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ORIGINAL ARTICLE

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The Turkish version of the Skin Tear Knowledge Assessment Instrument (OASES): Validity and reliability study

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Abstract

This study was conducted to adapt the Skin Tear Knowledge Assessment Instrument (OASES) into Turkish and to verify its validity and reliability. This study was conducted on 314 nurses in Türkiye between November 2023 and February 2024 to test the psychometric properties of OASES. The instrument consists of 20 items clustered into six domains. The cultural adaptation process was carried out according to the International Testing Commission guidelines: Turkish translation, expert panel, content validity, translation back to English, preliminary study and the final version of the instrument. To check the validity of the multiple-choice test, item difficulty and discriminating index were analysed. The reliability of the instrument was evaluated to the retest 14 days after the first test. Scale level content validity by 11 experts in wound care was 0,97 (I-CVI = 0.8–1.0). In the item analysed of the OASES, the item difficulty index was 0,51 (p-value = 0.34–0.76) and the discriminating index was 0.40 (D-value = 0.26–0.51). The 2-week test-retest intraclass correlation coefficient of the overall instrument was 0.90 (95% CI = 0.79–0.95). The Turkish version of OASES is a valid and reliable measurement instrument to evaluate nurses' knowledge levels regarding skin tears with acceptable psychometric properties. It can be applied in nursing education, research and practice to evaluate the knowledge of Turkish speaking nurses about skin tears.

KEYWORDS

knowledge, nurses, reliability, skin tear, validity

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Key points

- Knowledge is an important factor in the prevention and management of skin tears (ST), and this instrument can be used to assess the ST knowledge of nurses and identify educational needs and priorities.
- In this study, we adapted the Skin Tear Knowledge Assessment Instrument (OASES) into Turkish, and OASES was found to be a valid and reliable measurement instrument for Turkish nurses.
- This easy-to-use and validated instrument, consisting of 20 items based on six domains regarding skin tears, can be used in nursing education, research and practice.

1 | INTRODUCTION

Skin tears are a common but often overlooked health problem. A skin tear is defined by the International Skin Tears Advisory Panel (ISTAP) as follows: 'A skin tear is a traumatic wound caused by mechanical forces, including removal of adhesives. Severity may vary by depth (not extending through the subcutaneous layer)'.[1]

Skin tears are more commonly reported in the elderly population, as well as critically ill, paediatric and premature neonatal populations.[2,3] Skin tears occur as a result of trauma that can result from a variety of mechanical forces, including falls, blunt trauma, equipment injury, poor handling or removal of adhesive dressings.[1,4] Although skin tears can be seen in all body parts, it has been reported that they principally occur on the upper extremities and then on the lower extremities.[5–7]

Skin tears have been reported to occur at different prevalence rates in various populations, ranging from 2.23 to 41.2% in long-term care, 4.5 to 19.5% in the community, 2 to 11.4% in acute care and 3.3 to 14.3% in palliative care.[4,8–14]

The misconception that skin tears are both unavoidable and trivial might cause them to be under-recognized and under-reported.[1,13] However, these injuries constitue a significant problem for patients, healthcare professionals and caregivers. Skin tears cause patients to experience pain, delay in wound healing and become chronic and secondary infection, resulting in prolonged hospital stay, and decreased quality of life. Therefore, skin tears create a major financial burden on the healthcare system and caregivers.[15,16]

Many intrinsic and extrinsic factors have been identified associated with skin tears. It is known that factors related to the patient's general health status, such as chronic/critical disease, polypharmacy, skin and nutrition as well as many care-related conditions such as falls, dependence, mobility and adhesives are risk factors for skin tears.[11,17,18]

