Journal of Health Sciences

Research Article
10.34108/eujhs.1715700

Imprint:
Volume:35(1)
Year: 2026
Page: 64-78

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Received: 6/12/2025
Accepted: 3/2/2026

Citation:
Gönenç, İM., Yılmaz Sezer, N., Topuz, Ş., The Perception of Obstetric Violence in Students: Validity and Reliability Study (Percov- S-Turkish). *Journal of Health Sciences*, 2026;35(1):64-78 https://doi.org/*10.34108/eujhs.1715700*

The Perception of Obstetric Violence in Students: Validity and Reliability Study (Percov- S-Turkish)

Abstract

Obstetric violence is a serious problem that violates women's right to health care with dignity and respect. This study aimed to adapt the "Perception of Obstetric Violence in Students" scale into Turkish. The sample consisted of 254 fourth-year midwifery students from three universities. Data were collected using a personal information form and the scale between 05.05.21 and 18.06.21. Content validity and language equivalency were evaluated. Expert opinions were sought to evaluate the content validity of the scale. Afterward, test-retest reliability, internal consistency, and construct validity were examined. Pearson correlation, Bartlett's Test of Sphericity, dependent-groups t-test, and confirmatory factor analysis were used to examine the data. Six items were removed from the scale due to cross-loading. The Kaiser-Meyer-Olkin coefficient was 0.924. The confirmatory factor analysis revealed a five-factor structure with 27 items, explaining 67% of the total variance. Cronbach's alpha was 0.93 for the total scale and ranged from 0.69 to 0.90 for the subscales. The Confirmatory Factor Analysis was performed to check the construct validity of the scale. The results showed that root mean square error of approximation, normed fit index, and χ^2/df were 0.08, 0.94, 0.81, and 2.62, respectively. Test-retest analysis was performed to assess invariance over time. The results significantly fit the Pearson Product-Moment correlation coefficient ($r=0.848$, $p<0.001$). The results indicate that the scale is a valid and reliable measure for the Turkish population. The scale contains no reverse-coded items, and a higher score on a five-point Likert scale indicates higher awareness and sensitivity to obstetric violence.

Keywords: Midwifery, obstetrics, perception, students, violence.

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Öğrencilerde Obstetrik Şiddet Algısı Ölçeği: Geçerlik ve Güvenirlik Çalışması (Percov-S-Türkçe)

Öz

Obstetrik şiddet, kadının onur ve saygı çerçevesinde sağlık hizmeti alma hakkını ihlal eden ciddi bir sorundur. Bu çalışma, "Perception Scale of Obstetric Violence in Students" ölçeğinin Türkçe'ye uyarlanması amacıyla gerçekleştirilmiştir. Araştırmanın evrenini, üç farklı üniversitenin ebelik bölümünde eğitim alan 254 dördüncü sınıf öğrencisi oluşturmuştur. Veriler 05.05.21-18.06.21 tarihleri arasında tanıtıcı bilgi formu ve ölçek kullanılarak toplanmıştır. Dil eşdeğerliği ve içerik geçerliliği değerlendirilmiştir. Ölçeğin içerik geçerliliğini değerlendirmek için uzman görüşleri alınmıştır. Ardından, test-yeniden test güvenilirliği, iç tutarlılık ve yapı geçerliliği incelenmiştir. Verileri incelemek için Pearson korelasyonu, Bartlett küresellik testi, bağımlı gruplar t testi ve doğrulayıcı faktör analizi kullanılmıştır. Çapraz yükleme nedeniyle ölçekten altı madde çıkarılmıştır. Kaiser–Meyer–Olkin katsayısı 0.924 olarak bulunmuştur. Perception Scale of Obstetric Violence in Students ölçeğinin açıklanan toplam varyans

değeri 27 maddenin oluşturduğu 5 faktörlü yapı için %67 hesaplanmıştır. Toplam ölçek için Cronbach alfa katsayısı 0,93 idi ve alt ölçekler için 0,69 ile 0,90 arasında değişiyordu. Ölçeğin yapı geçerliliğini kontrol etmek için Doğrulayıcı Faktör Analizi yapılmış, hataların ortalama karekökü, normlaştırılmış uyum indeksi, karşılaştırmalı uyum indeksi ve χ^2/df değerlerinin sırasıyla 0,08, 0,94, 0,81 ve 2,62 olduğu bulunmuştur. Zaman içindeki değişmezliği değerlendirmek için test-yeniden test analizi yapılmış, Pearson korelasyonu istatistiksel olarak anlamlı bulunmuştur (r=0,848, p<0,001). Sonuçlar, ölçeğin Türk toplumu için geçerli ve güvenilir bir ölçüm aracı olduğunu göstermektedir. Ölçekte ters kodlanan madde bulunmamaktadır ve beşli Likert tipi ölçekte puan artıkça, obstetrik şiddetine yönelik farkındalık ve duyarlılığın yüksek olduğunu ifade etmektedir.
Anahtar kelimeler: Ebelik, doğum, algı, öğrenciler, şiddet.

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Introduction

Obstetric violence is a form of gender-based violence perpetrated by healthcare providers. The health of the mother and child is impacted by obstetric violence during pregnancy, labor, and the postpartum phase. Obstetric violence physically and psychologically impact both the perpetrators and the caregivers.[1,2] Obstetric violence encompasses three types of violence: emotional (inhumane, disrespectful, humiliating treatment), structural (stigma, discrimination, systemic failures, etc.), and direct (physical, verbal, sexual harassment, etc.).[1,3] According to the World Health Organization, violence during childbirth is a serious problem that violates women's right to health care with dignity and respect. Some examples of obstetric violence are a violation of reproductive rights, verbal abuse, mockery and insults, threats, humiliation, manipulation of information, delay in timely emergency medical care, disregard of requests or complaints, failure to inform women about procedures, unnecessary episiotomy, and procedures, fundal pressure, enema, failure to administer anesthesia, unnecessary pelvic examination, delayed mother-child contact, and prevention of breastfeeding.[4]

Many countries do not recognize obstetric violence, even though it is a global problem. However, some countries have recognized obstetric violence as a crime and have enacted legislation to prevent it.[1,5] In recent years, there has been a growing body of research on obstetric violence.[6-9] Reported that three out of five women were victims of obstetric violence (75.1%).[9] Mena found that two in five women were victims of obstetric violence (38.3%).[10] Castro found that one in three women was a victim of obstetric violence (33.3%).[11] The most common forms of obstetric violence were non-consensual care, physical abuse, discriminatory care, and unnecessary interventions. Zaingham and Andersson documented that nine out of ten pregnant women who tested positive for COVID-19 had a cesarean section despite a lack of indication.[12] Sadler and friends suggested this was because healthcare providers were concerned about contracting the virus. Sadler and friends concluded that forcing pregnant women to have C-sections was a form of obstetric violence.[13]

Health care providers that act carelessly, disrespectfully, discriminatorily, or negligently might commit obstetric violence. Behaviors of healthcare personnel that naturalize and trivialize the occurrence of obstetric violence legitimize obstetric violence.[14] In a study conducted with midwives in Spain, 56.9% (n=185) of midwives stated that they rarely observed obstetric violence, and 26.5% (n=86) stated that they observed obstetric violence regularly. In the same study, it was found that midwives did not accept behaviors such as a professional not introducing himself to the woman in his care or not providing sufficient information as obstetric violence.[15] Leal et al., in their study, show that nurse midwives do not accept some practices adopted in the hospital routine as violence, they routinely adopt invasive procedures, and they perceive the existence of obstetric violence in a limited way.[16] To detect and prevent obstetric violence, we must first make it visible. This requires an assessment of healthcare professionals' opinions and perceptions regarding obstetric violence and the experiences of pregnant women in reproductive health units. Midwives are health professionals who play a key role in the prenatal, birth and postnatal period. For this reason, midwives' perception and awareness of obstetric violence is very important in reducing obstetric violence cases and providing respectful and humanistic care. The foundations of midwifery practices are laid during student years. In this context, midwifery students' views and attitudes towards obstetric violence begin to take shape during their education and significantly affect the care processes they provide when they begin their profession. When students witness practices that do not support the care decisions of women giving

birth, or that disregard the capacity of healthy pregnant women to give birth without intervention, they may have difficulty integrating the knowledge they gained in undergraduate education with their experiences in the delivery room.[17] Inevitably, midwifery students who are trained in environments where obstetric violence is prevalent also carry the risk of normalizing this violence.[18,19] On the other hand, Küçükkaya stated in her study that as students' perceptions and awareness of obstetric violence increased, their attitudes towards not approving and accepting violence also improved positively.[20] In particular, determining this perception and awareness during student life and developing it positively will contribute to the reduction of obstetric violence behaviors in professional life. However, no tool is currently available to measure how midwifery students' Turkish perceive obstetric violence. Hence, this study aimed to adapt the "Perception of Obstetric Violence in Students (PercOV-S)" into Turkish for this purpose.

Materials And Methods

This study adopted a methodological research design to adapt the PercOV-S into Turkish.

Population and Sample

The sample consisted of 254 fourth-year midwifery students from three universities. Because the number of students in a single midwifery department would not have been sufficient to meet the recommended sample size, and to ensure an adequate and representative sample, participants were recruited from multiple universities. Three universities with similar educational standards and convenient access for the researcher were included in the study. The number of items and observations (participants) was used to determine the sample size. For scale adaptation studies, it is generally accepted that the sample size should be five to ten times the scale's item count.[21,22] The PercOV-S consists of 33 items. Therefore, the target sample ranged from 165 to 330. The study included fourth-year midwifery students who were over 18 years old, actively enrolled, had taken or were currently taking courses related to pregnancy and childbirth, and had consented to participate. A total of 340 students were invited to participate in the survey, and the study was completed with 254 responses, constituting the final sample, which falls within the recommended range for scale adaptation studies and ensures an adequate and representative sample.

Data Collection Tools

The data were collected using a personal information form and the PercOV-S.

Personal Information Form: The personal information form consisted of 14 items on sociodemographic (age, economic status, family type, longest residence, mother's and father's education level, etc.) and obstetric characteristics (attending antenatal care, giving birth, witnessing obstetric violence, causing obstetric violence, etc.).

Perception of Obstetric Violence in Students (PercOV-S): The Perception of Obstetric Violence in Students (PercOV-S) was developed by Desirée Mena-Tudela et al.[2,23] Permission was obtained from the authors to adapt the scale to the Turkish language. The original scale consists of 33 items that assess perceived obstetric violence before and during labor, cesarean section, and postpartum. The items are scored on a five-point Likert scale ranging from "1=strongly disagree" to "5=strongly agree," with no items reverse-scored. The original scale has a *Cronbach's alpha* of 0.922. Construct analysis yielded adequate results. Factor analysis revealed that 54.47% of the instrument's variance was explained by two domains: (1) "protocolized-visible obstetric violence" and (2) "non-protocolized-invisible obstetric violence". It is recommended that respondents complete the entire scale for accurate assessment. There is no cut-off point. Higher scores indicate higher levels of perceived obstetric violence.

Validity and Reliability: The validity and reliability phases of the study are presented in a flowchart (Figure 1) and are explained in detail below.

