

Reliability and Validity of the Turkish Version of the Scale for Pregnancy-Related Discomforts

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ABSTRACT

Objective: This study examined the reliability and validity of the Turkish version of the Scale for Pregnancy-related Discomforts.

Method: This cross-sectional and methodological study was carried out between November 17, 2014 and December 23, 2015 in the gynecology and pediatrics clinics of a state hospital, located in the western region of Turkey, with the participation of 493 pregnant and 150 non-pregnant women. The study investigated the reliability and validity of the Scale for Pregnancy-related Discomforts. The study analyzed the structural validity of the scale using the contrasted group validity and examined reliability through the coefficients of internal consistency and corrected item total correlations.

Results: The average age of pregnant women was 26.42 ± 3.53 (min:18 max:43) years. Among the participants, 33.3% had graduated from secondary schools, 77.1% were housewives, and 88.2% had social insurance. Based on the total score of the Scale for Pregnancy-related Discomforts, the pregnant women's scores were significantly higher than the scores of the non-pregnant women ($p < 0.001$). Cronbach's Alpha reliability coefficient of the subscales in the Scale ranged from 0.80 to 0.82; their corrected item total correlations varied between 0.251 and 0.857.

Conclusion: This study demonstrated that the Turkish version of the Scale for Pregnancy-related Discomforts, with its eight subscales and 41 items, was valid and reliable for each of the three trimesters of pregnancy.

Key words: pregnancy related discomforts, scale, reliability, validity

ÖZ

Gebeliğe Bağlı Yakınmalar Ölçeği'nin Türkçe Versiyonunun Güvenilirlik ve Geçerliliği

Amaç: Bu çalışmada Gebeliğe Bağlı Yakınmalar Ölçeği'nin Türkçe versiyonunun geçerlik ve güvenilirliği incelenmiştir.

Yöntem: Bu kesitsel ve metodolojik çalışma, 17 Kasım 2014-23 Aralık 2015 tarihleri arasında, Türkiye'nin batısında bir Üniversitesi Araştırma ve Uygulama Hastanesi Kadın Doğum ve bir kamu kurumu olan Kadın Doğum ve Çocuk Hastalıkları Hastanesi kliniği/polikliniklerine başvuran, 493 gebe ve 150 gebe olmayan kadının katılımıyla gerçekleştirilmiştir. Çalışmada Gebeliğe Bağlı Yakınmalar Ölçeği'nin güvenilirliği ve geçerliliği araştırılmıştır. Çalışmada, karşılaştırmalı grup geçerliliği kullanılarak ölçeğin yapısal geçerliliği analiz edilmiş ve iç tutarlılık katsayıları ve düzeltilmiş madde toplam korelasyonları ile güvenilirliği incelenmiştir.

Bulgular: Gebe kadınların yaş ortalaması $26,42 \pm 3,53$ (min: 18 maks: 43) idi. Araştırmaya katılanların %33,3'ü ortaokul mezunu, %77,1'i ev hanımı ve %88,2'sinin sosyal güvencesi bulunmakta idi. Gebeliğe Bağlı Yakınmalar Ölçeği'nin toplam puanına göre, gebe kadınların puanları gebe olmayan kadınların puanlarından anlamlı derecede yüksekti ($p < 0,001$). Ölçeğin alt ölçeklerinin Cronbach'ın Alfa güvenirlik katsayısı 0,80-0,82 arasında; düzeltilmiş madde toplam korelasyonları ise 0,251 ile 0,857 arasında değişmekteydi.

Sonuç: Bu çalışmada sekiz alt ölçeği ve 41 maddesi ile Gebeliğe Bağlı Yakınmalar Ölçeği'nin Türkçe versiyonunun gebeliğin üç trimesterinin her biri için geçerli ve güvenilir olduğunu göstermiştir.

