

# Validity and Reliability of Turkish Version of the Scale on Community Care Perceptions (Scope) for Nursing Students

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Received: 15.03.2021

Accepted: 12.08.2021

## ABSTRACT

**Objective:** The purpose of study was to conduct a study on validity and reliability of Turkish version of the “Community Care Perceptions for Nursing Students”.

**Methods:** This methodological study was conducted in two of the universities located in İstanbul with 386 students between the dates May and December in 2019. During the designation of the Turkish version of the scale back-translation method was utilized for the language adaptation. Validity was assessed as content and construct validity and the reliability was assessed as internal consistency, test-retest analysis. Content validity was evaluated with expert views, construct validity with confirmatory factor analysis, internal consistency with Cronbach’s Alpha coefficient, test-retest results with Pearson’s Correlation analysis.

**Results:** Cronbach’s Alpha coefficient was found as .94 and sub-dimensions ranged between .65-.88. Item total correlation was found over .20 excluding 26th, 28th items, test-retest correlation was calculated as .72. Content validity index was determined as .99. Confirmatory factor analysis was approved the structure of scale consisting of 33 items and 3 factors.

**Conclusions:** Nursing Students’ Community Care Perceptions Scale was found to be valid and reliable. It may be used to assess community care perceptions of nursing students taking the course of community care nursing in Turkey.

**Keywords:** Community, perception, scale, nursing.

## 1. INTRODUCTION

Public health nursing is defined by American Nurses Association (ANA) as “the practice of promoting and protecting the health of populations using knowledge from nursing, social, and public health sciences” (1). Public health practices are general and comprehensive not limited to a certain disease or age groups. It is a consistent and dynamic process. Public health nursing is responsible for protection and development of health, health education, management, collaboration as well as the management and maintaining the education provided to groups families and individuals in community in the light of holistic approach (2, 3).

At present time, health care services changing to provide caring services at an institutional setting into providing caring services at home setting of the patients (4). Even though caring perception transforms into a societal form, it is not the same for nursing students, because nurses prefer working in hospitals to societal caring settings (5, 6). Hospitals present

an attractive working environment for nurses with their equipment resources and technological infrastructure. Thus, the interest of nurses to societal care remain rather low compared with hospital care settings (7).

Students consider community health care as a placement requiring limited clinical skills and the patients never become healthy again (7). Community health care perceptions of students do not reflect the roles, responsibilities of public health nurses and realities of this field appropriately (6). Additionally, practice placements in community care are regarded as challenging because such placements are required to be innovative and creative in problem-solving and establishing relations (8). Thus, this placement is needed certain strategies aiming to increase awareness and realization (6). Internship during training provides students experience in variety of health fields to help them focus a future career. Even though students experience various

internship opportunities, career process is rather complex and effected by great number of variables (9). Obtaining information about how community care perceptions of students develop during education as well as the factors effecting this development will be useful to understand the assumptions laying beneath the community care placement's being less popular. Educators might re-design the curriculum accordingly effecting the willingness of students to work in community care services positively and hindering the unrealistic expectations and misunderstandings (10).

It is absolutely crucial that educational institutions should describe students' perceptions on different health fields at early stages of their education in order to help students to make logical choices. Various studies exist in literature focusing on career preferences of nursing students on different fields of health care services (11, 12, 13). The studies conducted on this issue include some scales majority of which related to working with old and mentally disordered patients whereas not any scales exist assessing the perceptions of nursing students on community-based caring. As the importance of community-based care increased, a scale is needed to assess the perception of students and consider community care as a career option. Scale on Community Care Perceptions (SCOPE) for nurse students was developed by Van Iersel et al. in 2018 (14).

The aim of this study was to determine validity and reliability of the Turkish form Scale on Community Care Perceptions for nursing students.

## 2. METHOD

This methodological study was conducted with students of two of the universities located in Istanbul between the dates 2018-2019 spring and 2019-2020 fall semesters. The study population included nursing students taking the course of Public Health Nursing. Students in both of the universities realize internship on community health practices for eight hours a week, 14 weeks and 112 hours total in a year. It is recommended for scale adaptation studies that each item of the scale should involve 10-20 participants and confirmatory factor analysis should include at least 300-500 participants (15). Data were collected from 386 participants.