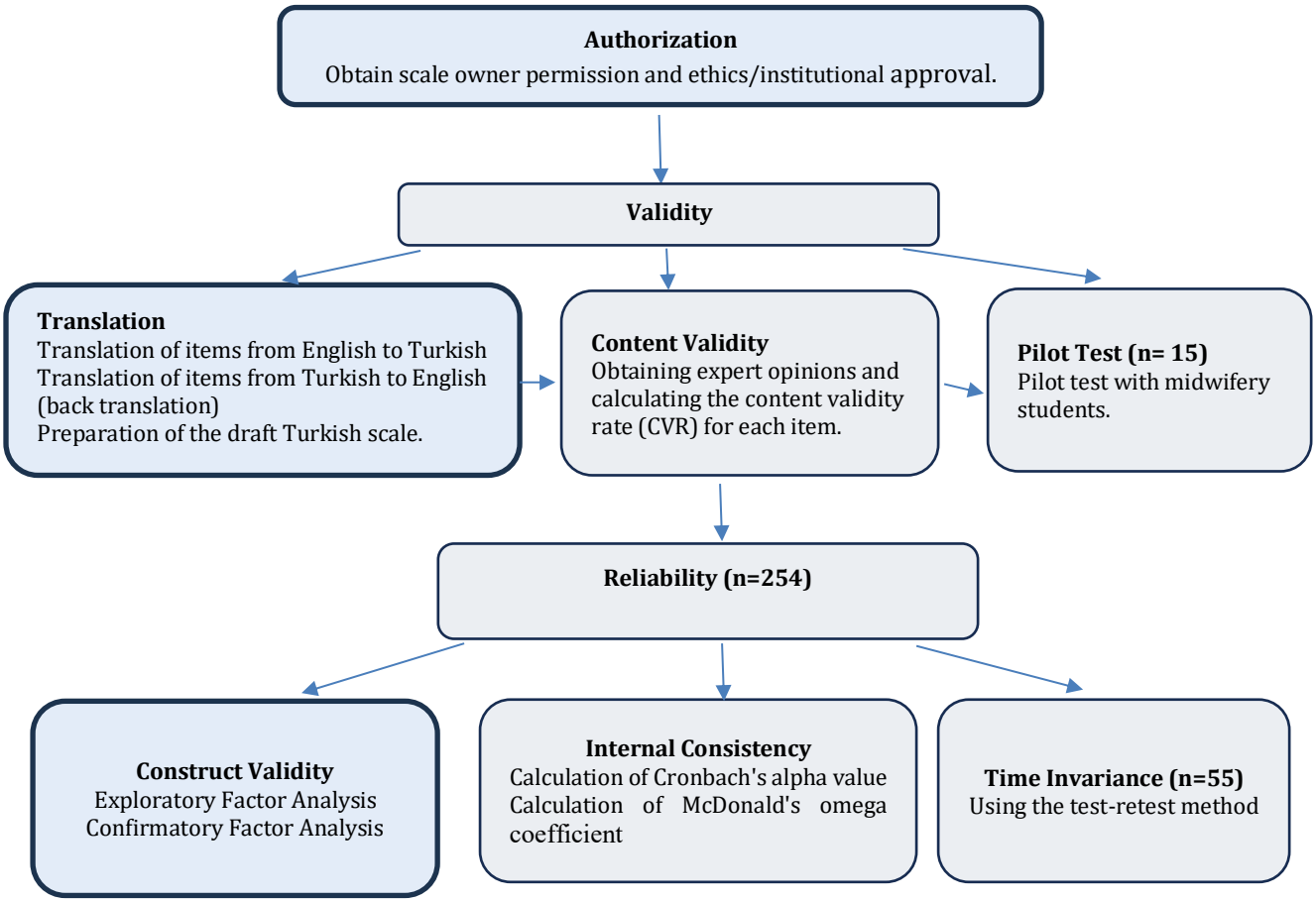

Figure 1. Research flowchart

Authorization: The researchers emailed Prof. Desirée Mena-Tudela and obtained her permission to adapt the scale to Turkish. They shared the analysis results with her and consulted her to determine the factor names.

Validity

Translation: The researchers followed the guidelines for the process of cross-cultural adaptation developed by Beaton et al.[24] Two academics, proficient in English and working in midwifery, translated the scale into Turkish. In addition, an individual with no knowledge of obstetric violence and no medical or clinical background translated the scale into Turkish. The researchers reviewed all the translated versions and selected the most appropriate items. An English linguist, who was familiar with both languages and cultures but had no prior knowledge of the original version or the research topic, translated the Turkish version back into English. A native English speaker reviewed the Turkish and back-translated versions for meaning and similarity. The researchers made revisions to the items based on the expert's feedback.

Content Validity: Ten experts were asked to rate the content validity of the adapted scale using the Davis technique.[25] Each item was rated on a scale from 1 (inappropriate) to 4 (very appropriate) for relevance, understandability, and meaning. The content validity ratio (*CVR*) was calculated for each item based on the expert ratings.

Pilot Test: A pilot test was conducted with 15 midwifery students to assess the comprehensibility of the items. The participants reported that they had no difficulty understanding the items. Based on the pilot test results, the researchers finalized the scale. The pilot test sample was not included in the main study.

Construct Validity: First, the construct validity of the scale was assessed using explanatory factor analysis (EFA). The scale's factor structure was then verified using confirmatory factor analysis (CFA). The χ^2 goodness-of-fit test, χ^2/df ratio, comparative fit index (CFI), standardized root mean square residuals

(SRMS), normed fit index (NFI), non-normed fit index (NNFI), goodness-of-fit index (GFI), and root mean square error of approximation (RMSEA) were used to assess the suitability of the structural equation model. The sub-dimension names were determined to reflect the scale's unique structure and the study's cultural context. This process took into account the content analysis of the items and the concept review in the literature. Furthermore, the original author of the scale was informed, and his/her opinion was sought.

Reliability: Internal consistency: Cronbach's alpha coefficient and factor loadings were used to evaluate reliability. An acceptable level of internal consistency was considered a Cronbach's alpha greater than 0.60.

Time invariance (test-retest method): Invariance over time was assessed by test-retest reliability analysis. The dependent t-test and Pearson's correlation were used to test the difference and correlation between the two sets of scores obtained from the participants.

Data Collection

The researchers emailed all students inviting them to participate in the study. Data were collected online (Google Forms) using the personal information form and the PercOV-S between 05.05.21 and 18.06.21. The first page of the online form informed all students about the research purpose and procedure. Informed consent was obtained from those who agreed to participate. Participants proceeded to the next stage to complete the data collection instruments.

Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, v.20.0), Lisrel (v.9.30) and G*Power 3.1.9.7 with a significance level of 0.05. Frequencies and numbers were used to present descriptive statistics. Factor analysis was used to evaluate construct validity. The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy was used to evaluate the data's eligibility for factor analysis. Cronbach's alpha reliability coefficient, which shows how homogeneous the items are, was calculated to evaluate internal consistency. In order to assess the invariance of the scale over time, a test-retest was carried out with an interval of two weeks. Invariance over time was assessed using Pearson's correlation and paired t-test.

Results

Participants

The sociodemographic details of each participant areshown in Table 1. The mean age of participants was 21.56 years (*SD*=2.28). Most participants reported having attended the examination of a pregnant woman in labor before (74.8%), and more than half had examined a pregnant woman in labor before (60.2%). Most participants had attended deliveries as observers or assistants (72.8%), while less than half had delivered babies before (30.3%). Participants were nulligravid. Most participants stated that they had never received training on obstetric violence (78%). Less than half of the participants reported witnessing obstetric violence before (34.3%), and less than a quarter reported causing obstetric violence before (11.4%).

Table 1. The participants' demographic characteristics (n =254)

Variables	*n* (%)
Family type	
Nuclear	220 (86.6)
Extended	22 (8.7)
Broken	12 (4.7)
Living Place	
City	174 (68.5)
Country	49 (19.3)
Village	31 (12.2)
Mother's Education	
Illiterate-Literate	22 (8.7)
Primary school	109 (42.9)
Middle school	45 (17.7)
High school	60 (23.6)
University	18 (7.1)
Father's Education	
Illiterate-Literate	13 (5.2)
Primary school	64 (25.2)
Middle school	54 (21.3)
High school	79 (31.1)
University	44 (17.3)

Economic Status	
Bad	68 (26.8)
Medium	156 (61.4)
Good	30 (26.8)

Content Validity

Ten experts rated the items using the Davis technique. The content validity scores ranged from 0.80 to 1, indicating acceptable levels. A pilot study was then conducted with 15 participants. The results indicated that all items were understandable. Therefore, no revisions were made to the items.

Construct Validity

The suitability of the data for factor analysis was checked by examining sample size, normality, and multicollinearity. Bartlett's test of sphericity was used to assess whether the correlation between the items was sufficient for factor analysis, and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to assess whether the sample was sufficient. The *KMO* value was 0.924, for which Bartlett's sphericity test was significant (χ^2=4526.588, p<0.001), indicating an adequate sample and a sufficient correlation between the items for factor analysis. Factor analysis was conducted using direct oblimin rotation, resulting in five factors. Each item had a factor loading greater than 0.30, therefore, no items were removed based on this criterion. However, several items (I9, I20, I21, I24, I25, and I28) showed cross-loadings, as their loadings on more than one factor differed by less than 0.10. In the first stage of the analysis, five items (I9, I20, I24, I25, and I28) were removed, and the factor analysis was re-run. After recalculating the factor structure, item I20 again exhibited a cross-loading pattern and was subsequently excluded in accordance with methodological recommendations. This iterative removal process improved the clarity and stability of the factor structure. A summary of the removed items and their loading patterns is presented in Table 2. The eigenvalues of the factors were examined to determine how many factors the items were grouped into. There were five factors with eigenvalues greater than 1 (Figure 2).

