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RESEARCH ARTICLE

Turkish Validity and Reliability Study of Barriers to Physical Activity during Pregnancy Scale

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ABSTRACT

Pregnancy leads to conditions that reduce the amount of exercise women can take, hence inadequate exercise. That is why it is important to study and define the factors that may hinder a pregnant woman from physical activities. This study analysed the reliability and validity of the Turkish version of the Barriers to Physical Activity During Pregnancy Scale (BPAPS). Quantitative research was conducted on pregnant women aged 18 to 45 from January to June 2022. Information gathering throhgh the 'Descriptive Information Form' and the BPAPS scale. For this reason, item analysis techniques, Internal consistency checks, and Content and Structural validity of the scale were estimated to its reliability and validity. The scale consisted of 29 items and four sub-dimensions; four sub-dimensions were found to explain 59.68% of the total variance. The results based on exploratory and confirmatory factor analyses were factor loads above 0.40. Results from the confirmatory factor analysis of the structural model include an RMSEA value of less than 0. 080, and all the estimated fit indices are higher than 0.85. In this case, the Cronbach's α for each sub-dimension was more than 0.70, and the overall scale was estimated to have a Cronbach's α of 0.91. The findings indicated that the BPAPS scale, which was used on the sample, was a legitimate and trustworthy measurement instrument for the Turkish sample.

INTRODUCTION

For women, being pregnant is a life-altering experience that can have a big impact on how much physical exercise they do. It has many benefits for physical and mental health (Physical Activity Guidelines Advisory Committee, 2008). The reduction of postpartum depression, improved sleep, increased psychosocial health scores, and healthy weight loss are among the health advantages (Davis and Dimidjian, 2012; Summerbell et al., 2009). Despite its many proven health effects, it is stated that physical activity is at insufficient levels in pregnant women (Göker, Yanıkkerem and Topsakal, 2021). According to studies, many women cut back on their physical activity after becoming pregnant (Santos et al., 2016; Schmidt et al. 2017). Many obstacles to physical exercise during pregnancy have been found by numerous qualitative and quantitative research (Connelly et al., 2015; Polit, Beck and Owen, 2007).

Pregnancy symptoms, obligations and activities related to raising a family and children, a lack of motivation on one's part, time constraints and work demands, the belief that daily physical exercise is sufficient, concerns about fetal harm, and a lack of physical activity habits are some of the reported intrinsic hurdles (Marshall, Bland and Melton, 2013; Coll et al., 2017). Cost-related concerns for physical activity Other factors that have been recognised as environmental impediments include concerns about the weather and a lack of transit options (Haakstad et al., 2009). Harrison et al. (2018) provided an overview of mixed research that evaluated barriers to physical exercise as well as facilitators and attitudes toward it in pregnant women. But in terms of socio-ecological results,

certain barriers are according only on the findings of qualitative research, and it's not obvious how applicable these findings are to other communities (Harrison et al., 2018; Coll et al., 2017). As such, it is not possible to regard these instruments as fully valid and reliable.

Furthermore, findings from a different review verified that some obstacles, like discomfort experienced by pregnant women, their fear of exercising while pregnant, and their doubts about the safety of exercising while pregnant, have not yet been taken into account in the creation of evaluation instruments to pinpoint obstacles related to physical activity and exercise (Coll et al., 2017). Consequently, there is currently a need for an extensive scale that can assess every factor associated with obstacles to physical activity during pregnancy. So far, there is only one scale developed by Sechrist et al., (1987) to determine barriers to physical activity, and whose Turkish validity and reliability were tested by Ortabag, et al., (2010). The Exercise Benefits/Barriers Scale is regarded as a universal instrument that may be applied to various demographic groups (Harrison et al., 2018; Coll et al., 2017; Sechrist, