

Turkish version of the childbirth perception scale: Reliability and validity study

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Abstract

Purpose: This study aimed to adapt the Childbirth Perception Scale (CPS) to the Turkish language and to test its validity and reliability.

Design and Methods: This methodological study was conducted with 240 puerperants.

Findings: The confirmatory factor analysis of the index values showed a good fit. The internal consistency coefficients were 0.74 for the delivery perception, 0.65 for the first postpartum week perception and 0.70 for the total. The total correlation of the CPS items and the test-retest correlation showed high-reliability levels.

Practice Implications: Based on the study results, the Turkish language version of the CPS is valid and reliable.

KEYWORDS

childbirth, Childbirth Perception Scale, perception, puerperants, reliability, scale, validity

1 | INTRODUCTION

The birth process is the most important life experience for many women, and it can affect her wellbeing over both the short and long term.^{1–3} The positive or negative perception of this experience can have significant effects on the relationships between the mother, newborn, and her partner.^{2,3} A positive birth experience can improve a woman's sense of success and self-worth, and it can contribute positively to her adaptation to maternity and healthy psychological development.¹ By contrast, a negative birth experience may adversely affect future birth experiences and the preferred method of delivery.²

Waldenström³ reported that, in general, women carried memories of medical interventions and pain during childbirth. Therefore, a negative birth experience can be associated with posttraumatic stress disorder, and it may cause certain future problems, such as postpartum depression, an elective cesarean for the next pregnancy and a reduced possibility of bringing another child into the world.^{2,4} In a prospective longitudinal study conducted on pregnant women in Turkey, it was determined that

the most important variables associated with posttraumatic stress disorder are low birth self-sufficiency perception, high outcome expectation, fear of birth and poor postnatal adaptation.⁵

Turkey is the country with the highest cesarean rate among organization for economic co-operation and development (OECD) countries. According to the Ministry of Health in Turkey 2016, the proportion of cesarean birth within all births is 53.1%.⁶ It is emphasized that this high rate is particularly due to negative expectations and perceptions related to vaginal delivery.⁷ However, there has been an increasing demand among future mothers for being at the center of childbirth, undergoing childbirth without any interventions (relying only on one's body) and remembering childbirth as a good experience, together with their husbands and loved ones.⁸ It has been predicted that this will increase the attention and importance attributed to the concept of birth perception. Moreover, women generally approach childbirth processes under the influence of predetermined expectations. For this reason, the more a woman's real childbirth experience meets her expectations about childbirth, the more a woman is satisfied with the childbirth process, and she will evaluate the childbirth process according to the level at which it meets her expectations.⁹ In this respect, determining women's perception levels of their childbirth experiences by using effective and reliable scanning

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methods, and planning their care according to these perceptions will contribute to better health care services. Emphasizing that negative birth perception in the literature is a widespread problem in the international field¹⁰ makes it necessary to scan this problem in different cultural structures. However, there is only one measurement tool used in the screening of birth perception in Turkey.¹¹ The Perception of Birth Scale (POBS) is an instrument for measuring maternal perceptions of the labor and delivery experience for women having a vaginal delivery. The Turkish validity and reliability study was carried out with women who went into labor with their spouses. The POBS consists of questions evaluating the birth and postpartum process after the involvement of the spouse and only the postpartum process in the hospital is evaluated. This is why it was aimed to adopt the Childbirth Perception Scale (CPS), which does not differ based on the type of birth (vaginal or C-section) status of spouse involvement and assesses especially the perception in the first postpartum week, into the Turkish language. This study aimed to adapt the CPS developed by Truijens et al¹² to the Turkish language. In addition, the validity and reliability were determined with respect to Turkish society.

2 | MATERIALS AND METHODS

2.1 | Design and participants

This methodological research was carried out in three family health centers in a province in eastern Turkey from January to June 2017. The research population was made up of healthy puerperants who presented to the family health centers from January to June 2017, and who were between their seventh and 42nd postpartum days.

When adapting a scale to another culture, it has been suggested that the sample size for a reliable factor analysis should be at least 5 to 10 times greater than the number of scale items.^{13–15} Based on this suggestion, 240 puerperants were included in this study. Those puerperants meeting the research inclusion criteria were chosen using the nonprobability sampling method. The inclusion criteria were as follows: healthy puerperants between postpartum 7 to 42 days without psychiatric illness or depressive symptoms, and without postpartum complications (bleeding, embolism, infection, etc.) in either the mother or baby. The data were collected using a face-to-face interview method.