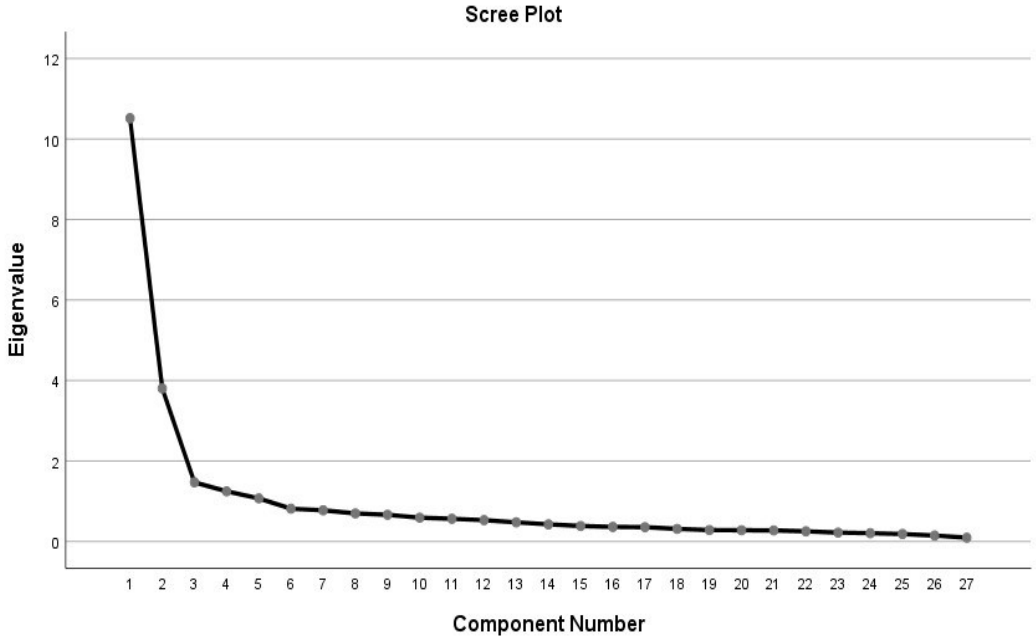

Figure 2. Scree graph

Table 2. Items removed due to cross-loadings

Item	Factors					Difference (Maximum-Second Highest Loading)	Reason for Removal
	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5		
I9	0.389				-0.370	0.019	Cross-loading (<0.10)
I20	0.400				-0.315	0.085	Cross-loading (<0.10)
I21		0.313		0.396		0.083	Cross-loading (<0.10)
I24	0.429		-0.332			0.097	Cross-loading (<0.10)
I25			-0.396		-0.458	0.062	Cross-loading (<0.10)
I28		0.388		-0.362		0.026	Cross-loading (<0.10)

Note: Items with a loading difference below 0.10 on multiple factors were considered cross-loading and removed. Item I20 showed cross-loading again after the first deletion and was subsequently excluded

Exploratory factor analysis revealed five factors. Factor 1 (intrapartum mistreatment) comprised eight items and accounted for 38.951% of the total variance. Factor 2 (non-evidence-based routine practices) comprised seven items and explained 14.091% of the total variance. Factor 3 (postpartum mistreatment) comprised five items and explained 5.444% of the total variance. Factor 4 (accompaniment and consent) consisted of three items and explained 4.612% of the total variance. Finally, factor 5 (intervention without indications) consisted of four items and explained 3.967% of the total variance. The resulting five-factor structure with 27 items accounted for 67% of the total variance (Table 3).

Table 3. Obstetric violence perception scale exploratory factor analysis results

Items	Factors				
	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5
I8. "Performing a pelvic exam without consent"	.742				
I11. "Not preserving privacy"	.838				
I13."Not considering the woman's decision"	.839				
I14. "Taking pictures without permission"	.847				
I15. "Enforcing the lithotomy position"	.464				
I18. "Saying "You do not know how to push"	.530				
I22. "Not providing covering/heating during" delivery	.593				
I23. "Saying "Stop complaining, it is not that bad"	.710				
I1. "Inserting an intravenous channel"		.787			
I2. "Directing the woman's position"		.802			
I3. "Accelerate the birthing process artificially"		.611			
I4. "Administering routine enemas"		.624			
I5. "Performing routine amniorrhexis"		.604			
I6. "Performing routine genital shaving"		.615			
I7. "Immobilizing the woman"		.635			
I29. "Suturing a tear without anaesthesia"			-.685		
I30. "Separating the mother and new-born"			-.704		
I31. "Allowing skin-to-skin contact after the paediatric examination"			-.659		
I32. "Taking the baby to the nursery"			-.693		
I33. "Giving formula without the mother's consent"			-.694		
I16. "Allowing accompaniment during the second stage"				.739	
I26. "Performing an emergency caesarean section without consent"				.516	
I27. "Not allowing accompaniment in cases of instrumentation or caesarean section"				.752	
I10. "Encouraging the use of an epidural"					-.822
I12. "Convincing the woman to undergo a c-section to end labour quickly and without pain"					-.516
I17. "Performing routine episiotomy"					-.698
I19. "Performing the Kristeller manoeuvre"					-.606

Eingenvalues	10.517	3.805	1.470	1.245	1.071
Explained variance %	38.951	14.091	5.444	4.612	3.367
Explained total variance %	38.951	53.042	58.486	63.098	67.065
Cronbach's Alfa	.90	.87	.85	.69	.77
McDonald's Omega	.91	.89	.88	.74	.81

(The total scale Cronbach's alpha (α) = 0.93 and McDonald's omega (ω) = 0.93)

Correlations among the scale factors ranged from 0.28 to 0.63, and all relationships were positive and significant ($p < 0.01$). The highest correlation was between Factor 3 and Factor 5 ($r = 0.63$), and the lowest was between Factor 1 and Factor 2 ($r = 0.28$) (Table 4).

Table 4. Correlation results between factors

Factors		**Factor 1**	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**
Factor 1	r	1				
	p					
Factor 2	r	0.281**	1			
	p	<0.001				
Factor 3	r	0.618**	0.493**	1		
	p	<0.001	<0.001			
Factor 4	r	0.542**	0.308**	0.569**	1	
	p	<0.001	<0.001	<0.001		
Factor 5	r	0.587**	0.590**	0.630**	0.485**	1
	p	<0.001	<0.001	<0.001	<0.001	

**p<0.01

Confirmatory Factor Analysis

To test the scale's construct validity, a confirmatory factor analysis was performed, resulting in a five-factor structure with 27 items. The measurement model was generated using a path diagram, and the t-values obtained were presented in Figure 3. The model's goodness of fit was examined, and the results are shown in Table 5. The chi-square test was significant ($p<.0001$), while the chi-square/degree-of-freedom ratio (χ^2/df) was 2.62. The model fit indices were as follows: root mean square error of approximation (*RMSEA*) = 0.08, standardized root mean square residuals (*SRMR*) = 0.1, *NFI* = 0.94, *NNFI* = 0.96, *GFI* = 0.81, and *CFI* = 0.96.

