Contemporary Nurse, 2017
Vol. 53, No. 1, 60–74, http://dx.doi.org/10.1080/10376178.2017.1282319

Routledge
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The reliability and validity of three questionnaires: The Student Satisfaction and Self-Confidence in Learning Scale, Simulation Design Scale, and Educational Practices Questionnaire

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(*Received 7 December 2015; accepted 8 January 2017*)

Purpose: The purpose of this study was to adapt the "Student Satisfaction and Self-Confidence in Learning Scale" (SCLS), "Simulation Design Scale" (SDS), and "Educational Practices Questionnaire" (EPQ) developed by Jeffries and Rizzolo into Turkish and establish the reliability and the validity of these translated scales.
Methods: A sample of 87 nursing students participated in this study. These scales were cross-culturally adapted through a process including translation, comparison with original version, back translation, and pretesting. Construct validity was evaluated by factor analysis, and criterion validity was evaluated using the Perceived Learning Scale, Patient Intervention Self-confidence/Competency Scale, and Educational Belief Scale.
Findings: Cronbach's alpha values were found as 0.77–0.85 for SCLS, 0.73–0.86 for SDS, and 0.61–0.86 for EPQ.
Conclusions: The results of this study show that the Turkish versions of all scales are validated and reliable measurement tools.

Keywords: Student Satisfaction and Self-Confidence in Learning Scale; Simulation Design Scale; Educational Practices Questionnaire; reliability; validity

Introduction

Developments in information technology have rapidly influenced teaching environments, including methods and techniques used in learning–teaching processes. One technology-intensive field in nursing education is simulation activity (Cannon-Diebl, 2009). Gaba stated that "simulation is a technique – not a technology – to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner" (2004). Simulation-based activities are effective as students do not need to be concerned about harming patients and because learning occurs in an environment where learners and trainers cooperate to improve the critical thinking skills of learners (Hyland & Hawkins, 2009). In addition, the World Health Organization recommends the use of simulation-based activities in health-related fields to improve the safety of patients (2011, 2012).

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Simulation has been used in nursing education as a significant learning–teaching strategy to improve clinical skills, integrate theory and practice, and avoid negative student experiences (Cannon-Diebl, 2009; Sinclair & Ferguson, 2009). Researchers have found many advantages to simulation-based activities in nursing education, including an active and safe learning environment, timely feedback, and an improvement in self-confidence and critical thinking skills (Brady, 2009).

Jeffries (2005) developed a theoretical framework tested through the National League for Nursing/Laerdal simulation study, named NLN/Jeffries Simulation Framework (NLN/JSF). The framework consists of five components: educational practices, facilitator, participants, simulation design characteristics, and expected outcomes. Many researchers and educators have used and tested this framework (Groom, Henderson, & Sittner, 2014; Hallmark, Thomas, & Gantt, 2014; Jones, Reese, & Shelton, 2014; Lafond & Van Hulle Vincent, 2013; O'Donnell, Decker, Howard, Levett-Jones, & Miller, 2014). It is very useful in the development, implementation, and evaluation of simulation activities in nursing education.

One of the significant steps to achieving the wanted success in simulation-based learning is using a common international language: forming a collective speech for the terminology, standards and evaluations used in simulation; building up communication; and sharing while contributing to the improvement of simulation. In this sense, using international scales, which are credible and reliable, is needed in our country.

To assess the effects of simulation-based activities, reliable and valid scales are needed. The purpose of this study was to adapt the "Student Satisfaction and Self-Confidence in Learning Scale" (SCLS), "Simulation Design Scale" (SDS), and "Educational Practices Questionnaire" (EPQ) developed by Jeffries and Rizzolo (2006) into Turkish and establish the reliability and validity of these translated scales. Based on the sample of graduate and undergraduate nursing students in this study, we believe that these adapted scales will help trainers in their efforts to evaluate the effects of simulation-based activities in nursing education.

Methods

Sample

The study sample consisted of 87 students who were taking their last class required for a Bachelor of Science in Nursing at a university in Ankara, Turkey. All 87 students agreed to participate in the study and all were female due to school admission requirements. The study was carried out between September and December 2014. The school that the study was conducted in was continuing its attempt to incorporate scenario-based simulations into its education program. Given that only the senior students had experience with the scenario-based simulation, only these students were included in the scope of the study.

Setting

Scenario-based activities had already been incorporated into the nursing curriculum of the fourth-year nursing students. The participants were informed of the upcoming activity one week prior and participated in simulation activities in groups of three. Similar simulation activities were conducted with each group using standardized patients. Two faculty members participated in each group as both a facilitator and an operator. Each simulation activity took about 15 minutes. During the pre-briefing, participants were instructed that they were expected to apply proper nursing interventions based on the situation presented in the simulation. Following the simulation, each group participated in a debriefing session, which took about 30 minutes.

Data collection

Immediately after the debriefing session, participants were left alone to complete the questionnaire form. The forms were collected within class time by an independent person. The maximum amount of time used to answer the form was 25 minutes. The questionnaire form consisted of six scales: SCLS, SDS, EPQ, "Perceived Learning Scale", "Patient Intervention Self-confidence/Competency Scale", and "Educational Belief Scale".