Under-recognition and misdiagnosis of ST can lead to inadequate prevention, and delayed and inappropriate management.[11] Nurses have major responsibilities in the prevention and management of skin tears. The ISTAP states that nurses can reduce the distress of skin tears for patients by recognizing which patients are at risk for skin tears, preventing skin tears and using appropriate dressings.[19] A systematic review by Cilluffo et al. (2023) reported that specific nursing interventions such as hygienic care, clothing, transfer and dressing can be a protective factor for skin health as well as a risk factor for skin integrity problems and significantly affect the skin health of patients by increasing the risk of developing skin tears. It reveals that specific nursing interventions such as hygienic care, clothing, transfer and dressing increase the risk of skin tear development.[16] Nurses who have an important role in ensuring and maintaining skin integrity must be evaluated for their knowledge level and educated according to their educational needs.[11,16,20] Van Tiggelen et al. (2021) developed a valid and reliable measurement instrument with the participation of 37 countries to evaluate skin tear knowledge and determine educational needs and priorities.[20]

This study aimed to assess the cultural adaptation, reliability and validity of the Turkish version of the Skin Tear Knowledge Assessment Instrument (OASES).

2 | METHODS

2.1 | Study design

This study was conducted to establish the Turkish validity and reliability of OASES.

2.2 | Participants and setting

The population of the study consisted of nurses working in Türkiye. The number of nurses working in Türkiye is

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TABLE 1 Demographic and professional characteristics of the participants.

Characteristics	*n*	%
Age (Mean (SD), range)	34.11 (8.92)	(min/max: 21–58)
Gender		
Female	253	80.6
Male	61	19.4
Education level		
High School	17	5.4
Associate's degree	28	8.9
Bachelor's degree	227	72.3
Master's degree	35	11.1
Doctoral degree	7	2.2
Work experience		
1–4 years	107	34.1
5–9 years	41	13.1
10–14 years	46	14.6
15–19 years	43	13.7
≤20 years	77	24.5
Working units		
Surgical units	76	24.2
Medical units	99	31.5
Intensive care units	58	18.5
Stoma and wound care unit	18	5.7
Emergency unit	43	13.7
Oncology unit	14	4.5
Paediatric unit	6	1.9
Training in skin tears		
Yes	55	17.5
No	259	82.5
Training in other wounds		
Yes	225	71.6
No	89	28.4

243 565.[21] The inclusion criteria for the sample were nurses who had been working as a nurse for at least 1 year, caring for patients aged 65 years and over and who agreed to participate in the study.

In order to obtain precise and robust results in reliability and factor analysis in scale studies, it is recommended that the sample size should be approximately 10 times the number of items in the scale.[22] Considering this recommendation for sample size calculation, at least 200 (20 scale items × 10 = 200) nurses were planned to be included in the sample. In order to reach the sample with the snowball sampling method, a link to the study was sent to all registered nurses of the Turkish Wound Ostomy and Incontinence Nurses Society via email and text message. Similarly, the researchers shared the study link on social media platforms (WhatsApp, Facebook, Instagram). In this way, the researchers reached 344 nurses between the data collection dates and a preliminary study was conducted with 30 nurses. The data obtained from the nurses included in the preliminary study were not included in the analysis. The study was completed with 314 nurses who met the inclusion criteria.

2.3 | Data collection tools

2.3.1 | Sociodemographic characteristics

Information about the sociodemographic and working life characteristics (age, gender, education level, work experience, working units and training on skin tears) of the nurses included in this study was questioned (Table 1).

2.3.2 | Skin tear knowledge assessment instrument (OASES)

The instrument was developed by Van Tiggelen et al. (2021) to assess nurses' knowledge of skin tears based on recent evidence-based practices for the prevention and management of ST.[20] OASES consists of 20 items in six domains: Aetiology (Items 1–3), Classification and Observation (Items 4–7), Risk Assessment (Items 8–9), Prevention (Items 10–15), Treatment (Items 16–19) and Special Patient Groups (Item 20). The items are multiple choice (four response alternatives) and each question has one correct answer. A correct answer is scored as 1, an incorrect answer is scored as 0, and a total score between 0 and 20 points is attained.