2.2 | Instruments

2.2.1 | Descriptive characteristics form

The descriptive characteristics form consisted of questions designed to determine the demographic and obstetric characteristics of the puerperants (age, occupation, education, economic status, gestational age, and parity).

2.2.2 | Childbirth Perception Scale

The CPS was developed by Truijens et al¹² to evaluate the experiences of women during delivery and their first postpartum

week (first 7 days after birth), and to determine how they perceive these processes. This four-item Likert-type scale consisted of 12 items and two subdimensions, including the delivery perception (items 1, 4, 6, 7, 8, and 11) and first postpartum week perception (items 2, 3, 5, 9, 10, and 12). The items were scored from 3 to 0 (3 = I strongly disagree, 2 = I disagree, 1 = I agree, and 0 = I strongly agree), with the lowest total score being 0 and the highest score being 36. As the score of this scale increases, the positive perception level decreases. There are no breakpoints on the scale, and the negative expressions on the scale (items 1, 2, 5, 6, 7, 8, and 10) are scored negatively. The Cronbach's α reliability coefficient of the scale was 0.82 for the 12 items¹².

2.3 | Process of translation and adaptation of CPS

The steps given in the World Health Organization's translation and adaptation manual for measurement instruments were followed in translating the CPS into Turkish, and for the validity and reliability analyses of the Turkish version.¹⁶

2.3.1 | Analysis of psycholinguistic properties and language adaptation

Language adaptation of a scale involves a method of conceptualization and translation to minimize differences in expression. The most frequently used method for achieving linguistic validity of a scale was translation-back-translation, which was applied in this study.^{14,15,17}

Under this method, the scale was translated from the source language into the target language, then translated back to the source language and assessed semantically.^{14,15} The two English language experts (interpreters), whose mother tongue was Turkish, and researchers (YAD, ASC, and SEA) translated the scale items from English to Turkish. The items were reviewed on the five translation files, and they were combined into a single translation. This final version was translated back into English by a different language specialist (an academic working in English Language and Literature Department at university and who knows both Turkish and English). The two translation stages were carried out by different experts. Translators aimed at the conceptual equivalent of a word or phrase.

The items of the original scale and the items of the translated-back-translated scale were compared, and it was determined that there was no change in meaning in the expressions of the scale. Finally, the comprehensibility of the scale items was checked by a Turkish linguistics expert who is an academic working in Turkish Language and Literature Department at university. The scale was made more comprehensible, in line with the expert's recommendations, and administered to a group of 20 individuals, Turkish-speaking puerperants. The findings obtained from 20 individuals were used only to increase comprehensibility of the scale items, and the data received from these persons were excluded from the study. After administration, adjustments were made based on feedback received from the participants, with the resulting scale being the final version

which was then assessed for its suitability as a measurement instrument in terms of linguistic validity.

2.3.2 | Analysis of psychometric properties

For a scale to be a standard measurement instrument, it should possess both validity and reliability.^{18,19} Validity is the ability of a scale to measure the characteristic it aims to measure in a complete and accurate way, without conflating it with another characteristic.^{13,20} Content validity is the degree to which the scale as a whole, and each item in the scale, serves the purpose of the scale. Opinions of experts in the subject are collected regarding content validity and such experts can make assessments for content validity using various techniques; this study used the Davis technique. In this technique, items are scored on four levels as *suitable* (4), *item should be moderately revised* (3), *item should be substantially revised* (2), and *unsuitable* (1). The number of experts who selected the suitable or moderate revision options is divided by the total number of experts, to give the Content Validity Index (CVI). If this value is 0.80 or higher, the item is deemed to be adequate in terms of content validity.^{14,15,21}

The content and construct validity of the scale were tested; for content validity testing, the Turkish version of the scale was submitted to an expert group of 13 nurse and midwife academics for their opinions who are from Turkey, who spoke both Turkish and English and who were experts in the field of midwifery and women's health, with the CVI being based on their evaluation. Construct validity is what a scale, and the score obtained from it, actually mean. Construct validity can be examined by analysing the factors measured by the scale or investigating the relationship between the scale and others whose validity has already been established.^{20,22} Exploratory and confirmatory factor analyses were conducted to test for construct validity. One version was accepted before final version.