The Perceived Learning Scale was used as a gold standard test for the "SCLS". The Perceived Learning Scale was developed by Rovai, Wighting, Baker, and Grooms (2009). The reliability and validity of the Turkish version of this scale were examined by Albayrak, Güngören, and Horzum (2014). The Perceived Learning Scale consisted of nine items covering three factors (cognitive, affective, and psychomotor). A 7-point Likert scale was used, with answers to each item ranging from "completely disagree" (1) to "completely agree" (7). In that study, the total Cronbach alpha reliability coefficient for the Perceived Learning Scale was 0.83 (Albayrak et al., 2014).

The Patient Intervention Self-confidence/Competency Scale, whose reliability and validity in Turkish were examined by Terzioglu et al. (2012), was used as the gold standard test for the SDS in this study. This scale was developed for healthcare students who participated in scenario-based simulation experiences in Turkey. The scale includes 18 statements that are evaluated using a 5-point Likert scale. The highest score corresponds to the confidence to intervene on trauma patients, whereas the lowest value implies that the students have no self-confidence in their ability to care for trauma patients. Cronbach's alpha internal consistency coefficient of the scale was 0.91, with subscales ranging from 0.80 to 0.94. These values demonstrate the validity and reliability of the Patient Intervention Self-confidence/Competency Scale (Terzioglu et al., 2012).

The Educational Belief Scale was used as the gold standard test for the EPQ. The Educational Belief Scale was developed by Yılmaz, Altınkurt, and Çokluk (2011). This scale evaluates beliefs based on five factors: Perennialism; Essentialism; Progressivism; Reconstructionism; and Existentialism, and consists of 40 five-point Likert-type items. In that study, the total Cronbach alpha reliability coefficient for the Educational Belief Scale was between 0.70 and 0.91 (Yılmaz et al., 2011).

Measures

Students' Satisfaction and Self-confidence Scale. This instrument is a 13-item scale used to measure student satisfaction with the simulation activity (5 items) and self-confidence in learning (8 items).

Cronbach's alpha for satisfaction was 0.94; for self-confidence, it was 0.87 (Jeffries & Rizzolo, 2006). Responses are rated on a 5-point Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate higher satisfaction and greater levels of self-confidence (Franklin, Burns, & Lee, 2014).

Simulation Design Scale. The SDS is a 20-item tool developed to measure constructs from the Jeffries and Rizzolo (2006) simulation model. The design features rated by the students include objectives and information (five items), student support (four items), problem-solving (five items), guided reflection or feedback (four items), and fidelity (two items). Cronbach's alpha for the instrument was 0.92 (Jeffries & Rizzolo, 2006). Responses are rated on a 5-point Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate increased recognition of design features in simulation (Franklin et al., 2014).

Educational Practices Questionnaire. The EPQ instrument has 16 items and includes the following elements: learning (10 items); diverse ways of learning (2 items); high expectations (2 items); and collaboration (2 items). Cronbach's alpha for the instrument was 0.86 (Jeffries & Rizzolo, 2006). The overall scores of the EPQ instrument are obtained by calculating the mean of the scores on the 16 items. Higher scores indicate increased recognition of educational best practices in simulation. This instrument also uses a 5-point Likert scale with categories ranging from 1 (strongly disagree with the statement) to 5 (strongly agree with the statement) (Franklin et al., 2014).

Language equivalence of the scales. Language equivalence of the scales was provided by using a translation–back-translation process according to the following steps:

(1) Three linguistics experts and three academicians translated the scales into Turkish.
(2) The first version of the scales was prepared after analysis of the translated scales by two academicians and an expert in Turkish language and literature.
(3) The first version of the scales was then translated back to English by three bilingual (Turkish and English) linguistics experts and was combined by two academicians to re-prepare the English version of the scales.
(4) The retranslated English version of the scales was then translated back into Turkish by a different linguistics expert and two different academicians. These retranslated scales in Turkish were analyzed by two academicians to prepare the second Turkish version of the scales.
(5) The third version of the scales was prepared by comparing the items in the first and the second Turkish versions of the scales. As such, the language equivalence of the scales was obtained by evaluating the extent to which there had been changes in meaning in the Turkish versions compared to the original scales. The member of the translation team worked independently in the whole translation process.

Content validity of the scales. Content validity of the third Turkish version of the scales was evaluated by using expert opinion method. To achieve this, the third version of the scales was presented to 10 faculty members. The final Turkish version of the scales was prepared in line with the suggestions of the experts. A plot survey was conducted with 20 nursing students to evaluate the comprehensibility of the items. The findings of this survey showed that the Turkish versions of the scales were applicable.

Ethical consideration

This study was approved by the ethical review boards at the authors' institution (Number: 506887469-1491-537-14/1648). To adapt the scales into Turkish, required permission was granted by the management coordinator of the NLN. All senior students gave their informed consent to participate. The data were treated with respect to the participants' privacy. The questionnaire form did not have any identifiers. The students were assured that their education will not be affected in the case of their not being able to participate in the study or wanting to quit the study.

