

# The Turkish adaptation of the compassionate communication scale: A validity and reliability study

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## Abstract

**Purpose:** To determine the psychometric properties of the Turkish version of the compassionate communication scale (CCS).

**Design and Methods:** The methodological and cross-sectional study design was used. The study was conducted with 319 nursing students in Turkey. Data were collected using an information form, the CCS, and the compassionate love scale.

**Findings:** The explanatory factor analysis and confirmatory factor analysis results confirmed the three-factor structure of the scale. Cronbach's  $\alpha$ , item-total correlation, test-retest analysis, and equivalent form analysis showed high reliability. The Turkish version of CCS is a valid and reliable instrument for evaluating sensitive communication.

**Practice Implications:** CCS is a valid and reliable instrument to evaluate the communication skills of nursing students.

## KEYWORDS

compassionate communication, nursing, reliability, validity

## 1 | INTRODUCTION AND BACKGROUND

Communication is not just a transfer of information between the patient and the nurse. Communication includes ethical principles, personal and professional values, empathy skills, spiritual/religious dimensions, and relevance.<sup>1,2</sup> Communication increases the quality of care, patient safety, the motivation of the nurse, and the benefit of the patient and nurse. Communication aims to improve the patient's health and comfort, to be good and to build trust.<sup>3</sup> Therefore, it is often emphasized that good communication is key from the beginning of nursing education to graduation.<sup>4</sup> According to Travelbee, the nurse uses own knowledge and skills in their relationship with the patient to recognize and understand the individual, determine the care needs of them, and achieve the purpose of nursing care.<sup>5</sup> Blake and Blake<sup>1</sup> emphasized that improving communication is important, but there are many problems with it. Therefore, they stated that more efforts and labor were needed to reveal and develop effective communication skills.

Compassion plays an important role in providing high-quality nursing care.<sup>6</sup> Blomberg et al<sup>7</sup> stated that the compassionate nurse's

moral attributes include wisdom, humanity, love, empathy, awareness, and responsive action to alleviate pain. Just as a mother feeds her child by breastfeeding, each nurse also creates a professional identity by inspiring health outcomes that have built with knowledge and skills in care, from their own values, beliefs, and teachings. This is necessary for nurses to define and understand their own and the patient. Thus, each nurse can reach the top feeling of self-realization and self-satisfaction in Maslow's hierarchy. Compassionate care is centered on patient and nurse. It provides an understanding of the causes of their thoughts and behavior. It provides an opportunity to solve the challenges in the psychosexual, cognitive, developmental, and behavioral processes of the patient and nurse.<sup>8,9</sup> Both communication and compassion are important and necessary in revealing these difficulties and developing solutions.

The components that distinguish compassionate communication from sympathy and empathy are accepting the suffering of another human, expressing care, compassion, and understanding and withholding judgment toward a person's shortcomings.<sup>10,11</sup> Compassionate communication involves putting the patient's needs first. Compassionate communication, which is one of the many ways that a

person can be socially supportive, is the closest to emotional support.<sup>11</sup>

In literature compassionate love was defined as feeling human emotions for others, desiring for the best and worrying about them, supporting with compassion for others and especially those who need help, and empathize with them.<sup>12</sup> Sprecher and Fehr<sup>12</sup> have defined their dimensions such as internal feelings, attitudes, behavior motivation. They stated that compassionate love is associated with prosocial behavior, such as helping others or volunteering. Neff<sup>10</sup> reported that compassion was associated with "with a sense of warmth, connection, and concern." According to Neff, compassionate people can accept other's mistakes more easily because mistakes and not being perfect are nature in human life. When this idea is adapted to nursing, it may be a solution for communication conflicts between patient-nurse, nurse-nurse, and nurse-other health professionals. Compassionate communication is associated with altruistic behaviors centered on others. These altruistic behaviors lead to empathy, compassionate care, attention, being honest, respect, and helpfulness in nursing practice.<sup>12,13</sup> Therefore, compassionate communication can increase the positive outcomes of nurses and others. The number of studies related to this concept, which is defined in the literature as compassionate communication in nursing, is very low.<sup>11,14</sup> Therefore, in this study, we studied the validity and reliability of the compassionate communication scale (CCS) in nursing students. For this, the answers to the questions below were investigated.

