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The Validity and Reliability of the Postpartum Symptom Inventory in Turkish Women

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ABSTRACT

Objective: Postpartum period is a significant period that covers approximately 6 weeks after childbirth, progresses with various symptoms, and affects the life of the woman. The study was conducted in order to test the validity and reliability of the Postpartum Symptom Inventory (PSI-20).

Methods: The study was conducted on 310 participants with a descriptive, cross-sectional, and methodological design. The study data were collected through Identifying Information Form, Postpartum Symptom Inventory, and Edinburgh Postnatal Depression Scale as a parallel form. In the analysis of the data, factor analysis, Cronbach's alpha coefficient, and item-total score correlations were used.

Results: The scale consisted of 20 items under 6 subscales with a variance of 71%. The Cronbach's alpha coefficient of the Turkish version of the scale was 0.86. According to split-half test reliability, Cronbach's alpha coefficients of the first and second halves were found to be 0.71 and 0.73, respectively, Guttman split-half coefficient was 0.94, and the correlation coefficient between the halves was determined as 0.88. According to confirmatory factor analysis, Root Mean Square Error of Approximation Index (RMSEA) 0.072, Goodness of Fit index (GFI) value was 0.89, Comparative Fit Index (CFI) value was 0.94, Relative Fit Index (RFI) was 0.89, Incremental Fit Index (IFI) was 0.94, and Tucker-Lewis index (TLI) value was found as 0.93.

Conclusion: As a result of the study, it was determined that the Turkish version of the Postpartum Symptom Inventory (PSI-20) was a valid and reliable tool in order to measure postpartum symptoms in Turkish women.

Keywords: Postpartum care, symptom, inventory, validity, reliability.

1. INTRODUCTION

Postpartum period covers a process in which the physiological changes that occur in the woman's body throughout pregnancy return to pre-pregnancy conditions. This process is of vital importance for the maintenance of the well-being of the mother and the neonate in the long term (1). In this period, many physical, social, and psychological symptoms that could affect women's health and quality of life may develop (1,2). It is necessary to provide a comprehensive and quality care in order to recognize these symptoms well and for the mother and the neonate to adapt to the new period in a healthy way (3). Sleep problems, fatigue, sexual concerns, breast problems-breastfeeding difficulties, and pain and psychological changes that the mother could experience can negatively affect their adaptation to this period (1,2). As these physical and psychological symptoms experienced by the mother will not only affect maternal health but it will also lead to a decrease in their performance in maternal roles, they can also affect neonatal health (4–6). In studies conducted, a relationship was shown between physical symptoms that develop in the early postpartum period (0-3 months) and depressive symptoms observed in the postpartum 6th and 12th months (7–9). Depressive and physical symptoms can negatively affect both maternal and neonatal health and quality of life (10). By evaluating these symptoms in early period well and taking necessary precautions, it will be possible to reach the goal set by the World Health Organization (WHO) which aims at improving maternal health and decreasing postpartum illness and mortality rates (4). Postpartum counselling should include planning educational programmes for the problems identified for the mother to spend the postpartum period well and providing counselling on the needs of the mother. In this context, midwives, family physicians and public health nurses can recognize and diagnose physical symptoms while

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planning such care, and intervene early in this important stage of life for women. Currently, there is an 18-item single-subdimensional scale developed in 2009 to determine the frequency and persistence of postnatal physical symptoms (11). Edinburgh Postpartum Depression Scale and Patient Health Questionnaire (PHQ-9) are used to measure mental problems (12–15). It is thought that the Postpartum Symptom Inventory will contribute to the literature in terms of consisting of 6 sub-dimensions and providing researchers with the opportunity to evaluate on a system basis if necessary (2).

The aim of the study is to test the validity and reliability of the "Postpartum Symptom Inventory" developed by Schaffir et al. in Turkish women.

2. METHODS

2.1. Study Design and Participants

The study was conducted with a descriptive, cross-sectional, and methodological design. The study was conducted with the participation of the puerperia who presented to two state hospitals in the northwest of Turkey between December 2019–March 2020. Postpartum women who a) gave birth in 37-42 gestational week (term), b) had a healthy baby, c) were in postpartum day 5-42, and d) volunteered to participate in the study and gave written consent were included in the study. Postpartum women who a) were not mentally able to answer the study questions, b) had health problems and complications during pregnancy and childbirth, c) had their babies in intensive care or lost their babies were excluded from the study. In studies of measurement tool development and adaptation, a sample size of 1,000 or more is recommended as excellent, 500-1,000 as very good, and 200-500 as good (16), and accordingly the study was conducted with 310 postpartum women who met the inclusion criteria and gave verbal and written consent. In addition, the research used the population sampling formula with a known population to calculate the sample. The total number of women giving birth in two hospitals in one year is approximately 7000. The number of women to be interviewed with a 90% confidence level and 5% margin of error was 261, and the study was completed with 310 participants, allowing for possible data loss. A total of 57 mothers who did not speak or understand Turkish and whose babies were in intensive care were excluded from the study.