Data analysis

The data were analyzed in SPSS for Windows version 15.0 (SPSS, Chicago, IL, USA). Number, frequency, mean, and standard deviation were used to descriptively evaluate the data obtained in

this study. Cronbach's alpha coefficient and total item correlation analysis were used to determine the internal reliability and consistency of the scales within the context of reliability analysis. Test–retest correlation method was used to find the extent to which the scales were consistent over time. Exploratory factor analysis was conducted to evaluate the construct validity of the scales. Items with a factor load of 0.50 and above were included in the factorial structure. Moreover, factors with a factor extraction eigenvalue over one were included for analysis. The significance level was $p \leq .05$.

Results

Reliability analysis

Table 1 shows the results of the corrected item-total correlation, Cronbach's alpha for deleted items, and Cronbach's alpha for the subscales of the SCLS. The analysis of the corrected item-total correlation shows that all items had a total correlation value over 0.3, with the exception of the 13th item, which had a value of 0.18. When this item was excluded from the scale, Cronbach's alpha coefficient increased from 0.77 to 0.79. According to the internal consistency test of the subscales, Cronbach's alpha coefficients were 0.85 and 0.77 for the Satisfaction with Current Learning and Self-confidence in Learning subscales, respectively.

Table 2 shows the corrected item-total correlation, Cronbach's alpha for deleted items, and Cronbach's alpha coefficients for the subscales of the SDS. The analysis of the corrected item-total correlation shows that the correlation coefficients of all items ranged between 0.35 and 0.75. There was no increase in Cronbach's alpha coefficient when the items were deleted from the scale. Hence, item analysis based on correlation led us to conclude that no items needed to be excluded from the scale. According to the internal consistency test of the subscales, Cronbach's alpha coefficients were 0.77 for the "Objectives and Information", 0.73 for the "Support", 0.76 for the "Problem-Solving", 0.75 for the "Feedback/Guided Reflection", and 0.86 for the "Fidelity (Realism)" subscales.

Table 3 demonstrates the corrected item-total correlation, Cronbach's alpha for deleted items, and Cronbach's alpha coefficients for the subscales of the EPQ. The item analysis of the corrected item-total correlation shows that the correlation coefficients of all items ranged between 0.40 and 0.76. There was no increase in Cronbach's alpha coefficient when the items were deleted from the scale. Hence, item analysis based on correlation led us to conclude that no items were required to be excluded from the scale. According to the internal consistency test of the subscales, Cronbach's alpha coefficients were 0.86 for the "Active Learning", 0.61 for the "Collaboration", 0.86 for the "Diverse Ways of Learning", and 0.85 for the "High Expectations" subscales.

Test and retest reliability

In the correlation analysis for test and retest reliability (Table 4), a meaningful and positive relationship was found between the subscale points of the nursing students obtained from tests and retests ($p < .05$). Retests conducted three weeks after the first test found a positive and statistically meaningful correlation for all subscales with the exception of the "Diverse Ways of Learning" and the "High Expectations" subscales.

The validity analysis

Criterion validity

The Perceived Learning Scale was used to evaluate the scale validity of the SCLS. The scores obtained from the subscales of the two scales were analyzed using Pearson's correlation

Table 1. Item analysis and internal consistency of Student Satisfaction and Self-confidence in Learning ($N = 87$).

Item	Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's alpha
Satisfaction with current learning			
1. The teaching methods used in this simulation were helpful and effective	0.66	0.82	**.85**
2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum	0.61	0.85	
3. I enjoyed how my instructor taught the simulation	0.75	0.80	
4. The teaching materials used in this simulation were motivating and helped me to learn	0.63	0.83	
5. The way my instructor(s) taught the simulation was suitable to the way I learn	0.74	0.80	
Self-confidence in learning			
6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me	0.52	0.73	**.77**
7. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum	0.59	0.72	
8. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting	0.62	0.71	
9. My instructors used helpful resources to teach the simulation	0.52	0.73	
10. It is my responsibility as a student to learn what I need to know from this simulation activity	0.34	0.76	
11. I know how to get help when I do not understand the concepts covered in the simulation	0.49	0.74	
12. I know how to use simulation activities to learn critical aspects of these skills	0.56	0.73	
13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time	**0.18** [a]	0.80	
Total	1.00	0.87	**.89**

[a]The item was excluded.

coefficient. The analysis revealed a positive but weak correlation between the scores of the Student Satisfaction and Self-confidence in Learning and the Perceived Learning Scale ($p < .05$). The "Hacettepe"/"Patient Intervention Self-confidence/Competency Scale" was used to evaluate the scale validity of the SDS. The analysis shows a positive but weak correlation between the "Simulation Design" and the Hacettepe/Patient Intervention Self-confidence/Competency Scale ($p < .05$). Finally, the Educational Belief Scale was used to evaluate the scale validity of the EPQ. Statistical analysis found a positive but weak correlation between the scores for the EPQ and the Educational Belief Scale ($p < .05$).

Table 2. Item analysis and internal consistency of SDS ($N = 87$).