1. Determination of demographic characteristics of nursing students participating in the study.
2. Development of language validity of the scale.
3. Development of validity and reliability psychometric analysis of the scale.
4. Deciding to adapt the scale to Turkish culture.

## 2 | METHODS

### 2.1 | Participants and setting

The study was conducted with 319 students from a nursing school in Turkey in December 2019. The total number of students in the school was 409 and the purpose and quality of this study were explained to the participants and they were invited to participate in the study. The study was applied to students in the classroom. A total of 85 students were excluded from the study because they were absent at the time of the study or did not agree to participate, and 5 students were not included because the scale was preapplied. Filling in the data collection tools of the participants took 20minutes.

### 2.2 | Procedure

Before starting the study, permission was obtained from Ramos Salazar<sup>11</sup> by Email, who developed the scale. Then, the scale was

translated from English to Turkish, and from Turkish to English by six experts, respectively, meaning integrity was achieved. Then, the scale was applied to five students and the comprehensibility of the items of the scale was tested. These students are not included in the study. A total of 319 students were reached in the first application, and in the second application, 136 students were reached for the retest. This study was evaluated by the University Ethics Committee (29.11.19/10) and it was confirmed that it was ethically appropriate.

## 2.3 | Instruments

### 2.3.1 | Information form

In this form, there are seven questions in which the students can specify the nickname, sex, age, class, communication with others, animal loves, and attitude of their parents towards them. It was prepared by the researchers according to the literature.<sup>11,14</sup>

### 2.3.2 | Compassionate communication scale

The scale was developed by Ramos Salazar.<sup>11</sup> It is a 23-item and 5-point Likert-type scale. The scale has three subdimensions of compassionate conversation, compassionate touch, and compassionate messaging. The minimum and maximum scores are 23 and 115 points, respectively. The minimum-maximum scores that may be obtained from the subdimensions are 9 to 45 for "compassionate conversation," 7 to 35 for "compassionate touch," and 7 to 35 for "compassionate messaging." High scores show high compassionate communication levels. Ramos Salazar<sup>11</sup> reported Cronbach's  $\alpha$  for CCS was .80 and on each subdimensions, it was .91 for compassionate conversation, .91 for compassionate touch, and .88 for compassionate messaging. Cronbach's  $\alpha$  for CCS in this study was .94.

### 2.3.3 | Compassionate love scale

The scale was developed by Sprecher and Fehr<sup>12</sup> and tested for validity and reliability in the Turkish language by Akin and Eker.<sup>15</sup> It is a 21-item and 7-point Likert-type scale. High scores show high compassionate love levels. Cronbach's  $\alpha$  for the compassionate love scale (CLS) in this study was .92. The minimum and maximum scores are 42 and 147 points, respectively.

## 2.4 | Data analysis

SPSS 22.0 and AMOS software program was used to analyze the data. Number, percentage, mean, and standard deviation values were calculated in the definition of the data. In the adaptation process, language and content validity were studied. In the validation process, the suitability of the data for explanatory factor analysis (EFA) was

evaluated with Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test and the reliability of the scale was evaluated with Cronbach's  $\alpha$ . A confirmatory factor analysis (CFA) was applied to evaluate whether the factor model adapted to the data as a result of EFA. For this purpose, the data was transferred to the AMOS software program and a covariance matrix was prepared. Model fit was assessed using several fit criteria such as  $\chi^2$ /degree of freedom, root mean square error of approximation, standardized root mean square residual, goodness-of-fit index, and non-normed fit index. A path diagram of verified model was created. Test-retest analysis was performed to evaluate the reliability and to determine the stability of the scale over time. The Spearman-Rho correlation test was used to determine the relationship between the scales.

