Turkish Validity and Reliability Study of the Pregnancy Stress Rating Scale

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Abstract

Objective: This study was conducted to evaluate the reliability and validity by adapting to Turkish of the Pregnancy Stress Rating Scale (PSRS-36).

Methods: The sample of this methodological study included 360 volunteer pregnant women. The data were collected with questionnaire form and Turkish version of the Pregnancy Stress Rating Scale. In data analysis were used Cronbach's alpha coefficient, explanatory, and confirmatory factor analysis (CFA) after the language and content validity of Pregnancy Stress Rating Scale. For CFA one of the concordance models of structural equality, LISREL, was used.

Results: As a result of the explanatory factor analysis, it was found that the Pregnancy Stress Rating Scale had five sub dimensions structure as in the original form, and the factor loads of the model changed between 0.453-0.807. Cronbach's alpha coefficient of Turkish version of total Pregnancy Stress Rating Scale was 0.92. Cronbach's alpha values of subdimensions of Pregnancy Stress Rating Scale. Turkish version was between 0.81 and 0.86. Of these x2/SD value 2.18, GFI 0.95, AGFI 0.94, CFI 0.95, RMSEA 0.077 and SRMR 0.075 were identified.

Conclusion: The Turkish version of Pregnancy Stress Rating Scale (PSRS-36) was determined a valid and reliable measurement tool for Turkish society. The Turkish version of Pregnancy Stress Rating Scale (PSRS-36) be used as data collection tool to determine pregnancy stress by midwives and nurses.

Key words: Nurse, pregnancy, reliability, stress, scale, validity

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INTRODUCTION

The concept of stress is a bodily and psychosocial situation causing tension in a person, leading to psychological and physiologic discomfort in individuals (1). Stress is more commonly encountered in women due to expectations about undertaking the load of family life. Women were identified to encounter stressful life events at rates of 53.5% for pregnancy, 49.6% marriage, 44.5% differences in sleep quality, 36.5% inclusion of a new member into the family, and 31.6% changes in eating habits (2). Though pregnancy is a natural life event, it is a situation causing physiologic, psychologic and social changes (3). Stress is experienced during pregnancy due to reasons such as previous personal experiences, interfamily relationships, cultural level, attitude of partner and family toward the pregnancy, maternal age, size of family, not wanting the pregnancy, and not having social support (4).

Reasons for increased stress during the pregnancy period include physiologic changes in the woman's body, expectations of the mother, situations threatening the health of the unborn baby, expectations about taking on a new role, and society's expectations about being a flawless mother (5). Additionally, general physiologic and psychological changes like disrupted body image, unwanted pregnancy, not adapting to the pregnancy, anxiety about the fetus, little social support, financial issues, not being prepared for parenthood, increased numbers of pregnancies, not knowing the sex of the baby, the pregnancy not being planned, and pain or hemorrhage occurring are situations causing stress during pregnancy (6,7). Pregnant women may not be informed about the birth and experience stress due to labor pains and this situation may cause complications during pregnancy and birth. Pain experienced during labor significantly increases the mother's stress levels and causes anxiety. Extreme stress during pregnancy affects fetal circulation, increasing the levels of various maternal hormones and neurotransmitters that modulate fetal development (8). The stress and anxiety experienced by the pregnant women may negatively affect the blood pressure and heart rate of the fetus and cause negative effects on the baby at birth and while newborn like preterm labor, development retardation or low birth weight (5).

Good mental status during the pregnancy period is important for maternal and fetal health. Psychological diseases in pregnancy affect the psychological status of the pregnant person, may cause negative situations, and are known to increase rates of maternal and fetal morbidity and mortality of mothers who don't receive care. It is necessary to initially determine the risk group to prevent stress related to pregnancy. A holistic approach is important with medical examination of pregnant cases during follow-up including psychosocial evaluation in addition to physical examination. Emotional stress, anxiety and depression experienced in this period require diagnosis and treatment as they can cause complications in pregnancy, affect the health of the fetus and mother, cause preterm birth, low birth weight and intrauterine growth retardation in the fetus, and also due to the tendency toward postnatal depression in the mother (9).

Nurses and midwives should prepare pregnant people very well so they experience for this process in the healthiest way, developing the mother's coping skills for problems encountered will ensure this period passes with higher quality (10). In addition to

the physical care services that nurses, and midwives provide to mothers, they should reduce stress levels by giving additional education and counseling services. Studies in Turkey in different fields have observed the use of newly developed scales or scales adapted to Turkish. In Turkey, commonly used scales for anxiety and depression include the State and Trait Anxiety Inventory (11), Beck Anxiety Inventory (12) Beck Depression Inventory (13), Fear of Childbirth and Postpartum Period Scale (14), Edinburgh Postnatal Depression Scale (15) and the Tilburg Pregnancy Distress Scale (16). These scales are generally about identifying a single problem and the number of scales specific to pregnancy is limited.

The study aims to determine translate the Pregnancy Stress Rating Scale, measuring anxiety and stress related to pregnancy among pregnant women developed by Chung-Hey Chen in Chinese with validity and reliability studies completed among Taiwanese pregnant women, into Turkish and perform validity and reliability studies on the Turkish version.

METHODS

Study Design And Participants

The methodological study was completed in the obstetrics clinic of a university hospital in the Black Sea region in Turkey.

Research data were collected from October 16, 2017, to February 26, 2018. Inclusion criteria for the sample in the study were being pregnant, aged at least 18 years, voluntary participation in the research, primary school graduate at least, married, able to form verbal communication, and living with their partner. Exclusion criteria for the research were history of chronic diseases, history of psychiatric diseases, and any problem with the baby. For

determination of the numbers in samples for methodological studies in the literature, it is recommended they be at least 5-10 times the number of items on the scale (17). In this study, as the scale contained 36 items, the number in the sample was 10 times that at 360 pregnant women.

Data Collection

Data in the research were collected with a personal information form, and the Pregnancy Stress Rating Scale-36 Turkish version with linguistic and scope validity performed on the scale developed by Chen (2015) (18). Data were collected in the obstetrics clinic in the hospital. Pregnant women included within the scope of the research were given information about the research and completing the personal information form and scale. Pregnant women read and completed the information form and scale themselves. Answering the personal information form and scale questions took about 20-25 minutes in a quiet-calm section of the outpatient clinic.

Evaluation Tools

Personal Information Form

The personal information form encompasses questions about the sociodemographic features of the pregnant women. In this form includes questions about age, years of marriage, number of children, week of pregnancy, education level, occupation, partner education level, partner occupation, family type and family income levels.

The Pregnancy Stress Rating Scale-36 Turkish Version

Developed by Chen (2015) (18) the PSRS-36 is a scale used to define stress factors linked to pregnancy in pregnant cases comprising 5 subdimensions and 36 items. The PSRS-36 includes the subdimensions

"Stress from seeking safe passage for mother and child through pregnancy, labor, and delivery" subdimension (items 1-9); "Stress from baby care and changing family relationships" subdimension (items 10-18); "Stress from maternal role identification" subdimension (items 19-26); "Stress from social support seeking" subdimension (items 27-30); and "Stress from altered physical appearance and function" subdimension (items 31-36). The scale items have a 5-point Likert response. The worry, distress, and anxiety experienced by the pregnant case is graded as "definitely not", "mildly", "moderately", "severely" or "very severely" with points given from 0 to 4. The lowest points that can be obtained are 0, with highest points of 144 from the PSRS-36. The scale is used to identify stress factors linked to pregnancy in pregnant people. As points obtained from the scale increase, the stress is interpreted to increase.

The PSRS-36 Turkish Version Cross-Cultural Adaptation Process

Developed by Chung-Hey Chen (2015) (18) with validity and reliability studies in Taiwanese pregnant women and original version in Chinese, the PSRS-36 had translation-retranslation performed by English linguistic scientists to test linguistic equivalence. After the items on the PSRS-36 were translated into Turkish, the retranslation into English was performed by two linguistic scientists who knew both languages. After the translation procedure, similar results were obtained by the translators. After completing translation-retranslation procedures, expert opinions were sought from 11 faculty member employed in the Gynecology and Obstetrics Nursing and Midwifery Departments in the university for scope validity of the PSRS-36. The expert lecturers investigated the scale

for cultural appropriateness and comprehensibility and reported their opinions. Experts were requested to evaluate the appropriateness and comprehensibility for the aim by giving each item points as 1: not appropriate, 2: slightly appropriate, 3: quite appropriate and 4: very appropriate.

After scope validity, factor analysis was performed to determine the construct validity of the PSRS-36 and obtain clearer data. Before factor analysis, with the aim of evaluating the sample sufficiency and fit of data for factor analysis, the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were applied. The KMO value was identified as 0.888 and this shows it is appropriate for basic component analysis. Similarly, the Bartlett test results ($x2 = 6657.871$, $p>0.001$) show the data are correlated with each other and that it is appropriate for factor analysis.

