The Reliability and Validity of the Turkish Version of the Interpersonal Processes of Care Survey

Assistant Professor Kenan GÖZLÜ

ORCID ID: 0000-0002-1777-7495

Mersin University Faculty of Health Sciences, Department of Health Management. Mersin / Türkiye

Abstract

The interpersonal quality of health care is as important as the technical quality in determining health care services results. Studies investigating the interpersonal aspects of health care services are therefore required. The aim of this study is to evaluate the reliability and validity of the Turkish version of the Interpersonal Processes of Care Survey (IPC) developed by Stewart et al. The study was conducted between March 1 and September 1, 2017 on 500 patients who presented to Family Health Centers in the Ankara province. After the questionnaire was translated from English into Turkish, the language was validated by back translation. Cronbach's alpha coefficients were calculated to determine reliability. The questionnaire validity was tested by confirmatory factor analysis using the LISREL 8.7 software. The Cronbach's alpha coefficient of the Turkish version of the survey was found to be 0.837. Confirmatory factor analysis showed that chi-square/degrees of freedom (2.949) and RMSEA (0.063) values were acceptable. Among the other fit indices, a good fit was found for NFI (0.97), NNFI (0.98) and CFI (0.98) and acceptable fit for GFI (0.90) and AGFI (0.87). The Turkish version of the IPC is a reliable and valid tool in the evaluation of the interpersonal processes of care.

Key words: *Interpersonal processes of care, reliability, validity, Turkish version.*

1. Introduction

Patients often have to remember many things when they leave a primary care visit. Effective communication with patients ensures patient self management, effective use of the available time and patient safety. Communication is important at all levels, whether for diagnostic purposes, the correct use of the drug, the patient being prepared for the laboratory, receiving care at home, monitorization or appointment planning (DeWalt and colleagues, 2010).

Many quality indicators are related to the technical processes of care in the studies conducted based on Donabedian's structure-process-outcome paradigm. Only a limited number of studies address the interpersonal aspects of health care. The interpersonal quality of health care is as important as the technical quality in determining health care services results. Studies investigating the interpersonal aspects of health care services are therefore required (Stewart and colleagues, 2007).

Most studies regarding interpersonal processes and satisfaction focus on communication (Na´poles and colleagues, 2009). Although there is a lot of information about education and communication, there are still gaps between the public and health professionals. These gaps can be larger in certain places, in certain populations and under certain conditions (Institute of Medicine, 2013).

Physician-patient communication behavior is the crucial process by which medical decision-making happens and health outcome depends (Zakaria and colleagues, 2021). Communication is indispensable for the effective delivery of health care and is one of the most powerful tools of physicians. However, there is often inconsistency between the physicians' level of communication and the patients' understanding. Studies have shown that patients often misinterpret or do not understand the information provided by physicians. This can lead to medication errors, missed appointment times, negative health results, and even malpractice-related issues (Weiss, 2007). It has also been found that impairment in self-efficacy of patients is linked to lower patient-physician communication (Khairy and colleagues, 2021).

The lack of physician-patient communication at the desired level is an important problem in health care. In order to identify the source of this problem and make improvements in health care processes, various tools are required to examine these processes between the physicians and patients. Although communication between the other health personnel and patient is also important, the patient-physician communication is elaborated in this study.

One of the tools investigating the processes between health care providers and the subjects who receive health care is the "Interpersonal Processes of Care Survey (IPC)" developed by Stewart and colleagues (2007) in the United States. The Interpersonal Processes of Care Survey (IPC) was translated to the Spanish (University of California San Francisco, 2025) and Korean languages (Jun and colleagues, 2016) and its reliability and validity have been proven. However, we did not come across a study using the IPC in Türkiye. We therefore aimed to translate the IPC into Turkish and evaluate the reliability and validity of the Turkish version in this study.

2. Methods

2.1. Survey instrument

The IPC is a 5 point Likert type (1:Never, 2:Rarely, 3:Sometimes, 4:Usually, 5:Always) survey consisting of 29 questions. There are a total of 7 dimensions in this survey: Hurried communication; elicited concerns, responded; explained results, medications; patient-centered decision making; compassionate, respectful; discrimination, and disrespectful office staff (Stewart and colleagues, 2007).