### 3 | RESULTS

#### 3.1 | Sociodemographic characteristics

Of the 319 students participating in this study, 76.5% ( $n = 244$ ) were female and 27.9% ( $n = 89$ ) was the second grade. Of the students, 216 (67.7%) had a good communication, 222 (69.6%) had high animal love, 171 (53.6%) had a tolerant and permissive attitude towards their mother, and 121 (37.9%) had a tolerant and permissive attitude toward their father (Table 1).

#### 3.2 | Validity

Before determining the factor structure of CCS, the KMO test was used to determine the suitability of the sample size for factor analysis and Bartlett's sphericity test was used for statistical significance. KMO coefficient was determined as 0.920 and Bartlett's sphericity test was determined as 6680.479 and they were statistically significant ( $P < .01$ ). According to these findings, the sample size is suitable for factor analysis.

According to the EFA results, the factor loads of the items on the scale ranged between 0.641 and 0.818 (Table 2). It was also determined that the total scale had 68.883% of the total variance and the subdimensions had 26.8%, 22.3%, and 19.8% respectively. It was determined that all of the items in the original scale had an appropriate factor load and were included in the factors to which they belong.

A path diagram and model fit values were produced for the 23-item three-factor model (first factor = 1, 2, 3, 8, 9, 10, 15, 16, and 17; second factor = 4, 5, 6, 7, 18, 19, and 20; third factor = 11, 12, 13, 14, 21, 22, and 23). The goodness-of-fit index values calculated for the model produced is presented in Table 3. According to the EFA results, since the fit indexes are not generally at acceptable levels, the suggestions for changes for the development of the model were examined and it was deemed appropriate to define the relationships between the error variances of the same size items. Following the modification applied, all the fit values for the three-factor model

**TABLE 1** Characteristics of the participants

	n	%
Sex		
Male	75	23.5
Female	244	76.5
Class		
1	81	25.4
2	89	27.9
3	78	24.5
4	71	22.3
Communication		
Good	216	67.7
Medium	99	31.0
Bad	4	1.3
Animal love		
Good	222	69.6
Medium	93	29.2
Bad	4	1.3
Attitude of mother		
Democratic	92	28.8
Authoritarian	51	16.0
Tolerant permissive	171	53.6
Neglectful	5	1.6
Attitude of father		
Democratic	90	28.2
Authoritarian	98	30.7
Tolerant permissive	121	37.9
Neglectful	10	3.1

were determined to be within acceptable limits (Table 3). On the basis of these results, the three-factor structure was confirmed. The path diagram of the verified model is shown in Figure 1.

#### 3.3 | Reliability

Cronbach's  $\alpha$  coefficient was applied to evaluate the internal consistency of the scale. Cronbach's  $\alpha$  was .94 for the scale in this study, and it was .94, .94, and .90 for subdimensions, respectively. The item-total correlation of the scale was examined and it was determined that an acceptable level ranged from 0.489 to 0.771 (Table 4). It has been observed that CCS is very reliable in terms of total and all subdimensions.

Test-retest analysis was performed to determine the stability of the scale over time. For analysis, the scale was applied to the sample group ( $n = 136$ ) a second time, 2 weeks after the first application. Correlation values of the relationship between test and retest results were determined as  $r = .784$  for total scale score and  $r = .748$ ,  $r = .659$ , and  $r = .739$  for subdimensions, respectively, and it was found to be statistically significant ( $P < .001$ ).

The lowest and highest scores that can be obtained from CCS are 23 and 115. The lowest and highest scores obtained from the scale