2.2. Ethics Committee Approval

Prior to the study, permission was taken from the author who developed the scale through e-mail (2). In addition, ethical approval for the study was obtained from non-interventional research ethics committee (GOKAEK-2019/334), and official written permission was taken from the institutions where the study was conducted.

2.3. Data Collection Tools

The study data were collected through Identifying Information Form, Postpartum Symptom Inventory, and Edinburg Postnatal Depression Scale as the parallel form.

Identifying Information Form: The form developed by the researchers in line with the literature (2,17–19) consists of 22 questions inquiring about the participants' sociodemographic and obstetric characteristics.

Postpartum Symptom Inventory: The scale developed by Schaffir et al. in 2018 investigates 20 parameters. The 5-point Likert type inventory is responded according to the symptom status experienced in the last 7 days (Never=0, Always=4). The lowest score to be obtained from the scale is 0, and the highest score is 80 (2). Permission for the validity and reliability study of the scale was taken from the author of the inventory.

Edinburg Postnatal Depression Scale: The scale was developed by Cox et al. in order to screen and determine depression risk in women in postpartum period. It is a self-evaluation scale which consists of 10 items that assess the psychological status of the individual in the last 7 days. Each item is scored on a 4-point Likert type scale from 0 to 3 ("Yes, always", "Yes, most of the time, "No, not frequently", and "No, never"). The total score to be obtained from the scale ranges between 0-30. The cutoff point is 12.5, and a high score indicates the severity of depression (15). The Turkish validity and reliability study of the scale was conducted by Aydin et al., and permission was taken from the authors (12).

2.4. Linguistic Validity

In ensuring psycholinguistic properties and linguistic validity of the scale, ISPOR (The Professional Society for Health Economics and Outcomes Research) Cultural Adaptation Guideline was followed (20,21). Firstly, the scale was translated to Turkish by two independent language experts who had mastery of health terminology and English language, the researchers reviewed it, and an agreement was reached. Then, the draft Turkish version of the scale was translated back to English by two independent translators who had mastery of health terminology and English language, and it was reviewed by the researchers and prepared for expert opinion (Figure 1).

2.4.1. Expert Opinion

Content validity shows the relevance of the items of a measurement tool with the quality that needs to be measured and its scope. It has been recommended to benefit from at least three expert opinions in order to determine content validity of scales (22,23). In determining the construct and content validity of the scale, expert opinions were taken from 10 experts who were competent in childbirth and midwifery. The experts were asked to evaluate the original scale and the Turkish version on a scale from 1 (the item is not suitable) to 4 (the item is suitable), and then item content validity index

(I-CVI) and scale content validity index (S-CVI) were calculated (22,24), and in order to analyze expert consistency, CVI (content validity index) was used. CVI for the general scale was >0.90 according to the 4-point scale, and it was found adequate in terms of item content validity(22,24).

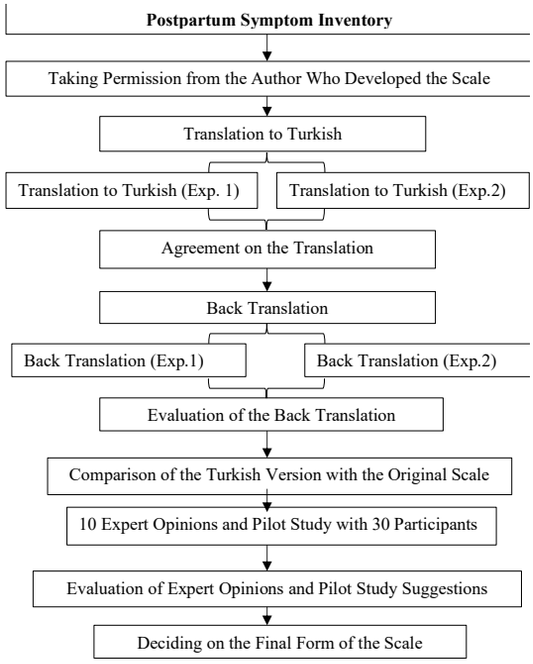

Figure 1. *ISPOR Sample Linguistic Validity Guidelines*

2.4.2. Pretest

Following the expert opinions, the measurement tool was applied to 30 mothers in postpartum period with similar traits. In the literature, the minimum sample size for a pilot study has been recommended as 30 (25). Comprehensibility of the measurement tool was found to be adequate in the pilot study, and then, it was applied to the whole sample. Pilot study data were not included in the study data.