2.4 | Translation and cultural adaptation

The study was conducted between November 2023 and February 2024. After obtaining permission from the scale authors to adapt the OASES into Turkish, the cultural adaptation process was carried out in the following stages according to the International Testing Commission (ITC) guidelines[23]: Turkish translation, expert panel, assessing content validity, re-translation into English, preliminary study, obtaining the final version of the instrument and reporting. Initially, two wound, ostomy and continence

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nurses (WOCNs) who were bilingual and knowledgeable about ST separately translated the original English-language tool into Turkish. A third independent translator who experienced WOCN compared and identified discrepancies in two Turkish versions of OASES. The three researchers fully discussed the discrepancies and reconciled them into a single version. The single version was then forwarded to an 11-member expert panel to assess content validity. The criteria for inclusion in the expert panel are to have at least a master's degree or higher in nursing, to be working in a hospital or higher education institution, to be specialized in the field of wound care or to be doing research and to be able to actively participate in this study and provide guidance and suggestions for the study from different approaches and perspectives. Each expert rated the relevance of each item on a 4-point Likert scale (1 = irrelevant, 4 = very relevant). The experts made suggestions for making the OASES questions more understandable in Turkish (e.g., word corrections, changes in the question stem, ending sentences in the same format). Regarding question 20 of the test, almost all experts agreed that answer choice 'D' was not a distracter and should be changed. At the end of the expert panel, the content validity index (CVI) was calculated at item-CVI (I-CVI) and Scale-CVI (S-CVI). As a result of the expert opinions, the scale was revised for comprehensibility and the final version was back-translated into the original language by two English language experts and the back-translations were compared with the original scale by the researchers. A preliminary study was conducted with 30 nurses to assess the suitability of the OASES as a data collection tool. After the preliminary study, the OASES data collection tool was finalized.

The reliability of the OASES was evaluated with the test-retest method. The re-test was administered to 30 nurses 14 days after the first test.[24]

2.5 | Statistical analysis

SPSS v25.0 (SPSS Inc., Chicago, IL, USA) was used for statistical analysis. Descriptive statistics were used to analyse demographic characteristics. Continuous data were expressed as mean and standard deviation, and categorical data as numbers and percentage (%). In the knowledge test, '1' point values were given for correct answers, and '0' point values were given for incorrect and blank answers.

To examine the validity of the multiple-choice test items, item difficulty, discriminating index and construct validity were evaluated. In the assessment, item difficulty (p-value) refers to the proportion of participants who answered the item correctly. For items with five response alternatives, items with a p-value above 0.9 were considered very easy and items with a p-value below 0.1 were considered very difficult.[25] The discriminating index (D-value) was obtained using the extreme grouping method. Participants were divided into two extreme groups 27% of the best performing participants and 27% of the worst performing participants.[25–27] D-value was calculated as the percentage of correct answers of the best-performing group minus the percentage of correct answers of the worst-performing group. Based on previous research, D-value below 0.10 is considered low, between 0.10 and 0.20 acceptable, between 0.20 and 0.30 moderate and above 0.30 excellent.[28] To measure construct validity, the means of the upper and lower 27% groups should be compared on an item basis.[29] The result of the analysis shows the extent to which the items distinguish the knowledge level of individuals. A statistically significant difference is expected between these groups regarding item discrimination. For internal consistency measurement, an independent sample t-test is applied. The null hypothesis that there is no difference between the item scores of the lower and upper groups is tested.[27]

Scale reliability was evaluated with the Kuder–Richardson (KR-20) coefficient for inter-item internal consistency. The KR-20 value of 0.70 and above indicates that the instrument is reliable.[30] In addition, scale reliability was evaluated by test-retest method and intraclass correlation coefficients (ICC). The two-way randomized, single-measure ICC was calculated for each domain and the instrument.[31] The results were evaluated at a 95% confidence interval and significance level $p < 0.05$.

2.6 | Ethics Statement

For the cultural adaptation of the OASES into Turkish, permission was obtained from the authors of the original version of OASES via email. This study was approved by the Ethics Committee of the Erciyes University (IRB No. 2023-454 Approval Date 30.10.2023) and informed consent was obtained from the nurses who agreed to participate in the research.

3 | RESULTS

3.1 | Characteristics of the participants

The majority of the participants were female (80.6%) and the mean age was 34.11 (8.92) years. Approximately

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TABLE 2 Validity of multiple-choice items of OASES.