Scale items	Compassionate conversation (26.803%)	Compassionate touch (22.304%)	Compassionate messaging (19.776%)	Common factor variance (68.883%)
1	0.768	0.188	0.118	0.640
2	0.808	0.162	0.098	0.688
3	0.761	0.197	0.066	0.622
8	0.755	0.240	0.147	0.648
9	0.641	0.375	0.227	0.603
10	0.714	0.330	0.225	0.669
15	0.766	0.290	0.166	0.698
16	0.816	0.228	0.174	0.747
17	0.782	0.241	0.203	0.711
4	0.433	0.692	0.109	0.679
5	0.329	0.752	0.183	0.708
6	0.324	0.818	0.182	0.807
7	0.220	0.796	0.234	0.737
18	0.297	0.796	0.278	0.799
19	0.257	0.803	0.317	0.812
20	0.198	0.791	0.306	0.759
11	0.328	0.138	0.758	0.701
12	0.368	0.123	0.730	0.684
13	0.011	0.169	0.724	0.553
14	0.025	0.163	0.724	0.551
21	0.198	0.278	0.760	0.694
22	0.245	0.252	0.750	0.686
23	0.069	0.211	0.773	0.647

**TABLE 2** Explanatory factor analysis results for compassionate communication scale (n = 319)

**TABLE 3** Results of explanatory factor analysis for compassionate communication scale (n=319)

Fit indices	Excellent	Acceptable	Three-factor model	Three-factor model <sup>a</sup>
$\chi^2/df$	≤2	≤5	6.553	2.006
RMSEA	≤0.05	≤0.08	0.132	0.056
SRMR	≤0.05	≤0.08	0.071	0.049
GFI	≥0.95	≥0.90	0.717	0.900
CFI	≥0.95	≥0.90	0.809	0.968
TLI/NNFI	≥0.95	≥0.90	0.787	0.961

Abbreviations:  $\chi^2/df$ ,  $\chi^2$ /degree of freedom; CFI, comparative fit index; GFI, goodness-of-fit index; NNFI, non-normed fit index; RMSEA, root mean square error of approximation; SRMR, standardized root-mean-square residual; TLI, Tucker-Lewis index.

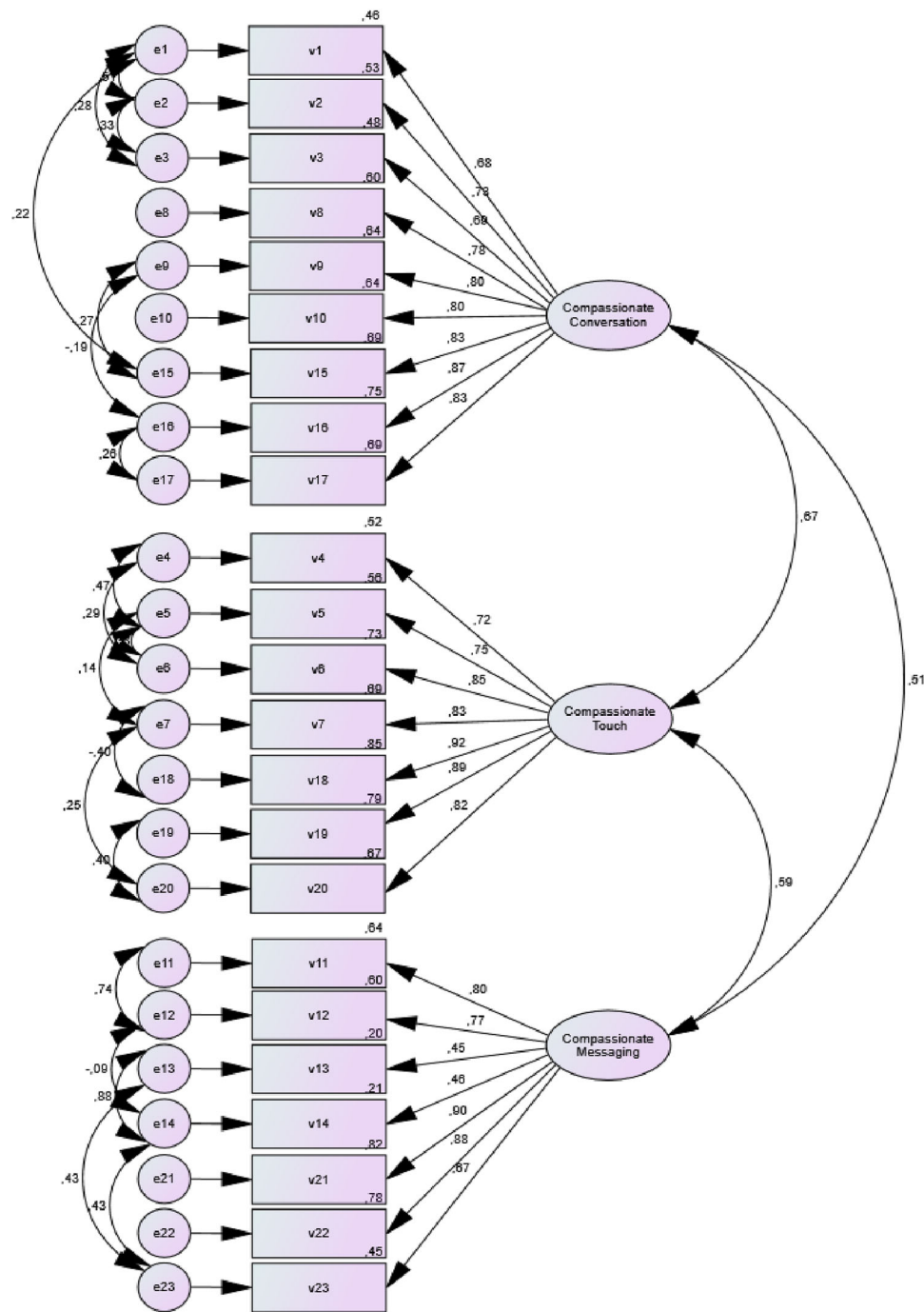
<sup>a</sup>After modification.