Statistical Analysis

Normal distribution of data was evaluated with the skewness and kurtosis coefficients. Appropriateness of the sample size and data set for factor analysis were evaluated with the KMO index and Bartlett test (19). To determine the construct validity of the PSRS-36, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed. For EFA, basic component analysis, varimax transformation and Scree Plot test were performed (20). For CFA, the x2/SD value, GFI, AGFI, CFI, RMSEA and SRMR fit indices and PATH diagram were used. To measure the internal consistency and homogeneity of the PSRS-36, the item total point correlations and Cronbach alpha coefficient were used (21). For CFA one of the concordance models of structural equality, LISREL, was used (22, 23).

RESULTS

Participant

The mean age of pregnant women included in the scope of the research was 27.90±3.99 years (range 18-41), mean years of marriage was 5.58±4.99 years (range 1-26), number of pregnancies was 2.22±1.20 (range 0-7), number of surviving children was 0.92±0.96 (range 0-5 children), and week of pregnancy was 27.81±10.67 weeks (range 0-41). Of pregnant cases, 28.6% were high school graduates, 76.4% were housewives, 34.7% had partners who were high school graduates, and 31.9% had partners who were laborers. Of pregnant women 82.8% lived in a nuclear family, while 90.8% stated they had "moderate" income levels (Table 1).

Table 1. Distribution of pregnant women according to their characteristics (n=360)

Characteristics of pregnant women	n	%
Education status		
Primary school	60	16.6
Secondary school	101	28.1
High school	103	28.6
University	96	26.7
Employment status		
Housewife	275	76.4
Offier	27	7.5
Worker	29	8.1
Self-employment	8	2.2
Other (farmer etc.)	21	5.8
Spouse's education level		
Primary school	55	15.3
Secondary school	84	23.3
High school	125	34.7
University	96	26.7
Spouse's employment status		
Offier	54	15.0
Worker	115	31.9
Farmer	18	5.0
Self-employment	109	30.3
Unemployed	64	17.8
Family type		
Nuclear family	298	82.8
Extended family	62	17.2
Family income level		
Low	26	7.3
Medium	327	90.8
Good	7	1.9

Validity of the PSRS-36 Turkish Version
Validity of the Language

For linguistic equivalence of the PSRS-36 in Turkish, translation from English to Turkish was performed and then the Turkish scale items were retranslated into English.

Content Validity

After ensuring linguistic equivalence for the Turkish version of the PSRS-36, for scope validity opinions were sought from 11 faculty member working in the Gynecology and Obstetrics Nursing and Midwifery Departments in the university. The expert faculty member investigated the scale for cultural appropriateness and comprehensibility and reported their opinions. Experts were requested to evaluate the appropriateness and comprehensibility for the aim by giving each item points from 1: not appropriate, 2: slightly appropriate, 3: quite appropriate and 4: very appropriate. According to the responses of experts about the PSRS-36 items, the scale had scope validity assessed with the Davis technique. The Scope Validity index (SVI) scores for all items varied from 0.80-1.00, so there was no need to remove any item from the scale due to scope/content validity and the SVI for all items on the scale was found to be 0.952 (24).

Construct Validity

After scope validity, factor analysis was performed to determine the construct validity of the PSRS-36 and obtain clearer data. Before factor analysis, with the aim of evaluating the sample sufficiency and fit of data for factor analysis, the KMO and Bartlett's tests were applied. The KMO value was identified as 0.888 and this shows it is appropriate for basic component analysis. Similarly, the Bartlett test results (x2= 6657.871, p=0.000) show

the data are correlated with each other and that it is

appropriate for factor analysis.

Table 2. Factor pattern of the Pregnancy Stress Rating Scale-36 of Turkish version