2.5. Data Collection Process

Firstly, the participants were informed about the study by the researchers, and their consent to participate in the study was taken. Later, they were administered the scales used in the study. It took approximately 15-20 minutes for each mother to fill in the forms, and the forms were found comprehensible by the mothers.

2.6. Statistical Analysis

The study data were analyzed by using SPSS statistics software (v.22.0; SPSS, Chicago, Illinois, USA) and AMOS software package. Descriptive statistics regarding sociodemographic characteristics were presented as frequency, percentage, and mean value.

In ensuring the validity of the Turkish form of the scale, content validity and construct validity were tested, and in the evaluation of inter-expert consistency, Content Validity Index (CVI) was used (22,24).

For the validity of the Turkish version of the Postpartum Symptom Inventory, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed. In order to identify the relationship between item and factor, EFA was employed. Before performing EFA, in order to evaluate the suitability of the data for factor analysis, Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity test were used (26,27).

CFA was used in order to determine the degree of items and subscales to explain the scale structure. Model confirmation of Comparative Fit Index (CFI) was performed on the basis of Chi-square test, degree of freedom, the Root Mean Square Error of Approximation (RMSEA), Goodness of Fit (GIF), and Normed Fit Index (NFI) (25).

For reliability analysis, item-total score analysis, Cronbach's alpha coefficient, parallel scale analysis, and Guttman split-half values were used. For item-total score analysis, Pearson correlation analysis was performed, and significance level was accepted as $p<.05$

3. RESULTS

Sociodemographic and obstetric characteristics of the participating mothers are presented in Table 1.

Table 1. *Sociodemographic and obstetric characteristics of the participants (n=310)*

Characteristics	Mean ± SD	Min – Max.
Age	28.3 ± 6.65	19 – 47
Number of pregnancies	2.60 ± 1.41	1 – 6
Number of births	2.26 ± 1.24	1 – 6
	n	**%**
Educational status		
Primary school	68	21.9
Secondary-High school	192	61.9
University	50	16.1
Employment status		
Employed	25	8.1
Unemployed	285	91.9
Income status		
Good	10	3.2
Moderate	285	91.9
Poor	15	4.8
Planned pregnancy		
Yes	232	74.8
No	78	25.2

3.1. Validity Analysis

In the study, in order to ensure the validity of the Turkish version of the measurement tool, content validity and construct validity were employed.

3.1.1. Content Validity

10 expert opinions were taken for the Turkish version of the measurement tool, and the opinions of 10 experts were evaluated through Content Validity Index according to Polit and Beck. Item Content Validity Index (CVI) for each item on the scale varied between 0.80-1.00, and Item Content Validity index for the total scale was found as 0.98.

3.1.2. Construct Validity

For the construct validity of the Turkish version of the Postpartum Symptom Inventory, EFA and CFA analyses were used. The scale's compliance with factor analysis was evaluated with KMO and Bartlett's sphericity tests. In the factor analysis, p<.05 Bartlett Chi-square test score is required, and a KMO value approximating 1 is accepted as excellent, while <.50 is accepted as suitable. The scale's KMO value was found to be 0.81, and the sample was determined to be adequate for factor analysis. In addition, according to Bartlett's test result, it was seen that the scale was significant for factor analysis, so factor analysis could be performed (x^2=4283,62; p<.000).

In the original scale, factor structure was formed under one subscale, but in the exploratory factor analysis performed, 6 subscales were determined. The total variance of the subscales is 71.39%. Besides, the factor load of the scale ranges between 0.61 and 0.97. Item-total score correlations vary between 0.30-0.60 (Table 2).