Anahtar Sözcükler: gebeliğe bağlı yakınmalar, ölçek, güvenilirlik, geçerlik

INTRODUCTION

Pregnancy is a period during which many anatomical, physiological, psychological, and biochemical changes are experienced to meet the needs of the fetus, to maintain homeostasis, and to prepare for labor and lactation. These changes lead to many discomforts.¹⁻³ Frequent urination, nausea and vomiting, increase/decrease in appetite, heartburn, excessive response to smell, constipation, diarrhea, hemorrhoids, varicose vein and edema, muscle cramps, back pain, headache, fatigue, weakness, distress, and sleep deprivation are some of these discomforts.⁴⁻⁷ Many women restrict their activities during pregnancy to avoid such discomforts.⁸

Prenatal care is significant in maintaining and developing mother, baby, and family health. Today, midwives and nurses play an increasingly significant role in providing and assessing prenatal care. Midwives and nurses working in prenatal care services should identify pregnancy-related discomforts in a timely manner and guide pregnant women accordingly. In Turkey, there is no scale that can be used easily by nurses and midwives to assess discomforts in pregnant women. This study investigated the reliability and validity of the Turkish version of the Scale for Pregnancy-related Discomforts (SPRD).

MATERIALS AND METHODS

Setting and Sampling

This study was carried out between November 17, 2014 and December 23, 2015 in the gynecology and pediatrics clinics of a state hospital, located in the western region of Turkey. The study group consisted of 493 pregnant women 18 to 45 years of age and without high-risk pregnancies in their first, second, and third trimesters, and 150 non-pregnant women.

The sample size was determined by multiplying the number of scale items by 10 to assess the validity and reliability of the scale.⁹ Researchers used a face-to-face data collection method. A questionnaire form on the sociodemographic characteristics of pregnant women and the SPRD forms to study the validity and reliability were administered to the pregnant women in each trimester.

The Scale for Pregnancy-related Discomforts

Developed by Shinkawa et al.¹¹ the SPRD consists of 41 items; it is a six-point Likert-type scale. Responses in the scale are registered as values from 0 to 5, where 5 refers to "always" and 0 indicates "never". The scale assesses pregnancy-related discomforts of women during the last week of each trimester. The minimum score that can be obtained in the scale for the first trimester is 0 and the maximum score is 75. The maximum score in the scales for the second and third trimesters are, respectively, 75 and 65. High scores illustrate that the number and intensity of symptoms are high. Shinkawa et al.¹¹ reported that the Cronbach's Alpha value varied between 0.72 and 0.85. In our study, the Cronbach's Alpha value of the scale ranged from 0.63 to 0.89.

Validity and Reliability of the Turkish Version of the Scale for Pregnancy-related Discomforts

Linguistic, content, and structural validity were investigated to assess the validity of the SPRD. For linguistic and semantic validity, group translation and back-translation methods were used in the preparation of the Turkish form. To ensure linguistic and content validity, the scale was translated to Turkish by four people: a certified translator, a lecturer in English, a female obstetrical nurse, and a clinical psychologist. The translated text was checked and re-translated to English by an English lecturer, a psychologist, a psychiatrist and a psychiatry nurse who were not involved in the initial translation process. The re-translated text was sent to the researcher, who developed the SPRD, for feedback and the translation was approved by the researcher.

A group of 10 experts one public health expert, two public health

nurses, two women's health and maternity nurses, three midwives, one psychiatry nurse, and an expert in statistics provided the necessary feedback on the content validity of the scale. These experts were asked to comment on the form of expression for items in the scale, their content, their suitability for the subject area, and their scope. This feedback was used to finalize the scale.

The contrasted group validity method was used to examine structural validity.⁹ In this study, the SPRD was administered to both the pregnant and non-pregnant women. The contrast between the two groups was presented using a comparative analysis.

The internal consistency and corrected item total correlation coefficients (r) (group and total trimester score) were calculated to test the reliability of the scale. Generally, the Cronbach's Alpha technique is recommended for analysis of reliability in Likert-type scales, and the internal consistency of the scale items is used.¹ The Cronbach's Alpha reliability was calculated for the total and subscales of the SPRD for each trimester.