Reliability is the stability of different measurements of a variable – the consistency in obtaining the same results when the same processes are followed and the same criteria used, or in other words, freedom from random error.^{14,20} To test the reliability of the scale, an internal consistency analysis was conducted, and Cronbach's α , total score correlation, and test-retest methods were used.

2.4 | Data analysis

The data were analyzed using the statistical package for the social sciences (SPSS 16.0, SPSS Inc., Chicago, IL) for Windows and linear structural relations (LISREL 8.7) software packages. The language and content validity, exploratory and confirmatory factor analysis, Cronbach's α and test-retest methods were used for the validity and reliability analyses of the scale.

2.5 | Ethical considerations

This study was approved (2017/1) by the Ataturk University Institute of Health Sciences Ethics Board. For the Turkish adaptation of the CPS, written permission was received by e-mail from Sophie E. M.

Truijens, who developed the original inventory. In addition, written permission to collect the data were obtained from the relevant family health centers. All of the participants provided informed consent, and this study conformed to the tenets of the Declaration of Helsinki.

3 | RESULTS

The average age of the puerperants was 29.35 ± 5.89 years old, and their average postpartum day was 34.59 ± 3.25 . Moreover, 30.4% of the puerperants were high school graduates, and 78.8% of them did not work. The rate of puerperants reporting that their income was equal to their expenses was 68.8%. In addition, it was determined that 77.5% of the puerperants lived in the undefined, 77.1% had nuclear family structures, 68.8% were multigravida and 58.3% had vaginal deliveries. The average number of children in multiparous pregnant women was 2.00 ± 1.06 (Table 1).

3.1 | Validity

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was applied to examine the magnitude of the sample group before determining the factor structure of the CPS. Bartlett's test of sphericity (BTS) (testing sample size) was applied to determine the suitability of the factor analysis and whether it was different from zero. Table 2 shows that the KMO coefficient of the CPS was 0.782, the BTS result was $\chi^2 = 687.892$ and the statistical significance was at the $P < 0.001$ importance level. These findings suggest that the sample size was suitable for the factor analysis.

As shown in Table 3, the factor loads of the scale items varied between 0.531 and 0.830. Based on the explanatory factor analysis (EFA), the factor load values ranged from 0.582 to 0.830 in the delivery perception subdimension and from 0.531 to 0.806 in the first postpartum week perception subdimension. In addition, it was determined that the scale explained 54.654% of the total variance, 39.22% of the delivery perception subdimension variance, and 35.47% of the first postpartum week perception subdimension variance. The second, forth, sixth, and tenth items included in the original scale were removed from the scale of the Turkish version due to their low item loads. In this way, a CPS with eight items and two dimensions was created.

A CFA was also applied in this study to "evaluate whether the factor model provide fit to data" was achieved as a result of the EFA.²³ For this purpose, the data were transferred to the LISREL software program, and a covariance matrix was prepared. In addition, a path diagram and goodness-of-fit (GFI) values were produced for the eight-item two-factor model (first factor = 1, 7, 8, and 11; second factor = 3, 5, 9, and 12). The GFI values calculated for the produced model are presented in Table 4.

Based on the EFA results, there was a significant difference between the expected and observed covariance matrices for the two-dimensional model. When considering the other parameters, the model yielded perfect or acceptable values in terms of many criteria, especially the GFI values (GFI = 0.95). However, the modification suggestions towards improving the two-dimensional model were

TABLE 1 Distribution of puerperants' identifying characteristics (n = 240)

| Variables | Mean ± SD | |
|---------------------------------|--------------|------|
| Age | 29.35 ± 5.89 | |
| The day postpartum | 34.59 ± 3.25 | |
| Number of children ^a | 2.00 ± 1.06 | |
| | n | % |
| Educational level | | |
| No education or literate | 11 | 4.6 |
| Primary school | 58 | 24.2 |
| Secondary school | 45 | 18.8 |
| High school | 73 | 30.4 |
| University | 53 | 22.1 |
| Occupational status | | |
| Working | 51 | 21.2 |
| Not working | 189 | 78.8 |
| Income status | | |
| Less than expenses | 47 | 19.6 |
| Equal to expenses | 165 | 68.8 |
| More than expenses | 28 | 11.7 |
| Place of residence | | |
| City center | 186 | 77.5 |
| District | 41 | 17.1 |
| Village | 13 | 5.4 |
| Family structure | | |
| Nuclear family | 185 | 77.1 |
| Extended family | 35 | 22.9 |
| Gravida | | |
| Primigravida | 75 | 31.2 |
| Multigravida | 165 | 68.8 |
| Mode of delivery | | |
| Vaginal | 140 | 58.3 |
| Cesarean | 100 | 41.7 |

