

## Nurses' Moral Courage Scale: Adaptation, Validity and Reliability Study\*

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### ABSTRACT

**Aim:** This study's aim was to evaluate the psychometric properties of the Turkish version of the Nurses' Moral Courage Scale. **Materials and Methods:** This was a methodological study. The study sample consisted of 250 nurses. Data were collected by using a socio-demographic characteristics form and the Nurses' Moral Courage Scale (NMCS). Turkish translation and content validity studies were conducted for scale validity, confirmatory factor analysis (CFA) was used to ensure construct validity and invalidity analysis, and Cronbach's  $\alpha$  coefficient was used to evaluate internal consistency in reliability analysis.

**Results:** The mean age of the participants was 29.02±4.76 years and 67.6% were women. The Kaiser-Meyer-Olkin was 0.934, for which the Bartlett's test of sphericity was significant (chi-square=3639.923, p=0.001). These values were evaluated as the sample size was sufficient and the data set was suitable for factor analysis. Some indices were used to examine the fit of the model of the Moral Courage Scale of Nurses. The chi-square/degrees of freedom, Groningen Frailty Indicator, Adjusted Composite Financial Index, Composite Financial Index, root mean square error of approximation, and standardized root mean square residual were 4.10, 0.98, 0.98, 1.00, 0.11, and 0.06, respectively. The results of the confirmatory factor analysis showed a good model fit. The total scale had a Cronbach's alpha of 0.952.

**Conclusion:** The results of this study indicate that the Turkish version of the Nurses' Moral Courage Scale is a valid and reliable scale. However, further studies are needed to refine its psychometric properties.

**Keywords:** Moral; courage; nursing; psychometric evaluation.

### Hemşirelerde Ahlaki Cesaret Ölçeği: Uyarılma, Geçerlilik ve Güvenilirlik Çalışması

#### ÖZ

**Amaç:** Bu çalışmanın amacı Hemşirelerde Ahlaki Cesaret ölçeğinin Türkçe psikometrik özelliklerinin belirlenmesidir.

**Gereç ve Yöntemler:** Bu metodolojik bir çalışmadır. Çalışmanın örneklemini 250 hemşire oluşturmuştur. Veriler sosyo-demografik özellikler ve Hemşirelerde Ahlaki Cesaret Ölçeği (HACÖ) ile toplanmıştır. Ölçek geçerliğine yönelik Türkçe çeviri ve kapsam geçerliği çalışmaları yapılmış, geçerlik analizinde yapı geçerliğinin sağlanmasında doğrulayıcı faktör analizi (DFA), güvenilirlik analizinde iç tutarlılığın değerlendirilmesinde Cronbach's  $\alpha$  katsayısı kullanılmıştır.

**Bulgular:** Hemşirelerin yaş ortalaması 29,02±4,76 yıl olup, çalışma süresi ortalama 68,24±56,89 aydır. Bu çalışmada Kaiser Mayer Olkin (KMO) değeri 0,934 ve Bartlett's Küresellik testi sonucu anlamlı bulunmuştur ( $\chi^2=3639,923$ ; p=0,001). Bulunan bu değerler örneklem büyüklüğünün yeterli ve veri setinin faktör analizi için uygun olduğu yönünde değerlendirilmiştir. Hemşirelerde Ahlaki Cesaret Ölçeğine ait model uyumunu incelemek için bazı indekslerden yararlanılmıştır. Söz konusu indekslerden;  $\chi^2/df$  (Ki-kare/Serbestlik derecesi değeri) 4,10, GFI (Groningen Frailty Index) 0,98, düzeltilmiş GFI 0,98, CFI (Composite Financial Index) 1,00, RMSEA (Root Mean Square Error of Approximation) 0,11 ve SRMR (Standardized Root Mean Square Residual) 0,06 olarak saptanmıştır. İlgili uyum indeks değerlerinden RMSEA hariç, tümünün istenilen aralıkta olduğu görülmüştür. Cronbach  $\alpha$  katsayısı ölçeğin tümü için 0,952 olarak saptanmıştır.

**Sonuç:** Sonuç olarak yapılan analizler neticesinde Hemşirelerde Ahlaki Cesaret Ölçeğinin Türk toplumunda geçerli ve güvenilir bir ölçek olduğu saptanmıştır.