Ethical Considerations

The Ethics Committee for the Non-Interventional Clinical Research in the Faculty of Medicine at the Adnan Menderes University approved the study (2014/473).

Data Analysis

The suitability of the contrasted group validity scores for normal distribution was tested by the Kolmogorov-Smirnov test. In the reliability analysis of the scale, a confidence interval (CI) of 95% was obtained by the Cronbach's Alpha internal consistency coefficients; then, the corrected item total correlation coefficients (r) were calculated. In the published literature, alpha coefficients at the level of 0.70 are considered sufficient for the reliability of a scale; however, the expected reliability level is the alpha coefficient at the 0.80 level in group comparisons. For specific test scores, 0.90 and higher are expected.⁹ In the present study, values of the mean (M) and standard deviation (SD) were used to present the scale's score distribution and correlation analysis was carried out to examine the relationship between the two. In the analysis of correlation coefficients, when the coefficient was between 0.10 and 0.29, the relationship was considered to be low. The relationship was at a medium level when the coefficient was between 0.40 and 0.49. When the coefficient was above 0.50, the relationship was all statistical analysis was carried out using SPSS 18.0.

RESULTS

Findings on the Sociodemographic Characteristics of Participants

The study was carried out with the participation of 171 first-trimester pregnant women, 159 second-trimester pregnant women, and 163 third-trimester pregnant women. The average age of pregnant women was 26.42 ± 3.53 years and the median number of pregnancies was 2. The median for live birth and the median of living children was 1. The median value for the number of miscarriages and abortions was 0. Among the pregnant women, 33.3% were secondary school graduates; 96.7% were married; 77.1% were housewives, and 88.2% had social insurance. Among the partners of pregnant women, 28% were secondary school graduates and 76.7% had jobs. Of the pregnant women, 69.2% had equal income and expenditure levels.

The average age of participant 150 non-pregnant women was 29.51 ± 6.25 years, and the median of pregnancies was 2. The median for live birth and the median for the number of living children was 1. Similar to pregnant women, non-pregnant women's median for number of miscarriage, abortions, and stillbirths was 0. Of the non-pregnant women, 31.3% were secondary school graduates, 98.7% were married, 78% were housewives, and 82.7% had social insurance.

Among the partners of non-pregnant women, 38.7% were primary school graduates, and 79.3% had an income-generating job. Of the non-pregnant women, 53.3% perceived that their income level was equal to their expenditure level.

Table 1 illustrates the comparison of pregnant and non-pregnant women's scores in the SPRD.

Table 1. Comparison of Pregnant and Non-pregnant Women's Scores in the Scale for Pregnancy-Related Discomforts

The Scale for Pregnancy-Related Discomforts	Pregnant women			Non-pregnant women			Z/P
	Med	Mean (SD)	Mean for 1 item	Med	Mean (SD)	Mean for 1 item	
First trimester							
Group 1. Morning-sickness-like syndrome	10	10.9 (8.1)	2.2	3	3.5 (3.5)	0.7	-8.28/<0.001
Group 2. Constipation-associated syndrome	2	3.7 (4.7)	1.2	0	2.3 (3.4)	0.8	-2.47/0.013
Group 3. Social-activity-restricting syndrome	12	12.9 (7.4)	1.8	11	12.2 (7.6)	1.7	-0.97/0.330
Total	26	27.5 (15.4)	1.8	17	18.1 (11.2)	1.2	-5.82/<0.001
Second trimester							
Group 1. Fetal-growth-related syndrome	12	11.8 (5.8)	2.0	6	6.8 (5.5)	1.1	-7.43/<0.001
Group 2. Negative mental syndrome	7	7.5 (4.6)	1.9	6.5	7.3 (5.3)	1.8	-0.62/0.535
Group 3. Constipation-associated syndrome	1	3.3 (4.4)	1.1	0	2.3 (3.4)	0.8	-1.30/0.195
Total	22	22.6 (11.5)	1.7	15	16.4 (10.8)	1.3	-4.92/<0.001
Third trimester							
Group 1. Lifestyle-influencing syndrome	18	18.4 (8.4)	2.0	14	15.4 (9.0)	1.7	-2.98/0.003
Group 2. Musculoskeletal syndrome	7	7.5 (4.9)	1.9	2.5	3.3 (3.3)	0.8	-7.95/<0.001
Total	24	25.6 (11.2)	2.0	17	18.7 (10.7)	1.4	-4.99/<0.001

Table 2 presents Cronbach's Alpha values for pregnant and non-pregnant women and the 95% Confidence Interval for the SPRD.