Item no	Item description	Factor 1[a]	Factor 2[b]	Factor 3[c]	Factor 4[d]	Factor 5[e]
Item 1	Abnormal or difficult birth	0.616				
Item 2	Safe labor and delivery for my sake	0.654				
Item 3	Safe delivery for my baby's sake	0.669				
Item 4	Doctor may not arrive on time at delivery	0.687				
Item 5	Premature labor	0.635				
Item 6	Doctor attitudes during labor and delivery	0.742				
Item 7	Nurse attitudes during labor and delivery	0.751				
Item 8	Husband's absence during labor	0.515				
Item 9	Unbearable labor pain	0.561				
Item 10	Breast or bottle feed my baby		0.654			
Item 11	Ability to breastfeed succesfully		0.791			
Item 12	Ability to raise my baby succesfully		0.793			
Item 13	Naming my baby		0.644			
Item 14	Sexual activity during pregnancy		0.403			
Item 15	Loss of free time after birth		0.475			
Item 16	Acceptance of the child by significant others		0.651			
Item 17	Increased financial burden		0.440			
Item 18	Support from family members or husband		0.725			
Item 19	Baby's appearance					0.572
Item 20	Baby's birth weight					0.651
Item 21	Baby's gender					0.435
Item 22	Baby's health					0.532
Item 23	Concern about status of fetal movement					0.559
Item 24	Adhering to traditional pregnancy mores					0.481
Item 25	Maternal behavior influencing the fetus					0.532
Item 26	Preparation of clothes and newborn supplies for baby					0.537
Item 27	Finding a qualified baby-sitter				0.688	
Item 28	Deciding who will help take care of the baby				0.807	
Item 29	Choosing a place to "do-the-month"				0.674	
Item 30	Arranging for someone to handle housework during labor				0.719	
Item 31	Altered body shape during pregnancy			0.760		
Item 32	Controlling weight during pregnancy			0.755		
Item 33	Mobility difficulties due to altered body shape			0.779		
Item 34	Returning to prenatal body shape and weight during postnatal period			0.779		
Item 35	Dark brown areas appearing on the skin			0.656		
Item 36	Sleep quality			0.488		
Described Variances (%)		12.90	13.68	10.78	8.35	8.06
Total Described Variance %				**53.805**		

Factor analysis showed the PSRS-36 Turkish version comprised five subdimensions, similar to the original structure, and all items had factor loads above 0.40 (Table 2). The variances explained by the PSRS-36 Turkish version were determined to be 12.908 for the 1st subdimension of "Stress from seeking safe passage for mother and child through pregnancy, labor, and delivery"; 13.684 for the 2nd subdimension of "Stress from baby care and changing family relationships"; 10.789 for the 3rd subdimension of "Stress from maternal role identification"; 8.358 for the 4th subdimension of "Stress from social support seeking"; and 8.066 for the 5th subdimension of "Stress from altered physical appearance and function". The variance explained by the total PSRS-36 Turkish version was determined to be 53.805 (Table 2).
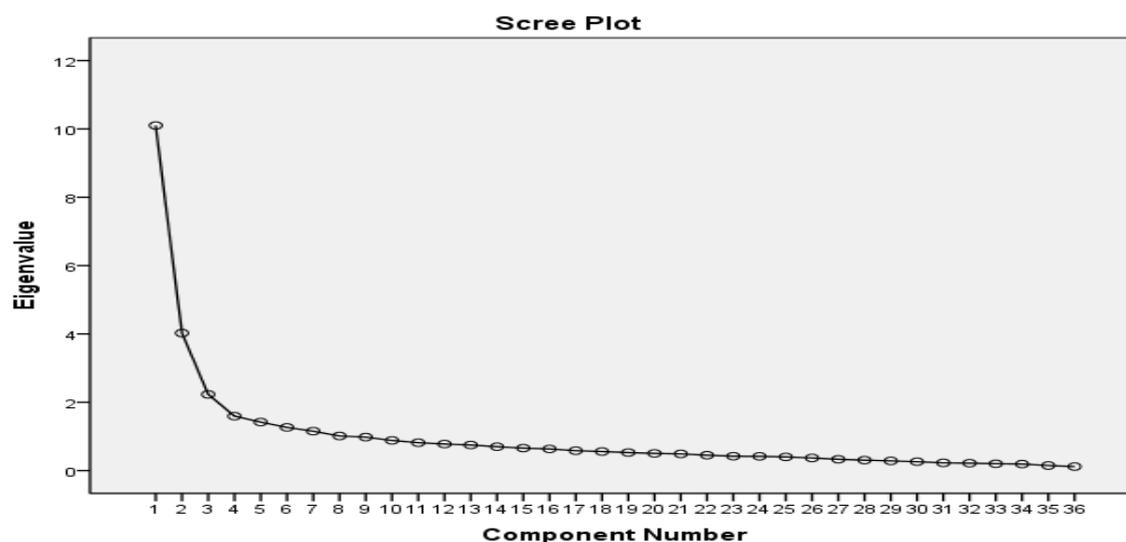

Figure 1. Eigenvalue scree plot for the PSRS-36 Turkish form after applying Varimax rotation

Table 3. Fit Indexes Values, Normal and Acceptable Values of PSRS-36

Index	Normal values	Acceptable values	Fit Indexes values
x^2/SD	<2	<5	2.18
GFI	>0.95	>0.90	0.95
AGFI	>0.95	>0.90	0.94
CFI	>0.95	>0.90	0.95
RMSEA	<0.05	<0.08	0.077
SRMR	<0.05	<0.08	0.075

The cut-off points for the five dimension structure of the PSRS-36 Turkish version appeared to have eigenvalue above 1 (Figure 1). The PSRS-36 Turkish version with five sub-dimensions was confirmed.

After explanatory factor analysis for the PSRS-36 Turkish version, structural equivalence modelling was used for confirmatory factor analysis. There are many indices used to investigate the fit of the model to PSRS-36 Turkish version. Here the x2/SD value was 2.18, GFI 0.95, AGFI 0.94, CFI 0.95, RMSEA 0.077 and SRMR 0.075 were identified (Table 3).

As seen on the PATH diagram, the factor loads for the PSRS-26 Turkish version and subdimensions were acceptable for the original structure without applying any modification to the model (Figure 2). The factor loads for the model varied from 0.42 to

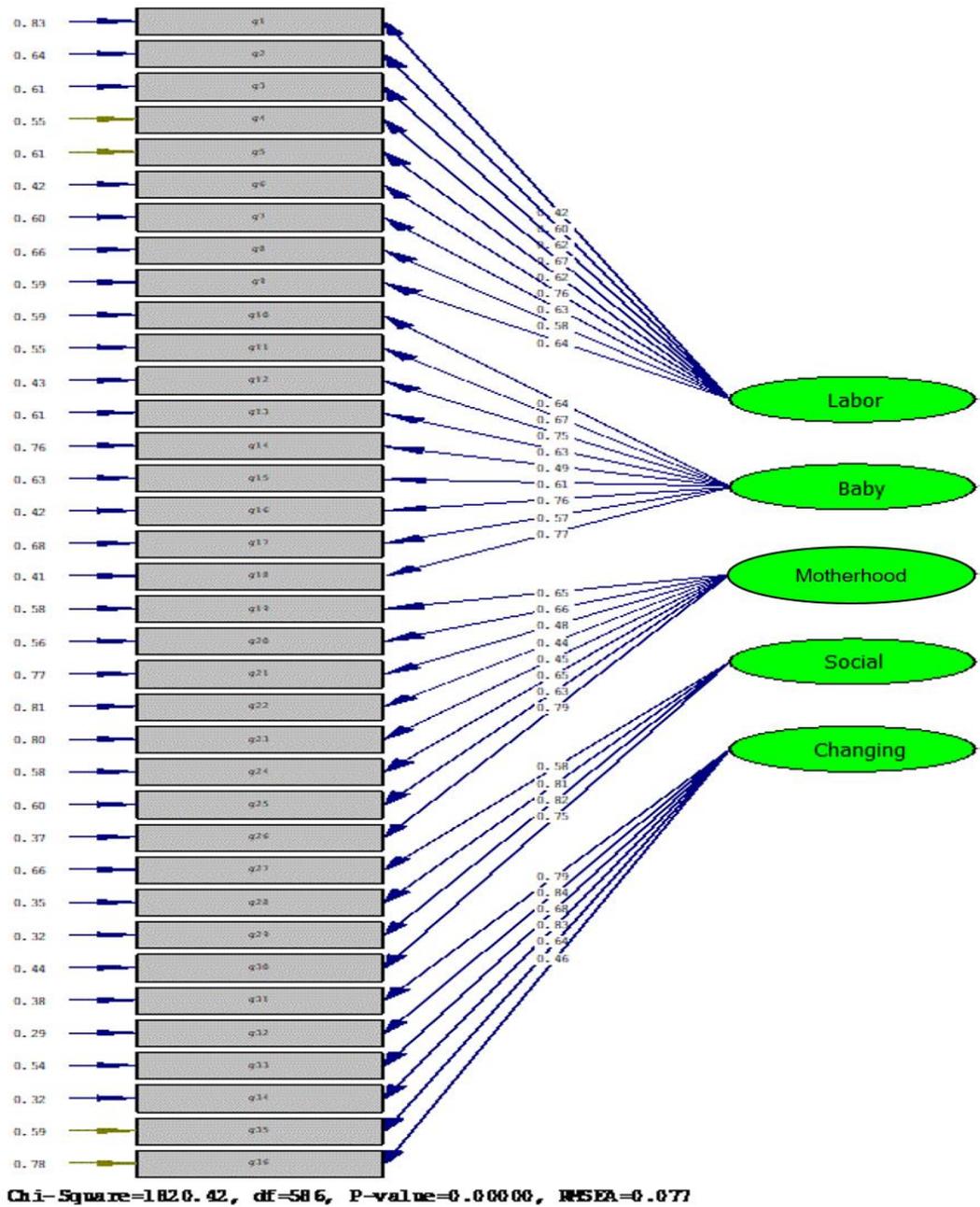0.83, and the "t" value for all items was above 1.96 (16).

Chi-Square=1820.42, df=586, P-value=0.00000, RMSEA=0.077

Figure 2. PATH Diagram of the Turkish Version of PSRS-36

Reliability of the PSRS-36 form in Turkish

Corrected Item-Total Correlation and Cronbach's Alpha Reliability Coefficient

The item total points correlation and Cronbach alpha coefficient were used to measure the internal consistency and homogeneity of the PSRS-36 Turkish version. Item total correlations for all items on the scale had positive values and item correlation coefficients were between $r=0.230-0.647$ (Table 4). Removing any item from the PSRS-36 did not cause a significant increase in the Cronbach alpha coefficient of the scale. As a result, no items were removed from the scale at this stage (Table 4).

Table 4. Total Item Correlations and Cronbach α Coefficients of PSRS-36

Item no	Item description	n	Mean	SD*	ITC**	if the item is deleted Cronbach α
Item 1	Abnormal or difficult birth	360	2.20	1.29	0.230	0.92
Item 2	Safe labor and delivery for my sake	360	2.32	1.26	0.376	0.92
Item 3	Safe delivery for my baby's sake	360	2.49	1.29	0.382	0.92
Item 4	Doctor may not arrive on time at delivery	360	2.41	1.40	0.422	0.92
Item 5	Premature labor	360	2.10	1.39	0.389	0.92
Item 6	Doctor attitudes during labor and delivery	360	2.55	1.25	0.477	0.92
Item 7	Nurse attitudes during labor and delivery	360	2.69	1.20	0.359	0.92
Item 8	Husband's absence during labor	360	2.10	1.49	0.398	0.92
Item 9	Unbearable labor pain	360	2.49	1.29	0.429	0.92
Item 10	Breast or bottle feed my baby	360	1.62	1.40	0.552	0.92
Item 11	Ability to breastfeed succesfully	360	1.65	1.43	0.558	0.92
Item 12	Ability to raise my baby succesfully	360	1.69	1.56	0.614	0.91
Item 13	Naming my baby	360	1.16	1.32	0.492	0.92
Item 14	Sexual activity during pregnancy	360	1.09	1.18	0.395	0.92
Item 15	Loss of free time after birth	360	1.42	1.26	0.523	0.92
Item 16	Acceptance of the child by significant others	360	0.90	1.37	0.609	0.91
Item 17	Increased financial burden	360	1.49	1.32	0.489	0.92
Item 18	Support from family members or husband	360	1.18	1.44	0.596	0.92
Item 19	Baby's appearance	360	0.51	1.00	0.372	0.92
Item 20	Baby's birth weight	360	1.04	1.27	0.519	0.92
Item 21	Baby's gender	360	2.87	1.25	0.411	0.92
Item 22	Baby's health	360	2.28	1.46	0.428	0.92
Item 23	Concern about status of fetal movement	360	1.68	1.40	0.555	0.92
Item 24	Adhering to traditional pregnancy mores	360	1.31	1.23	0.558	0.92
Item 25	Maternal behavior influencing the fetus	360	0.99	1.28	0.533	0.92
Item 26	Preparation of clothes and newborn supplies for baby	360	1.11	1.39	0.647	0.91
Item 27	Finding a qualified baby-sitter	360	0.48	1.10	0.357	0.92
Item 28	Deciding who will help take care of the baby	360	0.80	1.25	0.505	0.92
Item 29	Choosing a place to "do-the-month"	360	0.64	1.15	0.541	0.92
Item 30	Arranging for someone to handle housework during labor	360	0.76	1.16	0.483	0.92
Item 31	Altered body shape during pregnancy	360	1.25	1.30	0.557	0.92
Item 32	Controlling weight during pregnancy	360	1.35	1.31	0.585	0.92
Item 33	Mobility difficulties due to altered body shape	360	1.79	1.31	0.511	0.92
Item 34	Returning to prenatal body shape and weight during postnatal period	360	1.47	1.43	0.575	0.92
Item 35	Dark brown areas appearing on the skin	360	1.06	1.32	0.500	0.92
Item 36	Sleep quality	360	1.97	1.34	0.328	0.92

*SD: Standard deviation　　**ITC: Item total correlation

The lowest, highest and mean points obtained by pregnant cases included in the scope of the research for the PSRS-36 Turkish version and subdimensions and the Cronbach alpha coefficients are presented in Table 5. Pregnant cases obtained points of 21.35±7.96 for the "Stress from seeking safe passage for mother and child through pregnancy, labor, and delivery" subdimension; 12.19±8.59 for the "Stress from baby care and changing family relationships" subdimension; 11.78±6.80 for the "Stress from maternal role identification" subdimension; 2.67±3.81 for the "Stress from social support

seeking" subdimension; 8.89±6.11 for the "Stress from altered physical appearance and function" subdimension; and 56.88±24.59 for the whole PSRS-36 scale (Table 5).The Cronbach alpha coefficient for all items on the PSRS-36 Turkish version was 0.92, with Cronbach alpha coefficients for the subdimensions of PSRS-36 Turkish version 0.84, 0.86, 0.81, 0.83, and 0.85, respectively (Table 5).

