analyzed using IBM SPSS Statistics 25 and analysis of moment structures (AMOS). Twenty-nine missing scores were replaced with the mean score in the relevant dimension.^[27] A Confirmatory Factor Analysis (CFA) was done to test the factor structure of the P-TAQ.^[28] CFA provides useful information about scale dimensionality and validity. CFA aims to test explicit hypotheses about the measure's dimensionality. This is particularly pivotal for questionnaires that have been translated or culturally adapted.^[29] To assess the strength of the model, the three fit indices, the Root Mean Square Error of Approximation (RMSEA), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI) were used. The RMSEA represents an absolute fit index and takes into account the error estimates in the population. The RMSEA is accepted as the best estimation of how well the values of the model with unknown but optimally chosen parameters fit the population covariance matrix if it were available.^[29,30] For the RMSEA, cutoff values close to 0.06 indicate a good fitting model^[30] with values as high as 0.08 representing reasonable errors of approximation in the population. TLI and CFI represent indices of comparative fit.^[29] These indices compare the Chi-square values for the hypothesized model with those from a null model, in which all of the variables are uncorrelated; thus, having a large Chi-square value is indicative of a poor fit.^[29] For both indices, cutoff values close to 0.95 offer evidence of a good model fit.^[31] Each of these fit indices has a set cutoff value akin to the common $p < 0.05$ of hypothesis testing. Specifically, when used in combination (i.e., more than one fit index for a model), the acceptable values for these indices are as follows: TLI ≥ 0.95 , CFI ≥ 0.95 , and RMSEA ≥ 0.06 .^[31] Ultimately, two models were assessed. At each stage, post hoc modifications were made to improve the fit of the model. Parameter estimates and fit indices were evaluated, starting with the first theoretical model, to determine how well the data fit. Specifically, the analyses evaluated several fit indices commonly used to interpret CFA findings.^[30] Also, the correlation of different dimensions should be high with the total score and should be low with each other. If

different instrument dimensions are highly dependent on each other, colinearity will result, and using two or more dependent factors is not correct.^[32] The Pearson correlation coefficient was used to calculate the associations.

Reliability

As the evaluation of the reliability of internal consistency alone provides no information on the stability of participants' responses, we used both internal consistency and test-retest reliability. The internal consistency of the questionnaire was assessed using Cronbach's alpha coefficient for each dimension separately and in total. The values equal to or greater than 0.70 were considered satisfactory in the study.^[33] To evaluate the repeatability of the P-TAQ, the Intraclass Correlation Coefficient (ICC) was calculated in a pilot study. To do so, we selected thirty members of the care team through random sampling. They were instructed to check each item. They filled out the TAQ twice, separated by a period of 2 weeks. The ICC was computed using the two-way mixed model and absolute agreement type. The ICC coefficient varies between 0 and 1.^[34]

Ethical considerations

The Ethics Committee of Bam University of Medical Sciences approved the protocol of the study (IR.MUBAM.REC.1397.002). Written permission for translation, validation, and use of the TAQ was obtained from Professor David I. Lewin.^[15] Before entering the study, informed consent was obtained from the participants, and they were assured the information would remain confidential.

Results

The mean and standard deviation of participants' age was 33.90 (0.60), and most were female nurses (62.80%). The other demographic characteristics of the participants are presented in Table 1.

Face and content validity

In the qualitative stage of face validity, some minor words were changed according to the participants' suggestions. Impact scores of items ranged from 2.40 to 4.30 in face validity. The CVR for most of the items was more than that of Lawshe's Scale for ten persons (0.62). They ranged from 0.50 to 1, so the items proved acceptable, and no item was rejected in this stage. Only the CVR score of Item 22 was lower than the acceptable score (0.50). As this study aimed to validate the P-TAQ, we were cautious not to omit any item from the original questionnaire. Therefore, the research team decided to keep this item in the questionnaire in this phase.