were 23 and 115, the average score was determined as 86.78±18.83 in this study (Table 5).

The correlation between CCS total score and subscale scores and CLS scores within the scope of the scale's equivalent form reliability was examined. The lowest and highest scores that can be obtained from the CLS scale were 21 and 147 and were determined as 104.79±18.57 in this study. Correlation values of the relationships between CCS total scores and CLS total scores were determined as 0.277; the correlation values of the relationships between the sub-dimensions of CCS and CLS total score were determined between 0.169 and 0.296 and statistically significant ( $P < .01$ ). The statistical significance obtained by the correlation between the two test scores shows the consistency of the CCS.

## 4 | DISCUSSION

The study was conducted to determine the validity and reliability of the Turkish version of the CCS. Factor analysis of the items in the



**FIGURE 1** Path diagram belonging to the model after modifications [Color figure can be viewed at wileyonlinelibrary.com]

scale was made and it was found that the factor loads of scale items were greater than 0.60. This result was found greater than 0.50 on the original scale<sup>11</sup> and the study of Korean population.<sup>14</sup> When the total variance was examined, it was found that the total variance was greater than 30% in this study and this result was found to be greater than original scale<sup>11</sup> and the study of Korean population.<sup>14</sup> In scale adaptation studies, it is sufficient to explain 30% of the total variance and to be higher than 0.30 for factor load values.<sup>16</sup> Therefore, it can be said that this scale is a good instrument for the Turkish population. In factor analysis, “compassionate conversation,”

“compassionate touch,” and “compassionate messaging” subdimensions were in the same items and names as in the original scale. Three items were removed as the factor load was less than 0.30 in the study of CCS in Korean population.<sup>14</sup>

In this study, the variance explained by factor 1 “compassionate conversation,” factor 2 “compassionate touch,” and factor 3 “compassionate messaging” subdimensions was determined between 19.776% and 26.803%. The variance explained for factors in the original scale was between 9.43% and 28.52%,<sup>11</sup> in Jo et al's<sup>14</sup> study were between 12.0% and 31.0%.

**TABLE 4** Explanatory factor analysis results for compassionate communication scale (n = 319)

Scale items	Corrected item-total <i>r</i>	Cronbach's $\alpha$ ( $\alpha = .944$ )
1	.579	.936
2	.575	
3	.547	
8	.615	
9	.678	
10	.691	
15	.664	
16	.658	
17	.663	
4	.678	.943
5	.699	
6	.737	
7	.692	
18	.765	
19	.771	
20	.720	
11	.660	.898
12	.658	
13	.489	
14	.492	
21	.674	
22	.681	
23	.569	

In this study, a CFA was applied to evaluate whether the factor model adapted to the data as a result of EFA. Following the modification applied, the three-factor structure was confirmed because of all the fit values for the three-factor model within acceptable limits.