The first 3 dimensions constitute the ‘‘communication’’ domain, which is about the patients’ experiences talking with doctors over the past 12 months. There is one dimension (patient-centered decision making) in the ‘‘decision making’’ domain. Questions in this dimension address how patients and their medical doctors make decisions about patients’ health care. The last 3 dimensions are related to the ‘‘interpersonal style’’ domain. These dimensions include questions about the personal interactions between patients and their doctors over the past 12 months. Low mean scores of hurried communication, discrimination and disrespectful office staff and high mean scores of the other dimensions reflect good physician-patient communication (Stewart and colleagues, 2007).

2.2. Population and sampling

Comfrey & Lee (1992) have suggested 500 subjects as a very good size for a general sample. Guadagnoli & Velicer (1988) reviewed a number of studies to determine absolute minimum sample sizes and the sample size recommendations ranged from 50 to 400. The study universe consisted of adults (≥ 18 years) with no mental disability who were residing at the Çankaya central district of Ankara province and presented at the Family Health Centers in the same district.

As of March 2017, a total of 57 Family Health Centers are present in the Çankaya district (Çankaya District Governorship, 2017). After low, medium and high socio-economic neighborhoods were identified, the cluster sampling method was used in the study. A total of 25 Family Health Centers (8 from neighborhoods with low and high socio-economic status and 9 from neighborhoods with medium socio economic status) were randomly selected. The surveys were conducted between 1st March, 2017 and 1st September 2017 by 4 surveyors who were informed about the content of the study. The surveys were collected by interviewing 20 patients who volunteered to participate in the study from each Family Health Center (per cluster). Each survey took approximately 10 minutes to complete. The personal data of the patients were kept confidential and the responses of a total of 500 patients were evaluated.

2.3. Ethical permission

The study was conducted after receiving approval from the Ethics Commission of Hacettepe University (No: 76000869/433-1706, Date: June 1, 2015). Patients were clearly informed that participation in the study was voluntary, participants could stop answering questions at any time, participant information would be kept confidential, answers would not be shared with anyone, and individual evaluations would not be made.

2.4. Translation and adaptation of the instrument

The survey was translated from English into Turkish by the researcher and a faculty member at the School of Foreign Languages who had not previously seen the original survey. Then each item was assessed by health care professionals in terms of adequacy and relevance. Because of the positive opinions of the professionals, it was decided that the Turkish translation of the survey is suitable for application to our culture and patients. This Turkish translation was translated back from Turkish into English by a translator working at a translation office. The back translation and the original version of the survey were compared and the necessary corrections made. The 2 survey questions on ethnicity (How often did doctors pay less attention to you because of your race or ethnicity? How often did you feel discriminated against by doctors because of your race or ethnicity?) were excluded due to the lack of administrative permission.

The 4 questions regarding disrespectful office staff (How often were office staff rude to you? How often did office staff talk down to you? How often did office staff give you a hard time? How often did office staff have a negative attitude toward you?) were excluded by researchers because there are no front office staff or receptionists in the family health centers in Türkiye. The original survey that consisted of 29 questions was therefore reduced to 23 questions. A pilot study was conducted with this 23-question survey. After consultations with patients who use the Family Health Center services, it was concluded that the items were easily understood and culturally appropriate.

Since questions about the disrespectful office staff dimension were excluded from the survey, this dimension was not included in our study. As the 2 questions regarding race/ethnicity were deleted, the discrimination dimension was evaluated with the two other questions in this dimension.

2.5. Analysis of the data

The IBM SPSS Statistics 23.0 software program was used for the evaluation of the data obtained from the study. Descriptive statistics (mean, standard deviation, frequency, percentage) were used to investigate the socio-demographic characteristics of the study patients.

Cronbach's alpha coefficient was used to determine the reliability of the Turkish version of the Interpersonal Processes of Care Survey (IPC-TR) and the validity was tested by confirmatory factor analysis using the LISREL 8.7 software program.

3. Results

The socio-demographic characteristics of the patients are presented in Table 1.