Table 2. *Factor loads for Postpartum Symptom Inventory and item-total score correlations (n=310)*

Items	Factor 1	Factor2	Factor3	Factor 4	Factor 5	Factor 6	Corrected Item-Total Correlation
Item17. Painful veins (varicose veins)	0.916						0.522
Item20. Hot flashes	0.770						0.414
Item 4. Nausea	0.676						0.584
Item 18. Abnormal and continuous vaginal bleeding	0.646						0.478
Item 16. Pain during sexual intercourse		0.972					0.362
Item15. Change in sexual desire		0.863					0.362
Item19. Vaginal leak		0.856					0.378
Item12. Abdominal/pelvic pain			0.840				0.497
Item 11. Backpain/hip pain			0.826				0.508
Item 13. Breast pain			0.765				0.435
Item 14. Vaginal pain			0.742				0.492
Item 6. Urinary incontinence				0.813			0.361
Item 7. Increased urination frequency				0.801			0.356
Item 8. Fecal incontinence				0.614			0.374
Item 1. Fatigue or exhaustion					-0.935		0.586
Item 2. Insomnia					-0.893		0.583
Item 3. Headache					-0.777		0.598
Item 10. Hemorrhoids						0.935	0.413
Item 9. Constipation						0.934	0.440
Item 5. Heartburn /indigestion						0.801	0.559
Variance Explained (%)	29.2	12.6	9.5	7.7	7.1	5.0	
Total Variance Explained (%)	71.396						
Eigenvalue	6.13	2.72	2.19	1.86	1.65	1.33	

F1:Circulatory System Symptoms, F2: Sexual Dysfunction Symptoms, F3: Pelvic Arch Symptoms, F4: Urinary/Fecal Incontinence Symptoms, F5: Neurological Symptoms, F6: Gastrointestinal Symptoms. Extraction Method: Principal Axis Factoring, Oblique rotation (Direct oblimin) method was used. Only values higher than 0.32 are presented.

3.2. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA)

As a result of CFA applied to the scale, factor loads were found to vary between 0.61 and 0.98. Regarding factor loads of the subscales, the factor load for the subscale of F1 (Circulatory System Symptoms) was found to vary between 0.61 and 0.88, for F2 (Sexual Dysfunction Symptoms) between 0.86 and 0.98, for F3 (Pelvic Arch Symptoms) between 0.68 and 0.90, F4 (Urinary/Fecal Incontinence Symptoms) between 0.69 and 0.79, for F5 (Neurological Symptoms) between 0.83 and 0.92, and for F6 (Gastrointestinal Symptoms) between 0.87 and 0.94 (Figure 2). In terms of model fit index, Chi-square (χ2) was found as 395.78 (df: 153) and mean square root approximation error (RMSEA) was found to be 0.072. Chi-square/degree of freedom was <5 (χ2/df = 2,587). Other values were found as GFI:0.89, NFU:0.91, RFI:0.89, IFI:0.94, TLI (NNFI):0.93, and CFI:0.94 (Table 3).

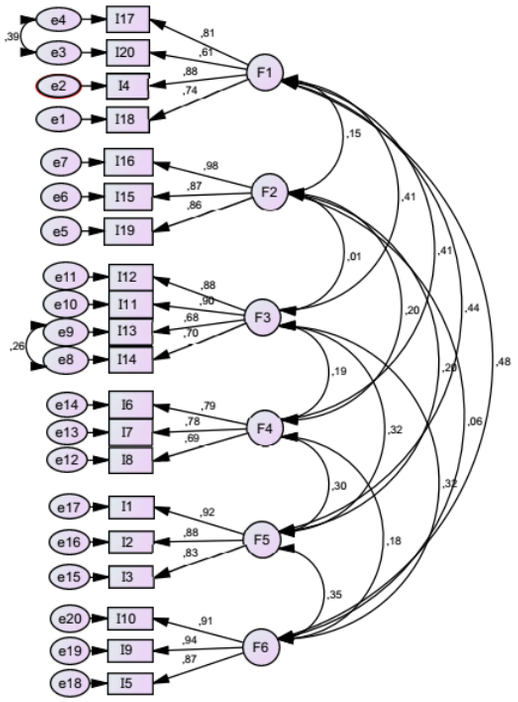

Figure 2. *CFA results of the Turkish version of the Postpartum Symptom Inventory. F1: Circulatory System Symptoms, F2: Sexual Dysfunction Symptoms, F3: Pelvic Arch Symptoms, F4: Urinary/Fecal Incontinence Symptoms, F5: Neurological Symptoms, F6: Gastrointestinal Symptoms.*

Table 3. *Model Fit Indices (n=310)*

Six-Factor Model	X^2	X^2/SD	RMSEA	GFI	NFI	RFI	IFI	TLI	CFI
	395.78	2.58	0.072	0.89	0.91	0.89	0.94	0.93	0.94