^aMultiparous women were taken into consideration.

examined, and defining the relationships between the error variances of the seventh and 11th items was deemed appropriate. Following the applied modification, the GFI values for the two-factor model were within acceptable limits ($P = 0.015$, root mean square error of approximation [RMSEA] = 0.059, standardized root mean square residual [SRMR] = 0.055, adjusted goodness-of-fit index [AGFI] = 0.93, and normed fit index [NFI] = 0.94) or perfect limits (χ^2 /standard deviation (SD) = 33.17/18 = 1.84, RMR = 0.40, GFI = 0.97, CFI = 0.97, and nonnormed fit index [NNFI] = 0.95) (Table 4). Based on these results, the two-factor structure was validated. The path diagram of the verified model is shown in Figure 1.

TABLE 2 KMO and BTS analysis results for Childbirth Perception Scale (n = 240)

| Test | value | P |
|------|---------|---------|
| KMO | 0.782 | |
| BTS | 687.892 | <0.0001 |

Abbreviations: KMO, Kaiser-Meyer-Olkin; BTS, Barlett's test of sphericity.

3.2 | Reliability

A Cronbach's α reliability analysis was applied to measure the internal consistency of the eight-item CPS with regard to the puerperants. The internal consistency coefficients were 0.747 for the delivery perception subdimension, 0.658 for the first postpartum week perception subdimension and 0.709 for the total (Table 3). It was observed that the CPS was quite reliable in total and in terms of all the subdimensions ($P = 0.001$).

The item-total correlation coefficients of the CPS were examined, and they ranged from $r = 0.504$ to 0.762, which was an acceptable level (Table 3). It was determined that the correlations between each item and the total score were statistically significant ($P = 0.001$).

A test-retest analysis was conducted to determine the scale's constancy over time. For the analysis, 2 to 3 weeks after the first application, those puerperants whose phone numbers were obtained were called again ($n = 120$), and the scale was administered a second time. The women selected for retest were selected by the simple random sampling method. As shown in Table 5, the correlation values of the relationships between the test and retest results were $r = 0.782$, and it was determined that they were statistically significant (at a $P < 0.001$ importance level); however, they were not significant in the tests conducted on the dependent groups. Statistical significance obtained by test-retest correlation showed that women's birth perception scores undergone similar changes during both measurements, whereas the statistical insignificance between dependent groups showed that similar averages were achieved during both measurements. These findings showed that the test-retest results of the scale applied twice in 2 to 3 weeks were similar.

Table 6 shows that the lowest and highest scores that could be obtained from the CPS were 0 and 24. The lowest and highest scores obtained from the puerperants were 0 and 23, respectively. The total score average of the CPS was 13.25 ± 3.96 . It can be said that a person with an average score of 13.25 has moderate level of negative birth perception.

The lowest-highest scores that can be taken from the "delivery perception" and "first postpartum week perception" subdimensions of Birth Perception Scale are 0 to 12. It was determined that "delivery perception" subdimension total score averages among puerperants were at positive level with 5.25 ± 2.87 , and "first postpartum week perception" subdimension total score averages were at moderate negative level with 8.00 ± 2.15 . Although women experience a positive birth perception, they may have a negative experience due to any reasons (neonatal jaundice, breast problems, etc.) during the postnatal period. Therefore, it is recommended that total score average obtained from CSP be used in general assessments about the birth and the first week after birth, while the point averages from subdimensions should be considered for both periods separately.

Additionally, when the CSP subscale and total score means of the women were examined, the mean "delivery perception" subscale score of the women who had vaginal birth was 5.00 ± 2.87 , their "first postpartum week perception" mean score was 7.98 ± 2.24 , and their mean total score

TABLE 3 Explanatory factor analysis results for Childbirth Perception Scale ($n = 240$)^a

| Scale items | Factors | | Common factor variance | Corrected item total r |
|--|----------|----------|------------------------|--------------------------|
| | Factor 1 | Factor 2 | | |
| 1. My labor was a lot worse than I expected. | 0.582 | - | 0.383 | 0.762 |
| 7. When I was in labor I doubted whether I would be able to do it. | 0.802 | - | 0.644 | 0.665 |
| 8. I panicked during my labor. | 0.830 | - | 0.690 | 0.658 |
| 11. I was able to relax during my labor. | 0.779 | - | 0.644 | 0.667 |
| 3. During my first postpartum week I felt very proud. | - | 0.637 | 0.406 | 0.641 |
| 5. I often felt guilty during my first postpartum week. | - | 0.531 | 0.283 | 0.673 |
| 9. I truly enjoyed the first week after delivery. | - | 0.785 | 0.653 | 0.521 |
| 12. My first postpartum week was very pleasant. | - | 0.806 | 0.670 | 0.504 |
| Self-values | 2.334 | 2.038 | | |
| (%) Variance explained | 39.22 | 35.47 | Total | 54.65 |
| Cronbach α | 0.747 | 0.658 | 0.709 | |

^aFactor loads under 0.03 are not specified in the table.

TABLE 4 Results of explanatory factor analysis for Childbirth Perception Scale ($n = 240$)^{*}

| Fit index | Two-factor model | | Two-factor model (after modification) | |
|-------------|------------------|------------|---------------------------------------|-------------------------|
| | Excellent | Acceptable | | |
| P | >0.05* | <0.05* | 0.000 (K) | 0.015 (K) |
| χ^2/SD | ≤2 | 2-5 | 4.802/ 19 = 2.53 (K) | 33.17/ 18 = 1.84 (M) |
| RMSEA | ≤0.05 | ≤0.08 | 0.080 (K) | 0.059 (K) |
| RMR | ≤0.05 | ≤0.08 | 0.044 (M) | 0.40 (M) |
| SRMR | ≤0.05 | ≤0.08 | 0.059 (K) | 0.055 (K) |
| GFI | ≥0.95 | ≥0.90 | 0.95 (M) | 0.97 (M) |
| AGFI | ≥0.95 | ≥0.90 | 0.91 (K) | 0.93 (K) |
| CFI | ≥0.95 | ≥0.90 | 0.94 (K) | 0.97 (M) |
| NFI | ≥0.95 | ≥0.90 | 0.91 (K) | 0.94 (K) |
| NNFI | ≥0.95 | ≥0.90 | 0.92 (K) | 0.95 (M) |

Abbreviations: AGFI, adjusted goodness-of-fit index; GFI, goodness-of-fit index; NFI, normed fit index; NNFI, nonnormed fit index; RMSEA, root mean square error of approximation; RMR, root mean square residual; SRMR, standardized root mean square residual.

*Significance level was taken as $P = 0.05$.

was 12.99 ± 4.12 . Among those who received C-section births, the mean "delivery perception" subscale score was 5.59 ± 2.84 , the mean "first postpartum week perception" subscale score was 8.03 ± 2.05 , and the mean total score was 13.62 ± 3.72 . It was found that the differences between the CSP subscale and total score means based on the type of birth were not statistically significant ($P > 0.05$).

4 | DISCUSSION

This section discusses the adaptation of the CPS into Turkish and the findings of the validity and reliability analyses of the Turkish version of the scale. Sample of this study, which was conducted in Turkey

where cesarean birth rate is 53.1%, included 240 puerperants, 58.3% of whom had vaginal delivery and 41.7% of whom had cesarean delivery (20 times of the number of scale items). This figure represents a medium-sized sample number compared to the number of births in the region.

4.1 | Discussion on the findings of the validity analysis

4.1.1 | Content validity

The Turkish version of the scale was presented to a group of experts consisting of 13 nurse-midwife academics, who examined the comprehensibility of the scale items and their suitability for Turkish culture. CVIs were calculated, and the scores of all items in the scale were over 0.80. Therefore, no items were removed from the scale on the basis of content validity.

4.1.2 | Construct validity

Adequacy of the sample size was tested with a KMO test; the value returned was 0.78, above the 0.50 threshold for adequacy and above the 0.60 level considered appropriate for good factor analysis.^{20,24} A KMO value was not reported in the original version of the scale.¹² Suitability of the sample for factor analysis was tested with Bartlett's test of sphericity; the correlation matrix, sample size, and data were found to be suitable for factor analysis ($\chi^2 = 687.892$, $P < 0.001$).^{15,24}

For the exploratory factor analysis, as in the case of the original scale, the data were analyzed with the principal components and varimax orthogonal rotation methods. According to the literature, factors should load at 0.30 or higher after factor analysis.²⁴⁻²⁶ The factor loads of the items in the original version of the scale were reported to be in the range of 0.50 to 0.83¹²; in this study, the factor loads of eight items were in the range of 0.53 to 0.83, but the factor loads of items 2, 4, 6, and, 10 were lower than 0.30. These items were therefore removed from the scale, resulting in an eight-item scale. If it is