Table 1. Socio-Demographic Characteristics of the Patients

Characteristics	n	%
Gender		
Female	299	59,8
Male	201	40,2
Age		
18-25	57	11,4
26-35	94	18,8
36-45	123	24,6
46-55	131	26,2
56-65	64	12,8
66-75	24	4,8
75 and above	7	1,4
Educational Status		
Literate	6	1,2
Primary school	32	6,4
Secondary school	32	6,4
High school	109	21,8
Associate degree	47	9,4
Undergraduate	198	39,6
MSc/PhD	76	15,2
Monthly Income Status		
Income less than expenses	116	23,2
Income equivalent to expenses	306	61,2
Income more than expenses	78	15,6
General Health Condition		
Very good	42	8,4
Good	266	53,2
Moderate	169	33,8
Poor	23	4,6
Number of Applications to the Family Physician in the Last 12 Months		
1-2	194	38,8
3-5	197	39,4
6-9	67	13,4
10 or over	42	8,4
Total	500	100,0

The IPC-TR general Cronbach alpha value was found to be 0.837. The Cronbach alpha coefficients of the questionnaire sub-dimensions varied between 0.783 and 0.927, excluding discrimination. Since there were 2 questions in the discrimination dimension, the Cronbach alpha value is predicted to belower. The mean dimensions of the survey varied between 2.45±1.04 and 3.30±0.88 (Table 2).

Table 2. Mean, Standard Deviation Values and Cronbach Alpha Coefficients of the IPC-TR Dimensions

Dimensions	Mean±Standard Deviation	Cronbach Alpha
Hurried Communication	2.85±0.85	0.848
Elicited Concerns, Responded	3.30±0.88	0.783
Explained Results, Medications	3.07±0.98	0.815
Patient-Centered Decision Making	2.45±1.04	0.910
Compassionate, Respectful	3.01±1.03	0.927
Discrimination	2.48±0.78	0.595

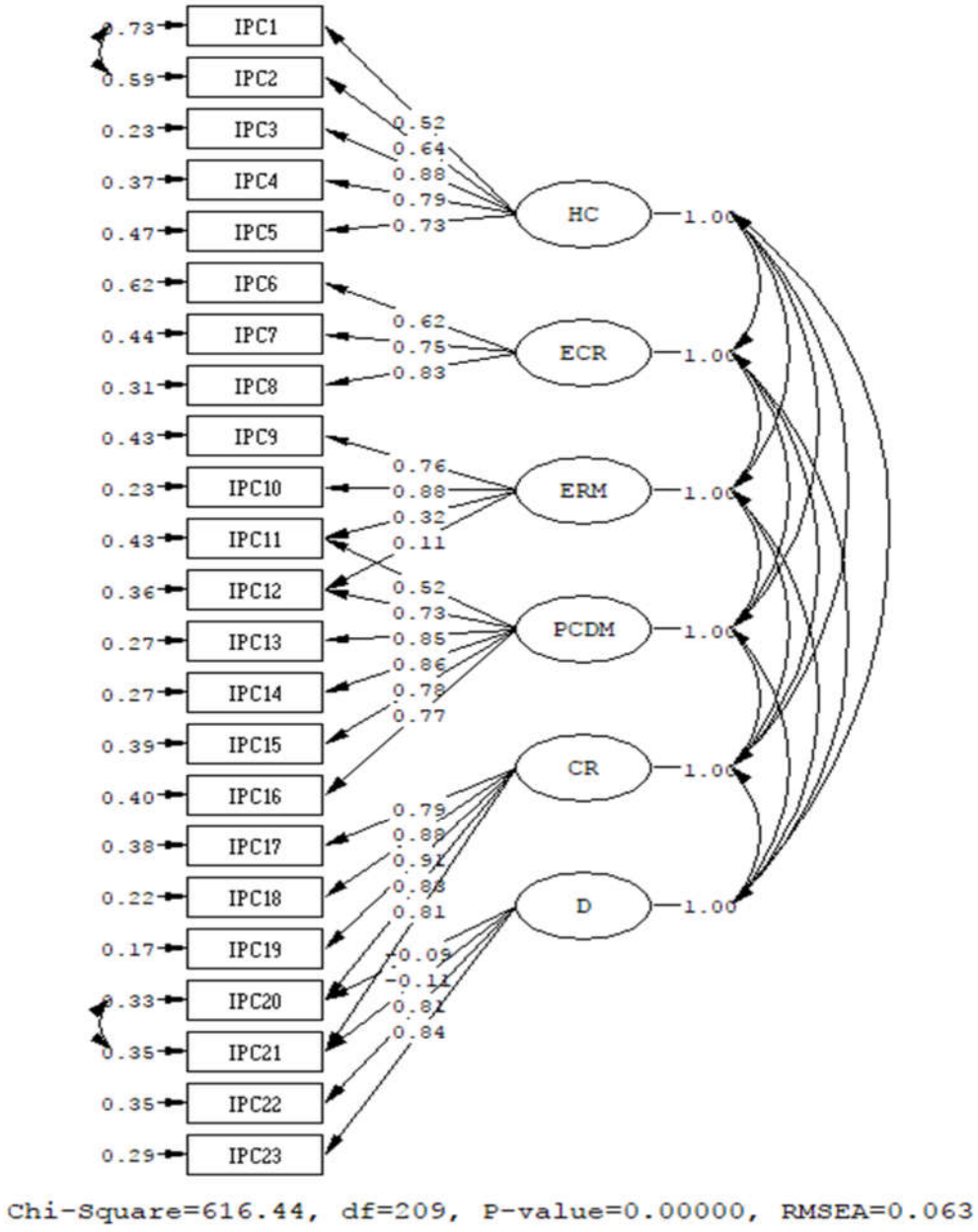
Pearson correlation coefficients between the IPC-TR dimension scores were calculated and the construct validity was evaluated. The correlation matrix of the dimensions is presented in Table 3.