RMSEA: Root Mean Square Error of Approximation Index; GFI: Goodness of Fit index; CFI: Comparative Fit Index; RFI: Relative Fit Index; IFI: Incremental Fit Index; TLI: Tucker-Lewis index.w

Table 4. *Reliability Analysis Results for Subscales (n=310)*

Sub-Dimensions	Cronbach α	First half Cronbach α	Second half Cronbach α	Guttman split-half	Two halves between correlation	Hotelling T^2	p
Factor 1	0.84	0.71	0.73	0.94	0.88	856.91	<.001
Factor 2	0.92						
Factor 3	0.88						
Factor 4	0.77						
Factor 5	0.91						
Factor 6	0.93						

3.3. Criterion-Related Validity

3.3.1. Simultaneity Validity

In determining criterion-related validity of the Postpartum Symptom Inventory (PSI), whose validity and reliability analyses were performed, the Edinburg Postnatal Depression Scale (EPDS), which is frequently used as a parallel form, was employed. The correlation coefficient was found to be r=0.83 (p<.001). Hence, it can be stated that there is adequate correlation that allows similar measurements, and that the scale is valid in this regard.

3.4. Reliability Analysis

The Cronbach's alpha coefficient of the Turkish version of the scale was found as 0.86, and according to split-half test reliability analysis, the Cronbach's alpha coefficients of the first and second halves were 0.71 and 0.73, respectively, while Guttman split-half coefficient was found to be 0.94 and the correlation coefficient between the halves was 0.88. The scale had 6 factors, which were Factor 1 (Circulatory System Symptoms) with Cronbach's alpha coefficient of 0.84, Factor 2 (Sexual Dysfunction Symptoms) with Cronbach's alpha coefficient of 0.92, Factor 3 (Pelvic Arch Symptoms) with Cronbach's alpha coefficient of 0.88, Factor 4 (Urinary/Fecal Incontinence Symptoms) with Cronbach's alpha coefficient of 0.77, Factor 5 (Neurological Symptoms) with Cronbach's alpha coefficient of 0.91, and Factor 6 (Gastrointestinal Symptoms) with Cronbach's alpha coefficient of 0.93. In the floor and ceiling effect analysis of the scale items, there was no significant accumulation. Besides, in order to determine whether the participants' responses to the scale items were equal or not, Hotelling T^2 test was performed. As result of this test, Hotelling value of the scale was found as T^2=856.915, p<.000. No response bias was determined on the scale (Table 4).

4. DISCUSSION

Postpartum symptoms can negatively affect the woman's physical and emotional health and cause her to face a series of diseases, while affecting neonatal care adversely (17–19). Therefore, it is highly important that health professionals should recognize the physical symptoms in the postpartum process and intervene in cases when necessary. PSI developed by Schaffir et al. can help health professionals in this regard (2). With this study, validity and reliability of PSI was analyzed in the context of Turkey.

In studies on scales, content validity index value is desired to be 0.80 (22,24,28). According to the scale content validity (S-CVI) and item content validity (I-CVI) analyses, it was seen that there was a high level of consistency between experts, and that the scale items adequately represented the targeted measurement. In the study, KMO and Bartlett X^2 tests were used in order to determine the suitability of the sample for factor analysis. The most important parameters that show a scale to be suitable for factor analysis are KMO value being above 0.60 and Bartlett's test being significant (29). Especially in measurement tools with 2 and more subscales, more than 40% of the variances are expected to be explained, which shows the power of the measurement tool. The results obtained in the validity and reliability analysis of the scale showed that the scale was suitable for measuring postpartum symptoms of Turkish women (25).

As no factor analysis was performed on the original scale and it was evaluated over one dimension, within the framework of the data obtained in the study, the presence of the subscales of the scale was evaluated through Principal Axis Factoring method. It is recommended in the literature to analyze the presence of subscales of measurement tools by using Principal Axis Factoring method (30,31). The analysis of the factor loads of the items of the scale in the study was performed by taking the values higher than 0.32. It has been particularly emphasized in the literature that the factor loads being over 0.30 ensures the desired measurement by the scale (32).

In the intercultural adaptation studies of measurement tools, it is recommended to do first the exploratory factor analysis and then confirmatory factor analysis together (33). As a result of the confirmatory factor analysis performed, it was seen that Chi-square/degree of freedom was <5, RMSEA value was 0.072, small fit indexes of GFI and RFI values were at the limit of 0.89, while others were higher than 0.90, and the factor loads of all items were higher than 0.30.