Domains	Item number	Upper 27% ($n = 85$)	Lower 27% ($n = 85$)	*p*-value[a]	*D*-value[b]
Aetiology	1	55	17	0.42	0.45
	2	71	38	0.64	0.39
	3	52	19	0.42	0.39
Classification and observation	4	78	40	0.69	0.45
	5	42	15	0.34	0.32
	6	71	38	0.64	0.39
	7	61	39	0.59	0.26
Risk assessment	8	72	45	0.69	0.32
	9	51	16	0.39	0.41
Prevention	10	79	36	0.68	0.51
	11	48	14	0.36	0.40
	12	58	21	0.46	0.44
	13	56	22	0.46	0.40
	14	57	24	0.48	0.39
	15	47	17	0.38	0.35
Treatment	16	54	25	0.46	0.34
	17	57	19	0.45	0.45
	18	63	20	0.49	0.51
	19	51	18	0.41	0.39
Specific patient groups	20	82	47	0.76	0.41
Mean				0.51	0.40

[a]Item difficulty.
[b]Discriminating index.

72.3% of the participants had a bachelor's degree and 34.1% had 1–4 years of work experience. 31.5% of the nurses were working in medical units. 82.5% of the participants stated that they had not received training on ST, but 71.6% stated that they had received training on other wound types (Table 1).

3.2 | Content validity

To ensure content validity, experts opinions on the subject can be consulted.[31] In the present study, the OASES was submitted to 11 experts and the S-CVI was calculated as 0.97. The I-CVI values of the items ranged between 0.8 and 1. In the preliminary study, 30 nurses were asked to evaluate the comprehensibility of the items and responses. The nurses generally stated that the items were clear and understandable. Some of the nurses stated that they had difficulty in understanding some terminology in the instrument. However, it was observed that the problem stemmed from these nurses' lack of subject matter knowledge, hence no changes were made on these items.

3.3 | Validity of the multiple-choice test items

Item difficulty and discriminating index were examined to check the validity of the instrument. The scores of the nurses obtained from the knowledge instrument were ranked from the highest score to the lowest score and an upper group and a lower group of 27% were determined. There were 85 people in the upper and lower group.

3.4 | Item difficulty

The ratio of the total item difficulty index of each question to the number of items is expected to be around 0.50.[27] This value indicates that the

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TABLE 3 Independent sample *t*-test for upper and lower groups.

Item number	Groups	N	Mean	SD	SE	*t*-test[a]	*p*
1	Upper group	85	0.647	0.4807	0.0521	6.57	<0.001
	Lower group	85	0.200	0.4024	0.0436		
2	Upper group	85	0.835	0.3731	0.0405	5.74	<0.001
	Lower group	85	0.447	0.5001	0.0542		
3	Upper group	85	0.612	0.4902	0.0532	5.55	<0.001
	Lower group	85	0.224	0.4191	0.0455		
4	Upper group	85	0.918	0.2765	0.0300	7.19	<0.001
	Lower group	85	0.471	0.5021	0.0545		
5	Upper group	85	0.494	0.5029	0.0546	4.63	<0.001
	Lower group	85	0.176	0.3835	0.0416		
6	Upper group	85	0.835	0.3731	0.0405	5.74	<0.001
	Lower group	85	0.447	0.5001	0.0542		
7	Upper group	85	0.718	0.4528	0.0491	3.53	<0.001
	Lower group	85	0.459	0.5013	0.0544		
8	Upper group	85	0.847	0.3621	0.0393	4.73	<0.001
	Lower group	85	0.529	0.5021	0.0545		
9	Upper group	85	0.600	0.4928	0.0535	6.02	<0.001
	Lower group	85	0.188	0.3932	0.0427		
10	Upper group	85	0.929	0.2577	0.0279	8.33	<0.001
	Lower group	85	0.424	0.4971	0.0539		
11	Upper group	85	0.565	0.4987	0.0541	5.92	<0.001
	Lower group	85	0.165	0.3731	0.0405		
12	Upper group	85	0.682	0.4683	0.0508	6.29	<0.001
	Lower group	85	0.247	0.4339	0.0471		
13	Upper group	85	0.659	0.4769	0.0517	5.68	<0.001
	Lower group	85	0.259	0.4406	0.0478		
14	Upper group	85	0.671	0.4728	0.0513	5.47	<0.001
	Lower group	85	0.282	0.4528	0.0491		
15	Upper group	85	0.553	0.5001	0.0542	5.07	<0.001
	Lower group	85	0.200	0.4024	0.0436		
16	Upper group	85	0.635	0.4842	0.0525	4.72	<0.001
	Lower group	85	0.294	0.4583	0.0497		
17	Upper group	85	0.671	0.4728	0.0513	6.53	<0.001
	Lower group	85	0.224	0.4191	0.0455		
18	Upper group	85	0.741	0.4406	0.0478	7.60	<0.001
	Lower group	85	0.235	0.4267	0.0463		
19	Upper group	85	0.600	0.4928	0.0535	5.58	<0.001
	Lower group	85	0.212	0.4110	0.0446		
20	Upper group	85	0.965	0.1856	0.0201	7.12	<0.001
	Lower group	85	0.553	0.5001	0.0542		