The CVI of the questionnaire was 0.90 in total. The CVI for items ranged from 0.68 to 1. Three items had CVI scores lower than the acceptable level [Table 2]. Item 22 (The team is productive) with CVI 0.68, item 37 (My

Table 1: Demographic characteristics of the participants

Variable		n(%)
Age (year)	20-30	112 (28.90)
	31-40	228 (58.70)
	41-50	48 (12.40)
Gender	male	150 (37.20)
	female	253 (62.80)
Marriage status	Single	176 (43.70)
	Married	224 (56.3)
Employing status	Official	297 (73.90)
	Unofficial	105 (26.10)
Shift work	Day	177 (44.50)
	Evening	60 (15.10)
	Night	35 (8.80)
Organizational position	Nurse	281 (69.70)
	Head nurse	46 (11.40)
	General practitioner	36 (8.90)
	Cardiologist	18 (4.50)
	Other	22 (5.50)
Job experience	<5 year	97 (24.20)
	6-10 year	173 (43.20)
	11-15 year	121 (30.30)
	16-20 year	9 (2.30)
Level of education	Bachelor	286 (71.50)
	Master degree	65 (16.20)
	Professional	49 (12.30)
	Doctorate and PhD*	

* Doctor of Philosophy

boss/supervisor leads by example), and item 55 (I am a member of a team in which the leader promotes teamwork) with CVI 0.71. After collecting comments and qualitative data on the panel of experts, the first item was changed to “team has output,” and the second was modified as “My boss/supervisor leads the team based on a specific pattern.” For Item 55, after a detailed survey of the scores, the researchers decided to move this item from team identity to the team leadership dimension temporarily and confirm it after construct validity, so Item 55 was placed in the questionnaire as item 38).

Construct validity

The construct validity of the translated P-TAQ was verified through a CFA index standard. The result indicated that each set of items that were supposed to accompany each teamwork dimension represents that specific construct. Our first model contained the seven dimensions and their representative items and error terms. Each dimension had different items associated with it. This model did not show a confirmable fit with the data ($\chi^2 = 4953.37$, $df = 880$, $p < 0.001$, $RMSEA = 0.07$, $TLI = 0.89$, $CFI = 0.80$). Referring to four sets of items with high modification indices, we decided to analyze a second model within three of the seven dimensions in order to improve the fit of the model. This included Items 10 and

11 under team foundation, Items 15 and 16 under team functioning, and Items 47 and 52 under team identity. To improve the fitness of the model, after correlation of the error terms of items 10, 11, 15, 16, 47, and 52, the second model was conducted. The resultant model had the following fit indices: ($\chi^2 = 4261.63$, $df = 879$, $p < 0.001$, $RMSEA = 0.07$, $TLI = 0.96$, $CFI = 0.96$). The hypothesized model containing seven dimensions fits the data very well. Besides, the correlation between the P-TAQ score and each dimension was between 0.65 and 0.79, and correlations of each dimension with other dimensions were between 0.32 and 0.57. The detailed correlations are shown in Table 3.

Reliability

Cronbach's alpha coefficient showed a suitable agreement in this instrument (0.91). The average measure of the ICC was 0.89, with a 95% confidence interval of 0.81 and 0.92. According to Landis and Koch (1977), values above 0.80 are considered excellent for a reliable questionnaire.^[35] The P-TAQ items correlations ranged from -0.19 (Item 10) to 0.79 (Item 28) [Table 2]. The results of the item deleted in Cronbach's alpha showed none of the items that had negative Cronbach's alpha coefficient and had a significant effect on the total Cronbach's alpha if they were omitted. Therefore, we had no omission at this stage. The reliability of each dimension is presented separately in Table 2.

Discussion

This study aimed to translate and cross-validate the TAQ into Persian/Farsi (P-TAQ) and test the questionnaire for psychometric properties among health care teams. In terms of difference with past studies, it is an unprecedented in Iran. The P-TAQ was shown to have good psychometric properties and can contribute to the improvement of evidence-based knowledge of teamwork.

One of the main problems in the psychometric properties of this questionnaire was the conversion of English words into exact and equivalent Persian words. However, health care staff had little knowledge of how teamwork works and its dimensions.^[36] In Iranian culture, having a “vital role” is different from having a “clear role” in a team, and these are two separate issues. Having a vital role in the team means that your presence in the team is essential, and in your absence, the life of the patient is compromised, but having a clear role in a team means that the duties of the members are well defined, and they know exactly what they should do. Dividing item 5 into two separate items increased the number of team foundation items to 13.