Cronbach's alpha coefficient evaluates internal consistency of scale items; in other words, it assesses the changing degree of the item set and total score together. An alpha coefficient of 0.70 is generally accepted as an acceptable threshold for reliability; however, for the psychometric quality of scales, values between 0.80 and 0.95 are preferred more (16,25). Cronbach's alpha coefficient of the scale was found as 0.86, which shows that the scale has high reliability. In addition, split-half test reliability analysis is an important factor in scale studies, and Cronbach's alpha coefficients of both halves were found to be over 0.70, Guttman split-half coefficient was 0.94, and the correlation coefficient between the two halves was 0.88. These values show that the scale has high reliability (34). Ceiling and floor effect in scales is an indicator of homogeneity of the scale, and the highest score indicates ceiling effect, while the lowest score shows floor effect. What is desired in scale items is that there is no significant accumulation in ceiling and floor effect analysis (35), and the scale met this criterion. In studies conducted on measurement tools, whether participants respond to the items on a scale according to their own opinions or in line with the expectations of the society or the researchers is called response bias, and it is evaluated through Hotelling T^2 test. In order to avoid response bias, the statistical result obtained from the test must be significant (36). In the study, no response bias was determined.

The relationship between total scale score and scores obtained from scale items is tested through item-total score analysis, and the lowest score is desired to be 0.30

in some sources (25,37) and 0.33 in other sources (32,38). Item-total score correlations were found to range between 0.30 and 0.60 in the study. This information shows that the scale measured the targeted feature, and that the scale had high reliability. It was shown as a result of the study that the "Postpartum Symptom Inventory" (PSI) can be used as a measurement tool in order to determine the symptoms experienced by women in the postpartum period. Healthcare providers can plan care aimed at the symptoms experienced by women in the postpartum period by using this scale, and they can increase their chances of early intervention in risky situations. It is recommended to conduct various descriptive studies in which the correlation of the scale with other measurement tools such as postpartum depression scale or sadness scale used in the postpartum period is examined and to conduct longitudinal and experimental studies in which long-term effects are investigated. The Postpartum Symptom Inventory (PSI) can be used at postpartum clinics and family health and public health centers where postpartum women are followed up in order to determine postpartum symptoms.

4.1. Limitations

The study has certain limitations. The study data were collected from the puerperae who presented to two district family health centers and two state hospitals, and therefore, there is a risk of bias. Hence, the results' degree of representing the universe is reduced, and generalizability is limited. Besides, the original scale is in English, and its exploratory and confirmatory analyses have not been performed. Therefore, intercultural comparisons could not be made.

5. CONCLUSION

As a result of the analyses, it was determined that the Turkish version of the Postpartum Symptom Inventory (PSI) has 6 subscales, that its Cronbach's alpha coefficient is high, and that it ensures cultural equivalence. In conclusion, it has been found that the Turkish version of the Postpartum Symptom Inventory (PSI) is a valid and reliable measurement instrument that can be used in measuring symptoms in women in the postpartum period. This measurement tool can be used by midwives, women's health and public health nurses, obstetricians, family physicians and researchers specialised in the subject. It is also recommended to conduct research on its relationship with other measurement tools used in the postpartum period and its use.

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Design of the study: SDA, ND, ASK
Acquisition of data for the study: BK
Analysis of data for the study: SDA
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REFERENCES

[1] Acog Committee Opinion. ACOG Committee Opinion No. 736: Optimizing Postpartum Care. Obstet Gynecol 2018;131(5):e140–50. DOI:10.1097/AOG.000.000.0000002633

[2] Schaffir J, Kunkler A, Lynch CD, Benedict J, Soma L, Doering A. Association between postpartum physical symptoms and mood. J Psychosom Res. 2018;107:33–37. DOI:10.1016/j.jpsychores.2018.02.003

[3] Akgun Ö, Duran Aksoy Ö. Determination of mothers' postpartum comfort levels and affecting factors. J Contemp Med . 2020 ;10(3):385–393. DOI:10.16899/jcm.695648

[4] Bahrami N, Karimian Z, Bahrami S, Bolbolhaghighi N. Comparing the postpartum quality of life between six to eight weeks and twelve to fourteen weeks after delivery in Iran. Iran Red Crescent Med J. 2014;16(7). e16985. DOI: 10.5812/ircmj.16985