Item	Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's alpha
Objectives and information			
1. There was enough information provided at the beginning of the simulation to provide direction and encouragement	0.48	0.76	**.77**
2. I clearly understood the purpose and objectives of the simulation	0.69	0.68	
3. The simulation provided enough information in a clear manner for me to problem-solve the situation	0.51	0.73	
4. There was enough information provided to me during the simulation	0.69	0.68	
5. The cues were appropriate and geared to promote my understanding	0.35	0.77	
Support			
6. Support was offered in a timely manner	0.59	0.63	**.73**
7. My need for help was recognized	0.39	0.75	
8. I felt supported by the teacher's assistance during the simulation	0.58	0.64	
9. I was supported in the learning process	0.55	0.66	
Problem-solving			
10. Independent problem-solving was facilitated	0.53	0.72	**.76**
11. I was encouraged to explore all possibilities of the simulation	0.63	0.68	
12. The simulation was designed for my specific level of knowledge and skills	0.41	0.77	
13. The simulation allowed me the opportunity to prioritize nursing assessments and care	0.55	0.71	
14. The simulation provided me an opportunity to goal set for my patient	0.57	0.71	
Feedback/guided reflection			
15. Feedback provided was constructive	0.53	0.70	**.75**
16. Feedback was provided in a timely manner	0.65	0.63	
17. The simulation allowed me to analyze my own behavior and actions	0.44	0.74	
18. There was an opportunity after the simulation to obtain guidance/feedback from the teacher in order to build knowledge to another level	0.56	0.68	
Fidelity (realism)			
19. The scenario resembled a real-life situation	0.75	NA[a]	**.86**[b]
20. Real-life factors, situations, and variables were built into the simulation scenario	0.75	NA[a]	
Total	1.00	0.89	**.90**

[a]NA is not applicable.
[b]Spearman–Brown.

Construct validity

Factorial analysis of the SCLS items shown in Table 5 produced two factors, with an eigenvalue greater than 1. When the factorial structure of the scale was evaluated, special attention was paid if the items in each factor group were loaded with a factor of at least 0.30. Six items (1–5 and 10) were loaded onto factor 1 and 7 items (6–9 and 11–13) onto factor 2. These two factors explained 51.02% of the total variance, with factor 2 having the most explanatory power (39.03%).

Table 3. Item analysis and internal consistency of the EPQ ($N = 87$).

Item	Corrected item-total correlation	Cronbach's alpha if item deleted	Cronbach's alpha
Active learning			
1. I had the opportunity during the simulation activity to discuss the ideas and concepts taught in the course with the teacher and other students	0.56	0.85	**.86**
2. I actively participated in the debriefing session after the simulation	0.50	0.86	
3. I had the opportunity to put more thought into my comments during the debriefing session	0.71	0.84	
4. There were enough opportunities in the simulation to find out if I clearly understand the material	0.62	0.84	
5. I learned from the comments made by the teacher before, during, or after the simulation	0.66	0.84	
6. I received cues during the simulation in a timely manner	0.46	0.86	
7. I had the chance to discuss the simulation objectives with my teacher	0.64	0.85	
8. I had the opportunity to discuss ideas and concepts taught in the simulation with my instructor	0.66	0.84	
9. The instructor was able to respond to the individual needs of learners during the simulation	0.65	0.84	
10. Using simulation activities made my learning time more productive	0.40	0.86	
Collaboration			
11. I had the chance to work with my peers during the simulation	0.44	NA[a]	**.61**[b]
12. During the simulation, my peers and I had to work on the clinical situation together	0.44	NA[a]	
Diverse ways of learning			
13. The simulation offered a variety of ways in which to learn the material	0.76	NA[a]	**.86** [b]
14. This simulation offered a variety ways of assessing my learning	0.76	NA[a]	
High expectations			
15. The objectives for the simulation experience were clear and easy to understand	0.74	NA[a]	**.85** [b]
16. My instructor communicated the goals and expectations to accomplish during the simulation	0.74	NA[a]	
Total	1.00	0.90	**.91**

[a]NA is not applicable.
[b]Spearman–Brown.

The EPQ items produced three factors with an eigenvalue greater than 1. Because all items in each factor group were loaded with a factor of at least 0.520, none of them were excluded from the scale. Six items (10, 11, and 13–16) were loaded onto factor 1; 5 items (2, 3, 6, 8, and 9) were loaded onto factor 2; and 5 items (1, 5, 7, 12, and 14) were loaded onto factor 3. These three factors explained 62.50% of the total variance; the first factor had the greatest contribution (40.41%).

Table 4. The reliability coefficients of the subscales of Student Satisfaction and Self-confidence in Learning, SDS, and EPQ ($N = 87$).