Group and trimester total scores and the corrected item total correlation coefficients for each item are shown in Table 3.

Group and trimester total scores and corrected item total correlation coefficients of each item are shown in Table 4.

Group and trimester total scores and corrected item total correlation coefficients of each item are presented in Table 5.

DISCUSSION

For the validity analysis, the SPRD was administered to both pregnant women, and non-pregnant women at their childbearing age in the control group. Based on the SPRD scores of the first trimester, pregnant women experienced more morning-sickness-like discomforts and constipation-associated discomforts than women in

the control group. Chou et al.⁴ studied the psycho-social factors associated with nausea, vomiting, and fatigue during early pregnancy in 113 participants. Accordingly, 38.1% of the participants seldom, and 35.4% frequently, experienced nausea and vomiting. Nazik and Eryilmaz⁵ carried out a study to determine pregnant women's incidence of pregnancy-related discomforts and their attitudes towards managing these symptoms. They found that the most frequently reported discomfort in the first-trimester was nausea/vomiting (87.8%). According to the study by Foxcroft⁷ on pregnancy symptoms, 45.5% of women experienced fatigue, 27.5% suffered from poor sleep, 19.5% had back pain, 12.6% experienced nausea, and 10.1% frequently experienced constipation.

In the third group of the SPRD for the first trimester, social/activity restricting discomforts refer to the symptoms of marked sleepiness, irritation, fatigue or general malaise, lethargy, discomfort from tight clothes, depression and stiff shoulders. The reliability study of the scale illustrated that symptoms such as irritation, depression, and stiff shoulders attributed to the group and trimester total scores were at an acceptable level. The published literature reports that women in general tend to experience depressive disorders, chronic depression, and life-long depression at higher levels than men.¹²⁻¹⁴ Women have more somatization disorders and psychosocial symptoms than men. Studies argue that women tend to somatization their problems due to cultural factors, in addition to many other factors.¹⁴ Our sample group consisted of migrant groups and people from lower educational and socioeconomic levels. Less-developed societies reflect their problems through somatization with social support and consent, whereas in the developed western societies psychologizing is more common. In western societies, there is also an increase in the demand for diagnosis on the basis of bodily symptoms, which is believed to be a legitimate way to avoid stigmatization of a mental problem.¹⁴⁻¹⁵ In our study, social activity-restricting discomforts have not yet influenced pregnancy. We agreed that it would be more appropriate to make assessments

Table 2. The Cronbach's Alpha and 95% CI Values of Pregnant and Non-pregnant Women

The Scale for Pregnancy-Related Discomforts	Pregnant women		Non-pregnant women	
	Cronbach's alpha	%95 (CI)	Cronbach's alpha	%95 (CI)
First trimester				
Group 1. Morning-sickness-like syndrome	0.89	0.86-0.92	0.48	0.33-0.60
Group 2. Constipation-associated syndrome	0.88	0.85-0.91	0.77	0.70-0.82
Group 3. Social-activity-restricting syndrome	0.76	0.70-0.81	0.71	0.63-0.78
Total	0.80	0.74-0.84	0.77	0.71-0.82
Second trimester				
Group 1. Fetal-growth-related syndrome	0.63	0.53-0.71	0.60	0.50-0.70
Group 2. Negative mental syndrome	0.75	0.68-0.81	0.76	0.69-0.81
Group 3. Constipation-associated syndrome	0.89	0.86-0.92	0.76	0.69-0.82
Total	0.82	0.76-0.86	0.78	0.73-0.83
Third trimester				
Group 1. Lifestyle-influencing syndrome	0.75	0.67-0.81	0.72	0.65-0.78
Group 2. Musculoskeletal syndrome	0.80	0.75-0.85	0.49	0.35-0.61
Total	0.80	0.74-0.85	0.75	0.68-0.80

on the basis of the total scores of the first trimester.