[5] Sivertsen B, Petrie KJ, Skogen JC, Hysing M, Eberhard-Gran M. Insomnia before and after childbirth: The risk of developing postpartum pain—A longitudinal population-based study. Eur J Obstet Gynecol Reprod Biol. 2017;210:348–354. DOI:10.1016/j.ejogrb.2017.01.020

[6] Slomian J, Honvo G, Emonts P, Reginster J-Y, Bruyère O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. Women's Heal . 2019 ;15:174.550.651984404. DOI:10.1177/174.550.6519844044

[7] Gaudet C, Wen SW, Walker MC. Chronic perinatal pain as a risk factor for postpartum depression symptoms in Canadian women. Can J Public Heal. 2013;104(5): e375–e387. DOI:10.17269/cjph.104.4029

[8] Woolhouse H, Gartland D, Perlen S, Donath S, Brown SJ. Physical health after childbirth and maternal depression in the first 12 months post partum: Results of an Australian nulliparous pregnancy cohort study. Midwifery. 2014;30(3):378–384. DOI:10.1016/j.midw.2013.03.006

[9] Cooklin AR, Amir LH, Nguyen CD, Buck ML, Cullinane M, Fisher JRW, Donath SM, CASTLE Study Team. Physical health, breastfeeding problems and maternal mood in the early postpartum: A prospective cohort study. Arch Womens Ment Health. 2018;21(3):365–374. DOI:10.1007/s00737.017.0805-y

[10] Jeong YJ, Nho JH, Kim HY, Kim JY. Factors influencing quality of life in early postpartum women. Int J Environ Res Public Health. 2021;18(6):1–9. DOI:10.3390/ijerph18062988

[11] Chien L-Y, Tai C-J, Hwang F-M, Huang C-M. Postpartum physical symptoms and depressive symptomatology at 1 month and 1 year after delivery: A longitudinal questionnaire survey. Int J Nurs Stud . 2009;46(9):1201–1208. DOI:10.1016/j.ijnurstu.2009.02.007

[12] Aydin N, Inandi T, Yigit A, Hodoglugil NNS. Validation of the Turkish version of the Edinburgh Postnatal Depression Scale among women within their first postpartum year. Soc Psychiatry Psychiatr Epidemiol. 2004;39(6):483–486. DOI:10.1007/s00127.004.0770-4

[13] Corapcioglu A, Ozer GU. Adaptation of revised Brief PHQ (Brief-PHQ-r) for diagnosis of depression, panic disorder and somatoform disorder in primary healthcare settings. Int J Psychiatry Clin Pract . 2004 ;8(1):11–18. DOI:10.1080/136.515.00310004452

[14] Spitzer RL, Kroenke K, Williams JBW, and the Patient Health Questionnaire Primary Care Study Group. Validation and utility of a self-report version of PRIME-MD: The PHQ primary care study. JAMA. 1999;282(18):1737–1744. DOI:10.1001/jama.282.18.1737

[15] Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. Br J Psychiatry . 1987;150(6):782–786. DOI: 10.1192/bjp.150.6.782

[16] Karagöz Y. SPSSPSS and AMOS 23 applied statistical analysis. 1st Edition. Ankara: Ankara Nobel Akademik Yayıncılık; 2019. 1–1075 p.

[17] Wilkie S, Crawley R, Button S, Thornton A, Ayers S. Assessing physical symptoms during the postpartum period: Reliability and validity of the primary health questionnaire somatic symptom subscale (PHQ-15). J Psychosom Obstet Gynecol . 2018 ;39(1):56–63. DOI: 10.1080/0167482X.2017.128.9167

[18] Kamysheva E, Skouteris H, Wertheim EH, Paxton SJ, Milgrom J. A prospective investigation of the relationships among sleep quality, physical symptoms, and depressive symptoms during pregnancy. J Affect Disord. 2010;123(1–3):317–20. DOI:10.1016/j.jad.2009.09.015

[19] Henningsen P, Zimmermann T, Sattel H. Medically unexplained physical symptoms, anxiety, and depression: A meta-analytic review. Psychosom Med . 2003 65(4):528–533. DOI:10.1097/01.psy.000.007.5977.90337.e7

[20] Sousa VD, Rojjanasrirat W. Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. J Eval Clin Pract . 2011;17(2):268–274. DOI:10.1111/j.1365-2753.2010.01434.x