As Item 55 in the original TAQ was about team leader features (I am a member of a team in which the leader promotes teamwork), after reviewing the suggestions of specialists in the panel of experts, we decided to move it to the team leadership dimension. We believed that as this item is about the characteristics of the team leader, it would be

Table 2: Distribution of validity scores, test-retest reliability scores and Cronbach's alpha of Persian version of the Team Assessment Questionnaire

Item		Validity			Reliability	
		CVI*	CVR**	IS***	Cronbach alpha	ICC (95% Confidence Interval)****
Team Foundation					0.86	0.85 (0.60-0.91)
1	The team has a clear vision of what it is supposed to do.	0.86	1	4.30		0.05
2	The team's activities are guided by a clear Mission Statement/ Charter.	0.79	0.80	3.50		-0.14
3	The team's goals are closely aligned with the goals of the organization.	0.86	0.80	3.70		-0.13
4	The team has adequate skills and member resources to achieve its goals.	0.89	0.80	3.70		0.40
5	Everyone on the team has a clear role.	0.88	0.80	4.10		0.51
6	Everyone on the team has a vital role.	0.84	1	0.80		0.29
7	The team has adequate meeting time, space, and resources to achieve all objectives.	0.81	1	2.70		0.70
8	Team meetings are well attended by all team members.	0.84	1	3.70		0.28
9	The team can measure its performance effectively.	0.86	0.70	3.20		-0.15
10	The team understands its customer requirements (internal and/or external)	0.89	0.80	2.70		-0.19
11	This team is promptly informed of changes in policy or new developments.	0.94	0.70	3.300		0.58
12	The department or unit has clear expectations of this team.	0.94	1	3.40		0.51
13	The team receives adequate training to function effectively.	0.94	1	2.60		0.39
Team Functioning					0.81	0.80 (0.67 - 0.94)
14	Team meetings are run efficiently.	0.84	1	3.10		0.51
15	Everyone on the team participates at an acceptable level	0.94	1	3.10		0.51
16	This team works well together.	0.94	1	2.60		-0.18
17	This team works well with other teams/departments in the organization.	0.94	1	3.10		0.48
18	The goals and objectives of this team will have a positive impact on the organization.	0.89	1	3.30		0.61
19	The team is on a continuous improvement curve	0.94	0.80	3.40		0.56
Team Performance					0.57	0.54 (0.27 - 0.79)
20	The team uses an effective short and long-term strategic planning process.	0.92	1	3.20		0.57
21	The team meets its (internal and/or external) customer requirements.	0.84	0.80	3.70		0.42
22	The team is productive.	0.68	0.50	2.70		0.29
23	Team functioning doesn't interfere with getting my own job done	0.86	0.70	2.40		0.49
Team Skills					0.94	0.81 (0.57 - 0.89)
24	The team members communicate well with one another.	0.94	1	3.30		0.56
25	Constructive feedback is given by the team.	0.94	1	3.10		0.21
26	Team members are familiar with each other's job responsibilities.	0.94	1	3.60		0.44
27	The team uses effective decision making processes and problem solving skills	0.94	1	3.30		-0.02
28	The team monitors and progresses the plan of care.	0.92	0.80	3.70		0.79
29	The team can change or improve the way it goes about working on its tasks	0.97	1	3.10		0.14
Team Leadership					0.88	0.88 (0.61 - 0.90)
30	My boss/supervisor promotes participation by the team in key decisions.	0.86	1	3.70		0.50
31	My boss/supervisor shares responsibilities with team members.	1	1	3.30		0.29
32	My boss/supervisor is an effective leader.	0.94	1	3.70		0.09

Contd...

Table 2: Contd...

Item	Validity			Reliability	
	CVI*	CVR**	IS***	Cronbach alpha	ICC (95% Confidence Interval)****
Team Leadership					
33	I share my ideas/suggestions whether or not my boss/supervisor agrees with my input.	0.86	0.60	3.80	0.11
34	My boss/supervisor focuses on building team's technical and interpersonal skills	0.89	1	3.80	0.68
35	My boss/supervisor coaches and supports individual team members.	1	1	3.80	0.35
36	My boss/supervisor promotes individual problem solving and intelligent risk-taking.	0.81	1	3.80	0.37
37	My boss/supervisor leads by example.	0.71	0.50	3.60	0.40
38	I am a member of a team in which the leader promotes teamwork.	0.71	1	3.70	0.47
				0.88	0.88 (0.61 - 0.90)
Team Climate and Atmosphere					
39	Team members trust each other.	1	1	3.30	0.06
40	Morale on this team is high.	0.94	1	3.40	0.15
41	Team members support each other.	1	1	3.30	-0.18
42	There are no feelings among team members which might pull this team apart	0.86	0.7	2.90	0.31
43	The team resolves conflicts soon after they occur	0.94	1	3.70	0.52
44	I feel free to express my opinions.	1	1	3.10	0.18
45	I have an influence on team decisions	0.94	1	3.30	0.39
46	Team members can openly discuss their own problems and issues.	0.94	1	3.40	0.33
47	Team members show consideration for needs and feelings of other team members.	0.94	1	2.80	0.41
48	Team members receive recognition for individual performance.	0.86	0.60	3.30	-0.10
				0.85	0.88 (0.71 - 0.91)
Team Identity					
49	I know why I am on a team.	1	1	3.30	0.06
50	I am pleased to be on a team	0.94	0.80	2.80	0.30
51	The team subscribes to a clear set of values.	0.86	0.80	2.80	0.53
52	This team is fun to work with.	0.92	0.70	3.30	0.27
53	No individual, group or gender dominates team activities.	1	0.70	2.60	0.06
54	The team has a positive self-image.	0.89	0.80	3.30	0.26
55	The team recognizes the patient as a critical team member.	0.94	1	3.40	0.06
56	The team is a safety net for patients.	0.94	0.70	2.90	0.60
Total		0.90		0.91	0.89 (0.81 - 0.92)

