Validity and Reliability of the Turkish Adaptation of the Dream Reflective Awareness Questionnaire (DRAQ)

Rüya Reflektif Farkındalık Ölçeği Türkçe Uyarlama, Geçerlik ve Güvenirlik Çalışması

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ABSTRACT

Introduction: The aim of this research was to adapt the Dream Reflective Awareness Questionnaire (DRAQ) to Turkish and to examine its psychometric properties.

Methods: In total, 378 college students participated in the study. The average age of the participants was 20.4 years; 56% of participants were women and 44% were men. After the scale linguistic equivalence was completed, the validity and reliability analyses were checked. Exploratory factor analysis and confirmatory factor analysis were utilized for the construct validity, and Cronbach's alpha coefficient was used for internal consistency reliability.

Results: In the exploratory factor analysis of the scale, unlike the original form, a 5-factor structure for 15 items was obtained, explaining the 71% of the total variance. The factor loads were between 0.61 and 0.88. Confirmatory factor analysis results confirmed the structure that was obtained from the exploratory factor analysis. The Cronbach's alpha internal consistency coefficient, which was derived from the reliability analysis of the scale, ranged between 0.74 and 0.78.

Conclusion: Based on the results obtained, we can conclude that the scale is a valid and reliable tool with sufficient psychometric properties.

Keywords: Validity, reliability, adaptation, dream, awareness

ÖZ

Amaç: Bu araştırmanın amacı Rüya Reflektif Farkındalık Ölçeği'nin (RRFÖ) Türkçe'ye uyarlanması ve psikometrik özelliklerinin incelenmesidir.

Yöntemler: Çalışmaya 378 üniversite öğrencisi katılmıştır. Yaş ortalaması 20,4 olan katılımcıların %56'sını kadınlar %44'ünü erkekler oluşturmuştur. Ölçeğin dilsel eşdeğerlik çalışmaları tamamlandıktan sonra geçerlik ve güvenirlik analizlerine geçilmiştir. Yapı geçerliği için açımlayıcı faktör analizi ve doğrulayıcı faktör analizi, güvenirlik için Cronbach Alfa iç tutarlılık katsayılarından yararlanılmıştır.

Bulgular: Yapılan açımlayıcı faktör analizleri sonrasında ölçeğin asıl formundan farklı olarak toplam varyansın %71'ini açıklayan ve 15 madde-den oluşan 5 faktörlü yapı elde edilmiştir. Maddelerin faktör yüklerinin 0,61 ve 0,88 arasında değiştiği görülmüştür. Yapılan doğrulayıcı faktör analizinden elde edilen sonuçlar açımlayıcı faktör analizi sonrası ortaya çıkan yapıyı doğrulamıştır. Ölçeğin güvenirlik analizlerinden elde edilen Cronbach iç tutarlılık katsayılarının 0,74 ile 0,78 arasında değiştiği görülmüştür.

Sonuç: Analizler sonrası elde edilen sonuçlara dayanarak RRFÖ'nün iyi psikometrik özelliklere sahip geçerli ve güvenilir bir araç olduğu değerlendirilmiştir.

Anahtar kelimeler: Geçerlik, güvenirlik, uyarlama, rüya, farkındalık

INTRODUCTION

In recent times, there was a prevailing opinion that dreaming is involuntary and unreflective (1). Nevertheless, recent studies have revealed that the content of the dream is affected by waking life, mental activities, anxieties, and items attracting the attention of the individual and that there is a dramatization of cognitive formation and the thoughts of the individual in the content of dreams (2). It is contemplated that the difference between dreams and waking cognition is quantitative rather than qualitative and that a certain quantity of self-awareness is reflected in dreams (3). Studies on self-awareness during dreaming exhibit that the factors for triggering intellectual mindfulness during wakefulness regularly emerge in dreams (4).