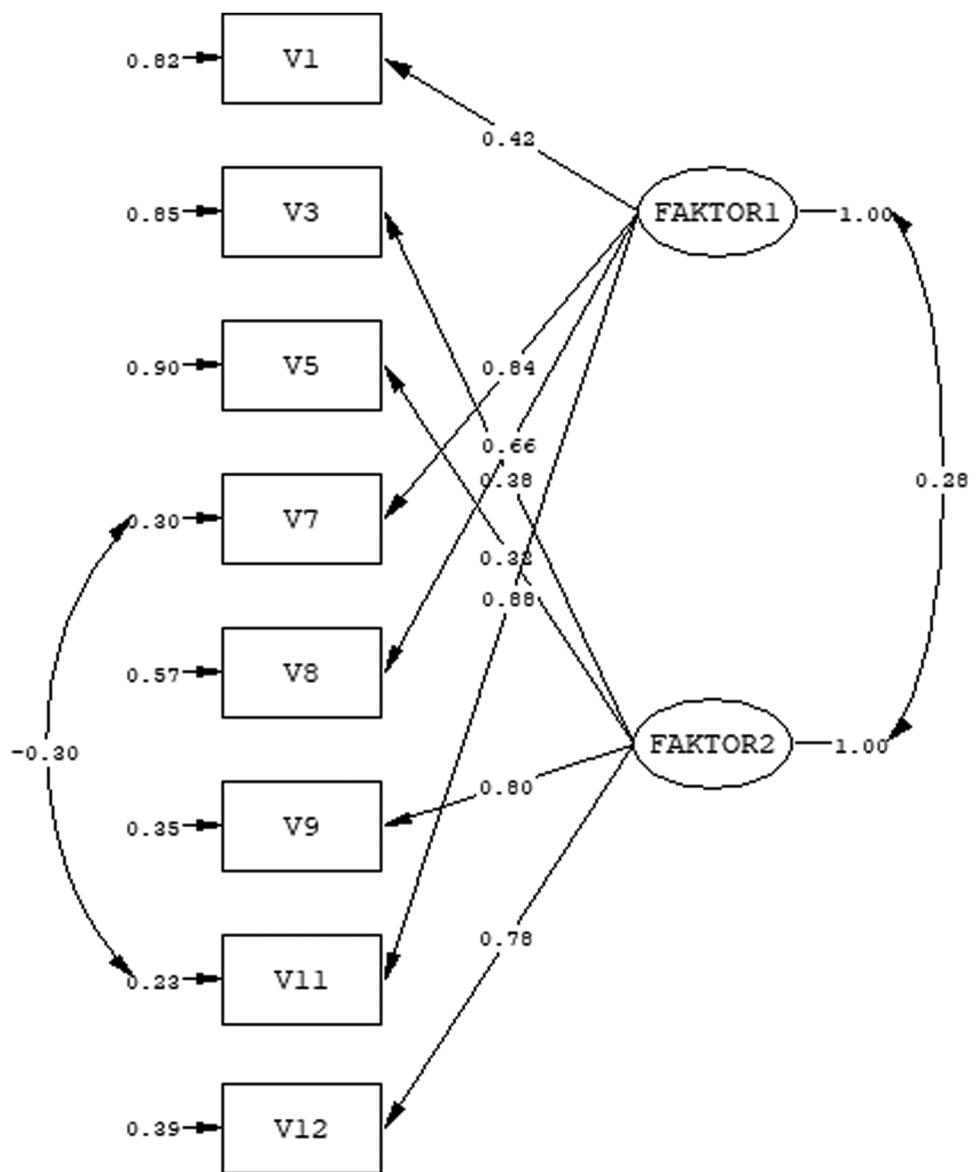


FIGURE 1 Path diagram belonging to the model after modifications

not determined by the researchers that an item of the original scale does not conform to the adapted culture, these item can be found in the data analysis, in this case, the inappropriate item is either replaced or completely removed from the scale.^{14,27} In this context, items nos. 2, 4, 6, and 10 were removed from the scale due to their low factor loads after the factor analysis. Analyzing these items:

TABLE 5 Correlation analysis of test-retest scores of Childbirth Perception Scale ($n = 120$)

| Applications | Mean \pm SD | r | P |
|------------------|---------------------------|--------------------|-------|
| Test | 14.06 ± 4.01 | | |
| Retest | 14.47 ± 4.22 | 0.728 ^a | 0.000 |
| Test and P value | $t = -1.469, P = 0.144^b$ | | |

^aPearson correlation analyze.

