Perceived Compassion Scale: A Scale Development Study

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What is already known on this topic?

- *Compassion has generally been addressed in the context of what individuals offer to others or compassion fatigue, and measurement tools have been developed in this context.*

What this study adds on this topic?

- *In this study, a tool was developed to measure the perception of compassion that individuals receive from others.*

ABSTRACT

Objective: The study aimed to develop a valid and reliable scale to measure perceived compassion.

Methods: This scale development study included 249 participants recruited via the simple random sampling method. The Statistical Package for Social Sciences version 29.0 software (IBM Corp.; Armonk, NY, USA) was used to analyze the data. Validity and reliability analyses were used in the development process of the scale. Within the scope of validity, first, content validity was conducted with expert opinions and Davis Technique. Ateşman Turkish readability of the scale was determined, and the construct validity was analyzed by Kaiser-Meyer-Olkin (KMO) coefficient, Bartlett's sphericity test, and exploratory and confirmatory factor analyses. Within the scope of reliability analyses, internal consistency analyses were conducted by performing Cronbach's α reliability coefficient and item–total statistics.

Results: As a result of the analysis, the KMO value of the Perceived Compassion Scale developed was 0.930, and the Bartlett test statistic was 4511.754, $P < .001$. It was found that the 3-factor scale explained 61.68% of the total variance. Seven items were deleted from the scale since they overlapped, and Cronbach's α value of the scale was found to be 0.95. The reliability coefficients of the scale, which consisted of a total of 22 items in 3 sub-dimensions, were determined to be 0.91 in the trust sub-dimension, 0.89 in the affection sub-dimension, and 0.87 in the kindness sub-dimension.

Conclusion: It was determined that the scale is a valid and reliable tool for measuring perceived compassion.

Keywords: Compassion, measurement tool, perceived compassion, perceived compassion scale

Introduction

The concept of compassion originates from the word cumpassio, which consists of the Latin words "com" and "pati". The concept of compassion, which is expressed as being able to feel suffering together, appears as an innate and inseparable component of human beings. Compassion is shown as a moral way of unity and solidarity. Although compassion is not the same as empathy, it is quite similar. Compassion is considered a broader concept, providing motivation to take action to alleviate perceived suffering and generating a kind emotional response. Compassion is a deep and meaningful emotional concept that underlies human relationships. It refers to one individual's understanding, concern, and willingness to help another individual. Compassion does not mean to observe emotion from the outside as a spectator, but to participate in it and share it emotionally.[1] Compassion has 5 components: (1) recognizing suffering, (2) understanding the universality of suffering in human experience, (3) connecting emotionally with the

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individual in distress, (4) tolerating uncomfortable feelings so that s/he can help, and (5) taking action or being motivated to take action to ease suffering.[2]

Compassion is associated with many positive concepts such as empathy, kindness, love, and trust, covering many areas. It connects feelings of empathy with acts of kindness aimed at alleviating others' suffering. Kindness, which signals trust, involves using one's thoughts and feelings to create positive outcomes for others.[3] To cultivate compassion for oneself and others, a person must access compassionate memories and interactions with someone who is warm, nonjudgmental, sensitive to differences, and tolerant.[4] Perceived compassion is the subjective experience of compassion that a person receives and feels from others. The compassion perceived from others can also be a determinant of self-compassion. A study shows that higher levels of perceived parental affection are associated with greater self-compassion in late adolescence, while lower levels of perceived parental affection are linked to reduced self-compassion in this stage.[5] Especially in the field of health services, the concept of perceived compassion plays a critical role in determining the quality of relationships between both health professionals and patients. Perceived compassion is related to individuals' feeling safe and being understood and supported. Also, the compassion that patients perceive in their healthcare experiences can positively affect the healing process and help them cope emotionally. Studies also emphasize that compassion is an important factor affecting the quality of nursing care, positively affecting patients' well-being and satisfaction with care, as well as supporting the physical and psychological well-being of individuals.[6]

Compassion is of utmost importance in the provision of high-quality health care. In nursing care, nurses' perception of compassion centers on empathy, pain relief, understanding patients' unspoken anxieties, and recognizing their needs.[6] Patients feel compassion when addressed by name, treated warmly through body language and tone, and seen as human beings rather than patients. Nurses view compassion as empathy and assistance, while patients see it as kind actions, with some associating it with unconditional love. Compassion, rooted in values, is essential to humanistic healthcare. For professionals to deliver compassionate care, they need supportive organizations that honor humanity and encourage compassion for patients, families, and caregivers alike.[7] It is suggested for healthcare professionals to consider what compassion means to them, how it is positioned in their unique contexts of practice, and how it can enhance compassionate care.[8] Compassion is highly valued in care practices; it is so valued that researchers have conducted research on "Artificial Intelligence technologies and compassion in healthcare".[2] Compassion is care given through empathetic, respectful relationships, described as intelligent kindness and central to how individuals perceive their care.[9] Compassionate care is effective in alleviating symptoms, improving quality of life, and increasing satisfaction with care.[10] While compassion is important in the provision of care services, from a broader perspective, it was thought that the compassion perceived by individuals in their daily lives would also have an impact on their well-being. Based on this assumption, it was thought that developing a measurement tool to measure the compassion perceived by individuals would be useful in care practices. When the literature is examined, it can be seen that although there are various measurement tools in national and international publications on self-compassion[11] and reflection of compassion toward others,[12] there is no measurement tool that evaluates perceived compassion with an approach that reflects the cultural perspective. In this context, Strauss et al[13] reviewed the measurement tools developed for compassion and stated that the interest in measuring self-compassion and compassion towards others has increased, but there is no measurement tool for perceived compassion. This study aimed to develop a scale measuring perceived compassion among individuals.

Methods

Type of Research
This study was designed with a methodological approach to develop the "Perceived Compassion Scale" and to conduct a validity and reliability study and was conducted with individuals over 18 years old residing in Erzurum province between January and May 2023.

Population and Sample of Research
The sample of this study, which was conducted in a single center, consisted of healthy individuals residing in Erzurum. The simple random sampling method was employed to select participants. Accordingly, the sample for this study consisted of 249 individuals over the age of 18 who were open to communication and agreed to participate. After a sufficient number of samples are collected at once to perform confirmatory factor analysis (CFA) and exploratory factor analysis (EFA), some of them (for example, 50%) can be randomly selected and used for EFA, and the remaining part can be used for CFA.[14] In this study, EFA and CFA data collected at once were divided in half and analyzed on 249 data each. The researchers collected data through face-to-face interviews. To achieve meaningful and reliable results in scale development, a sample size of at least 5-10 times the number of scale items is recommended.[15]

Data Collection Tools
The study data were collected by using the "Personal Information Form" and "Perceived Compassion Scale-Draft Form".

Personal Information Form
This researcher-prepared form includes 8 questions on age, gender, marital status, educational status, spouse's educational status, number of children, occupation, and income.

Perceived Compassion Scale-Draft Form
After searching the keywords "compassion, perception, and compassion scale" in databases such as Scopus, Web of Science, PubMed, Science Direct, Google Scholar, and Ulakbim in Turkish and English, a pool of 30 items was prepared by creating a conceptual framework on the subject.[13,16,17] One item in the draft form of the Perceived Compassion Scale (PCS) with a content validity index (CVI) score below 0.80 was deleted from the scale. After the CVI, the pilot application phase was started with the remaining 29 items. The scale-draft form measures individuals' perceptions of compassion, using a 5-point Likert scale ((1) never, (2) rarely, (3) sometimes, (4) often, and (5) always). Higher scores indicate a greater perception of compassion.

Preliminary Application with Draft Form
A pilot application was made to 20 participants using the 29-item draft form of the PCS, which was created in line with the opinions of experts, and the comprehensibility of the scale items was observed. With this application, the incomprehensible expressions in the scale were corrected, and the draft scale was finalized for the actual application. The group included in the preliminary application was not included in the general study.

Collection of Data
The data were collected by the researchers through face-to-face interviews with the individuals who agreed to participate in the study. It took approximately 15-20 minutes for the participants to fill out the data collection tools.

Process Steps
In this study, which was carried out using a methodological approach, the following research processes were followed:

1. A sentence pool was created based on literature data.
2. Face validity was established through expert evaluations of the draft form.
3. Content validity was assessed using the Davis Technique with expert feedback.
4. A preliminary test was conducted with a small sample group.
5. Sample adequacy was tested using Bartlett's and the Kaiser-Meyer-Olkin (KMO) tests to confirm suitability for factor analysis.
6. Exploratory and confirmatory factor analyses were used for construct validity, unsuitable items were removed, and sub-dimensions were defined.
7. Reliability was tested with Cronbach's α for internal consistency across the scale and sub-dimensions.
8. The scale was finalized.

Evaluation of Data

The data were evaluated by using the Statistical Package for Social Sciences version 29.0 software (IBM Corp.; Armonk, NY, USA) in the computer environment. The data related to the descriptive characteristics of the participants were evaluated with number, percentage, mean, and standard deviation. The Analysis of Moment Structures (AMOS) program was used for Confirmatory Factor Analysis. All of the analyses used to determine the validity and reliability of the PCS are presented in Table 1.

Ethical Considerations

Ethical approval was obtained from the scientific research and publication ethics committee (Approval no: 9, Date: November 11, 2022) of Erzurum Technical University located in the east of Türkiye. In addition to scientific principles, universal ethical principles were also followed while conducting the study. In this regard, the principles of informed consent, autonomy, confidentiality, protection of confidentiality, fairness, and non-harm/effectiveness were taken into consideration in the research. The purpose of the study was explained to the participants verbally and through an information form, and their verbal consent was obtained.

Statistical Analysis

The research data were analyzed using the Statistical Package for Social Sciences version 29.0 software (IBM Corp.; Armonk, NY, USA). Frequency, mean, and standard deviation were used to analyze sociodemographic data. All analyses used to determine validity and reliability are shown in Table 1.

Results

Sample Characteristics

The average age of 249 participants included in the study was 32 years (min: 18, max: 57). Fifty-five percent of the participants were female, and 45% were male. Thirty-eight percent of the participants were married, and 62% were single. 78% lived with their families (spouse or parents). Regarding their educational status, it was found that 75% of the participants were graduates of higher education, and 61% were not working in an income-generating job.

Findings Related to Perceived Compassion Scale Validity Analyses

Content validity, readability coefficient, and factor analyses were conducted to determine the validity of PCS. Firstly, content validity was

carried out. For this purpose, the opinions of 12 lecturers, who were experts in the field, were consulted for the experimental form of the PCS, which included 30 statements. The experts evaluated each item in the experimental form of the PCS prepared according to the Davis Technique as "the item is very appropriate," "the item is appropriate but requires minor revision," "the item needs to be adapted," and "not appropriate". In the Davis Technique, the number of experts who marked "the item is very appropriate" and "the item is appropriate but requires minor revision" is divided by the total number of experts, and the CVI for the item is obtained. The value of 0.80 is accepted as a criterion in CVI.[18] Therefore, 1 item in the experimental form of the PCS with a CVI score below 0.80 was deleted from the scale. The items were then edited in line with the expert suggestions. Thus, the number of items in the experimental form of the PCS became 29. These 29 items were renumbered, and the draft form of the PCS to be applied to the sample group was obtained. In the draft form, 6 of the items consisted of negative expressions and 23 consisted of positive expressions. In order to evaluate the consistency of the items with each other, the opinions of the experts were asked again for the 29-item scale and it was determined that the CVI values of all items in the experimental form were above 0.80.

At this stage, the draft form of the PCS was piloted with 20 participants, and it was determined that there were no incomprehensible expressions. In addition, the Ateşman readability analysis was administered to determine the readability level of the experimental form in Turkish, and the readability coefficient was found to be 81.9.[19] According to this result, the PCS experimental form had a readability level that could be easily understood and answered by individuals with primary school education.

Kaiser-Meyer-Olkin coefficient and Bartlett's sphericity test values were calculated to determine the suitability of the data before performing factor analysis on the data obtained from 249 participants to determine the construct validity of the PCS. The KMO value of the experimental form of PCS was found to be 0.930 and the chi-square value of Bartlett's test was found to be significant (chi-square: 4511.754, $P <$ .001). The results of Bartlett's test of sphericity showed that the data group met the normality assumption. A sample size between 5 and 10 times the number of variables increases the accuracy of factor analysis.[15] In this study, the sample size (249 participants) was 8.58 times the number of variables (29 items). According to the results of the KMO test and the ratio of the number of items and participants, it was determined that the PCS was sufficient and suitable for factor analysis. Thus, the EFA was conducted.

Perceived Compassion Scale Exploratory Factor Analysis

Factor analysis is a construct validity technique used to determine whether there is a certain order among the responses to the items in the scale. Exploratory factor analysis is used to reveal the sub-dimensions of the scale and to create clusters of variables. Exploratory factor analysis was conducted on the experimental form data, and then rotation was performed to reveal the comprehensibility of the loadings formed under the factors in a simple and clear way. Oblimin Rotation is an oblique rotation method. Oblique rotation methods allow correlation of factors, and there is no harm in using Oblique Rotation

Table 1. Statistical Methods Used in the Evaluation of Research Data

| Validity Analyses			Reliability Analyses	
Content validity	Readability count	Construct validity (Factor analysis)	Internal consistency	Item total statistics
Davis Technique	Ateşman readability formula	Kaiser-Meyer-Olkin (KMO) coefficient Bartlett's sphericity test Exploratory factor analysis (EFA) Confirmatory factor analysis (CFA)	Cronbach α coefficient	Item deleted measurement (mean, variance, Cronbach α) Item–total correlation
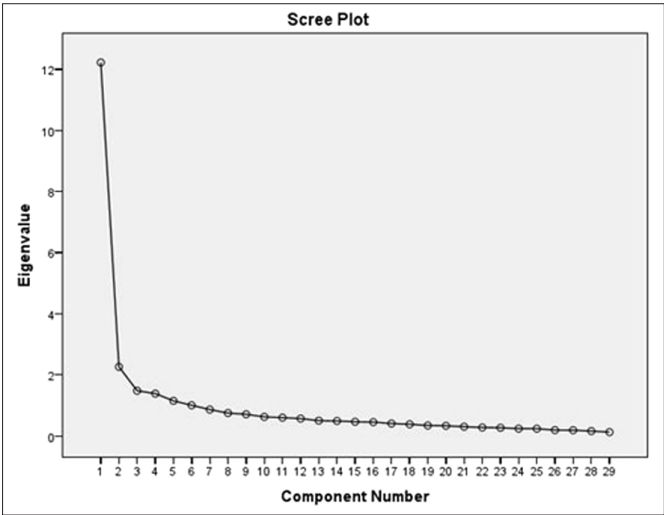
Figure 1. PCS factor- eigenvalue scree plot .

even if there is no correlation. In this study, Oblique Rotation was used considering that there may be a relationship between the factors.[20]

In the first factor analysis performed after the rotation process, 6 factors with eigenvalues greater than 1 were found. These factors explained 67.27% of the total variance, but this 6-factor structure consisted of many variables that were difficult to interpret. For this reason, it was decided to limit the number of factors by looking at the scree plot of factor eigenvalues and the "percentage of total variance" in order to reach conceptually significant factors. As seen in Figure 1, the slope disappeared significantly after the third factor and the factors started to overlap. Also, since it was determined that the contribution

of the factor after the third factor to the explained variance was less than 5% in the 6-factor structure, it was decided to limit the number of factors to 3 factors. In order to reveal the internal structure of the test, the variables were loaded onto the factors and then these factors were named. The 3-factor structure explained 61.68% of the total variance. When examined, the first factor (trust) explained 49.14%, the second factor (affection) explained 6.51%, and the third factor (kindness) explained 6.02%.

Although there were no items with a factor loading value lower than 0.4 in the triple factor analysis, 7 overlapping items (items 9, 15, 18, 24, 26, 28, and 29) with a difference of less than 0.10 were deleted from the scale.[21] Since the aim of the EFA was to group items measuring a common characteristic, overlapping items were removed.[22] Each time an item was deleted from the scale, the rotation process was repeated. As a result of this analysis, a 3-factor PCS with 22 items and factor loadings ranging between 0.44 and 0.75 was obtained. The factors were named by looking at the integrity of meaning between the items distributed under the factors. In this respect, factor 1 (10 items) was related to perceived trust and explained 49.14% of the total variance. Factor 2 (5 items) was related to perceived affection and explained 6.51% of the total variance, while factor 3 (7 items) was related to perceived kindness and explained 6.02% of the total variance. The total variance of the scale was found to be 61.68%. The scale, which consisted of 3 sub-dimensions as "trust, affection, and kindness," and is shown in Table 2.

Perceived Compassion Scale Confirmatory Factor Analysis
The factor structure identified by EFA was tested with CFA. The standardized values showing how well each item represented its latent variable were examined. As a result of the first factor analysis, 5 modifications were made to improve the fit index and bring it to an acceptable level, and as seen in Table 3, the factor loadings showed that

Table 2. Three-Factor Structure, Items, Variance Explained, and Factor Loadings of Perceived Compassion Scale

Item Number	Factors and Expressions	Explained Variance	Factor Load
	Factor 1 Trust	49.14%	
6	People around me make me feel safe.		0.53
7	There are people around me whose moral support I feel.		0.56
8	People around me are there for me when I need care.		0.50
10	I feel valued.		0.44
11	I feel loved.		0.60
12	I feel understood.		0.50
13	There are people who feel that I'm upset, even if I do not speak.		0.68
14	There are people who realize I've been hurt.		0.68
16	There are people with whom I feel comfortable in difficult moments.		0.66
17	There are people who will share my joy.		0.52
	2. Factor Affection	6.51%	
1	People around me treat me kindly.		0.68
2	People around me respect me.		0.60
3	People around me treat me with tolerance.		0.73
4	People around me make me feel good.		0.75
5	People around me make me feel valued		0.74
	3. Factor Kindness	6.02%	
19	The people I share my troubles with listen to me patiently.		0.61
20	People around me make eye contact when talking to me.		0.57
21	People around me are happy to spend time with me.		0.68
22	People around me are kind to me.		0.73
23	People around me treat me with sensitivity and care.		0.72
25	People around me are friendly.		0.54
27	People around me are honest with me		0.54
	Total variance explained	61.68%	

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Table 3. Goodness-of-Fit Indices From the Confirmatory Factor Analysis and Their Standard Values

Index	Normal Value	Allowable Value	Measurement	Result
χ^2/SD (CMIN/DF)	<2	<5	2.531	Acceptable compatibility
GFI (Goodness of Fit Index)	>0.90	>0.80	0.847	Acceptable compatibility
AGFI (Adjusted Goodness of Fit Index)	>0.95	≥0.80	0.807	Borderline acceptable compatibility
CFI (Comparative Fit Index)	>0.95	>0.90	0.913	Excellent compatibility
RMSEA (Root Mean Square Error of Approximation)	<0.05	<0.08	0.079	Acceptable compatibility
SRMR (Standardized Root Mean Square Residual)	<0.05	<0.08	0.059	Acceptable compatibility
NFI (Normed Fit Index)	>0.95	>0.80	0.865	Acceptable compatibility
TLI (Tucker-Lewis Index)	≥0.95	≥0.80	0.900	Acceptable compatibility
RFI (Relative Fit Index)	>0.95	>0.90	0.845	Borderline acceptable compatibility
IFI (Incremental Fit Index)	>0.90	–	0.914	Excellent compatibility
PGFI (Parsimony Goodness of Fit Index)	>0.89	>0.50	0.973	Acceptable compatibility
PNFI (Parsimony Normed Fit Index)	>0.89	>0.50	0.753	Acceptable compatibility

the single-factor structure of the scale reached an acceptable level. The path diagram, goodness-of-fit criteria, and modification indices were considered. For the model with 22 items and 3 factors, the chi-square value was $\chi^2 = 508.709$, $df = 201$, and Root Mean Square Error of Approximation (RMSEA) = .079. Chi-square statistics, Goodness of Fit Index (GFI), Comparative Fit Index (CFI), and RMSEA values were evaluated to test the model fit to the data. As a result of CFA, CMIN = 508.709; Degree of Freedom (DF) = 201; CMIN/DF = 2.531; CFI = 0.913 and GFI = 0.847 were determined. Confirmatory factor analysis with standardized results is shown in Figure 2.

Findings Related to the Reliability Analysis of Perceived Compassion Scale

Item–total score statistics and Cronbach's α value were used in the study to determine the reliability of PCS. Item total score correlation shows the relationship between the item and other items in the scale. While low values indicate that the contribution of the item to the scale is low, 0.30 is usually considered an acceptable lower limit.[23] However, in cases where the item–total score correlation is below 0.30, the researchers may decide to keep or delete that item from the scale based on the effect of its deletion on Cronbach's α reliability coefficient. This analysis was conducted on 22 items, excluding 7 items removed from the scale. As seen in Table 4, there were no items with a negative item–total score correlation below 0.50. In addition, since no significant change would occur in Cronbach's α reliability coefficient with item exclusion, no item was deleted at this stage. It was decided to keep 22 items that fulfilled the reliability of the scale. The items were renumbered and shown in Table 4.

The internal consistency of the scale was assessed using Cronbach's α coefficient, which ranges from 0 to 1, with values closer to 1 indicating high reliability. Table 5 presents the Cronbach's α coefficients for PCS and its sub-dimensions. The PCS demonstrated a high overall Cronbach's α of 0.95. Sub-dimensions showed Cronbach's α coefficients

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Table 4. PCS Item and Item–Total Score Statistics

Item Number (FN)	Item Number (LN)	Item Deleted Measurement (Mean)	Item Deleted Measurement (Variance)	Item–Total Score Correlation	Item Deleted Cronbach's α
1	11	79.317	194.01	0.647	0.948
2	12	79.152	195.43	0.655	0.947
3	13	79.236	195.13	0.685	0.947
4	14	79.674	190.46	0.694	0.947
5	15	79.586	189.64	0.770	0.946
6	1	79.751	191.92	0.622	0.948
7	2	79.236	193.32	0.607	0.948
8	3	79.558	190.8	0.631	0.948
10	4	79.253	193.72	0.622	0.948
11	5	79.389	190.94	0.722	0.946
12	6	79.678	190.74	0.657	0.947
13	7	79.638	188.76	0.707	0.947
14	8	79.686	189.39	0.678	0.947
16	9	79.526	189.25	0.763	0.946
17	10	79.325	191.95	0.682	0.947
19	16	79.531	190.83	0.682	0.947
20	17	79.297	195.57	0.612	0.948
21	18	79.261	195.44	0.606	0.948
22	19	79.397	191.61	0.722	0.947
23	20	79.530	190.37	0.733	0.946
25	21	79.642	196.52	0.515	0.949
27	22	79.726	194.92	0.578	0.948

FN, first number; LN, last number.

Table 5. Cronbach's α Coefficients of Perceived Compassion Scale and its Sub-Dimensions

Scale and Sub-Dimensions	Number of Items	Minimum and Maximum Possible Score	Mean Score $\bar{x} \pm SD$	Cronbach's α
Trust	10	10-50	37 ± 7.43	0.91
Affection	5	5-25	19 ± 3.70	0.89
Kindness	7	7-35	26 ± 4.83	0.87
PCS	22	22-110	83 ± 14.51	0.95
PCS, Perceived Compassion Scale.				

of 0.91 for trust, 0.89 for affection, and 0.87 for kindness, indicating high reliability across all dimensions.

Creation of the Final Scale

As a result of all the analyses, 22 of the items (1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 16, 17, 19, 20, 21, 22, 23, 25, 27) in the 30-item experimental form created at the beginning of the study were used to form 3 sub-dimensions ((items 6, 7, 8, 10, 11, 12, 13, 14, 16, 17) 1—Trust), ((items 1, 2, 3, 4, 5) 2—Affection, and (items 19, 20, 21, 22, 23, 25, 27) 3—Kindness), and it was determined that these items met the validity and reliability requirements and could be included in the final scale (Table 6).

The items that met the validity and reliability requirements were renumbered. There were no reverse-coded items in the final 5-point Likert-type scale. The minimum possible score was 22, and the maximum possible score was 110. A high score on the scale indicated a high level of perceived compassion.

Table 6. Final Perceived Compassion Scale

| Number of Items	Scale and Sub-dimensions	Item
1	Trust	People around me make me feel safe.
2		There are people around me whose moral support I feel.
3		People around me are there for me when I need care.
4		I feel valued.
5		I feel loved.
6		I feel understood.
7		There are people who feel that I'm upset, even if I do not speak.
8		There are people who realize I've been hurt.
9		There are people with whom I feel comfortable in difficult moments.
10		There are people who will share my joy.
11	Affection	People around me treat me kindly.
12		People around me respect me.
13		People around me treat me with tolerance.
14		People around me make me feel good.
15		People around me make me feel valued.
16	Kindness	The people I share my troubles with listen to me patiently.
17		People around me make eye contact when talking to me.
18		People around me are happy to spend time with me.
19		People around me are kind to me.
20		People around me treat me with sensitivity and care.
21		People around me are friendly.
22		People around me are honest with me.
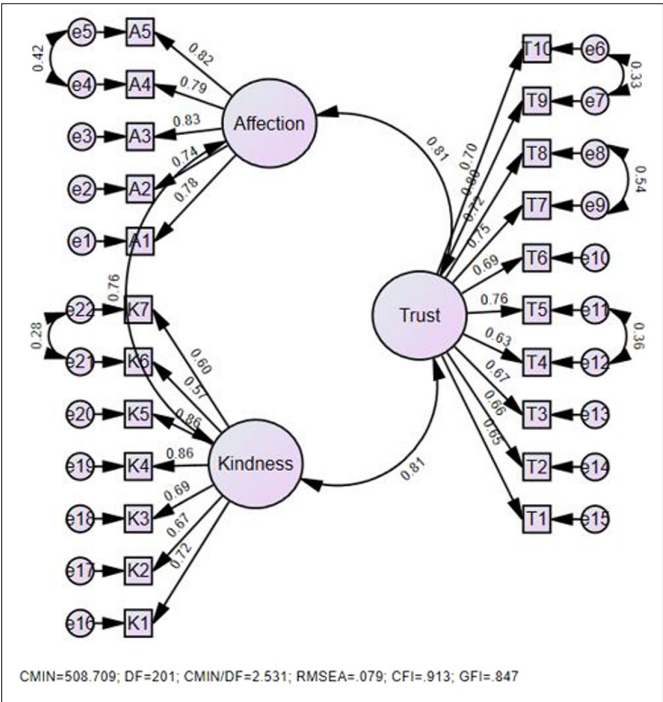
Figure 2. PATH diagram .

Discussion

Compassion has been a concept that has been discussed in ancient spiritual and religious traditions for thousands of years.[16] The concept of compassion concerns many disciplines, and in recent years, the interest of researchers, clinicians, teachers, and other professionals in this concept has continued to increase.[13] Compassion involves being open to and affected by the suffering of others, and thus desiring to alleviate their suffering. It also involves patience, kindness, and impartiality.[24] On the other hand, the concept of compassion—frequently discussed by humanist nursing theorists such as Watson—is extremely important in nursing care.[25] In the systematic review conducted by Perez-Bret et al[17] to define compassion in healthcare, it is emphasized that compassion should be a task in the daily work of healthcare professionals. In national and international literature, compassion for oneself and others is generally emphasized.[13,16,17] However, studies on the compassion that an individual perceives from others are quite limited.[26] Therefore, this measurement tool that has been developed by us will fill an important gap in terms of measuring the compassion perceived from other people.[13]

There are tools in the literature that measure compassion, but these tools were generally developed to measure self-compassion.[24,27,28] There are scale studies related to compassion in the international literature.[29] In this context, Strauss et al[13] reviewed the measurement tools developed for compassion and stated that the interest in measuring self-compassion and compassion towards others had increased, but there is no measurement tool for perceived compassion. Neff[24] considered compassion as self-compassion and developed a self-compassion scale to determine self-compassion accordingly. The self-compassion scale addresses the compassion individuals feel for themselves. Neff's scale focuses on self-compassion rather than compassion or compassion towards others more generally. Pommier et al,[29] on the other hand, applied the self-compassion model to the compassion felt for others by utilizing Neff's Conceptual Structure and suggested that compassion felt for others, like self-compassion, can be seen as kindness, awareness, and common humanity. Pommier developed a

measurement tool to measure compassion felt for others that includes individual self-report statements. However, these measurement tools measure self-compassion or compassion felt for others. Although there is no comprehensive measurement tool that can be used to determine the levels of compassion perceived from others in the literature, Hacker determined 4 sub-dimensions within the scope of the "relational compassion scale" that he developed, which is a 16-item 4-point Likert-type scale, and 1 of these sub-dimensions consists of 4-question statements measuring "the beliefs about how compassionate other people are towards them." The theoretical structure of all these sources was used when creating the question pool of the scale. However, the scale developed in the present study is a comprehensive measurement tool consisting of 22 items and 3 sub-dimensions in the 5-point Likert style to measure the compassion that individuals perceive from other people. Moreover, no measurement instruments have been found in Türkiye to reflect cultural approaches and to measure perceived compassion in the context of health. Although the perception of compassion is important in every period of life, it gains importance in many vital periods such as marriage, pregnancy, and in case of illness. In this context, measuring individuals' compassion perception can make inferences about their well-being. For this reason, the study was conducted to create a valid and reliable scale that can measure individuals' perceptions of compassion. As a result of the study, it was determined that the "Perceived Compassion Scale" is a valid and reliable measurement instrument.

Validity and reliability criteria should be fulfilled in the development of measurement instruments. Content validity in scale validity analyses shows that the items in the measurement instrument adequately represent the measured construct and have the scope to measure the determined objectives. Davis Technique is among the methods used in content validity. This technique is performed by experts examining all of the statements in the experimental form and evaluating their suitability.[20] It is necessary for the CVI value to be higher than 0.80. A total of 12 experts evaluated this study. Compassion is of close interest to all departments as it is an important component of care. Therefore, opinions were obtained from 2 faculty members from each department of nursing principles, gynecological health and disease nursing, internal medicine nursing, surgical nursing, psychiatric nursing, and public health nursing, making a total of 12 expert opinions. In line with the suggestions, an item with a CVI value below 0.80 (I get negative energy from people around me) in the experimental form of the scale was removed from the scale, and the items were rearranged. After the content validity, the number of items decreased from 30 to 29 and the experimental scale was created. The CVI for the remaining items ranges from 0.85 to 0.95, showing acceptable validity.

Measurement instruments being easy to understand affects the validity of the scale. In order to evaluate the comprehensibility of this scale, the experimental form was piloted, and no incomprehensible items were found in the scale. On the other hand, the comprehensibility of the items was tested by using the Turkish readability formula defined by Ateşman. In this formula, readability varies between 1 and 100 points. The scale is categorized as "very easy" (90-100), "easy" (70-89), "moderately difficult" (50-69), "difficult" (30-49), and "very difficult" (1-29).[19] The Turkish readability index of PCS was found to be 81.9. Therefore, it was determined that it had a "good level" of readability and that individuals with primary school and above graduation could easily read it.

Exploratory factor analysis is a complex and multivariate statistical technique widely used in information systems, social sciences, education, and psychology. This technique is mainly suitable for scale development. The construct validity of the scale was examined in the EFA by using the data collected with the experimental form. Factor analysis is a construct validity technique and shows whether there is an order between the responses given to the items in the scale. It indicates whether the construct intended to be measured by the measurement instrument is actually measured or not. With factor analysis, the items in the scale can be grouped under several headings, and a large number of factors are reduced to form a smaller set. The analysis continues with the deletion of some statements until a structure containing a sufficient number of items to measure the area to be measured is reached.[30,31]

It is recommended that the sample size for factor analysis should be 5-10 times the number of items.[15] In another source, sample sizes are stated as poor for 100, moderate for 200, good for 300, very good for 500, and excellent if conducted with 1000 or more participants.[31] In this study, the 29-item experimental form was administered to 249 participants, 8.58 times the number of items, and the sample size, which was between 200 and 300 participants, was evaluated as suitable for factor analysis on the data obtained with the PCS experimental form. In order to test the suitability of the data for analysis prior to factor analysis, it is recommended to calculate the KMO coefficient, which provides information on sampling adequacy, and to apply Bartlett's sphericity test.[28] Before the analyses, the KMO coefficient and Bartlett's sphericity test were carried out. The KMO value should range between 0 and 1. The closer it is to 1, the more suitable the data is for EFA.[32] It was determined that the KMO value of the experimental form of PCS was 0.93. This value shows that its suitability for factor analysis is excellent. Bartlett's test should also be statistically significant ($P < .05$).[30] Bartlett's test statistic value of the experimental form was 4511.754, and statistical significance was determined as $P < .001$. The KMO and Bartlett's test results indicate that the sample size is suitable for EFA.