Table 3. Reliability Analysis of the Scale for Pregnancy-Related Discomforts for the First Trimester

The Scale for Pregnancy-Related Discomforts	Corrected Item Total Correlation Coefficients (r)	
	Group score	Trimester total score
Group 1. Morning-sickness-like symptoms		
a Nausea (feeling like vomiting)	0.773	0.549
b Excessive response to smell	0.772	0.551
c Loss of appetite	0.802	0.565
d Feeling a change in choices in nutrition and sense of taste	0.750	0.582
e Gastric compression	0.588	0.574
Group 2. Constipation-associated symptoms		
a Difficulty in defecation	0.834	0.473
b Decrease in frequency of defecation/stool volume	0.842	0.490
c Abdominal swelling related to stools/gas	0.646	0.452
Group 3. Social-activity-restricting symptoms		
a Marked sleepiness	0.476	0.306
b Irritation	0.512	0.292
c Fatigue	0.642	0.616
d General malaise or lethargy (tiredness, indifference, negligence)	0.628	0.614
e Discomfort from tight clothes (Belts etc.)	0.476	0.388
f Depression	0.376	0.245
g Stiff shoulders	0.251	0.250

The second trimester is the period during which a mother embraces pregnancy and focuses on the fetus.^{1,2} In our study, pregnant women’s psychological and constipation-related problems were similar to that of the control group. Constipation-related discomforts involve difficulty in defecation, decrease in frequency of defecation/stool volume, and abdominal swelling related to stool/gas. Nazik and Eryılmaz⁵ determined that second-trimester pregnant women’s three most cited symptoms were polyuria (79.9%), fatigue (75.6%), and heartburn (71.3%). In our study, total scores of second-trimester pregnant women were higher compared to the women in the control group.

Shinkawa et al.¹¹ detected a high level of significance in the comparison of pregnant and non-pregnant women’s subscale and total scores in the scale for pregnancy-related discomforts for the third trimester. Similarly, our study revealed a significant difference between pregnant and control group women’s total and subscale scores in terms of their discomforts at the third trimester. The last trimester of pregnancy is a decisive period for pregnancy-related discomforts. We agreed that it is more appropriate to make assessments on the basis of both subscale scores and total scores of the scale for the last trimester of pregnancy.

Likewise, Shinkawa et al.¹¹ determined that the total Cronbach’s Alpha value for each trimester was between 0.82 and 0.85, while subscales ranged from 0.72 to 0.84. They also underlined that total and subscale scores were considerably higher than the non-pregnant group; therefore, the difference was significant at an advanced level. Our findings illustrated that total and subscale scores were relatively lower. The reason for this might have stemmed from the socio-demographic and cultural backgrounds of our sample group.

In the original version of the scale, the item total correlation calculated for the symptom of irritation was $r=-0.20$; the item

total correlations calculated for the symptom of stiff shoulder took a negative value of $r=-0.20$; the item total correlation for the symptom of depression was $r=0.21$.¹¹ In light of these findings, it can be posited that these items worked better in the Turkish version of the scale. However, irritation, depression, and stiff shoulders may not have a close relationship with pregnancy-related discomforts of the first trimester. In the original study, item-total score correlation coefficients of the SPRD for the first trimester was between $-0.01-0.93$.¹¹ In our study, the internal validity coefficient and item-total score correlation coefficients were considerably higher than the original reliability study. In the original study, the correlation between ten items in the scale and the total score was below 0.30. In contrast, in our study all items except the aforementioned three items contributed to the total score at the desired level (> 0.30). Therefore, the reliability of the scale for pregnancy-related discomforts for the first trimester was confirmed.