^bDependent groups T test.

Item 2: After giving birth I felt very lonely.

Puerperants should not be left alone for 40 days due to a number of physiological and psychological problems that may be experienced during postpartum period in Turkey. Because of this

TABLE 6 Minimum and maximum scores that could be achieved and that were achieved from Childbirth Perception Scale and scale total score average ($n = 240$)

| Childbirth Perception Scale | Min-max scores to receive from the scale | Min-max scores in received from the scale | Mean \pm SD |
|-----------------------------|--|---|------------------|
| Factor 1 | 0-12 | 0-12 | 5.25 ± 2.87 |
| Factor 2 | 0-12 | 0-12 | 8.00 ± 2.15 |
| Total | 0-24 | 0-23 | 13.25 ± 3.96 |

application, it may be said that this item is not suitable for Turkish culture.

Item 4: I felt safe during my labor.

To reduce maternal-infant mortality by the health policies applied in our country, pregnant women are closely monitored during the labor. Therefore, women who were included in the scope of the research may have felt safe throughout the labor. Or they might not have been understood what it meant to feel safe in this item. This question may have caused a different understanding of health, privacy or social support. Therefore, the answers given are considered inconsistent.

Item 6: When I was in labor I did many things wrong

Among puerperants having normal delivery:

Pharmacological methods are not preferred in pain management during the labor in both Turkish culture and the place where the research was performed. It can be said that the item in question may have low factor load since women who were included in the scope of the research considered that they could not provide control of their birth due to the pain they experienced during the action and the processes occurred without their interference, so they might give the answer "no" to this question mostly.

Among puerperants having cesarean birth:

It can be said that the item in question may have low factor load since puerperants did not make any interferences during the birth process, and health team managed the operation process, they might consider that the processes during birth occurred without their control, and they might give the answer "no" to this question widely.

Item 10: After giving birth everything went completely different from how I wanted it.

Since this item did not contain a broader sense (physical care of the puerperants and baby, relationship of puerperant with the husband, social relationships, etc.), women might not fully understand what it was meant in the question. In addition, since Turkish puerperants are continuously supported by their mothers, sisters, and mother-in-law, requests by caretakers supporting puerperants might be realized more than requests by puerperants. Therefore, it can be said that the factor load of the item is low since puerperants widely gave the answer "no" to the question.

Factor analysis of the eight-item scale revealed a structure with two factors that had eigenvalues greater than 1.00, which explained 54.65% of the total variance. The original scale also had two factors with eigenvalues greater than 1.00, and which explained 38% of the total variance.¹² According to the literature, factor loads should explain 40% or more of the total variance; the factor loads and explained variance of the scale were therefore considered to be adequate.²⁴⁻²⁶

CFA was then conducted to determine whether or not the two-factor structure of the scale could be confirmed. A variety of GFIs

can be used to determine the adequacy of the model whose fit is tested in CFA; in this study, χ^2 , GFI, CFI, NFI, AGFI, NNFI, RMSEA, RMR, and SRMR fit indices were calculated. CFA showed that the data fit the model according to the chi-square test ($\chi^2 = 33.17$, $SD = 18$, $P = 0.015$); the value of χ^2/SD was 1.84, lower than the acceptable reference value of 5.

The literature states that acceptable values for GFI, CFI, and NFI tests are above 0.90, and perfect fit values are 0.95 or higher.

The acceptable fit value for AGFI is 0.85 and its perfect fit value is over 0.90.

The perfect fit value for NNFI is 0.95 or higher.

The acceptable fit values for RMSEA, RMR, and SRMR are below 0.08, and perfect fit values are below 0.05.²⁸⁻³¹

The fit index values found for the Turkish version of the scale were: GFI = 0.97, CFI = 0.97, NFI = 0.94, AGFI = 0.93, NNFI = 0.95, RMSEA = 0.059, RMR = 0.040, and SRMR = 0.055. These values indicate a good fit level and acceptable model-data fit. In the original version of the scale, the fit index values for the two-factor structure of the model were reported as CFI = 0.92, NFI = 0.90, TLI = 0.91, and RMSEA = 0.06.¹² The CFA therefore indicates that the CPS in Turkish has two factors, as in the original scale, and construct validity is acceptable.