It can be said that the Turkish version of CCS and its sub-dimensions is reliable since Cronbach's  $\alpha$  values are higher than 0.80. Reliability is the degree to which a measuring tool can deliver sensitive, consistent, and stable results. One of the methods to find the reliability of a scale is to evaluate the internal consistency. It was

stated that the Cronbach's  $\alpha$  coefficient should be calculated to evaluate the internal consistency of a Likert-type scale.<sup>17</sup> According to the literature, it is stated that a scale is not reliable if the Cronbach's  $\alpha$  value is  $.00 < \alpha < .40$ , it is low reliable if  $.40 < \alpha < .60$ , it is reliable if  $.60 < \alpha < .80$ , and it is quite reliable if  $.80 < \alpha < 1.00$ .<sup>16</sup> The result determined in this study is similar to the original of the scale.<sup>11</sup> Jo et al<sup>14</sup> determined that the Cronbach's  $\alpha$  value was .85 for the total scale, and between .71 and .87 for subdimensions of the scale in the Korean population.

Another test used to evaluate internal consistency is the item-total score correlation. Item-total score correlation coefficient shows the relationship between each item and total value, and it is stated in the literature that the total score correlation of an item should be at least 0.30.<sup>18</sup> In this study, the total item correlation of CCS was determined between 0.489 and 0.771. It was determined in the Korean population by Jo et al<sup>14</sup> between 0.55 to 0.61. In this study, since each of the item-total correlation coefficients of the Turkish version of the scale was found to be quite above the recommended minimum level, it can be said that the internal consistency of the scale and all items are high.

Another consistency criterion is time independence, also called test-retest reliability. Test-retest reliability is the power of a measuring instrument to deliver consistent results from application to application and to vary over time. To find test-retest reliability, the correlation between the scores obtained from the two applications is calculated. For the reliability of the scale, this correlation coefficient is desired to be high and positive.<sup>16,18</sup> In this study, the scale was reapplied to 136 participants 2 weeks later. The correlation coefficient between the two applications was found to be significant ( $P < .01$ ).

For the reliability of this scale, CLS was also applied as a parallel equivalent form. In this study, it was found that all coefficients were statistically significant ( $P < .01$ ). When all the tests applied for the reliability of the CCS are evaluated in this study, it can be said that the Turkish version of CCS is reliable.

## 5 | LIMITATIONS

The limitations of this study were in only one nursing school in Turkey, not being investigated the psychological factors that may affect individuals' sensitive communication status, and was used for the first time in Turkish society.

Compassionate communication scale	Min-max scores to receive from the scale	Min-max scores in received from the scale	Mean $\pm$ SD
Compassionate conversation	9.00-45.00	9.00-45.00	38.91 $\pm$ 6.20
Compassionate touch	7.00-35.00	7.00-35.00	26.87 $\pm$ 7.62
Compassionate messaging	7.00-35.00	7.00-35.00	22.10 $\pm$ 8.05
Total	23.00-115.00	23.00-115.00	86.78 $\pm$ 18.83

**TABLE 5** Minimum and maximum scores that could be achieved and that were achieved from compassionate communication scale and scale total score average (n = 319)

## 6 | CONCLUSION

The findings from this study were consistent with the results of the original scale, and the EFA and CFA results confirmed the three-factor structure of the scale. The Cronbach's  $\alpha$  internal consistency coefficient of the scale showed high reliability in item-total correlation, test-retest analysis, and equivalent form analysis. These results showed that the validity and reliability study of the Turkish version of CCS fits well with the original scale and is a valid and reliable instrument in the evaluation of compassionate communication.

## 7 | NURSING IMPLICATIONS

Communication and its dimensions are important for nurses to share emotional experiences, information, thoughts, and meanings with others. Thus, compassionate communication ensures the nurse to be volunteer, be willing, diligent, and take time to solve the problems between nurses, patients, and others. According to the results obtained from this study, CCS is a measurement instrument that can be used to evaluate the communication skills of nursing students and nursing professions. Nurse educators can use the scale to evaluate compassionate communication and compassionate conversation, compassionate touch, and compassionate messaging subdimensions of their students. In addition, this scale can be used in the therapeutic communication fields in nursing.

### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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### REFERENCES

- Blake T, Blake T. Improving therapeutic communication in nursing through simulation exercise. *Teaching Learn Nurs*. 2019;14(4):260-264.
- Bullington J, Söderlund M, Sparén EB, Kneck Á, Omérov P, Cronqvist A. Communication skills in nursing: a phenomenologically-based communication training approach. *Nurse Educ Pract*. 2019;39:136-141.
- Ferrández-Antón T, Ferreira-Padilla G, del-Pino-Casado R, Ferrández-Antón P, Baleriola-Júlvez J, Martínez-Riera JR. Communication skills

- training in undergraduate nursing programs in Spain. *Nurse Educ Pract*. 2020;42:102-107.
- Li Y, Wang X, Zhu XR, Zhu YX, Sun J. Effectiveness of problem-based learning on the professional communication competencies of nursing students and nurses: a systematic review. *Nurse Educ Pract*. 2019;37:45-55.
- Shelton G. Appraising Travelbee's human to human relationship model. *J Adv Pract Oncol*. 2016;7(6):657-661.
- Watson J. Nursing: The philosophy and science of caring (revised edition). Smith MC, Turkel MC, Wolf ZR. *Caring in Nursing Classics: An Essential Resource*. New York: Springer Publishing Company; 2013. 243-264.
- Blomberg K, Griffiths P, Wengström Y, May C, Bridges J. Interventions for compassionate nursing care: a systematic review. *Int J Nurs Stud*. 2016;62:137-155.
- Adamson E, Dewar B. Compassionate care: student nurses' learning through reflection and the use of story. *Nurse Educ Pract*. 2015;15(3):155-161.
- Lown BA, Muncer SJ, Chadwick R. Can compassionate health care be measured? The Schwartz Center Compassionate Care Scale™. *Patient Educ Couns*. 2015;98(8):1005-1010.
- Neff KD. Development and validation of a scale to measure self-compassion. *Self and Identity*. 2003;2:223-250.
- Ramos Salazar L. *Communicating With Compassion: The Exploratory Factor Analysis and Primary Validation Process of the Compassionate Communication Scale* [Doctoral dissertation]. Tempe, AZ: Arizona State University; 2013.
- Sprecher S, Fehr B. Compassionate love for close others and humanity. *J Soc Pers Relat*. 2005;22:629-652.
- Potter PA, Perry AG. *Caring in Nursing Practice*. Potter PA, Perry AG, Hall A, Stockert PA, *Fundamentals of Nursing*. 7th ed. St. Louis, MO: Mosby Elsevier; 2009:95-105.
- Jo HK, Park SK, Song E. Reliability and validation of the Korean compassionate communication scale. *Front Nurs*. 2019;6(3):175-182.
- Akın A, Eker H. Compassionate loves scale: validity and reliability study. *J Uludag Univ Fac Educ*. 2012;25(1):75-85.
- Büyüköztürk Ş. *Sosyal Bilimler için Veri Analizi El Kitabı*. 16th ed. Ankara, Turkey: Pegem Yayınları; 2012:167-182.
- Karagöz Y (2016). SPSS 23 ve AMOS 23 uygulamalı istatistiksel analizler. Ankara, Turkey: Nobel Akademik Yayıncılık.
- Gozum S, Aksayan S. Guidelines for cross-cultural scale adaptation II: psychometric properties and cross-cultural comparison. *Turkish J Nurs Res Dev*. 2002;5:3-14.

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