While determining the factor structure of PCS, the percentage of total variance explained was also taken into consideration. When the literature is considered, the variance ratio should be above 50%.[33] It was found that the developed scale explained 61.68% of the total variance. This result meets the variance ratio considered to be ideal for a scale. Factor loading is defined as the correlation coefficient between the factor in which the item is located and the total score.[33] While there are no items with a factor load value lower than 0.4 in the developed scale, the factor load values of the items are between 0.44 and 0.75. It was determined that the explained variance fell within the desired range (40%-60%).

Confirmatory Factor Analysis is used to assess the validity of the structure identified in EFA during the psychometric evaluation of scales. In CFA, several fit indices are examined. For acceptable fit, CMIN/df values between 3 and 5, RMSEA values between 0.06 and 1, and GFI, NFI, and TLI values of 0.80 or higher are considered acceptable. Additionally, CFI values of 0.85 and above indicate an acceptable fit.[34,35] In this study, all fit indices were found to fall within the expected range, suggesting that the PCS tested with CFA is a valid and reliable measurement tool. In CFA, the 3-factor structure of the scale was confirmed. The results of the confirmatory factor analysis conducted with its 22-item 3-factor structure are given. As a result of the first factor analysis, 5 modifications were made to improve the fit index and bring it to an acceptable level, and as seen in Table 3, the factor loadings showed that the 3-factor structure of the scale reached an acceptable level. The importance of making modifications is to ensure that the chi-square value decreases as a result of the establishment of the proposed relationship in the scale, so that the scale model reveals a good fit. One of the most important points when making modifications is that the substances to be linked together for the proposed modification can be explained theoretically. Therefore, recommendations on

the same dimension of modification should be taken into account and the relationship between the substances to be modified should be taken into account. When making modifications, the same process should be repeated, starting from the statement that will make the most improvement in the chi-square value until the fit index of the model reaches a sufficient level. The construct validity of the scale was confirmed with the modifications made in this direction. Although 3 modifications are generally recommended in the literature, there are also studies that make more modifications.[36] In this way, it was understood that CFA confirms the model which occurred as a result of EFA and which is in accordance with the theoretical foundations of perceived compassion.

Reliability is crucial for scale quality. Internal consistency is assessed using item–total score correlation, with items scoring 0.20 and above deemed acceptable. A high item–total correlation indicates consistency, while a low correlation indicates inconsistency. The PCS has no items with a correlation below 0.30, indicating reliability. Internal consistency shows that all subgroups of a scale measure the same construct. Cronbach's α is used to determine this, with high values indicating item agreement. A Cronbach's α between 1.00 and 0.80 indicates high reliability, 0.60-0.79 indicates moderate reliability, and 0.40-0.59 indicates low reliability.[37] Perceived Compassion Scale has high internal consistency, with an overall coefficient of 0.95, and sub-dimension coefficients of 0.91 (trust), 0.89 (affection), and 0.87 (kindness), indicating high reliability.

The psychometric properties of the PCS were thoroughly evaluated in a validity and reliability study. The analysis yielded a valid and reliable scale with 22 items across 3 sub-dimensions: trust, affection, and kindness. This 5-point Likert-type scale can be scored from 22 to 110 points, with no reverse-coded items. The sub-dimensions align closely with the concept of compassion as it relates to trust, kindness, and caring, suggesting that the scale effectively captures components of perceived compassion. No existing tool in the literature measures perceived compassion within Turkish culture, so this scale and its sub-dimensions are expected to significantly contribute to the field by providing a broad measure of perceived compassion. The scale is valid and reliable for assessing perceived compassion in adult individuals.

Limitations of the Study

This study was conducted in a single center, which poses a limitation in terms of the generalizability of the results. Comparing the findings obtained by conducting similar studies in different centers and populations may contribute to a more comprehensive evaluation of the validity and reliability of the scale.

Conclusion

As a result of the study, the 22-item Perceived Compassion measurement tool was determined to be a valid and reliable instrument for assessing psychometric properties in the adult population. It demonstrated sufficient-to-good internal consistency. The tool, along with its subdimensions—trust, affection, and kindness—proved to be valid and reliable. The PCS, developed and validated through this study, was finalized with 22 items distributed across 3 factors. It achieved a satisfactory Cronbach's α, confirming its reliability. This robust tool is designed to assess compassion as perceived by individuals aged 18 and above, offering valuable insights for future research. This measurement tool can make significant contributions to identifying perceived compassion within healthy populations. Additionally, it has the potential to enrich the academic literature and serve as a valuable resource for professionals in fields such as nursing, midwifery, medicine, and educational sciences. It can support the analysis of perceived compassion and guide efforts to enhance compassion perceptions through policies, educational initiatives, and collaboration with civil society and other stakeholders.

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