For pilot test, data collection tools were implemented to 20 students in total. As the result of pilot test recommendations, an expression "In my opinion, working in the field of community health nursing is a ..... profession" was added for a better understanding of the scale.

### 2.1. Measurement

The data were collected based on self-report in class environment following the Public Health Nursing course's practice section. Two weeks later retest was administered with 50 participants. Personal Information Form and Scale on Community Care Perception for Nursing Students were utilized for data collection.

### 2.2. Personal Information Form

This form prepared compatible with the relevant literature consisted of six personal questions including "age, gender, education of parents, having a relative working in community care center, having a condition requiring a community health care service for themselves or family members"

### 2.3. The Scale on Community Care Perception (SCOPE) for Nursing Students

The scale was developed by Margriet van Iersel et al. in 2018 having three sub-dimension and 33 items in total and additional last two items examining the reasons of a health field selection. The first 11 items were intended to identify community care, the next five items (12<sup>th</sup>-16<sup>th</sup>) community care for practice placements and the last 17 ones (17<sup>th</sup>-33<sup>rd</sup>) community care as a future profession. Community care perception sub-dimension was divide into two sub-groups as: *Enjoyment* (1<sup>st</sup>-6<sup>th</sup>, 10<sup>th</sup>-11<sup>th</sup> items) and *Utility* (7<sup>th</sup>-9<sup>th</sup> items). Community care perception subscale measures the affective component of community care as a whole. "Enjoyment" refers to how working in the field of public health is a work for students. "Utility" can be seen as altruism, the meaning students give to caring for the needs of person. Community care for practice placement sub-dimension had two sub-groups as: *learning possibilities* (13<sup>th</sup>, 15<sup>th</sup> and 16<sup>th</sup> items) and *personal satisfaction* (12<sup>th</sup> and 14<sup>th</sup> items). "Learning possibilities" reflects the importance students give to learning activities. "Personal satisfaction" is represented by freedom of action and the ability to perform in the role of nurse." Community care as a future profession sub-dimension covered four sub-groups as: *caregiving* (17<sup>th</sup>, 22<sup>nd</sup>, 25<sup>th</sup>, 28<sup>th</sup> and 32<sup>nd</sup> items), *complexity and workload* (18<sup>th</sup>, 21<sup>st</sup>, 26<sup>th</sup> and 27<sup>th</sup> items), *collaboration* (19<sup>th</sup>, 20<sup>th</sup>, 24<sup>th</sup> and 31<sup>st</sup> items), *Professional development* (23<sup>rd</sup>, 29<sup>th</sup>, 30<sup>th</sup> and 33<sup>rd</sup> items). Placement and future profession subscales measure cognitive attitudes of a placement as student, and of a profession as graduate in community care. "Caregiving" can be perceived as independent roles. "Collaboration" reflects the importance students place on the diversity of people they work with in the context of practice. "Complexity and workload" refers to the perceived stressful work situations encountered or to be encountered in community nursing. "Professional development" refers to the importance students place on high nursing status, diversity in care, and nursing skills. The items were scored between 1 (negative expressions) and 10 (positive expressions). The expressions in Community care sub-dimension were placed randomly. Some negative expressions were placed in the left side of the questionnaire whereas some of them in the right. Positive expressions in 2<sup>nd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> items of the scale were placed in the left side (positive expression was coded as 1). Thus, scores of the items were reversed during the analysis. Sub-dimensions of the scale can be used separately. The lowest score that can be taken from the scale is 33 and the highest score is 330. This scale has no cut off point. A high scale score indicates that students have high perceptions of

community care. The SCOPE items are available in Turkish form (see supplementary material 1).

### Language Equivalence-Cultural Adaptation and Content Validity

In the language adaptation process of Community care Perception Scale for Nursing Students, two linguists with full command on both language (Turkish-English) translated the scale from English (the original language of the scale) into Turkish. Turkish version of the scale was examined by the researchers and put into the final form. The views of 10 Public Health Nursing professionals were received in order to ensure content validity. Both qualitative and quantitative opinions were received from experts for content validity. As quantitative opinions, the content validity of the scale was evaluated with the Content Validity Index (CVI) both on an item basis and in terms of the overall scale. The CVI for each item was found by dividing the number of specialists who rated the scale as 3 or 4 by the total number of specialists. CVI on the scale level was found by finding the arithmetic mean of the item CVI scores. The professionals were asked for scoring the appropriacy and comprehensibility of each item in the scale [1 point: Not appropriate-4 points: Very appropriate]. Qualitative opinions were received from experts to evaluate the cultural adaptation of the scale. Necessary arrangements were realized in the light of views of professionals. Following the ensuring of content validity, the scale was translated into back to English by two other linguists. Back translated forms of the scale were united by the third linguist.

### 2.4. Statistical Analysis

The data were assessed using a statistical programs (SPSS 20 and LISREL 8.8). Content and construct validity analysis for the validity and internal consistency and test-retest analysis for reliability of the scale were held by the researchers. Average, percentage and standard deviation parameters were utilized in the analysis of descriptive findings. In the validity and reliability of the scale, Content Validity Index for content validity; Confirmatory Factor Analysis for construct validity; Cronbach's Alpha Coefficient for internal consistency; Pearson's Correlation Analysis for item analysis and test-retest were benefited ( $p < 0.01$ ).

### 2.5. Ethical Considerations

The permission from the owner of the scale was obtained for the use of Community Care Perception Scale for Nursing Students via e-mail. Prior to implementation of the study Ethical Committee approval (18.02.2019-42) and permission from universities were obtained. Students were requested to sign the written informed consent forms and students' and universities' names were not mentioned in the study.

## 3. RESULTS

The mean ages of participants were  $22.37 \pm 1.88$  and 81.1% of them were females. 76.9% of them studied in public university. 40.5% of their mothers and 31.1% of their fathers were primary school graduate. 56.5% of them reported that they worked in a public health center and 26.9% of them stated a relative worked there. 19.4% of them were identified as having a condition requiring community care for themselves or a family member (Table 1).

**Table 1.** Demographic characteristics of students (N=386)

Characteristics		Min. – Max.	Mean±Sd	
Age		20-39	22.37±1.88	
		n	%	
Gender	Female	313	81.1	
	Male	73	18.9	
Mother's education	Illiterate	46	11.9	
	Literate	23	6.0	
	Primary school	156	40.5	
	Middle school	55	14.3	
	High school	65	16.9	
University and +	University and +	40	10.4	
	Father's education	Illiterate	10	2.6
		Literate	15	3.9
		Primary school	120	31.1
		Middle school	87	22.5
High school		99	25.6	
University and +	University and +	55	14.2	
	Having family relative working in the community care center	Yes	104	26.9
No		282	73.1	
Having a condition requiring a community health care service for themselves or family members	Yes	75	19.4	
	No	311	80.6	

### 3.1. Results on Validity

#### Content Validity

Some minor corrections were made in 1<sup>st</sup>, 19<sup>th</sup> and 21<sup>st</sup> items in accordance with professionals' views. According to scores stated by 10 professionals the mean item Content Validity Index score was found .90-1.00 and it was .99 for the scale in total.

### Construct Validity

The construct of the scale was confirmed by Confirmatory Factor Analysis. When the general fit indices related with original version were examined, Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI) were identified as perfect, Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA) as good and Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Residual (RMR) as weak.  $\chi^2$ /Degree of Freedom ( $\chi^2/df$ ) was determined as moderate fit (Table 2).

### 3.2. Results on Reliability

Cronbach's Alpha coefficient was indicated as .91 for community care sub-dimension; .80 for community care for practice placement sub-dimension; .87 for community care as a future profession sub-dimension and it was .94 for the SCOPE of the scale. Test-retest correlation of the scale ranged between .49-.72 ( $p < .001$ ). The mean scores of the sub-dimensions were assessed as  $7.71 \pm 1.61$  for community care sub-dimension;  $7.33 \pm 1.80$  for community care for practice placement sub-dimension and  $6.50 \pm 1.39$  for community care as a future profession sub-dimension (Table 3).

**Table 2.** Confirmatory factor analysis fit indices

Fit indices	Reference *	Result
$\chi^2$ /degrees of freedom	5 ↓=Medium fit 3 ↓=Excellent fit	1674.75/467=3.5
P value	p<0.05=Non-fit p>0.05=Excellent fit	
Goodness of Fit Index (GFI)	0.90 ↑=Good fit 0.95 ↑=Excellent fit	.79
Adjusted Goodness of Fit Index (AGFI)	0.90 ↑=Good fit 0.95 ↑=Excellent fit	.75
Comparative Fit Index (CFI)	0.90 ↑=Good fit 0.95 ↑=Excellent fit	.96
Non-Normed Fit Index (NNFI)	0.90 ↑=Good fit 0.95 ↑=Excellent fit	.95
Root Mean Square Residual (RMR)	0.10 ↓=Weak fit 0.08 ↓=Good fit 0.05 ↓=Excellent fit	.36
Standardized Root Mean Square Residual (SRMR)	0.10 ↓=Weak fit 0.08 ↓=Good fit 0.05 ↓=Excellent fit	.067
Root Mean Square Error of Approximation (RMSEA)	0.10 ↓=Weak fit 0.08 ↓=Good fit 0.05 ↓=Excellent fit	.082
Reference: (Cokluk, Sekercioglu, Buyukozturk, 2012)		

**Table 3.** Reliability analysis of the scale on community care perceptions

	Subscale	Item	Mean ±Sd	Item-total r	Item-subscale r	Test-retest r	Cronbach alpha	
Community Care	Enjoyment	1	6.38±2.16	7.12±1.59	.62	.62	.87	
		2	6.60±2.35		.49	.60		
		3	7.16±2.27		.69	.80		
		4	7.09±2.32		.67	.76		
		5	7.41±2.33		.27	.32		
		6	7.20±2.28		.61	.61		
	Utility	10	7.36±2.14		.55	.61		.68*
		11	7.78±1.87		.65	.71		
		7	8.29±2.12	8.28±1.91	.58	.78		
		8	8.13±2.16		.62	.78		
		9	8.44±2.10		.65	.75	.49*	
Subscale total	-	-	7.71±1.61	-	-	.58*		.91
Placement	Personel satisfaction	12	7.74±2.38	7.51±2.16	.57	.54	.63*	
		14	7.28±2.55		.65	.54		
		13	7.52±2.37	7.17±1.88	.55	.50		
	Learning possibilities	15	6.74±2.42		.55	.62		.66*
		16	7.20±2.26		.63	.54		
Subscale total	-	-	7.33±1.80	-	-	.72*	.80	
Profession	Caregiving	17	7.57±2.35	6.96±1.52	.65	.50	.54*	
		22	6.98±2.41		.59	.53		
		25	7.13±2.30		.63	.50		
		28	6.07±2.02		.19	.20		
		32	6.91±2.31		.55	.54		
	Complexity and Workload	18	4.71±2.62	5.56±1.77	.21	.44		.53*
		21	7.16±2.51		.67	.37		
		26	5.22±2.34		.14	.45		
		27	5.13±2.50		.41	.56		
		19	7.22±2.43	6.76±1.73	.55	.55		
	Collaboration	20	6.13±2.69		.42	.34		.54*
		24	7.06±2.35		.57	.50		
		31	6.61±2.46		.46	.34		
	Professional development	23	6.78±2.69	6.59±1.89	.62	.52		.65*
		29	6.60±2.21		.56	.57		
30		6.95±2.37		.56	.50			
33		6.04±2.71		.57	.62			
Subscale total	-	-	6.50±1.39	-	-	.62*	.87	
<b>Total</b>			7.21±1.36			.72*	.94	

Test retest Pearson's correlation. \* p < 0.01

#### 4. DISCUSSION

In order to administer a scale in a different language and culture, an adaptation process is needed to realize. As the language and cultural differences between the country where the scale was developed originally and the target country get bigger, assessment process gains more importance. Following the translation of the scale from source language into target language by taking language and cultural issues into consideration, it should be tested to prove its reliability and validity within the community. At present study, the validity of the Community Care Perceptions Scale was tested through

content and construct validity and reliability was evaluated with total item correlation and internal consistency.