Analysis results comparing the upper and lower 27% of the PSRS-36 Turkish version showed the differences were statistically significant (p<0.001). This value proves that the scale can be used for differentiation (Table 6).

Table 5. Item number, lower-upper values, mean, standard deviation and Cronbach alpha coefficients of sub-dimensions and the PSRS-36 Turkish version

Subdimension No	Definition of Subdimensions	Items	Lower-Upper Values	Mean	SD	Cronbach's Alpha
1.	Stress from seeking safe passage for mother and child through pregnancy, labor, and delivery	1-9	0-36	21.35	7.96	0.84
2.	Stress from baby care and changing family relationships	10-18	0-34	12.19	8.59	0.86
3.	Stress from maternal role identification	19-26	0-32	11.78	6.80	0.81
4.	Stress from social support seeking	27-30	0-16	2.67	3.81	0.83
5.	Stress from altered physical appearance and function	31-36	0-24	8.89	6.11	0.85
	Total PSRS-36	1-36	1-124	56.88	24.59	0.92

Table 6. Comparison of lower 27% and upper 27% points of the PSRS-36 Turkish version

PSRS-36 Turkish version	n	Mean	SD*	Test and p
Lower 27%	93	27.56	9.13	t=-39.683
Upper 27%	94	89.47	12.03	**p>0.001**

*SD: Standard deviation

DISCUSSION

Evaluating stress levels related to pregnancy can determine stress factors in the early period and plan appropriate interventions. For this, it's necessary to use valid and reliable scale tools. In this research, the aim was to adapt the PSRS-36, developed by Chen (2015) (18) to determine stress levels experienced by the pregnant person during pregnancy, to Turkish and perform validity and reliability studies. In this section, the findings about the Turkish language equivalence, scope validity, construct validity, internal consistency, pregnancy variables, and comparison of mean points on the PSRS-36 are discussed for the PSRS-36 comprising 36 items and 5 factors.

In the guide published by the International Testing Commission (ITC, 2018) on scale adaptation, the first items are language and culture adaptation. For

language adaptation of the PSRS-36, translation from English to Turkish, then from Turkish to English was used to ensure linguistic equivalency (26).

Identification of scope validity is a necessary study for scale development studies. When adapting scale tools developed in any language into Turkish, scope validity must be tested. For scope validity of the PSRS-36 Turkish version, opinions were sought from 11 teaching staff in the university's Gynecology and Obstetrics Nursing and Midwifery Departments. Expert lecturers investigated the cultural appropriateness, fit for the aim and comprehensibility of the scale and evaluations were sought according to the Davis technique. The expressions in items "2, 4, 6, 7, 8, 9, 11, 12, 15, 16, 17, 23, 24, 25, 29, 30, 31, 34 and 35" were reorganized.

According to the Davis technique, the SVI score of scale items analyzed was between 0.80 and 1.00. The SVI score being 0.80 means it has acceptable levels (27). This finding shows the PSRS-36 has sufficient scope validity.

Construct validity is the degree to which the items on a prepared scale measure a generally abstract concept. Factor analysis, comparison of contrasting or known groups, hypothesis testing, multivariate-multimethod matrix approach methods may be used to test construct validity (28-30). The most commonly used method is factor analysis. Factor analysis is a technique used to determine whether there is a pattern among responses to items on a scale tool by responders (27). In this study, factor analysis was used to investigate the construct validity of the PSRS-36. Before factor analysis with the aim of evaluating the sample, sufficiency and fit of data for factor analysis, the KMO and Bartlett's tests were applied. The KMO value was identified as 0.888. The Bartlett

test result ($x2 = 6657.871$, $p > 0.001$) obtained showed that the data were appropriate for factor analysis. When the explanatory factor analysis results for the PSRS-36 Turkish version are investigated, the eigenvalue was larger than 1 and the scale was determined to have similar structure to the original scale. The five-factor scale explained 53.80% of the variance. A breakpoint corresponding to component 5 was seen in the graph after applying the Varimax rotation (Figure 1).