As simple consciousness, mindfulness is described as the individual's ability to be aware of the events happening around themselves and to name its senses and perceptions; reflective self-awareness is described as the individual's awareness of the transactional processes of identity structuring (5). If reflective self-awareness develops, it is believed that the memory becomes less occupied and that the individual obtains much cognitive power (6). Self-awareness in dreams, which are evaluated in seven different dimensions from ego-absent dreams to multi-dimensional awareness, is important to provide information about the consciousness state and personal development of the individual (7).

Lucid dreams, which are a very special dimension of dreams, are described as the state of being aware of dreaming while having a dream (8). Studies on lucid dreams demonstrate that the dreamers sometimes reach a state of clear self-thinking, and accordingly, remember past events and have the ability to discern and conduct voluntary actions (9,10). Both lucid and non-lucid dreams (normal dreams) are deemed to be two important events that are contradictory to each other in terms of the theories of waking consciousness; they provide information about the nature of conscious experiences and their neural link during dreaming (11).

Lee et al. (12) developed the Dream Reflective Awareness Questionnaire (DRAQ), which consists of 19 items pertaining to both lucidity and reflective self-awareness in dreams. The current study aimed to adapt the scale into Turkish and later to consider its validity and reliability for a Turkish sample. With respect to the concepts it contains and the area it measures, it is assumed that a version of the DRAQ, which has a highly authentic Turkish language structure, will contribute to studies on this subject that will be conducted in Turkey.

METHODS

Sampling
A total of 378 students studying in the Faculty of Education and the Faculty of Science and Literature of Ondokuz Mayıs University participated in the study. The data obtained from 41 students for the linguistic equivalence study and 191 students for exploratory factor analysis (EFA) was used for the analyses. Confirmatory factor analysis (CFA) data was collected through a later attempt from a total of 146 students. The average age of the participants was 20.4 years, ranging from 18 to 22 years; 56% were female and 44% were male.

Tools
The Effective Dream Registration Form and DRAQ were used as data collecting tools in the study.

Effective Dream Registration Form
In this form developed by the researchers, the participants were requested to report only one dream that they had in the last 3 months, i.e., the most memorable one, in as much detail as possible without adding any explanations and comments. In the report, it was indicated that the participants were allowed to talk about their thoughts and feelings that emerged momentarily in the dream. In addition, they were reminded that they should never hesitate to mention any feelings or thoughts, even if they may seem illogical, inappropriate, or exceptional. The participants filled out the DRAQ according to the dream they recorded in the Effective Dream Registration Form.

DRAQ
The DRAQ, developed by Lee et al. (12), consists of 5 sub-dimensions and 19 items. It was developed for the evaluation of reflective self-awareness appearing in dreams in various aspects. As the sub-dimensions contained 17 items in total, two more items were added to the questionnaire to enable the measurement of Lucid Ineffectiveness (one of the types of self-awareness, in which the participant is aware of being in a dream, but unable to affect the course of the dream) and Lucid Control (one of the types of self-awareness, in which the participant is aware of being in a dream and can affect the course of the dream). The sub-dimensions and the number of items contained therein, which constitute the questionnaire as well as these two items, are as follows: a) the Lucid Mindfulness sub-dimension consists of two items and contains the items relating to the awareness of being in a dream and recognizing ongoing feelings and

Table 1. Intercorrelations Between Subscales of DRAQ

Sub-dimensions	LM	DP	Dep.	IDSA	WA
1. Lucid Mindfulness	--	0.28	0.13	0.33	0.37
2. Dual Perspectives		--	0.21	0.26	0.13
3. Depersonalization			--	0.13	0.18
4. Intra-dream Self-awareness				--	0.39
5. Willed Appearances					--

LM: Lucid Mindfulness; DP: Dual Perspectives; Dep.: Depersonalization; IDSA: Intra-dream Self-awareness; WA: Willed Appearances