Table 3. IPC-TR Dimensions Correlation Matrix

Dimensions	1	2	3	4	5	6
1. Hurried Communication	1					
2.Elicited Concerns, Responded	-0.40	1				
3.Explained Results, Medications	-0.41	0.60	1			
4.Patient-Centered Decision Making	-0.37	0.45	0.81	1		
5. Compassionate, Respectful	-0.51	0.60	0.64	0.63	1	
6. Discrimination	-0.29	0.37	0.42	0.51	0.74	1

The confirmatory factor analysis result of the Turkish version of the IPC is shown in Figure 1.

Figure 1. Confirmatory Factor Analysis Results of the Turkish Version of the Interpersonal Processes of Care Survey (IPC-TR)



Evaluation criteria regarding model conformity indexes and good fit measures of IPC-TR are presented in Table 4. According to the confirmatory factor analysis, the χ2/df, RMSEA, GFI and AGFI values were found to conform in an acceptable fit and other conformity measures to show a good fit. None of the items was therefore excluded from the survey and the interpersonal processes of care were investigated under 6 dimensions.

Table 4. Goodness of Fit Indices for the Factor Structure Model

Fit indices	Good Fit*	Acceptable Fit*	Conformity Values Obtained
$\chi 2/df$	$0 \leq \chi 2/df \leq 2$	$2 < \chi 2/df \leq 3$	2.949
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0.063
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI < 0.95$	0.97
NNFI	$0.97 \leq NNFI \leq 1.00$	$0.95 \leq NNFI < 0.97$	0.98
CFI	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI < 0.97$	0.98
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI < 0.95$	0.90
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI < 0.90$	0.87

* Criteria for conformity measures were taken from Schermelleh-Engel and colleagues, 2003

4. Discussion

The validity and reliability of IPC-TR were evaluated with 500 patients who presented to the Family Health Centers in a district of Ankara in this study. Six questions were excluded from the survey: 2 questions about ethnicity (since administrative permission was not given to ask them), and 4 questions about disrespectful office staff (since there are no front office staff or receptionists in the family health centers in Türkiye). There were therefore 23 questions in the Turkish version, unlike the original IPC. IPC-TR generally has high internal consistency. When the conformity indices were evaluated, an acceptable fit in terms of the $\chi 2/df$, RMSEA, GFI and AGFI values and a good fit for other conformity measures were found. Our findings indicate IPC-TR to be valid and reliable.

IPC has been translated into various languages for non-English speaking communities. The 29 questions in the original form and the 18 questions in the short form were translated into Spanish and both forms were found to be valid and reliable (University of California San Francisco, 2025). The IPC performance was reported to be similar to the original IPC within the Canadian context in another study conducted in Canada with 645 patients speaking English (n=343) or French (n=302) who presented to primary health care clinics. Cronbach's alpha coefficients of the IPC dimensions were reported to vary between 0.86 and 0.95 in the same study *(*Haggerty and colleagues, 2011).