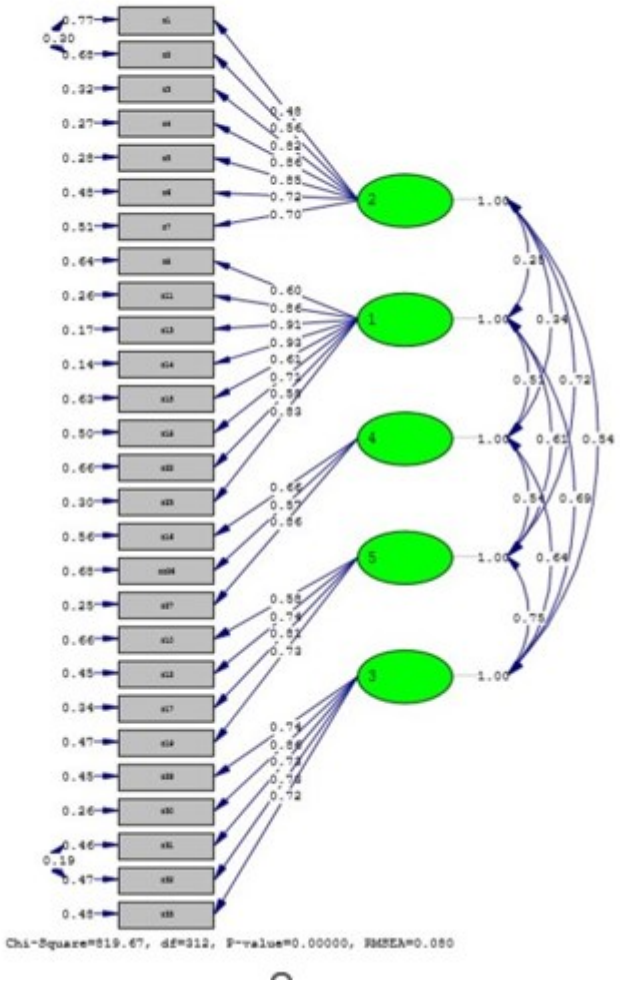

Figure 3. Confirmatory factor analysis measurement model

Table 5. Calculated goodness of fit indices

Model	p	χ^2/p	df	χ^2/df	RMSEA	SRMR	NFI	NNFI	GFI	CFI
	0.00	819.67/0.00	312	2.62	0.08	0.10	0.94	0.96	0.81	0.96
*Good fit values	0.05≤p≤1	-	-	0 ≤ χ2/df≤ 2	0.00 ≤ RMSEA≤0.05	0.00 ≤ SRMR≤ 0.05	0.95≤NFI≤1.00	0.97≤NNFI≤1.00	0.95 ≤ GFI ≤ 1.00	0.95 ≤ CFI≤1.0
*Acceptable fit values	0.01≤p≤0.05	-	-	2 ≤ χ2/df≤ 3	0.05 < RMSEA≤0.08	0.05 < SRMR≤ 0.10	0.90≤NFI≤0.95	0.95≤NNFI≤0.97	0.90 ≤ *GFI* < 0.95	0.90≤ CFI<0.95

According to the factor analysis results, the internal consistency of the five-factor scale was found to be high (CR = 0.713–0.89). Regarding convergent validity, the average variance extracted (AVE) values for the factors ranged from 0.449 to 0.50, with some factors at borderline acceptable levels. Convergent validity requires that all CR values exceed their corresponding AVE values, and this condition was satisfied for all factors in the scale. In assessing discriminant validity, the square root of each factor's AVE was greater than its maximum shared variance (MSV) with other factors. Additionally, for all factors, MSV < AVE and ASV < MSV were observed. These findings indicate that the factors of the scale are distinct from one another and that discriminant validity has been established (Table 6).

Tablo 6. Convergent and discriminant validity values

Factors	CR	AVE	√AVE	MSV	ASV
Factor 1	0.89	0.50	0.707	0.382	0.275
Factor 2	0.84	0.46	0.678	0.348	0.191
Factor 3	0.84	0.46	0.678	0.397	0.336
Factor 4	0.71	0.45	0.678	0.324	0.237
Factor 5	0.76	0.45	0.671	0.397	0.331

AVE: Average Variance Extracted; MSV: Maximum Squared Variance; ASV: Average Shared Square Variance

Internal Consistency

Table 7 shows the corrected item-total correlations and the alpha value if each item was deleted. The Cronbach's alpha coefficient was calculated to assess the scale's reliability, with a Cronbach's alpha of 0.93. The subscales had Cronbach's alpha values of 0.90 (F1), 0.87 (F2), 0.85 (F3), 0.69 (F4), and 0.77 (F5), as presented in Table 3.

Table 7. Scale item analysis results

Items	Mean	Sd	Corrected Item-Total Correlation	Cronbach if Item deleted
Item 1	2.05	1.02	.261	.936
Item 2	2.05	1.12	.349	.935
Item 3	3.25	1.20	.633	.931
Item 4	3.19	1.35	.591	.932
Item 5	3.21	1.29	.629	.931
Item 6	2.87	1.33	.568	.932
Item 7	3.80	1.17	.624	.931
Item 8	4.43	0.89	.522	.933
Item 10	3.33	1.11	.499	.933
Item 11	4.70	0.83	.576	.932
Item 12	4.34	1.03	.671	.931
Item 13	4.72	074	.579	.932
Item 14	4.78	0.77	.564	.932
Item 15	4.16	1.06	.608	.931
Item 16	3.62	1.13	.480	.933
Item 17	4.05	1.21	.698	.930
Item 18	4.35	0.94	.561	.932
Item 19	3.62	1.13	.647	.931
Item 22	4.18	0.99	.560	.932
Item 23	4.65	0.83	.605	.932
Item 26	3.84	1.30	.467	.934
Item 27	3.79	1.12	.529	.932
Item 29	4.49	0.92	.588	.932
Item 30	4.34	1.03	.699	.930
Item 31	3.87	1.23	.670	.930
Item 32	3.72	1.31	.693	.930
Item 33	4.37	1.03	.611	.931