**Anahtar Kelimeler:** Ahlaki; cesaret; hemşirelik; psikometrik değerlendirme.

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## INTRODUCTION

Clinical nurses face more complex professional and ethical dilemmas in their workplace today than they have in the past (1). They must possess certain values in order to be able to resolve those dilemmas. Moral courage is an important value that helps nurses develop professional and personal skills (1,2). Although there is no consensus on the definition of moral courage, it refers to the commitment to do the right thing, even in the face of criticism and skepticism from colleagues and threat of isolation (3,4). Moral courage is considered to be the greatest virtue and requires a commitment to basic ethical principles, despite potential risks, such as embarrassment, anxiety, isolation, retaliation, and loss of reputation and employment (4). Moral courage is a valuable asset and a virtue recognized in nursing care (5,6). Nurses are responsible for meeting the healthcare needs of the public. However, the provision of high-quality care in Turkey is negatively affected by inadequate education, role confusion among nurses, excessive bureaucracy in healthcare, and physician-nurse conflict. Nurses face ethical dilemmas and enormous amounts of pressure when it comes to making the right decisions. Therefore, nursing researchers have recently begun focusing more attention on the issues of ethics and moral development (7,8). Moral development enables nurses to achieve their goals, perform nursing interventions correctly and regularly, and meet individual and social needs accurately and sustainably (6). Care is received and provided by people, which makes moral development more urgent and significant (7,9). In recent years, moral distress has become a major topic of discussion in nursing literature. Healthcare professionals must abide by codes of ethics. However, those who experience difficulty in making ethical decisions and are unable to practice their profession by their professional principles due to internal and external factors may end up suffering from moral distress (10). Nurses with moral courage have been found to solve ethical problems more easily and suffer less from moral distress. Kleemola et al. (11) argue that using personal skills to solve ethical problems affects the way nurses exercise moral courage and experience moral distress. Black et al. (12) also found that moral courage supports nurses against the negative consequences of moral distress. Nurses with moral courage can help patients share their concerns with other healthcare professionals, which improves the quality of care (6). In addition, assessment of moral courage can be included in training programs and interventions for nurses. Several scales have been used to assess moral courage. For example, Connor et al. (13) developed the Professional Moral Courage (PMC) scale, and Numminen et al. (14) developed the Nurses' Moral Courage Scale. Although health professionals, especially nurses, face ethical dilemmas, there are very few studies on the role of moral courage in healthcare in Turkey. The aims of this study were therefore, to evaluate the psychometric properties of the Turkish version of the Nurses' Moral Courage Scale.

## MATERIAL AND METHODS

### Study design

This was a methodological study conducted between August 2019 and January 2020. The steps followed in the study are as follows; (1) Adapting the test to Turkish and

retranslating it into English, (2) Testing the content validity by a group of experts, (3) Performing psychometric analyses such as factor analysis, coefficient of validity, item-total correlation and confirmatory factor analysis (CFA), (4) Cronbach Alpha values were used for reliability calculation.

### Population and sample of the study

In this study, the number of items in the original scale was 21. It is a general rule for scale development and adaptation that the scale has a sample size of 5 to 10 times the number of items (15,16). In accordance with this criterion, the study sample consisted of 250 nurses. The research was conducted with the nurses of Kafkas University Health Research and Application Hospital, Kars Harakani State Hospital, Sarıkamış State Hospital, Selim State Hospital and Arpaçay State Hospital. Inclusion criteria were as follows: (i) actively working as a nurse, (ii) being cooperative and open to communication and (iii) consenting to participate in the study.

### Data collection tools

A socio-demographic information form consisting of 7 questions (age, working years, gender, education, job title, working unit, knowledge of health ethics) and The Nurses' Moral Courage Scale (NMCS) were used as data collection tools.

### Nurses' Moral Courage Scale (NMCS)

The Nurses' Moral Courage Scale was developed by Numminen et al. (14). The NMCS consists of 21 items and 4 subscales scored on a 5-point Likert-type scale (1="Does not describe me at all," 2="Describes me a little," 3="Somewhat describes me," 4="Describes me well," and 5="Describes me greatly"). The NMCS is divided into four subscales: Compassion and true presence (five items), Moral responsibility (four items), Moral integrity (seven items) and Commitment to good care (five items). The total scale score ranges from 21 to 105. Higher scale scores indicate higher adherence to professional ethics and moral principles and higher tendency to do what is right for the patient. The Cronbach alpha of the original 21-item scale was 0.93.