	Test		Retest			
	M	SD	*M*	SD	*r*	*p*
The subscales of Student Satisfaction and Self-confidence in Learning						
Student satisfaction	21.67	2.61	21.18	2.57	.498	.01
Self-confidence	32.14	3.39	32.24	3.57	.324	.02
The subscales of SDS						
Objectives and information	20.06	3.15	20.21	2.25	.430	.01
Support	16.72	2.18	12.38	1.62	.221	.04
Problem-solving	21.22	2.52	20.89	2.23	.417	.01
Feedback/guided reflection	18.02	1.90	17.01	1.90	.191	.08
Fidelity (realism)	8.92	1.47	8.88	1.04	.292	.01
The subscales of EPQ						
Active learning	43.89	4.25	42.73	4.27	.399	.01
Collaboration	8.54	1.23	8.38	1.23	.211	.05
Diverse ways of Learning	8.98	1.30	8.54	1.11	.287	.42
High expectations	8.88	1.27	8.41	0.99	.153	.16

The SDS items produced five factors with an eigenvalue greater than 1. Because all items in each factor group were loaded with a factor of at least 0.42, none of them were excluded from the scale. Six items (5, 6, 10, 11, 13, and 17) were loaded onto factor 1; 5 items (7, 8, 12, 16, and 18) onto factor 2; 3 items (9, 14, and 15) on factor 3; 4 items (1–4) onto factor 4; and finally, 2 items (19 and 20) were loaded onto factor 5. These five factors explained 66.71% of the total variance; the first factor had the greatest contribution (37.31%).

Discussion

The NLN Jeffries Framework has been used widely to guide simulation in nursing education and serve as a theoretical framework for research on the use of simulation (Young & Shellenbarger, 2012). Based on the framework, SCLS, SDS, and EPQ have been used since 2006. Franklin et al. (2014) found that the SCLS, SDS, and EPQ are valid and reliable measurement tools. To assess the effects of simulation-based activities in Turkey, reliable and valid scales are needed (Franklin et al., 2014). Our research evaluated the reliability and validity of the SCLS, SDS, and EPQ once they were adapted into Turkish. These scales have been used since 2006 to measure novice nurses' beliefs and attitudes about learning in simulation (Franklin et al., 2014). It has been stated that acceptable Cronbach's alpha coefficients should be between 0.70 and 0.95 (Tavakol & Dennick, 2011). In our study, Cronbach's alpha coefficients of the translated SCLS were between 0.77 and 0.85. In Jeffries and Rizzolo's study on the SCLS, Cronbach's alpha for satisfaction was 0.94; for self-confidence, it was 0.87 (Jeffries & Rizzolo, 2006). In another study, Franklin et al. (2014) found that Cronbach's alpha for the overall SCLS was 0.92, while Cronbach's alpha was 0.92 for the satisfaction and 0.83 for the self-confidence subscales, respectively. When the 13th item was excluded from the scale, Cronbach's alpha value of the SCLS increased to 0.94 (Franklin et al., 2014). In our study, the analysis of the corrected item-total correlation of the translated SCLS showed that all items had a total correlation value over 0.30, with the exception of the 13th item, which had a value of 0.18. In the case of a low item-total correlation value, it has been suggested that researchers should not make changes in the scale if excluding the item does not lead to major changes in Cronbach's alpha coefficient (Cortina, 1993). When we excluded the 13th item from the scale, Cronbach's alpha coefficient increased from 0.77 to

Table 5. Student Satisfaction and Self-confidence in Learning, SDS, and EPQ factor analysis.

		Eigenvalues	Total percentage and cumulative addition	Total percentage of the model
Student Satisfaction and Self-confidence in Learning				
Factor 1 items (Load)	5 (0.83), 3 (0.80), 1 (0.79), 4 (0.73), 2 (0.67), 10 (0.41)	5.07	39.03	51.02
Factor 2 items (Load)	8 (0.81), 7 (0.75), 6 (0.71), 12 (0.68), 9 (0.61), 11 (0.59), 13(0.15)	1.56	12.02	
Simulation Design Scale				
Factor 1 items (Load)	5 (0.76), 6 (0.74), 10 (0.66), 11 (0.64), 17 (0.51), 13 (0.42)	7.46	37.31	66.71
Factor 2 items (Load)	12 (0.69), 8 (0.69), 18 (0.68), 16 (0.62), 7 (0.48)	1.85	9.23	
Factor 3 items (Load)	15 (0.80), 14 (0.76), 9 (0.50)	1.58	7.89	
Factor 4 items (Load)	4 (0.77), 3 (0.73), 1 (0.72), 2 (0.70)	1.33	6.64	
Factor 5 items (Load)	20 (0.91), 19 (0.88)	1.11	5.63	
Educational Practices Questionnaire				
Factor 1 items (Load)	14 (0.84) ,13 (0.84), 16 (0.84), 10 (0.77), 15 (0.74), 11 (0.74)	6.47	40.41	62.50
Factor 2 items (Load)	9 (0.75), 2(0.74), 8 (0.67), 6 (0.62), 3 (0.58)	2.41	15.08	
Factor 3 items (Load)	12 (0.76), 14 (0.72), 1 (0.71), 7 (0.56), 5 (0.52)	1.12	7.01	

0.79. Moreover, Franklin et al. suggested the exclusion of the 13th item from the scale (2014). In line with their suggestions, the 13th item was re-evaluated by the linguistics experts and the research group decided on its exclusion from the scale.