Abbrevaitions: SD, standard deviation, SE, standard error.
[a]Independent sample *t*-test.

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TABLE 4 Test-retest reliability results ($n = 30$).

Domains	Pre-test ($n = 30$)			Post-test ($n = 30$)			
	Mean	SD	SE	Mean	SD	SE	ICC[a] (%95 CI)
Aetiology	1.63	0.88	0.16	1.60	0.77	0.14	0.87 (0.73–0.94)
Classification and observation	2.56	1.00	0.18	2.43	1.13	0.20	0.76 (0.50–0.88)
Risk assessment	1.10	0.66	0.12	1.03	0.66	0.12	0.46 (−0.12–0.74)
Prevention	2.96	1.18	0.21	3.00	1.14	0.20	0.69 (0.35–0.85)
Treatment	2.06	1.01	0.18	1.93	0.86	0.15	0.82 (0.63–0.91)
Specific patient groups	0.76	0.43	0.78	0.96	0.33	0.18	N/A
Total OASES	11.10	2.85	0.52	10.96	2.34	0.42	0.90 (0.79–0.95)

Abbreviations: ICC, intraclass correlation coefficient (95% confidence interval); N/A, Not applicable; SD, standard deviation, SE, standard error.
[a]Two-way random.

instrument is at a mean difficulty level. In this instrument, the item difficulty index ranged between 0.34–0.76 and the mean P-value was 0.51 (Table 2).

3.5 | Discriminating index

In this study, the discriminating index of the knowledge instrument ranged between 0.26 and 0.51 (Table 2). The mean *D*-value of the instrument was calculated as 0.40. None of the items had a discrimination index below 0.20, indicating that all items had discrimination.

3.6 | Construct validity

Another method that can be used for the discrimination and validity of the questions is the t-test.[32] The t-test is applied to test whether there is a difference between the two groups.[33] In order to measure internal consistency, the averages of the lower and upper 27% groups should be compared on item basis.[29] Table 3 shows the lower and upper 27% group analyses. Considering the independent samples t-test, it is seen that all questions of the test are in favour of the upper group. This shows that the discriminating coefficient of the instrument is at a sufficient level.

3.7 | Reliability of the multiple-choice test items

In this study, the KR-20 value of the Turkish version of the OASES was found to be 0.786 and it was concluded that the instrument was reliable.

3.8 | Test-retest reliability

In this study, 314 nurses were administered the first test, and 30 of these nurses were randomly selected and administered the post-test 14 days after the first test. The OASES knowledge ICC was 0.90 (95% CI = 0.79–0.95) and ranged from 0.46 (95% CI = 0.12–0.74) to 0.87 (95% CI = 0.73–0.94) for the five domains (Table 4).