The results of explanatory factor analysis for PSRS-36 identified the PSRS-36 had five subdimensions similar to the original PSRS-36, with the variances explained by subdimensions varying from 8.06-13.68, with total scale explaining 53.80% of variance and the results were identified to be sufficient (Table 2). While 0.30 is sufficient for the variance explained by a single factor scale, values from 0.40-0.60 are sufficient for multifactor scales (31). No item in the Turkish PSRS-36 was removed as none had a factor loading of less than 0.40. A nine-item first factor, nine-item second factor, eight-item third factor, four-item fourth factor and six-item fifth factor were determined. The PSRS-36 Turkish version was determined to have five factors like the original form of the scale.

After explanatory factor analysis, a structural equivalence model was created with confirmatory factor analysis to obtain more definite results. Many indices were used to investigate the fit of the model belonging to PSRS-36. Of these x2/SD value 2.18, GFI 0.95, AGFI 0.94, CFI 0.95, RMSEA 0.077 and SRMR 0.075 were identified (Table 3). In the literature, it is reported that the RMSEA and SRMR value should be below 0.08, while the GFI, AGFI, and CFI values should be above 0.90 (32, 33). The results

of the fit index values found the 36-item 5 subdimension PSRS-36 Turkish version did not require any changes compared to the original and the model was acceptable. Finally, it was determined that the results obtained from confirmatory factor analysis of the 36 item PSRS-36 fit the original five factor PSRS-36 developed by Chen (2015) and that construct validity was determined (Figure 2).

The item total points correlation and Cronbach alpha reliability coefficient were used to measure the internal consistency and homogeneity of the PSRS-36 Turkish scale (29). When the internal consistency of a scale is examined whether or not all subdimensions measure the same traits is examined. The Cronbach alpha reliability coefficient has a value between 0 and 1 with the higher coefficients determining consistent items measuring the same trait elements on the scale. If the Cronbach alpha reliability coefficient is close to 1, it shows the items on the scale are compliant and consistent (34, 35). In this study, the PSRS-36 had Cronbach alpha coefficient of 0.92 for all items.

Pregnant women obtained points of 21.35±7.96 for the "Stress from seeking safe passage for mother and child through pregnancy, labor, and delivery" subdimension; 12.19±8.59 for the "Stress from baby care and changing family relationships" subdimension; 11.78±6.80 for the "Stress from maternal role identification" subdimension; 2.67±3.81 for the "Stress from social support seeking" subdimension; 8.89±6.11 for the "Stress from altered physical appearance and function" subdimension; and 56.88±24.59 for the whole PSRS-36 scale (Table 4). Considering the lowest points that can be obtained from the PSRS-36 are 36 and highest points are 144, it appears the points obtained by

pregnant cases in this study had moderate values. In the original study, the mean points were found to be 53.96±21.04 (18). The results of this study are similar to the results of the original study for PSRS-36.

The Cronbach's alpha coefficients of the PSRS-36 Turkish version and subdimensions were between 0.81 and 0.92 (Table 4). The Cronbach's alpha value between 0.60-0.80 indicates that it is quite reliable (36). The item total correlations for all items on the scale have positive values and no removal of any item caused significant increases in the Cronbach alpha coefficient (Table 4). In this study, the Cronbach alpha coefficients were found to have sufficient levels. The item total point correlations used to measure the internal consistency explains the relationship between points obtained from items on the scale and total points on the scale. If item total correlations are positive and high, the items display similar behavior, and the scale has high internal consistency (31). For the analysis test points, the use of corrected total points is recommended. For acceptance of an item, the item total correlation coefficient should be at least 0.20. Values of 0.20 and less are items that should be excluded from the study (37). In this study, the item total coefficients varied from 0.230-0.647 (Table 4). These values show the scale items have sufficient reliability.

Another route used in the scope of item analysis is to test the differences between the upper 27% and lower 27% item mean points according to total points with the unrelated t test. If the differences observed between the groups is significant, it may be assessed as a marker of the internal consistency of the scale. The analysis results show the degree to which the items distinguish individuals in terms of the measured behavior (37). In this study, the difference between

mean points for the upper 27% and lower 27% groups for the PSRS-36 Turkish version was determined to be statistically significant (t=-39.683, p=0.000) (Table 6). The results show the scale has high internal consistency and that items measure the same behavior.

CONCLUSIONS

In conclusion, the PSRS-36 Turkish version was found to be a valid and reliable scale appropriate for Turkish culture. It is recommended that the scale be used as data collection tool to determine pregnancy stress in different samples by midwifery and nursing, for experimental studies related to pregnancy stress, with valid and reliable scales for stress, anxiety and depression related to pregnancy, and to repeat validity and reliability in different sample groups.

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