We found Cronbach's alpha coefficient for the translated subscales of the SDS to be between 0.73 and 0.86. Cronbach's alpha of the original SDS was 0.92 (Jeffries & Rizzolo, 2006). In a previous study with Chinese students, Cronbach's alpha was found to be 0.88 (Wang, Fitzpatrick, & Petrini, 2013). Franklin et al. (2014) found that the alpha values for the objectives and information, support, problem-solving, feedback and guided reflection, and fidelity subscales were 0.92, 0.92, 0.86, 0.90, and 0.87, respectively. For ensuring inner consistency, Cronbach's alpha factor of 0.70 and above is considered as the criterion (Cortina, 1993). All the alpha values of the subscales were assessed as acceptable.

Cronbach's alpha coefficient for the translated subscales of the EPQ was found to be between 0.61 and 0.86. Cronbach's alpha of the original EPQ was 0.86 (Jeffries & Rizzolo, 2006). Franklin et al. (2014) found that the alpha values for the subscales of active learning, collaboration, diverse ways of learning, and high expectations were 0.93, 0.90, 0.88, and 0.88, respectively. In our study, Cronbach's alpha value of the translated collaboration subscale of the questionnaire was 0.61. Cronbach's alpha coefficient is influenced by the number of items included in the scale (Tavakol & Dennick, 2011). We believe that the coefficient for the collaboration subscale was lower because this subscale consisted of only two items. Overall, Cronbach's alpha coefficients of the Turkish versions of these scales were parallel to those of the original and English versions.

Test–retest reliability is an important analysis as it shows the extent to which the responses to the items in the scale may change over time (Burns & Grove, 2003). The correlation analysis conducted to assess the test–retest reliability found a positive and meaningful correlation between the scores of the subscales obtained after both tests and retests ($p < .05$). Hence, our study found that the test–retest reliability correlations were consistent over time and that the test–retest reliability was acceptable. Also, Franklin et al. (2014) found that these scales were reliable. Our findings support the results of the study of Franklin.

The study used exploratory factor analysis to analyze construct validity. It has been suggested that the item-total correlation should not be negative and that items in each factor group should be loaded with a factor of at least 0.30 (Erdoğan, Nahcivan, & Nihal, 2014). Similar to the original scale, our SCLS comprised two factors. Compared to the original scale, only one item was loaded onto a different factor. The two factors explained 51.02% of the total variance. Similar to the original scale, the items in the SDS in our study were loaded onto five factors, but some of the items were not loaded onto the same factors of the original scale. These five factors explained 66.71% of the total variance. Finally, although the items in the original EPQ were loaded onto four factors, they were loaded onto three factors in our translated scale. These three factors in our study explained 62.50% of the total variance. This led us to conclude that all scales were structurally valid and that the original scale should not be changed.

We used the Perceived Learning Scale, Patient Intervention Self-confidence/Competency Scale, and Educational Belief Scale to assess the criterion validity of the SCLS, SDS, and EPQ, respectively. The assessment of the correlation between each group of scales showed a meaningful correlation between the total scale scores. These results indicate that the scales that we translated into Turkish maintained criterion validity.

Limitations and strengths

Because the scales in this study could not be separated from each other due to the JSF, we evaluated the reliability and validity of the scales simultaneously. The strength of our study includes thorough efforts on double translation done by independent teams. However, this study included some limitations. For example, there was no directly related gold standard in assessing to SCLS, SDS, and EPQ; we used indirectly related scales for gold standard. In addition, the study was conducted in a nursing school in Turkey. Thus, our results may not generalize to all nursing students nationally.

Conclusions

This study, which evaluated the appropriateness of the original scales for the Turkish culture, found that all translated scales had acceptable levels of psychometric properties. The findings of the study suggest that the Turkish versions of the SCLS, SDS, and EPQ scales are valid and reliable measurement tools for Turkish nursing students. They could be used as valuable instruments by nurse educators for the development, implementation, and evaluation of simulation activities in Turkey. In addition, adding these scales to the Turkish language contributes to sharing international common values of simulation and forming a common language.

Acknowledgements

We would like to thank all the staff and students who gave their time and made this study possible. All the authors contributed to the study in the conception and design, drafting of the article, revising it critically for important intellectual content, and final approval of the version to be published. All authors are in agreement with the content of the manuscript.

Disclosure statement

No conflict of interest has been declared by the authors.