### Data Collection Procedures

After making the necessary explanations to the nurses by the researcher, the data were collected between 20 and 30 minutes in the nursing room. The data were collected by face-to-face interview method.

### Cross-cultural adaptation of the Nurses' Moral Courage Scale (NMCS)-TR

#### Validity

#### Language Validity

Consent was obtained from the original author to translate the NMCS into Turkish and culturally validate it before starting the translation process. To ensure that the scale was culturally valid, a combination of methods proposed for cross-cultural validation studies, translation, back-translation, back-translation synthesis, expert committee review of the translated version, and validity and reliability testing were performed (17). First the NMCS was forward translated by a bilingual translator who was a native Turkish speaker and proficient in English. Second, a qualified translator who was a native English speaker and proficient in Turkish carried out the back translation. Third, researchers reviewed the differences between translators and the back-translated copies to resolve

conflicts. The back-translated version of the scale was sent to the developer of the scale and was evaluated and revised for consistency with the original version.

**Content Validity**

Eight experts (nurse academicians, with experience assessing scale reliability and validity, which were fluid in English) were consulted to conceptually assess the NMCS-Turkish (NMCS-TR) and the original scale. They rated the items on a scale of 1 to 4. The content validity ratio (CVR) was calculated by using the Davis technique (17,18). The NMCS-TR items had a CVR of 0.87 to 1.0, indicating that they had adequate content validity and therefore could be used.

**Construct Validity**

In this study, it was performed factor analyses to assess construct validity. Factor analysis is used for measures with subscales. Factor analysis is employed to test the whole of a given scale and the variables related to a construct to be measured in order to group related items under subscales, which are referred to as “factors.” The goal is to determine onto which subscales (factors) items are loaded. Highly related items are collected under the same factor (19). The NMCS consists of four subscales and 21 items. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used to assess construct validity.

It is necessary to determine whether the sample is large enough for factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to determine whether the sample was large enough, while Bartlett's test of sphericity was used to determine whether the correlation between the items was adequate for factor analysis (20).

Confirmatory Factor Analysis (CFA) is used to assess whether a previously limited or defined construct is confirmed (21). Experimental studies show that CFA is a robust method for determining construct validity. CFA results lay the theoretical or empirical foundation of a given model. However, it is better first to use EFA to test the construct and then CFA to verify it. As a result of CFA, those with  $\chi^2 / df$  ratio  $\leq 5$ , mean square approximation error (RMSEA) value  $\leq 0.07$  and goodness-of-fit index (GFI), comparative fit index (CFI), increasing fit index (IFI) values found above 0.90 (22).

Internal consistency refers to the general agreement between scale items representing the whole of a given construct. In other words, it points to a positive relationship between item scores and the total scale score, indicating that the scale is reliable. Internal consistency is often determined using Cronbach's Alpha Coefficient (23).

**Statistical Analysis**

Data were analyzed using SPSS for Windows, version 22 (IBM Corp., Armonk, NY, USA) and LISREL 8.80 (Scientific Software International Inc., Lincolnwood, IL, USA) at a significance level of 0.05. Before proceeding to data analysis, the Kolmogorov-Smirnov test was used to determine whether or not the variables were normally distributed, and it was observed that the data exhibited a normal distribution ( $p > 0.05$ ). Descriptive statistics for the data are given as mean±standard deviation, number and percentage (%). The nurses' demographic information was shown in Table 1.

Chi-square/degrees of freedom ( $\chi^2/df$ ), Groningen Frailty Indicator (GFI), Adjusted Composite Financial Index (ACFI), Composite Financial Index (CFI), and Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR) were used.