4.2 | Discussion on the findings of the reliability analysis

4.2.1 | Internal consistency

Cronbach's α is used to assess the internal reliability of Likert-type scales, with a value of 0.70 or higher being desirable. The literature states that a scale is not reliable if $0.00 < \alpha < 0.40$, has low reliability if $0.40 < \alpha < 0.60$, is reliable if $0.60 < \alpha < 0.80$, and highly reliable if $0.80 < \alpha < 1.00$.^{13,20,24}

Cronbach's α of the Turkish version of the scale was found to be 0.70, with values for the delivery perception and first postpartum week perception subscales of 0.74 and 0.65, respectively. As the total scale and subscale values for the Turkish version were in the range $0.60 < \alpha < 0.80$, it can be considered to be reliable. The original scale's total, delivery perception, and first postpartum week perception coefficients were 0.82, 0.81, and 0.79, respectively,¹² which are comparable to the Turkish version.

Another test used for assessing internal consistency is item-total score correlation. It is reported in the literature that the item-total score correlation of an item should be at least 0.20^{13,20,24}; each of the item-total correlation coefficients of the Turkish version of the scale were in the range 0.50 to 0.76, above the recommended minimum level. Item-total correlation coefficients of the original scale were not reported.¹²

Another consistency criterion is time-independence, also called test-retest reliability. In the literature, it is stated that at least 30 individuals should participate.^{13,22,24} The Turkish version of the scale was administered to 120 participants twice, with a 2-week interval between administrations. The correlation between the

two was $r = 0.72$ ($P < 0.001$), showing significant similarity. No test-retest reliability was reported for the original scale.¹² Taken together, these findings show that the Turkish version of the CPS has good reliability.

There are some advantages to adaptation rather than development of a new scale. The most immediate of these are low time and cost requirements, but adaptation also allows comparison of the measured characteristic between cultures, countries, or regions and discussion of similar-different aspects within a country. Adaptation also allows measurement of a characteristic when there is insufficient expertise for developing a scale within another culture. In such a case, it is more reasonable to adapt than develop a new scale, and if the original scale is well known, confidence in the adapted scale will be higher than for a new scale.^{14,19} The finding that the original version and Turkish version of the CPS have similar characteristics in terms of their psychometric properties shows that the factors that affect childbirth perception in both societies are not very different. However, a number of changes may be made due to cultural differences in the process of adapting a scale with proven validity and reliability to another region, country, society, or culture. For this purpose, the addition of new items to the scale, removal or modification of certain items may occur. In cases such as the removal of scale items, not the factor structure in the original study but the structure in that culture should be taken into consideration, naming, and scoring should be done accordingly.^{18,27,32} For this reason, the difference in number of items should be taken into consideration in comparison studies using the original 12-item version of the CSP and the Turkish eight-item version, and care should be given in interpreting scores. To make more generalizable interpretations, it is recommended that the scale is studied for validity and reliability in different societies.

4.3 | Implications for nursing practice

The findings obtained from this study were consistent with results from the original scale, and the EFA and CFA results confirmed the two-factor structure of the scale. The Cronbach's α internal consistency coefficient, item total correlation and test-retest analysis of the scale showed a high level of reliability. Based on these results, the validity and reliability study of the Turkish version of the CPS showed that it had a good fit with the original scale, and that it was a valid and reliable tool for the assessment of childbirth perception. It is anticipated that the Turkish version of the CPS will be an important tool for determining negative birth perceptions, and its use in postpartum health care services will contribute to the management of childbirth perceptions among puerperants.

4.4 | Limitations

Limitation of this study is inability to include all family health centers in the study. Besides, another limitation is that items nos. 2, 4, 6, and 10 included in the original CSP were removed due to

their low factor loads. Additionally, this study was carried out at three family health center located in the east of Turkey. The qualifications of the health care institution where the birth took place and the cultural characteristics of the community these women lived in might have affected the women's perceptions regarding the postpartum process and childbirth. In particular, factors such as the birth environment, birth procedures, knowledge and skills of staff assisting birth, traditional practices of that culture, and experiences of the woman with previous birth or postpartum period are important variables that affect women's perception level. Therefore, when the scale in question is applied with women who live in communities that may display cultural differences, the affecting factors should not be ignored while interpreting the obtained results and it should be emphasized that the women's perceptions level may differ culturally.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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