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Appendix-1: Öğrenmede Öğrenci Memnuniyeti ve Özgüven Ölçeği

Öğrenmede öğrenci memnuniyeti ve özgüven ölçeği ile ilgili öğeleri değerlendirirken aşağıda verilen değerlendirme sistemini kullanınız:

1-) İfadeye kesinlikle katılmıyorum
2-) İfadeye katılmıyorum
3-) Kararsızım – ifadeye ne katılıyor ne de katılmıyorum
4-) İfadeye katılıyorum
5-) İfadeye kesinlikle katılıyorum

	Şimdiki öğrenme ile ilgili memnuniyet	Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
1.	Bu simülasyonda kullanılan öğretim yöntemleri etkin ve yardımcı idi.	o1	o 2	o 3	o 4	o 5
2.	Bu simülasyon, tıbbi ve cerrahi müfredatı daha iyi öğrenmemi geliştirmek için çeşitli öğrenim materyali ve etkinlikleri sağladı.	o1	o 2	o 3	o 4	o 5
3.	Eğitimcinin bu simülasyonu öğretme yönteminden hoşlandım.	o1	o 2	o 3	o 4	o 5
4.	Bu simülasyonda kullanılan öğretim materyalleri motive ediciydi ve öğrenmeme yardımcı oldu.	o1	o 2	o 3	o 4	o 5
5.	Eğitimcinin bu simülasyonu öğretme şekli benim öğrenme biçimime uygundu.	o1	o 2	o 3	o 4	o 5
Öğrenmede Öz Güven						
6.	Eğitimcilerin gösterdiği bu simülasyon uygulamasının içeriğini tam olarak öğrendiğime eminim.	o1	o 2	o 3	o 4	o 5
7.	Bu simülasyonun tıbbi ve cerrahi müfredatını tam olarak öğrenebilmek için gerekli olan önemli içeriği kapsadığına eminim.	o1	o 2	o 3	o 4	o 5
8.	Bu simülasyon sayesinde klinik ortamda gerekli olan bilgileri kazandığıma ve becerileri geliştirdiğime eminim.	o1	o 2	o 3	o 4	o 5
9.	Eğitimci, bu simülasyonu öğretirken yardımcı kaynakları kullandı.	o1	o 2	o 3	o 4	o 5
10.	Bir öğrenci olarak, bu simülasyon uygulamasında bilmem gerekenleri öğrenmek benim sorumluluğumdur.	o1	o 2	o 3	o 4	o 5
11.	Bu simülasyonda anlamadığım kavramlar olduğu zaman nasıl yardım alacağımı biliyorum.	o1	o 2	o 3	o 4	o 5
12.	Becerilerin önemli yönlerini öğrenebilmek için simülasyon uygulamasını nasıl kullanmam gerektiğini biliyorum.	o1	o 2	o 3	o 4	o 5

Appendix-2: Simülasyon Tasarım Ölçeği

Simülasyon tasarımındaki öğeleri değerlendirirken aşağıda verilen değerlendirme sistemini kullanınız: 1-) İfadeye kesinlikle katılmıyorum 2-) İfadeye katılmıyorum 3-) Kararsızım – ifadeye ne katılıyor ne de katılmıyorum 4-) İfadeye katılıyorum 5-) İfadeye kesinlikle katılıyorum UD – Uygun değil: Bu ifade gerçekleştirilen simülasyon aktivitesinde yer almamaktadır.	Her bir maddeyi, sizin için ne kadar önemli olduğunu temel alarak değerlendiriniz: 1-) Önemli değil 2-) Kısmen önemli 3-) Kararsızım 4-) Önemli 5-) Çok önemli UD: İFADESİ BURADA YOK
Hedefler ve Bilgi	
1. Bu simülasyon öncesinde, beni yönlendirecek ve cesaretlendirecek yeterli bilgi verildi.	1 2 3 4 5 UD 1 2 3 4 5 UD
2. Bu simülasyonun amaç ve hedeflerini açık bir şekilde anladım.	1 2 3 4 5 UD 1 2 3 4 5 UD
3. Bu simülasyon, durumla ilgili problemleri çözmeme olanak sağlayacak yeterli bilgiyi sağladı.	1 2 3 4 5 UD 1 2 3 4 5 UD
4. Bu simülasyon uygulaması süresince yeterli bilgi verildi.	1 2 3 4 5 UD 1 2 3 4 5 UD
5. İpuçaları uygundu ve anlamamı sağlayacak biçimde düzenlenmişti.	1 2 3 4 5 UD 1 2 3 4 5 UD
Destek	
6. Zamanında destek sağlandı.	1 2 3 4 5 UD 1 2 3 4 5 UD
7. Yardıma ihtiyacım olduğu fark edildi.	1 2 3 4 5 UD 1 2 3 4 5 UD
8. Bu simülasyon esnasında eğitimci tarafından desteklendiğimi hissettim.	1 2 3 4 5 UD 1 2 3 4 5 UD
9. Öğrenme sürecinde desteklendim	1 2 3 4 5 UD 1 2 3 4 5 UD
Problem Çözme	
10. Bu simülasyon bağımsız problem çözmemi kolaylaştırıldı	1 2 3 4 5 UD 1 2 3 4 5 UD
11. Bu simülasyondaki tüm olasılıkları araştırmak için cesaretlendirildim.	1 2 3 4 5 UD 1 2 3 4 5 UD
12. Bu simülasyon benim bilgi ve beceri düzeyime göre planlanmıştı.	1 2 3 4 5 UD 1 2 3 4 5 UD
13. Bu simülasyon bana, hemşirelik tanılaması ve bakımını önceliklendirme fırsatı sağladı.	1 2 3 4 5 UD 1 2 3 4 5 UD
14. Bu simülasyon, hastam için hedef belirleyebilmeme fırsat sağladı.	1 2 3 4 5 UD 1 2 3 4 5 UD
Geri bildirim /Rehberli Yansıma	
15. Sağlanan geri bildirim yapıcıydı.	1 2 3 4 5 UD 1 2 3 4 5 UD
16. Geri bildirim zamanında verildi.	1 2 3 4 5 UD 1 2 3 4 5 UD
17. Bu simülasyon uygulaması, davranış ve uygulamalarımı analiz etmemi sağladı.	1 2 3 4 5 UD 1 2 3 4 5 UD
18. Bu simülasyondan sonra bilgiyi bir üst seviyeye çıkarabilmek için eğitimciden geri bildirim ve rehberlik alma fırsatı vardı.	1 2 3 4 5 UD 1 2 3 4 5 UD
Aslına uygunluk derecesi (Gerçekçilik)	
19. Bu senaryo, gerçek hayattaki durumlara benzerdi.	1 2 3 4 5 UD 1 2 3 4 5 UD
20. Gerçek hayatta var olan etkenler, durumlar ve değişkenler simülasyon senaryosuna eklenmişti.	1 2 3 4 5 UD 1 2 3 4 5 UD