[21] Wild D, Eremenco S, Mear I, Martin M, Houchin C, Gawlicki M, Hareendran A, Wiklund I, Chong LY, von Maltzahn R, Cohen L, Molsen E. Multinational trials-recommendations on the translations required, approaches to using the same language in different countries, and the approaches to support pooling the data: the ISPOR Patient-Reported Outcomes Translation and Linguistic Validation Good Research Practices Task Force report. Value Heal . 2009;12(4):430–440. DOI:10.1111/j.1524-4733.2008.00471.x

[22] Polit DF, Beck CT, Owen S V. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health 200730(4):459–467. DOI:10.1002/nur.20199

[23] Rubio DM, Berg-Weger M, Tebb SS, Lee ES, Rauch S. Objectifying content validity: Conducting a content validity study in social work research. Soc Work Res . 2003;27(2):94–104. DOI:10.1093/swr/27.2.94

[24] Davis LL. Instrument review: Getting the most from a panel of experts. Appl Nurs Res.. 1992;5(4):194–197. DOI:10.1016/S0897-1897(05)80008-4

[25] Sencan H. Sosyal ve davranissal ölçümlerde güvenilirlik ve geçerlilik. 1st edition. Ankara: Ankara Seçkin Yayınevi; 2005. 1–710 p. (Turkish)

[26] Kaiser HF. The application of electronic computers to factor analysis. Educ Psychol Meas. 1960 ;20(1):141–151. DOI:10.1177/001.316.446002000116

[27] Beavers AS, Lounsbury JW, Richards JK, Huck SW, Skolits GJ, Esquivel SL. Practical considerations for using exploratory factor analysis in educational research. Pract Assessment, Res Eval. 2013;18(6):1–13. DOI:10.7275/qv2q-rk76

[28] Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar A-R. Design and implementation content validity study: development of an instrument for measuring patient-centered communication. J Caring Sci. 2015;4(2):165–178. DOI:10.15171/jcs.2015.017

[29] Taherdoost H, Sahibuddin S, Jalaliyoon N. Exploratory Factor Analysis; Concepts and Theory (August 1, 2022). Advances in applied and pure mathematics, 27, 375-382, 2022 https://hal.archives-ouvertes.fr/hal-02557344/document

[30] Grieder S, Steiner MD. Algorithmic jingle jungle: A comparison of implementations of principal axis factoring and promax rotation in R and SPSS. Behav Res Methods . 2022;54(1):54–74. DOI: 10.3758/s13428.021.01581-x

[31] de Winter JCF, Dodou D. Factor recovery by principal axis factoring and maximum likelihood factor analysis as a function of factor pattern and sample size. J Appl Stat . 2012;39(4):695–710. DOI:10.1080/02664.763.2011.610445

[32] Tabachnick BG, Fidell LS. Principal Components and Factor Analysis Seventh Ed. Using Multivariate Statistics. Boston: Pearson; 2019. 476–527 p. DOI:https://lccn.loc.gov/201.704.0173

[33] Orcan F. Exploratory and confirmatory factor analysis: Which one to use first? J Meas Eval Educ Psychol. 2018;9(4):414–421. DOI: 10.21031/epod.394323

[34] Ayar D, Ünalp A, Bektaş M, Yılmaz Ü, Karaoğlu P, Yalçıntuğ FM. Psychometric properties of a Turkish version of the quality of life in childhood epilepsy questionnaire. J Pediatr Nurs. 2022;62:91–97. DOI:10.1016/j.pedn.2021.09.009

[35] Lim CR, Harris K, Dawson J, Beard DJ, Fitzpatrick R, Price AJ. Floor and ceiling effects in the OHS: An analysis of the NHS PROMs data set. BMJ Open. 2015;5(7):e007765. DOI:10.1136/bmjopen-2015-007765

[36] Zhang H, Morrone MC, Alais D. Behavioural oscillations in visual orientation discrimination reveal distinct modulation rates for both sensitivity and response bias. Sci Rep. 2019 ;9(1):1-11. DOI: 10.1038/s41598.018.37918-4

[37] Hair JF, Back WC, Babin BJ, Anderson RE. Preparation and Characterization of Nonwoven Fibrous Biocomposites for Footwear Components. Seventh Ed. Multivariate Data Analysis. New York: Pearson; 2010. 1–761 p.

[38] Andersson N, Nilsson MH, Slaug B, Oswald F, Iwarsson S. The meaning of home questionnaire revisited: Psychometric analyses among people with Parkinson's disease reveals new dimensions. Hoefer S, editor. PLoS One 2020 7;15(12):e0242792. DOI:10.1371/journal.pone.0242792

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