Table 2. The results for DRAQ linguistic equivalence analysis*

Sub-dimension	Forms	$\bar{X}$	SD	r
Dual Perspectives	Turkish form	5.71	5.05	0.95**
	English form	5.61	5.05	
Depersonalization	Turkish form	3.22	3.79	0.93**
	English form	2.78	3.50	
Intra-dream Self-awareness	Turkish form	5.98	4.22	0.92**
	English form	5.73	4.11	
Willed Appearances	Turkish form	3.78	3.18	0.89**
	English form	3.39	3.16	
Lucid Mindfulness	Turkish form	2.78	2.74	0.97**
	English form	2.95	2.78	
Lucid Control	Turkish form	0.76	1.16	0.82**
	English form	0.63	1.07	
Lucid Ineffectuality	Turkish form	1.32	1.57	0.98**
	English form	1.29	1.52	

*Pearson Product-Moment Correlation, **$p < 0.01$

thoughts, b) the Dual Perspectives sub-dimension consists of five items and contains the ability to evaluate the dream content in two different aspects during the dream, c) the Depersonalization sub-dimension consists of three items that relate to the reflective awareness in which the content that seems unrealistic and meaningless in the dream is evaluated, d) the Intra-dream Self-awareness sub-dimension contains four items used to measure the reflection of reflective self-awareness in the dream, and e) the Willed Appearances sub-dimension is the final dimension, consisting of three items that are used to determine the appearance of objects and figures in the dream in response to the desires of the person having the dream.

The questionnaire is in a five-point Likert scale, scored as 0 corresponding to not at all true, 1 corresponding to slightly true, 2 corresponding to moderately true, 3 corresponding to quite true, and finally 4 corresponding to extremely true. Higher scores obtained from the sub-dimensions indicate higher levels of reflective self-awareness in dreams. The sub-dimensions of the original questionnaire and their Cronbach's alpha values are as follows: 0.73 for Lucid Mindfulness; 0.79 for Dual Perspectives; 0.62 for Depersonalization; .71 for Intra-dream Self-awareness; and 0.57 for Willed Appearances (13). In addition, the correlations between sub-dimensions as an indicator of the construct validity in the original form of the questionnaire were investigated. The obtained low-to-medium level correlations were interpreted as indicating that the sub-dimensions of the questionnaire are factors that differ from each other (13). The obtained values are depicted in Table 1.

Table 3. The results for DRAQ linguistic equivalence paired samples t-test

	Groups	Forms	$\bar{X}$	SD	SEM	t	t-test df	p
Dual 1	Tur1	41	1.51	1.50	0.23	-0.44	40	0.66
	Eng1		1.54	1.50	0.23			
Dual 2	Tur 2	41	1.44	1.58	0.25	1.94	40	0.06
	Eng 2		1.22	1.46	0.23			
Dual 3	Tur 3	41	1.59	1.48	0.23	1.43	40	0.16
	Eng 3		1.44	1.50	0.23			
Dual 4	Tur 4	41	1.32	1.57	0.25	0.44	40	0.66
	Eng 4		1.29	1.52	0.23			
Dual 5	Tur 5	41	1.27	1.53	0.24	-1.35	40	0.19
	Eng 5		1.46	1.42	0.22			
Dual 6	Tur 6	41	1.00	1.40	0.22	1.42	40	0.16
	Eng 6		0.83	1.34	0.21			
Dual 7	Tur 7	41	2.00	1.50	0.23	0.74	40	0.46
	Eng 7		1.88	1.54	0.24			
Dual 8	Tur 8	41	1.59	1.73	0.27	1.19	40	0.24
	Eng 8		1.42	1.69	0.26			
Dual 9	Tur 9	41	1.12	1.47	0.23	1.74	40	0.09
	Eng 9		0.95	1.32	0.21			
Dual 10	Tur 10	41	1.49	1.45	0.23	0.50	40	0.62
	Eng 10		1.42	1.48	0.23			
Dual 11	Tur 11	41	1.02	1.49	0.23	0.90	40	0.37
	Eng 11		0.88	1.33	0.21			
Dual 12	Tur 12	41	0.80	1.19	0.19	0.27	40	0.79
	Eng 12		0.78	1.22	0.19			
Dual 13	Tur 13	41	1.20	1.54	0.24	1.22	40	0.23
	Eng 13		1.07	1.47	0.23			
Dual 14	Tur 14	41	1.49	1.50	0.24	0.87	40	0.39
	Eng 14		1.37	1.50	0.23			
Dual 15	Tur 15	41	0.88	1.29	0.20	-1.64	40	0.11
	Eng 15		1.05	1.38	0.22			
Dual 16	Tur 16	41	1.27	1.50	0.23	-1.43	40	0.16
	Eng 16		1.42	1.53	0.24			
Dual 17	Tur 17	41	0.85	1.39	0.22	0.63	40	0.53
	Eng 17		0.81	1.35	0.21			
Dual 18	Tur 18	41	0.95	1.38	0.22	0.00	40	1.00
	Eng 18		0.95	1.40	0.22			
Dual 19	Tur 19	41	0.76	1.16	0.18	1.15	40	0.26
	Eng 19		0.63	1.07	0.17			

Development of the Turkish Form of the Questionnaire
The consent of the authors who developed the original form of the questionnaire, required for the development of the Turkish form, was obtained. The English form of the questionnaire was translated into Turkish by three academicians who are specialists in their fields. The Turkish form developed from the obtained translations was back-translated into English by three different academicians who are also specialists in their fields. The consistencies between the two forms obtained were evaluated with the help of linguists. The Turkish form obtained after making the necessary corrections was applied twice at intervals of 2 weeks to the fourth class students of the English Teaching Department of the OMU Faculty of Education. The linguistic equivalence analyses were conducted through the obtained data.

Statistical Analyses
The Statistical Package for the Social Sciences 15.0 for Windows (SPSS, Chicago, IL, USA) and Lisrel 8.54 programs were used for data analysis.

In the studies of the linguistic equivalence of the questionnaire, Pearson product-moment correlation and the *t*-test for matched groups were used. For the investigation of the construct validity of the questionnaire, EFA and CFA studies were utilized. The Cronbach's alpha coefficients were calculated for the internal consistency of the questionnaire.

RESULTS

Linguistic Equivalence
The original form of the questionnaire and the Turkish form were obtained as a result of studies applied to a group of 41 students from the fourth class of the English Teaching Department of the Faculty of Education, Ondokuz Mayıs University, at intervals of 2 weeks. First, the normality of the data per item was checked; according to the results, no data points gave a cause for concern. According to the results in both language

Table 4. DRAQ factor structure (first analysis)*

Items	F1	F2	F3	F4	F5	F6
1	0.76				0.32	
2					0.49	-0.32
3	0.38	0.69				
4	0.75					
5	0.35	0.37				0.31
6				0.84		
7		0.80				
8						0.80
9		0.74				
10			0.83			
11				0.75		
12			0.68	0.31		
13				0.75		
14					0.81	
15			0.69			
16	0.81					
17					0.84	
18			0.35			0.63
19	0.41	0.31	0.48			
Eigenvalue	5.31	2.03	1.61	1.36	1.25	1.12
Explained variance	27.94%	10.69%	8.47%	7.17%	6.59%	5.89%
Cumulative variance	27.94%	38.63%	47.10%	54.27%	60.86%	66.85%
*Principal components factor analysis, varimax rotation						

Table 5. DRAQ factor structure (second analysis)*

Items	F1	F2	F3	F4	F5
16	0.83				
4	0.80				
1	0.75				
6		0.83			
11		0.78			
13		0.75			
7			0.85		
9			0.78		
3			0.65		
10				0.88	
12				0.74	
15				0.72	
14					0.85
17					0.71
2					0.61
Eigenvalue	4.12	2.01	1.46	1.20	1.11
Explained variance	29.42%	14.36%	10.42%	8.51%	7.79%
Cumulative variance	29.42%	43.78%	54.20%	62.71%	70.60%
*Principal components factor analysis, varimax rotation					

The results obtained from both analyses indicate that the Turkish and English forms did not differentiate statistically and that the linguistic equivalence of all items was fulfilled.