Validity is defined as the degree to which a tool measures what it claims to measure. (16, 17). The validity of the present study was assessed with content validity and confirmatory factor analysis.

Content validity is shaped by the views of 5-10 professionals on related field. The scale should be re-designed in accordance with those professionals' views (16). Literature suggests on the issue that 80% of the scores by the professionals

should be over 3 and the content validity index score should be at least .83 (18, 19). In our study, minor changes were made in the light of views of professionals in three of the items. Our study indicated that a consensus existed among professionals in terms of content validity, items of the scale were compatible with the culture and the scale represented the structure what it claimed to measure.

Confirmatory factor analysis is a type of validity analysis used while developing a scale or adapting a certain scale into another culture. Confirmatory factor analysis is assessed via fit indices and variety of fit indices exist in Literature (20). Among the most common fit indices are  $\chi^2/df$ , GFI, AGFI, CFI, RMSEA, RMR and SRMR. Not any consensus exists in Literature on which of the indices are to be used (21). At present study, GFI, AGFI, RMR were identified as weak fit. GFI and AGFI were developed as an alternative to  $\chi^2$  for the assessment of model-data fit independently from sample size (20). Although AGFI is indicated that it is not affected by the size of sample, some studies claimed the opposite (21). Thus, GFI and AGFI's having weak fit in our study does not necessarily suggest non-confirmation in our study as  $\chi^2$ /Degree of Freedom presented moderate fit. Instead, other fit indices were identified as CFI, NNFI perfect; SRMR, RMSEA good fit and  $\chi^2$ /Degree of Freedom moderate fit. Overall, the original construction of the scale was confirmed by Confirmatory Factor Analysis.

The concept of Reliability is defined as the degree to which a measurement instrument gives the same results each time that it is used, assuming that the underlying thing being measured does not change (17). The reliability is assessed through internal consistency, item total correlation and test-retest methods in our study.

Internal consistency is an assessment of how reliably survey or test items that are designed to measure the same construct actually do so. Alpha coefficient is one of the most common methods to test internal consistency reliability (22). The alpha value is recommended to be  $>.70$  however  $>.60$  is considered to be acceptable (23). At present study, the Cronbach's Alpha value was found .94 and it ranged between .65-.88 sub-dimensions that shows a good level of reliability as in the original scale. Cronbach's Alpha coefficient was indicated as .86 for community care sub-dimension; .70 for community care for practice placement sub-dimension; .81 for community care as a future profession sub-dimension and it was .89 for the SCOPE of the original scale (14).

Item-total correlation is used to observe strong and weak relations between items and to determine inter-item consistency (22). The items having a value below .20 are recommended to be removed from the scale (24). At present study, total item correlation values for all items except for 26<sup>th</sup> and 28<sup>th</sup> were identified over .20. The subscale correlation coefficients of those two items were found  $\geq.20$  and they were not removed in order not to change the original structure of the scale.

Test-retest reliability is the degree to which test scores remain unchanged when measuring a stable individual characteristic on different occasions. Literature suggests at least two at most four weeks interval between the tests (25) and test-retest correlation coefficient is recommended to be  $\geq.40$  in literature. In our study, test-retest correlation was found as good in terms of remaining unchanged in time.

### Study Limitations

The results of the study are restricted to students studying in a district of Istanbul province.

### 5. CONCLUSION

To conclude; Turkish version of Community Care Perception Scale developed by Margriet Van Iersel et al was deduced as reliable and valid. It might be used to assess the community care perceptions of nurses having received the practice section of Public Health Nursing course.

**Acknowledgement:** We are grateful for the contributions from all the participants.

**Funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

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