4 | DISCUSSION

An important factor in the prevention and management of STs, knowledge is directly related to the assessment and documentation and the incidence and severity of ST. Therefore, it is very important to evaluate the knowledge level of nurses.[20] This study includes the cultural adaptation process (content, item and construct validity and test-retest reliability) of the OASES tool, which was developed to evaluate skin tears knowledge level, in Turkish. Although Turkish nurses represented 3.4% ($n = 13$) of the sample in the study of the psychometric properties of OASES conducted in 37 countries, this study is the first Turkish version of OASES with a large sample. The study results indicate that the Turkish version of OASES is a valid and reliable measurement tool to evaluate nurses' knowledge levels regarding skin tears.

The validity of the content of the OASES was confirmed by 11 experts experienced in wound care. The I-CVI for each item was greater than 0.8, and the S-CVI for the OASES was 0.97 which meets the content validity criteria.[31] The results were similar to the original scale study[20] and the Chinese adaptation studies.[34,35] Additionally, a preliminary study was conducted with 30 nurses to contribute to content validity. A few nurses stated that they had difficulty understanding some of the

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terminology included in the OASES. This situation shows that nurses lack knowledge about ST since skin tears are neither well-known nor evaluated in clinical routines. This feedback also made us think that it might be useful to add relevant terminologies to the data collection forms in such studies. Item analyses are important in obtaining an information tool with high reliability and validity for the learning domains to be measured. In this study, the difficulty of the item (how correctly it was answered) and the discriminating index (how well it distinguishes those who know from those who do not know) were calculated.[27] The item difficulty index of the OASES varies between 0.34–0.76 and the mean *p* value of the scale is 0.51. In this study, overall values for item difficulty were good. The difficulty index of the question regarding specific patient groups domain was 0.76, which was found to be too easy. In the expert consultation, most experts stated that one of the answer options for the question regarding the special patient group was not a distractor option. Having three response alternatives may have made it easier for them to answer the question. The discriminating index for all items showed an acceptable value; between 0.26 and 0.51 for the items, and the mean D value was 0.40, suggesting that the OASES is a discriminative instrument. There are no items below 0.2 in the whole instrument. Also, the *t*-test with the comparison of the upper group and the lower group confirms that the instrument is discriminative. All results showed that the OASES can be used as a valid tool to measure the level of knowledge regarding STs among Turkish nurses.

It is crucial to ensure reliability as well as validity in the cultural adaptation of the tool. The reliability of the tool was evaluated during the retest 14 days after the first test. The ICC of the overall tool was 0.90 which was considered good. The results of the study indicated that the two measures were correlated, showing that the OASES has repeatability. However, the ICCs of the domains ranged from 0.46 (risk assessment) to 0.87 (aetiology) and the risk assessment domain was considered slightly low. Low values in correlation were observed in some domains in Chinese adaptation studies. In the study by Luo et al., the ICC correlations of the aetiology and risk assessment domains were below 0.50. This may be because most of the participants lacked knowledge about ST or acquired knowledge about ST after the first test.

5 | CONCLUSIONS

In this study, the OASES which was developed to measure the ST knowledge level of nurses was psychometrically tested in Turkish nurses. The study confirmed that OASES is a valid and reliable tool for Turkish nurses. It is important that health professionals providing prevention and treatment of STs have depth and up-to-date knowledge to provide appropriate and adequate care. With this scale, it is believed that needs-specific educational interventions for nurses will be provided at the organizational level by evaluating their knowledge of ST and determining their weaknesses and needs on this issue. Evidence-based medicine practices are changing day by day in parallel with the current literature. Accordingly, the tests that measure the level of knowledge should also adapt to change in line with the current literature.

6 | LIMITATIONS

When using a web survey design, online response formats are considered to have lower data quality. Repeated response options and short-term responses were excluded to minimize low-quality responses. The measurement of knowledge is a momentary view as it is dynamic and subject to changes by daily experiences. This should be taken into account when using the instrument. Due to the sampling method used in our study, an equal number of nurses working in all units could not be reached. This situation makes it difficult for the results to represent the nurses working in all units in Türkiye.

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CONFLICT OF INTEREST STATEMENT
No conflict of interest has been declared by the authors.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author, [HYK], upon reasonable request.

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