Validity

The studies for the construct validity of the questionnaire were performed with data obtained from a total of 337 students. For EFA, the data obtained from 191 students were used. The principal components factor analysis method was utilized because it is the most explanatory factor analysis method for total variance (14). To test the construct obtained from EFA, CFA was applied. The questionnaire was applied twice for CFA. In this application, the sample consisted of 146 students who were enrolled in the Faculty of Education and the Faculty of Science and Literature of Ondokuz Mayıs University.

The correlation matrix between the items was first examined to verify whether there were substantially significant correlations. Sampling adequacy and Barlett's Sphericity tests were performed. For the data to be adequate for factor analysis, the Kaiser-Meyer-Olkin (KMO) value is required to be over 0.60; a very large and significant Barlett's Sphericity test result indicates the factorability of the data (15). In this study, the sampling adequacy coefficient of KMO and the χ^2 value of Barlett's Sphericity test were 0.77 and 1288.212 (p<0.001), respectively.

To determine the number of factors, the main principle for eigenvalues to be greater than one was adopted (16). In the first analyses, six factors with eigenvalues over one were found. Further, it was seen that the obtained six factors accounted for 66% of the total variance. However, it was decided to omit some items from the questionnaire because two items were loaded under several factors and two items failed to constitute an adequate sub-dimension in terms of the content. The results obtained from the first analyses are seen in Table 4.

forms, Turkish and English, it was seen that the total DRAQ scores were compatible with the normal distribution (Turkish application K-S Z=0.67; p>0.05; English application K-S Z=0.97; p>0.05). As a result of the Pearson product-moment correlation performed between the Turkish and English items, all items in the questionnaire were found to be relevant at a significance level of .01. The findings obtained from the linguistic equivalence of the Turkish form of the DRAQ revealed that the correlations between the Turkish and original forms were 0.95 for the Dual Perspectives sub-dimension; 0.97 for the Lucid Mindfulness sub-dimension; 0.93 for the Depersonalization sub-dimension; 0.92 for the Intra-dream Self-awareness sub-dimension; 0.89 for the Willed Appearances sub-dimension; 0.82 for Lucid Control; and 0.98 for Lucid Ineffectiveness. The correlations between the sub-dimensions can be seen in Table 2.

In addition, within the scope of linguistic equivalence studies, the matched group t-test was applied to determine whether the findings obtained from the group to which the Turkish and English forms of the measurement tools were applied at intervals of 2 weeks were differentiated on the basis of items. The results of the t-tests for the matched groups were insignificant, as expected. The results are provided in Table 3.

As can be seen from Table 3, the difference between the averages of the answers given to the Turkish and English forms of all items available in the questionnaire as a result of the t-test for matched groups conducted to determine the linguistic equivalence of the items was found to be statistically insignificant. This situation demonstrates that the translated items have the same meaning as those in the English form. In other words, it is understood that the items have linguistic equivalence.

Table 6. DRAQ correlations between sub-dimensions*

Subdimension	LM	DP	Dep.	IDSA	WA
LM	--	0.21	0.45	0.18	0.35
DP		--	0.22	0.35	0.11
Dep.			--	0.25	0.31
IDSA				--	0.26
WA					--

*Pearson Product-Moment Correlation

LM: Lucid Mindfulness; DP: Dual Perspectives; Dep.: Depersonalization; IDSA: Intra-dream
Self-awareness; WA: Willed Appearances

Table 7. DRAQ and subdimensions Cronbach's alpha coefficient

DRAQ and subdimension	Cronbach alpha
DRAQ	0.81
Lucid Mindfulness	0.78
Dual Perspectives	0.74
Depersonalization	0.74
Intra-dream Self-awareness	0.74
Willed Appearances	0.75

Figure 1. Path Diagram and Factor Loads (***p<0.001)

To decide whether any item in the questionnaire is loaded under several factors, the rule of having a minimum discrepancy of 0.10 between the factor loads was taken as a basis (17). As a result of the review, it was seen that the items 5 and 19 are problematic; accordingly, they were omitted from the questionnaire. Two other items, items 8 and 18, were omitted from the questionnaire because they failed to constitute an adequate sub-dimension in terms of the content.