**Table 1.** Nurses descriptive features

Features	n	Min.	Max.	Mean±SD
Age	250	21.00	47.00	29.02±4.76
Working Mounth	250	12.00	348.00	68.24±56.89
				n %
Gender		Female		169 67.6
		Male		81 32.4
Education		Health occupational high school		50 20.0
		High School +		200 80.0
Job Title		Clinic nurse		195 78.0
		Manager		31 12.4
		Other *		24 9.6
Working Unit		Medical		27 10.8
		Surgical		28 11.2
		Psychiatry		12 4.8
		Intensive Care		28 11.2
		Emergency		37 14.8
		Child		24 9.6
		Maternal		16 6.4
		Neurology		15 6.0
		Orthopedic		16 6.4
		Other**		47 18.8
Knowledge of Health Ethics		Insufficient		13 5.2
		Sufficient		107 42.8
		Good		108 43.2
		Exellence		22 8.8

\* Outpatient clinic nurse, laboratory nurse, diabetes education nurse, day treatment unit nurse, infection control nurse, home care nurse etc.

\*\* Nurses working outside of the fields listed above

**Ethical Considerations**

Written permission was obtained from the developers of the NMCS. The study was approved by the Ethics Committee of the Faculty of Health Science of a University (No: 2019/07, Date: 26.04.2019). Written permission was obtained from the institutions, and verbal and written informed consent was obtained from those who had agreed to participate.

**RESULTS**

The mean age of the participants was 29.02±4.76 years, and the mean length of work experience was 68.24±56.89 months. Of all the participants, 67.6% were women, 80.0% had a high school degree, 78% were clinic nurses, 14.8% were emergency nurses, 43.2% stated that they had a “good” level of knowledge of health ethics, 82.4% stated that they acquired that knowledge through nursing, 98.4% were not in the ethics committee, and 44.4% stated that they rarely faced situations where they had to exercise morale courage (Table 2).

**Table 2.** Statistical tests for data analysis

Purpose	Technique
Content Validity	Davis technique
Exploratory Factor Analysis	Kaiser-Meyer-Olkin, Bartlett's test of sphericity, principal components analysis
Confirmatory Factor Analysis	Chi-square/degrees of freedom, value GFI, AGFI, CFI, RMSEA, SRMR <i>goodness-of-fit index</i>
Internal Consistency	Cronbach $\alpha$ , Item total correlation, Comparison of Upper and Lower 27 Percent Groups
Normality values	Kurtosis /Skewness

Chi-square/degrees of freedom ( $\chi^2/df$ ), Groningen Frailty Indicator (GFI), Adjusted Composite Financial Index (ACFI), Composite Financial Index (CFI), and root mean square error of approximation (RMSEA), Standardized Root Mean Square Residual (SRMR).

**Construct Validity**

The psychometric properties of the NMCS Turkish version are presented below with reference to the findings from the development and validation of the original NMCS English version of the questionnaire (14).

**Exploratory factor analysis**

The KMO measure of sampling adequacy was used to determine whether the sample was adequate for the analysis, and the Bartlett's test of sphericity was used to determine whether the correlation between the items was adequate for the analysis. The KMO was 0.934, for which the Bartlett's test of sphericity was significant (chi-square=3639.923,  $p < 0.001$ , indicating sampling adequacy and correlation between the items for factor analysis) (Table 3). The original scale has a KMO of 0.853, for which the Bartlett's test of sphericity is significant (chi-square=1282,  $p < 0.001$ ) (14).

**Table 3.** KMO and bartlett's test of sphericity for scale items

KMO	0.934
Bartlett's Test of Sphericity	$\chi^2 = 3639.923 / p < 0.001$

**Confirmatory factor analyses**

Confirmatory factor analysis (CFA) was used to determine the construct validity of the NMCS-TR. Many indices were used to determine the GFI of the NMCS. The chi-square/df, Groningen Frailty Indicator, Adjusted Composite Financial Index (ACFI), Composite Financial Index (CFI), and root mean square error of approximation (RMSEA) were 4.72, 0.74, 0.67, 0.81, and 0.12, respectively. None of the indexes had adequate goodness

of fit, indicating that the data did not satisfy the four-factor structure of the NMCS (22).

Table 4 presents the goodness of fit index (GFI) values, and normal and acceptable values of the NMCS-TR.

The NMCS consists of four subscales. However, the CFA did not yield a four-factor structure for the NMCS-TR. Therefore, an exploratory factor analysis (EFA) was performed using principal components analysis in order to determine the optimal number of subscales for the NMCS-TR.