The reliability and validity of IPC-18 (the short form) were tested with 159 diabetic patients in South Korea. Six items were deleted due to content validity and low item-total correlation in item analysis. Two items included in the disrespectful office staff dimension (How often were office staff rude to you? How often did office staff give you a hard time?) were deleted due to cultural differences in the health care environment in South Korea while the items included in the discrimination dimension were deleted because only 3% of the Korean population consists of ethnic minorities. The Korean version of IPC was therefore evaluated with two dimensions and 12 items. The first dimension (health care provider) consisted of 10 items and the second dimension (staff helper) of 2 items (Jun and colleagues, 2016).

The exclusion of all items in the discrimination dimension and certain items in the disrespectful office staff dimension is similar in the Turkish and Korean versions of IPC. Another common feature is that the general Cronbach's alpha coefficients of IPC-TR and the Korean version of IPC indicate close and high reliability (α=0.837 and 0.891, respectively). The Korean version of IPC having two dimensions and the Turkish version having six dimensions is the most important difference between the two versions. We believe the main reason for this difference is that the Korean IPC version is based on the short form of IPC (IPC-18).

When the dimensions of the interpersonal processes of care were evaluated, the mean scores were found to be higher in the elicited concerns, responded (3.30±0.88), explained results, medications (3.07±0.98), compassionate, respectful (3.01±1.03) dimensions and to be lower in the hurried communication (2.85±0.85), discrimination (2.48±0.78) and patient-centered decision making (2.45±1.04) dimensions. A low mean value of the discrimination dimension indicates a positive situation within the context of the interpersonal processes of care. It can be said that the dimensions that are most open to improvement are hurried communication and patient-centered decision-making.

The mean scores of the elicited concerns, responded (4.14±0.93), explained results, medications (4.11±1.14), compassionate, respectful (4.08±0.98) dimensions were found to be higher in a study conducted by Stewart and colleagues, on 1664 subjects in the United States where IPC was used for various racial and linguistic groups. The hurried communication (1.84±0.94) and patient-centered decision making (3.13±1.43) dimensions were found to have lower mean scores (Stewart and colleagues, 2007). The mean scores of the hurried communication (1.55) and patient-centered decision making (3.35) dimensions were found to be lower in another study (n=125) investigating physician-patient interactions and disease-related activities by using IPC in the USA. However, the mean scores of the elicited concerns,

responded (4.43), compassionate, respectful (4.38) and explained results, medications (4.01) dimensions were found to be higher (Drenkard and colleagues, 2016). It can be said that similar findings have been reached in our study and in these two studies conducted with different groups at different times.

The highest mean IPC dimensions cores have been reported to be in the dimensions of compassionate and respectful (4.21±0.90), hurried communication (4.20±0.71) and elicited concerns, responded (4.12±0.87) in a study conducted by Haggerty and colleagues in Canada. The scores were lower in the dimensions of patient-centered decision-making (3.17±1.26) and explained results, medications (3.96±1.00) in the same study. The findings of this study are similar to ours in terms of the interpersonal processes of care dimensions that are most open to improvement.

When the above studies are evaluated, it is seen that there is a general lack in patient-centered decision making in the interpersonal processes of care. With the increasing demands and expectations of the patients, the quality of health care expected from physicians also changes. Patients who look for health and disease related information from many different sources and especially the internet want their decisions to be taken into account for any health problem of the irrelatives or themselves.

Patient-centered care is about treating the patient receiving health care with dignity and respect and involving the patients in all health-related decisions (Department of Health & Human Services State Government of Victoria, Australia, 2015). The concept of patient-centered care now lies in the middle of quality discussions (Epstein & Street, 2011). The American Institute of Medicine recommends care to be provided to the patient in a respectful manner and while ensuring continuous sharing of useful information and supporting the participation of patients and families in the care (Australian Commission on Safety and Quality in Healthcare, 2010).

The studies conducted support the importance of communication skills as a dimension of the physician's competence *(*King *&* Hoppe, 2013*).* In order to improve the quality of the communication between the physician and the patient, physicians should avoid talking rapidly to the patients, repeat important information, make sure the patients can repeat the instructions by asking them questions (feedback technique), and create an environment that eliminates shyness and allows patients to ask their questions comfortably (Weiss, 2007).