Sd: Standard deviation

Test-retest reliability (time invariance)

Fifty-five participants were administered the scale two weeks after the initial test. The results showed no significant difference between the test and retest results (p>.005). There was strong correlation between the scores (r = .848). For Factor 1, r = .786; for Factor 2, r = .742; for Factor 3, r = .810; for Factor 4, r = .750; for Factor 5, r = .746 (Table 8). In the post hoc power analysis conducted based on the PercOV-S total scores (using a correlation test), with an effect size of 0.92 and α set at 0.05, the achieved statistical power (1-β) was calculated to be 1.00 for a sample size of 55 participants.

Table 8. Comparison of test/retest mean scores of PercOV-S and its subscales and correlations (n = 55)

Scale and Subscales	First Application Mean±SD	Second Application Mean±SD	t	p	r	p
PercOV-S Total	109.25 + 18.36	108.83 + 21.56	-.271	.787	.848	<0.001
Factor 1	35.56 ± 6.02	35.70 ± 7.02	-.703	.485	.786	<0.001
Factor 2	24.05 ± 5.47	24.18 ± 6.13	.737	.464	.742	<0.001
Factor 3	21.72 ± 3.93	21.47 ± 4.64	-.692	.462	.810	<0.001
Factor 4	11.18 ± 2.66	10.98 ± 2.97	-.224	.824	.750	<0.001
Factor 5	16.72 ± 3.22	16.49 ± 3.67	.247	.806	.746	<0.001

Sd: Standard deviation; PercOV-S: Perception Scale of Obstetric Violence

Discussion

The researchers examined the sample size, normality, and multicollinearity to assess the suitability of the dataset for factor analysis. Kline suggested that a sample size of at least 200 is sufficient to extract reliable factors in factor analysis.[26] Our sample consisted of 254 participants, which meets this requirement. The *KMO* coefficient was 0.924, indicating that the data is suitable for factorization, with a value higher than the expected minimum value of 0.06.[27] A *KMO* value of 0.80 to 0.90 is considered very good.[28] The significant Bartlett's sphericity test (χ^2=4526.588, p<0.001) indicates high collinearity between the variables, further supporting the suitability of the data for factor analysis.

To ensure the validity of factor analysis, it is recommended that factor loadings are greater than 0.30.[29] In this study, all items had factor loadings ranging from 0.464 to 0.847, with each exceeding the recommended threshold of 0.30. In the original scale, all items demonstrated factor loadings greater than 0.40, except for the item "*Allowing skin-to-skin contact after pediatric examination*." Nevertheless, the research team decided to retain this item to gather information on a specific procedure considered relevant to the study context.[23]

Some items, however, in the present study, were found to exhibit loadings on multiple factors. To address this issue, items with differences in factor loadings of less than 0.10 were removed, resulting in the elimination of six items. To address this issue, items with differences in factor loadings of less than 0.10 were removed, eliminating six items.[30] In multifactor designs, it is generally considered sufficient for factors to explain more than half of the variance.[27,31] In this study, the factors explained 67% of the variance, indicating a satisfactory explanation. In the original study, it was reported that the two-factor structure explained 54.47% of the total variance.[23] These findings indicate that the proportion of explained variance obtained in the adaptation study is higher than that reported in the original study.

The oblimin oblique rotation method was applied, as it is appropriate when factors are expected to be correlated. According to Büyüköztürk, a Pearson correlation coefficient between two variables or factors ranging from 0.70 to 1.00 indicates a high correlation; values between 0.30 and 0.69 indicate a moderate correlation; and values between 0 and 0.29 indicate a low positive correlation. Negative coefficients reflect a negative relationship.[32] Based on these criteria and the observed correlations, using the Oblimin rotation method is justified, since the factors exhibited correlations within an acceptable range. Notably, correlation coefficients above 0.90 among factors can lead to multicollinearity issues, which are undesirable.[33] In this study, the correlation values remained below this threshold, demonstrating that the scale does not suffer from multicollinearity and that each subfactor represents a distinct construct.

"In the *CFA*, the χ^2 value was significant (p<.0001), and the chi-square/degree-of-freedom ratio was χ^2/df = 2.62. In large samples, a χ^2/df ratio between 2 and 3 is generally considered an acceptable fit criterion.[34]

The item-total correlation values ranged from.261 to .699. The item-total correlation coefficients are expected to be positive and greater than .25.[35] In this respect, the scale meets these criteria.

The *CFA* fit indices indicated a good fit, with *RMSEA* = 0.08, *SRMR* = 0.1, *NFI* = 0.94, *NNFI* = 0.96, *GFI* = 0.81, and *CFI* = 0.96. An *RMSEA* less than or equal to 0.08[22] and an *SRMR* less than 0.08.[36,37] indicate a good fit. The SRMR ranges from 0 to 1. Smaller values indicate a better fit of the model.[38] An SRMR value between 0.05 and 0.10 indicates acceptable fit.[39,40] As mentioned in the literature, it is still not possible to directly determine the model fit, and other indicators need to be considered since our SRMR is 0.1. In addition, other fit indices (RMSEA = 0.08; CFI = 0.96; NNFI = 0.96; NFI = 0.94) are strong and at a good level, which supports the overall suitability of the model. The SRMR being at the borderline level may indicate that the correlations between the factors are not at the expected level. However, the internal consistency of the scale and the strength of other fit indicators provide sufficient evidence to support the reliability and validity of the model. *CFI*, *NFI*, and *NNFI* values between 0.95 and 1.00 indicate a perfect fit. A *GFI* value of 0.95 and above indicates a perfect fit, while a value between 0.90 and 0.95 indicates a good fit.[34] Some researchers