For the remaining 15 items, it was decided that the principal components analysis (PCA) should be repeated. First, the data set was examined for the remaining 15 items, whether it was adequate for factor analysis. For these 15 items, the results of Barlett's test showed that the data set was adequate for factor analysis (χ^2=867,880, p<0.001). The KMO results (KMO=0.74) indicated that the sample was adequate for running a PCA. A PCA with a varimax rotation was employed on 15 items. When the PCA was repeated for the remaining 15 items, it was seen that the items were gathered under five factors and accounted for 71% of the total variance. The construct obtained after the second analysis is seen in Table 5.

A value ≥0.32 is suggested as a limit for factor loadings (18). When the factor loads were examined, it was seen that there was no factor load with different signs under a group. As a result of the second analysis, it was seen that a 15-item scale under five dimensions accounted for 71% of the total variance in the data.

The first sub-dimension obtained as a result of AFA is the Lucid Mindfulness (F1) sub-dimension. This sub-dimension consisted of three items, accounting for 29% of the total variance, and its factor loads varied between 0.75 and 0.83. The second sub-dimension, the Depersonalization (F2) sub-dimension, consisted of three items, accounting for 14% of the total variance. The factor loads varied between 0.75 and 0.83. The third sub-dimension is the Intra-dream Self-awareness (F3) sub-dimension. It consisted of three items, accounting for 10% of the total variance, and its factor loads were between 0.65 and 0.85. The fourth sub-dimension, the Dual Perspectives (F4) sub-dimension, consisted of three items, accounting for 8% of the total variance, and its factor loads varied between 0.72 and 0.88. The fifth and final sub-dimension, the Willed Appearances (F5)
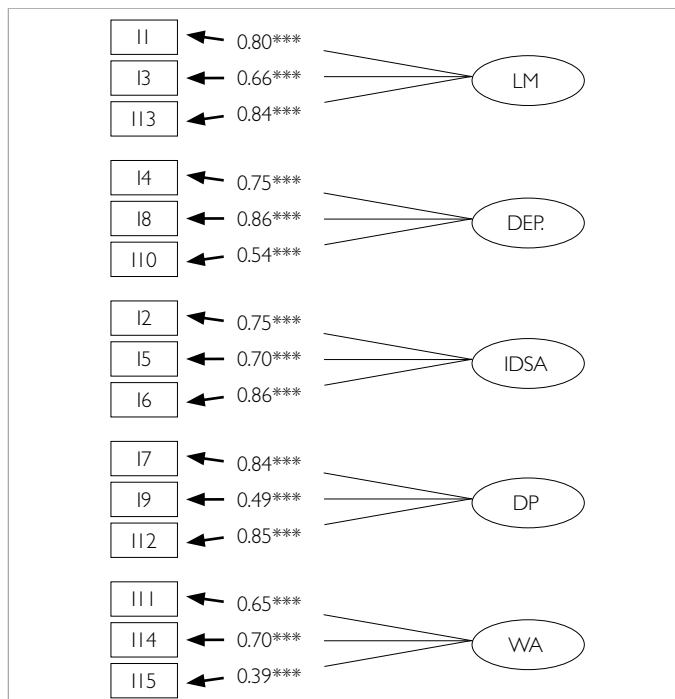
sub-dimension, consisted of three items, accounting for 7% of the total variance. The factor loads of the items remaining within this sub-dimension varied between 0.61 and 0.85. In addition, the correlations between the sub-dimensions were also investigated, as in the main study; they were close to the original scale's inter sub-dimension correlations, as seen in Table 6. The obtained low-to-medium level correlations were considered to be an indicator of the discriminant validity of the sub-dimensions.