A limitation of this study was that we only included patients who had presented to family health centers. Another limitation was the exclusion of two items in the discrimination dimension due to the lack of administrative permission. In addition, the disrespectful office

staff dimension was not included in the study since there are no front office staff or receptionists in the family health centers in Türkiye. In this study, the strong aspects include choosing the family health centers from various neighborhoods and performing psychometric evaluation of the IPC for the first time in Türkiye.

5. Conclusion

The results of this study show that the Turkish version of IPC is valid and reliable as a tool for evaluating interpersonal processes of care. Our findings provide a basis for making comparisons between various interpersonal processes of care and identifying the key areas that need to be emphasized. The results presented here may not be generalized to other health care institutions since they were obtained from the patients who presented to family health centers. Further research is required on the relationship between interpersonal processes of care and the result variables in specific patient groups and inpatients seen at hospitals.

References

Australian Commission on Safety and Quality in Healthcare (2010). Patient centered care: Improving quality and safety by focusing care on patients and consumers. https://pdfs.semanticscholar.org/dce8/582215a272b0a1ee7d5fad43fb1e15a59e85.pdf.

Comfrey, AL., & Lee, HB. (1992). A first course in factor analysis. Hillsdale (NJ): Lawrence Erlbaum Associates.

Çankaya District Governorship, (2017). Family Health Centers in Çankaya. http://www.cankayakaymakamligi.gov.tr/aile-sagligi-merkezi

Department of Health & Human Services State Government of Victoria, Australia. (2015). Patient-centered care explained. https://www.betterhealth.vic.gov.au/health/servicesandsupport/patient-centred-care explained

DeWalt, DA., Callahan, LF., & Hawk, VH. (2010). Health literacy universal precautions toolkit. AHRQ Publication No: 10-0046-EF. Rockville.

Drenkard, C., Bao, G., & Kan, H. (2016). Impact of physician-patient interactions on disease activity in patients with systemic lupus erythematosus. Annals of the Rheumatic Diseases, 75, 407.

Epstein, RM., & Street, RL. (2011). The values and value of patient-centered care. Annals of Family Medicine, 9(2), 100-103.

Guadagnoli, E., & Velicer, WF. (1988). Relation of sample size to the stability of component patterns. Psychological Bulletin, 103(2), 265-275.

Haggerty, J., Burge, F., & Beaulieu., MD. (2011). Validation of instruments to evaluate primary health care from the patient perspective: Overview of the method. Healthcare Policy, 7 (Special Issue), 31-46.

Institute of Medicine, (2013). Health literacy: Improving health, health systems, and health policy around the world: Workshop Summary. Washington, DC: The National Academies Press.

Jun, Y., Song, Y., & Cho, J. (2016). Psychometric evaluation of Interpersonal Process of Care for Korean version. Indian Journal of Science and Technology, 9(35), 1-7.

Khairy, S., Aslan, A., & Samara, A. (2021). Factors associated with self-efficacy in patients with hypertension: a cross-sectional study from Palestine. Journal of Health, Population and Nutrition, 40(1), 1.

King, A., & Hoppe, RB. (2013). ‘‘Best practice’’ for patient-centered communication: a narrative review. Journal of Graduate Medical Education, 5(3), 385-393.

Na´poles, MA., Gregorich, ES., & Santoyo-Olsson, J. (2009). Interpersonal processes of care and patient satisfaction: Do associations differ by race, ethnicity, and language? Health Services Research, 44(4), 1326-1344.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. Methods of Psychological Research Online, 8(2), 23-74.

Stewart, AL., Na´poles-Springer, A., & Gregorich, SE. (2007). Interpersonal processes of care survey: Patient-reported measures for diverse groups. Health Services Research, 42(3), 1235-1256.

University of California San Francisco, (2025). Interpersonal Processes of Care. https://cadc.ucsf.edu/interpersonal-processes-care

Weiss, BD. (2007). Health literacy and patient safety: Help patients understand. Manual for clinicians. Second ed. Chicago: American Medical Association Foundation and American Medical Association.

Zakaria, M., Karim, R., & Rahman, M. (2021). Disparity in physician-patient communication by ethnicity: Evidence from Bangladesh. International Journal for Equity in Health, 20(1), 65.