In the original study, total score correlation coefficients of the scale for pregnancy-related discomforts for the second trimester were between -0.01 to 0.68 .¹¹ In our study, the internal validity coefficient and the item total score correlation coefficients were considerably higher than the ones in the original reliability study. In the original study, the correlation of six items in the second trimester scale and total score was below 0.30. In contrast, all items except one item contributed to the total score at the desired level (> 0.30). In the original version of the scale, the item of “excessive response to smell” was calculated as the total correlation.¹¹ In light of these findings, the

Table 4. Reliability Analysis of the Scale for Pregnancy-Related Discomforts for the Second Trimester

The Scale for Pregnancy-Related Discomforts	Corrected Item Total Correlation Coefficients (r)	
	Group score	Trimester total score
Group 1. Fetal-growth-related symptoms		
a Pelvic pain	0.377	0.439
b Discomfort from tight clothes (Belts etc.)	0.356	0.350
c Abdominal tension or feeling a pinched-like pain due to fetal growth	0.356	0.450
d Gastric compression	0.407	0.520
e Lumbar pain (back pain) when bending toward the front or tilting the upper body	0.442	0.452
f Excessive response to smell	0.263	0.337
Group 2. Negative mental symptoms		
a Irritation	0.490	0.408
b Depression	0.412	0.356
c Fatigue	0.676	0.571
d General malaise or lethargy (tiredness, indifference, negligence)	0.646	0.592
Group 3. Constipation-associated symptoms		
a Difficulty in defecation	0.823	0.468
b Decrease in frequency of defecation/stool volume	0.857	0.427
c Abdominal swelling related to stools/gas	0.711	0.482

reliability of the SPRD for the second trimester was confirmed.

Table 5. Reliability Analysis of the Scale for Pregnancy-Related Discomforts for the Third Trimester

The Scale for Pregnancy-Related Discomforts	Corrected Item Total Correlation Coefficients (r)	
	Group score	Trimester total score
Group 1. Lifestyle-influencing symptoms		
a General malaise or lethargy (tiredness, indifference, negligence)	0.494	0.597
b Fatigue	0.469	0.548
c Insomnia	0.543	0.363
d Depression	0.353	0.338
e Irritation	0.374	0.246
f Difficulty in sleep induction	0.489	0.440
g Discomfort from tight clothes (belt etc.)	0.293	0.358
h Marked sleepiness	0.530	0.316
i Abdominal compression	0.277	0.446
Group 2. Musculoskeletal symptoms		
a Inguinal convulsion	0.707	0.404
b Pelvic pain	0.683	0.420
c Cramps (in soles of the feet, thighs, calf or hips)	0.642	0.394
d Lumbar pain (back pain) when bending towards the front or tilting the upper body	0.456	0.478

In the original version of the scale, the item-total correlations for the items of irritation, gastric compression, and discomfort from tight clothes were respectively $r=0.64$; $r=0.42$; $r=0.54$.¹¹ These items worked better in the original version of the scale. It can be argued that irritation, gastric compression and discomfort from tight clothes are not closely related to third trimester of the pregnancy. The original study determined the item-total correlation coefficients of the scale for pregnancy-related discomforts for the third trimester between 0.03 and 0.70.¹¹ In our study, the internal consistency coefficient and the item-total correlation coefficients were higher than those in the original study. However, in our study all items (except three items) contributed to the total score at the desired level (> 0.30). These findings confirmed the reliability of the SPRD for the third trimester.

As a result, this study demonstrated that the Turkish version of the SPRD for the first, second, and third trimesters can be used as a valid and reliable tool to assess pregnant women's discomforts both in regular clinical practice and in related field studies. SPRD consists of scales that can be used to evaluate the complaints of pregnant women

during each trimester. With these features, the SPRD can be used both in daily clinical practice and in related studies to evaluate the complaints of pregnant women.

Declaration of Conflicting Interests

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