suggest that GFI values above 0.80 can also be an indicator of acceptable fit. [41-43] In this study, the GFI for the five-factor model was 0.81, indicating an acceptable level of fit. Possible reasons for the GFI value of 0.81 include the correlations between the scale items not being at the expected level and the items not fully reflecting the factor structure due to cultural or linguistic fit issues. However, the GFI value obtained is within the minimally acceptable range, and the internal consistency analyses with other fit indices indicate strong support for the model's validity and suitability. These results suggest that the 27-item, five-factor structure fits the data well. Cronbach's alpha coefficient and test-retest reliability were used to assess the reliability of the scale scores. These results suggest that the 27-item, five-factor structure fits the data well. While the original PercOV-S scale consisted of 33 items and a two-factor structure, the Turkish adaptation conducted in this study yielded a five-factor structure comprising 27 items. Such differences in factor structure in scale adaptation studies can be explained by variations in how the measured construct is perceived within different cultural contexts. The different factor structure obtained in this study may be attributed to the fact that certain interventions performed in delivery rooms in Türkiye, which may violate women's rights to informed consent, bodily autonomy, and respectful care, are perceived as routine practices rather than as forms of violence due to a highly medicalized childbirth approach and cultural normalization. The scale adaptation and development literature emphasizes that, rather than strictly preserving the original factor structure, the structure that emerges in the culture to which the scale is adapted should be taken as the basis, and that factor naming and scoring should be organized accordingly.[44] In this respect, the five-factor structure identified in the present study is considered a valid structure that reflects the context-specific dimensions of the perception of obstetric violence within the Turkish cultural and health care system.

Cronbach's alpha coefficient and test-retest reliability were used to assess the reliability of the scale scores. The scale had a Cronbach's alpha of 0.93, indicating high internal consistency. Additionally, the subscales F1, F2, F3, F4, and F5 had Cronbach's alpha values of 0.90, 0.87, 0.85, 0.69, and 0.77, respectively. A Cronbach's alpha coefficient close to 1 indicates high reliability (unreliable < 0.40; 0.40 < low reliability < 0.59; 0.60 < reliable < 0.79; 0.80 < high reliability < 1.00).35 These findings suggest that the PercOV-S is a highly reliable scale. Furthermore, McDonald's Omega values for the sub-dimensions were F1 = 0.91, F2 = 0.89, F3 = 0.88, F4 = 0.74, and F5 = 0.81, while the overall scale value was 0.93. These results support the reliability of the scale at both the sub-dimension and overall scale levels. In the original scale development study, the overall Cronbach's alpha coefficient was reported as 0.936, with values of 0.802 for Domain 1 and 0.952 for Domain 2.[23] These results demonstrate that the reliability coefficients obtained in the present study are largely consistent with those reported for the original scale, supporting the robustness of the scale across different samples. Cronbach's alpha coefficient close to 1 indicates high reliability (unreliable < 0.40; 0.40 < low reliability < 0.59; 0.60 < reliable < 0.79; 0.80 < high reliability < 1.00).[45] These findings suggest that the PercOV-S is a highly reliable scale. Furthermore, McDonald's Omega values for the sub-dimensions were F1 = 0.91, F2 = 0.89, F3 = 0.88, F4 = 0.74, and F5 = 0.81, while the overall scale value was 0.93. These results support the reliability of the scale at both the sub-dimension and overall scale levels.

The correlation between the test and retest scores was calculated to determine test-retest reliability. The correlation coefficient (*r*) ranges from 0 to 1. The higher the correlation (*r)*, the higher the level of reliability. A sufficiently high correlation coefficient indicates the stability of measurements and no change in the measured quality between two tests.[22] The correlation coefficients calculated for test-retest reliability were significant in all subscales. The total scale had a correlation coefficient of .848. In addition, there was no statistically significant difference between the mean scale scores. These results indicate that the scores are reliable in terms of stability. When the results of the reliability analysis are analyzed, it is seen that the scale is a reliable instrument.

Conclusion

The Perception of Obstetric Violence in Students (PercOV-S)-TR is a 27-item scale with five subscales. It is a valid and reliable tool for assessing students' perceptions of obstetric violence. The total score ranges from 27 to 135, with higher scores indicating greater awareness and sensitivity to obstetric violence. Using this measure, we can identify students' perceptions of obstetric violence and take measures to prevent it.

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Reviewer: External, Independent
Acknowledgements: We would like to express our gratitude to the midwifery students who participated in the study.

Declarations:
1. Originality Statement: It was presented as an oral presentation at the 6th International 7th National Midwifery Congress held in Ankara on 25-27 September 2023.This study is original and has not been published previously. This study was not derived from any thesis.
2. Author Contributions: Conceptualization: IMG; Idea: IMG, NYS; Literature Review: ŞT; Data Collection: ŞT; Data Processing: IMG, NYS; Analysis: IMG; Writing – Original Draft: NYS, ŞT; Writing – Review and Editing: IMG, NYS, ŞT
3. Ethics Committee Approval: Ethics committee approval for this study was obtained from the Ankara University Ethics Committee with the decision dated 30/10/2020 and numbered 16/253.
4. Funding/Support: This study did not receive any financial support.
5. Conflict of Interest: The authors declare that there is no conflict of interest.
6. Generative Artificial Intelligence Statement: No generative artificial intelligence tools were used at any stage of this study.
7. Sustainable Development Goals: This work is related to the following United Nations Sustainable Development Goals.

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