Regarding the construct validity of the DRAQ, CFA was applied to verify the construct obtained from the factor analyses. The data were also collected for CFA from a total of 146 students. The fit indices of the model obtained from the conducted CFA were examined. It was seen that the chi-square value (χ^2=121.55; n=141; SD=67; p=0.00) was significant. The other fit indices were RMSEA=0.075; SRMR=0.086; CFI=0.91; GFI=0.89; AGFI=0.83; RMR=0.16; and NNFI=0.88. These fit indices demonstrate that the model shows good coherence. The path diagram and factor loads for the model are provided in Figure 1.

Reliability
In this study, a reliability check of the DRAQ was performed through the calculation of Cronbach's alpha coefficient. The analyses were repeated first for the reliability of the complete questionnaire and next on the basis of the sub-dimensions. The results are given in Table 7.

The Cronbach's alpha coefficients of internal consistence of the DRAQ were 0.78 for Lucid Mindfulness; 0.74 for Depersonalization; 0.74 for Intra-dream Self-awareness; 0.74 for Dual Perspectives; 0.75 for Willed Appearances; and 0.81 for the total questionnaire. When these values approach one, so does the internal consistency of the items. To state that a questionnaire is reliable, this value is required to be at least 0.70 (19). When taking this cutoff value into consideration, it can be said that the internal consistency of the questionnaire is at a good level.

DISCUSSION
In this study, the linguistic equivalence, validity, and reliability of the scale were investigated in a Turkish student population. For linguistic equiva-

lence studies that have a critical importance in adaptation, the correlation between the English and Turkish forms of the questionnaire was calculated; it was seen that there was a high consistence between the forms. Furthermore, no statistically significant difference was found between the English and Turkish forms of the questionnaire and the average scores of the forms. According to these results, it is possible to infer that the linguistic equivalence of all items in the questionnaire was fulfilled.

The total variance ratio of 71% that was obtained from the EFA analyses conducted to check the construct validity can be considered as an indicator of the construct validity of the questionnaire. However, the Turkish form obtained after the factor analysis is partly different from its original form. As a result of the omission of 4 items from the questionnaire because of the aforementioned reasons, the Turkish form of the questionnaire comprised 15 items. However, the five dimensions remaining in the original questionnaire were retained in the Turkish form as well. After EFA, the validity of the resulting construct was checked with CFA. According to the results obtained from CFA, it is possible to say that both the fit indices for the constructed measurement model and the data were in a coherent relationship. Although the obtained results for some fit indices do not show an excellent coherence, the attained results are deemed acceptable when all values are considered.

To determine the reliability of the questionnaire, the coefficient of internal consistence was calculated and found to be high in the sub-dimensions and for the complete questionnaire. The Cronbach's alpha coefficients obtained from the reliability analyses for internal consistence of the questionnaire were highly acceptable both for the total and for the sub-dimensions. Considering that the recommended reliability level of the measurement tools is 0.70 (19), it can be seen that although two dimensions of the original questionnaire (0.62 for Depersonalization; 0.57 for Willed Appearances) remained below the cutoff point, all of the coefficients obtained in the current study were above the limit. Accordingly, it can be said that the items remaining in the questionnaire are coherent to each other and are the most reliable in terms of internal consistency, i.e., it can be seen that the items remaining in all dimensions of the questionnaire are coherent to each other within themselves and for the relevant sub-dimensions, which is in line with the obtained results.

This is the first and a pioneering study in Turkey for the measurement of dream reflective awareness; thus, it was deemed important to perform this study on different sampling groups. Therefore, a contribution shall be made to the introduction of new proof for the validity and reliability of the Turkish form and for the support of the research findings. To determine the convergent validity of the questionnaire, the relationship between the DRAQ and the scales evaluating the various psychological constructs (conscious awareness, personality traits, metacognitive constructs, etc.), which may be related to reflective awareness, can be studied.