Appendix-3: Eğitim Uygulamaları Anketi

Simülasyon tasarımındaki öğeleri değerlendirirken aşağıda verilen değerlendirme sistemini kullanınız: 1-) İfadeye kesinlikle katılmıyorum 2-) İfadeye katılmıyorum 3-) Kararsızım – ifadeye ne katılıyor ne de katılmıyorum 4-) İfadeye katılıyorum 5-) İfadeye kesinlikle katılıyorum UD – Uygun değil: Bu ifade gerçekleştirilen simülasyon aktivitesinde yer almamaktadır.							Her bir maddeyi, sizin için ne kadar önemli olduğunu temel alarak değerlendiriniz: 1-) Önemli değil 2-) Kısmen önemli 3-) Kararsızım 4-) Önemli 5-) Çok önemli UD: İFADESİ BURADA YOK					
Maddeler	1	2	3	4	5	UD	1	2	3	4	5	UD
Aktif Öğrenme												
1. Bu simülasyon süresince düşünce ve kavramları eğitici ve diğer öğrencilerle tartışma fırsatı buldum.	1	2	3	4	5	UD	1	2	3	4	5	UD
2. Bu simülasyondan sonra yapılan çözümleme oturumuna aktif olarak katıldım.	1	2	3	4	5	UD	1	2	3	4	5	UD
3. Çözümleme süresince görüşlerimi daha fazla düşünce ile birleştirme fırsatı buldum.	1	2	3	4	5	UD	1	2	3	4	5	UD
4. Bu simülasyon süresince konuyu öğrenip öğrenmediğimi anlamak için yeterli fırsat mevcuttu.	1	2	3	4	5	UD	1	2	3	4	5	UD
5. Bu simülasyondan önce, süresince veya sonrasında eğitimci tarafından yapılan yorumlar öğrenmemi sağladı.	1	2	3	4	5	UD	1	2	3	4	5	UD
6. Bu simülasyon uygulaması süresince ipuçlarını zamanında aldım.	1	2	3	4	5	UD	1	2	3	4	5	UD
7. Bu simülasyonun amaçlarını eğitimci ile tartışma şansı buldum.	1	2	3	4	5	UD	1	2	3	4	5	UD
8. Bu simülasyonda öğretilen fikir ve genel kavramları eğitimci tartışma fırsatı buldum.	1	2	3	4	5	UD	1	2	3	4	5	UD
9. Bu simülasyon uygulaması süresince, eğitimci öğrenenlerin bireysel ihtiyaçlarını karşılayabildi.	1	2	3	4	5	UD	1	2	3	4	5	UD
10.Bu simülasyon aktivitelerinin kullanımı öğrenme zamanını daha verimli hale getirdi.	1	2	3	4	5	UD	1	2	3	4	5	UD
İş Birliği												
11. Bu simülasyon uygulaması süresince arkadaşlarımla çalışma şansım oldu.	1	2	3	4	5	UD	1	2	3	4	5	UD
12. Bu simülasyon uygulaması süresince, ben ve arkadaşlarım klinik durum üzerinde birlikte çalışmak zorunda kaldık.	1	2	3	4	5	UD	1	2	3	4	5	UD
Öğrenmenin Farklı Yolları												
13. Bu simülasyon uygulaması, konunun öğrenilmesi için çeşitli yollar sundu.	1	2	3	4	5	UD	1	2	3	4	5	UD
14. Bu simülasyon uygulaması, öğrenmemi değerlendirebileceğim çeşitli yollar sundu.	1	2	3	4	5	UD	1	2	3	4	5	UD
Üst Beklentiler												
15. Bu simülasyon deneyimi için hedefler açık ve anlaşılması kolaydı.	1	2	3	4	5	UD	1	2	3	4	5	UD
16.Eğitimci simülasyonu başarı ile tamamlamak için, hedef ve beklentileri paylaştı.	1	2	3	4	5	UD	1	2	3	4	5	UD

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