* Content Validity Index. ** Content Validity Ratio. *** Impact score. **** Intraclass Correlation Coefficient

better to move it from team identity to the team leadership dimension. Therefore, the number of team identity items decreased to eight, and the number of team leadership items reached nine. The CFA of the questionnaire showed that these changes cause no disruption in the structure of the questionnaire.

In the end, the arrangement of items for each dimension in the P-TAQ was team foundation (13 items), team functioning (6 items), team performance (4 items), team skills (6 items), team leadership (9 items), team climate and atmosphere (10 items), and team identity (8 items).

The CFA model strongly demonstrates that the P-TAQ adequately measures its intended dimensions. Further, the CFA exhibited remarkable fit across multiple standardized indices. These fit indices provide clear proof that the

P-TAQ can be used as a valid tool to assess teamwork status in health care centers.

Although the analyses presented here tested the structure of the P-TAQ (i.e., construct validity) as a measurement tool for assessing teamwork, we did not test criterion validity or predictive validity. In other words, this analysis only shows to what extent the survey measured teamwork status and does not directly link the condition of teamwork to external performance criteria (e.g., patient safety outcomes or the results of providing good care). Some researchers have shown that good teamwork is associated with increasing the quality of care for HF patients,^[5,37] but this paper provided no empirical data demonstrating this relationship.

This study has both strengths and limitations. The study's strengths are the high response rate (more than 95%)

Table 3: Correlations of the Persian version of the team assessment questionnaire dimensions with each other and the total score (n=403)

Dimensions	Pearson's correlation coefficient ($p<0.001$)						
	Team Functioning	Team Performance	Team Skills	Team Leadership	Team Climate and Atmosphere	Team Identity	Total score
Team Foundation	0.49	0.37	0.33	0.40	0.37	0.41	0.68
Team Functioning		0.42	0.55	0.51	0.41	0.47	0.75
Team Performance			0.56	0.57	0.36	0.44	0.65
Team Skills				0.55	0.38	0.32	0.76
Team Leadership					0.50	0.45	0.79
Team Climate and Atmosphere						0.49	0.73
Team Identity							0.77

and the stringent and precise process of translation and testing of data. The main limitations are the development of this instrument in another language and country for the first time, which caused limitations in comparing the psychometric results with similar studies, and not considering patients, who are influential members of the treatment team, in the study.

Conclusion

Having a valid questionnaire for assessing the treatment team can help the health care provider find and solve teamwork problems. The result showed that this questionnaire has standard validity and reliability in terms of both the number of dimensions and the variety of items. Assessing teamwork is an essential component of delivering effective care. Without proper teamwork, it is difficult, if not impossible, to improve patient care outcomes.^[38,39] The P-TAQ is a valid and reliable measure of assessing teamwork. Although it does not measure actual teamwork behavior, it is a relatively time- and cost-effective survey that can evaluate team foundation, team functioning, team performance, team skills, team leadership, team climate and atmosphere, and team identity. In addition, the P-TAQ is a multidimensional questionnaire able to monitor different aspects of the care and treatment team. It assesses the team with regard to how well they are performing their duties, how the leader is conducting the team, what the team's mood is, and how the interactions between team members are. Further, the P-TAQ would probably be a useful tool for different health care teams. Although the target group of this study was the team members providing care for HF patients, and the P-TAQ can be used in assessing both teams taking care of acute and chronic patients, future research is needed to further understand the P-TAQ in relation to teamwork outcomes such as patient safety, cultural barriers, and medical errors.

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Conflicts of interest

Nothing to declare.

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