**Table 4.** Goodness of fit index values and normal and acceptable values of NMCS (four factor structure)

Index	Normal value	Acceptable Values	Goodness of Fit Index Values
Chi-square/df	< 2	< 5	4.72
GFI	> 0.95	> 0.90	0.74
AGFI	> 0.95	> 0.90	0.67
CFI	> 0.95	> 0.90	0.81
RMSEA	<0.05	<0.08	0.12

The EFA showed that all NMCS-TR items had a factor loading greater than 0.30, which accounted for 51.805% of the total variance (Table 5). It was seen that the items were gathered under a single factor. Therefore, no items were removed, and the NMCS-TR was accepted as a one-factor scale.

**Table 5.** factor analysis for NMCS-TR (one-factor structure, 21 items)

Item Number	Factor Loading	Item Number	Factor Loading
NMCS-TR.1	0.691	NMCS-TR.12	0.764
NMCS-TR.2	0.735	NMCS-TR.13	0.632
NMCS-TR.3	0.585	NMCS-TR.14	0.524
NMCS-TR.4	0.766	NMCS-TR.15	0.771
NMCS-TR.5	0.727	NMCS-TR.16	0.696
NMCS-TR.6	0.765	NMCS-TR.17	0.79
NMCS-TR.7	0.705	NMCS-TR.18	0.743
NMCS-TR.8	0.669	NMCS-TR.19	0.696
NMCS-TR.9	0.822	NMCS-TR.20	0.698
NMCS-TR.10	0.719	NMCS-TR.21	0.756
NMCS-TR.11	0.793		
<b>Percentage of explained variance (%): 51.81</b>			

Many indices were used to determine the GFI of the NMCS-TR. Chi-square/df, GFI, ACFI, CFI, RMSEA, and SRMR were 3.99, 0.98, 0.98, 1.00, 0.11, and 0.06, respectively (Table 6). All indexes except the RMSEA, indicated adequate goodness of fit (22).

**Table 6.** Goodness of fit index values and normal and acceptable values of NMCS-TR (one-factor structure)

Index	Normal value	Acceptable Values	Goodness of Fit Index Values
Chi-square/df	<2	<5	3.99
GFI	>0.95	>0.90	0.98
AGFI	>0.95	>0.90	0.98
CFI	>0.95	>0.90	1.00
RMSEA	<0.05	<0.08	0.11
SRMR	<0.05	<0.08	0.06

**Reliability**

Table 7 shows the NMCS-TR item means, item total correlations, and Cronbach’s alpha when items were removed one at a time. In the study, it was determined that the item-total correlation coefficients, which are acceptable values in terms of item selection, were higher than  $\geq 0.20$ . The NMCS-TR had a Cronbach’s alpha of 0.952. This value indicates high reliability. All item total correlation values were positive, and no items were removed because doing so would not have resulted in a significant increase in internal consistency (19).

**Table 7.** NMCS-TR item total correlations

Item Number	Mean±SD	Item Total Correlation	If the item is deleted, $\alpha$	Item Number	Mean±SD	Item Total Correlation	If the item is deleted, $\alpha$
NMCS -TR.1	3.69±0.89	0.651	0.95	NMCS -TR.12	3.66±0.89	0.73	0.949
NMCS -TR.2	3.32±0.95	0.706	0.949	NMCS -TR.13	3.22±1.08	0.602	0.951
NMCS -TR.3	3.79±0.87	0.545	0.952	NMCS -TR.14	3.46±0.86	0.489	0.952
NMCS -TR.4	3.62±0.93	0.73	0.949	NMCS -TR.15	3.55±1.03	0.742	0.949
NMCS -TR.5	3.43±0.95	0.69	0.95	NMCS -TR.16	3.89±0.75	0.658	0.95
NMCS -TR.6	3.37±0.99	0.735	0.949	NMCS -TR.17	3.63±0.97	0.76	0.949
NMCS -TR.7	3.26±1.04	0.671	0.95	NMCS -TR.18	3.93±0.83	0.706	0.95
NMCS -TR.8	3.87±0.85	0.628	0.95	NMCS -TR.19	3.86±0.89	0.66	0.95
NMCS -TR.9	3.73±0.87	0.793	0.948	NMCS -TR.20	3.40±1.06	0.664	0.95
NMCS -TR.10	3.55±1.01	0.681	0.95	NMCS -TR.21	3.93±0.83	0.72	0.949
NMCS -TR.11	3.73±0.95	0.764	0.949				

There was a statistically significant difference between the upper and lower 27% groups ( $p<0.001$ ). This result indicates the discriminative power of the scale. In other words, the one-factor NMCS-TR can differentiate between the 27% group with high scores and the 27% group with low scores (Table 8).