In this study, the results for such demographic variables as age and gender were not investigated. For future studies, we suggest that researchers investigate whether the differences in reflective awareness that are reflected in the individuals' dreams are changed with demographic variables. In addition, through the use of the Turkish form of the questionnaire developed on the basis of the concepts of the Far East culture, cross-cultural studies would provide evidence for differences based on the culture related to reflective self-awareness when reflecting on dreams in future research.

It is thought that both reflective awareness and lucid dreams are important concepts that may contribute to consciousness theories. The measurements to be made for both concepts are also ultimately important in this context. Hence, we expect the DRAQ could be useful for researchers who intend to measure dreams in a multi-dimensional context, considering the reflective awareness when reflecting on dreams and lucid dreams. Finally, we propose the DRAQ as a scale with linguistic equivalence for those who will take the survey in Turkish and also as a valid and reliable tool for those who study dreams and their relationship with the consciousness state.

REFERENCES

1. Foulkes D. Dreaming: A Cognitive-Psychological Analysis. New Jersey: Lawrence Erlbaum Associates; 1985.
2. Domhoff GW. The content of dream: Methodologic and theoretical implications. Kryger MH, Roth T, Dement WC, editörler. Principles and Practies of Sleep Medicine içinde. 4. baskı. Philadelphia: W.B. Saunders; 2005; s. 522-534.
3. Kahan TL, LaBarge S, Levitan L, Zimbardo P. Similarities and differences between dreaming and waking cognition: an exploratory study. Conscious Cogn 1997; 6:132-147. [CrossRef]

4. Kozmova M, Wolman RN. Self-awareness in dreaming. Dreaming 2006; 16:196-214. [CrossRef]
5. Kondrat ME. Who is the self in self-aware: Professional self-awareness from a critical theory perspective. The University of Ohaio. Social Service Review USA December 1999; s. 451-477.
6. Lee MN. Reflective awareness in dreams following loss and trauma. Yayınlanmamış doktora tezi 2010. Edmonton, Alberta.
7. Rossi, EL. Dreams and the Growth of Personality: Expanding Awareness in Psychotherapy. 2nd Edition. New York: Brunner-Mazel; 1985.
8. Schredl M, Erlacher D. Lucid dreaming frequency and personality. Personality and Individual Differences 2004; 37:1463-1473. [CrossRef]
9. Gackenbach J. Frameworks for understanding lucid dreaming: A review. Dreaming 1991; 1:109-128. [CrossRef]
10. Green C, McCreery C. Lucid Dreaming: The Paradox of Consciousness During Sleep. New York: Routledge; 1994.
11. Windt JM, Noreika W. How to integrate dreaming into a general theory of consciousness – a critical review of existing positions and suggestions for future research. Conscious Cogn 2011; 20:1091-1107. [CrossRef]
12. Lee MN, Kuiken D, Czupryn J. Reflective awareness in impactful dreams and dream induced changes. IASD Konferansı 2007. Sonoma, CA.
13. Lee MN. Reflective Awareness in Dreams Following Loss and Trauma. Yayınlanmamış doktora tezi, Edmonton, Alberta, 2010.
14. Şencan H. So syal ve Davranışsal Ölçümlerde Güvenilirlik ve Geçerlik. Ankara: Seçkin; 2005.
15. Büyüköztürk, Ş. Veri Analizi El Kitabı. Ankara: Pegem A Yayıncılık; 2004.
16. Pallant J. SPSS Survival Manual. Buckingham: Open University Press; 2003.
17. Büyüköztürk Ş. Faktör Analizi: Temel Kavramlar ve Ölçek Geliştirmede Kullanımı. Kuram ve Uygulamada Eğitim Yönetimi 2002; 32:470-483.
18. Tabachnick BG, Fidell, LS. Using Multivariate Statistics. Boston: Allyn & Bacon; 2001.
19. Tavşancıl E. Tutumların Ölçülmesi ve SPSS ile Veri Analizi. Ankara: Nobel; 2002.