**Table 8.** Comparison of upper and lower 27 percent groups

	n	Mean±SD	Significance
Upper %27	68	93.06±5.15	t=37.672; p<0.001
Lower %27	68	58.29±5.60	

Table 9 shows the distribution of the NMCS-TR mean scores.

**Table 9.** Distribution of NMCS-TR scores

	n	Min	Max	Mean±SD
NMCS-TR	250	43.00	103.00	75.89±13.97

**DISCUSSION**

Research on moral attitudes and moral courage is nascent in Turkey. Although there are different views on the role of moral courage in nursing, there are few scales available to measure the moral courage of nurses. The aim of this study was, therefore, to evaluate the psychometric properties of the Turkish version of the NMCS. The strength of this study is that it is the first to adapt a scale on nurses’ moral courage to the Turkish language. However, one limitation of the study is that many nurses did not participate because they were too busy or were not reluctant to sign the consent form.

In terms of content validity, the items of the NMCS-TR had a CVR of 0.87 to 1, based on expert feedback. Therefore, no item had to be removed to achieve content validity (24). A CVR higher than 0.78 indicates adequate content validity (25).

In terms of construct validity, the original NMCS consists of 4 subscales and 21 items. This study employed confirmatory factor analysis to determine whether the scale conformed to a four-factor structure for the Turkish population. The factor distributions showed that the NMCS-TR was unable to distinguish significant differences based on any theoretical structure. Moreover, the distribution of the NMCS-TR items had a different structure from that of the original NMCS. Item 11 had high loading on two factors. Principal components analysis, which is a form of exploratory factor analysis, was used to determine the factor structure. Results of the principal components analysis showed that the NMCS-TR had a one-factor structure. Then an item analysis was conducted, and the results showed that each item had a factor loading higher than 0.30. The explained variance was 0.81. In EFA, the value of each factor should be more than 0.30. Items with a factor loading higher than 0.50 are considered acceptable (15,17). In the present study, no item had a factor loading smaller than 0.30. The item with the lowest factor loading (0.524) was “I am even prepared to break prevalent care practices to advocate on behalf of my

patient (e.g., to exceed the standard length of time prescribed for a care procedure if it is inadequate for good care)." A structural equation model was developed using CFA in order to achieve more precise results after EFA (26).

Many indices were used to determine the goodness of fit of the NMCS-TR. The chi-square/df value was 3.99. A chi-square goodness of fit/degree of freedom value lower than 5 is acceptable(24). All indexes except RMSEA, indicated adequate goodness of fit. The original scale had a RMSEA of 0.000 (14).

In terms of reliability, the total NMCS-TR had a Cronbach's alpha of 0.952. This value indicates high reliability. The NMCS also had a Cronbach's alpha of 0.930 (14). The total correlation values of all NMCS-TR items were positive. No items were removed because removing any of the items would not have resulted in a significant increase in internal consistency.

The total correlation of items is expected to be greater than 0.30 (15). Item total correlation should be positive and greater than 0.20 or 0.25 (16,27). Item 14 "I can even stop care to encourage my patient" had the lowest factor loading (0.489).

Two test groups were formed from the upper and lower 27% of the total group. Data not from the upper and lower 27% groups were removed, and item difficulty and item discrimination were calculated using the lower-upper group method. The results showed that the NMCS-TR was able to differentiate the upper 27% and the lowest 27% ( $p<0.05$ ), which is a sign of discriminative power.

## CONCLUSION

The NMCS-TR is a valid and reliable scale that can be used to assess moral courage among Turkish nurses. Future studies should strengthen different sample groups to further evaluate the validity and reliability of the NMCS-TR.

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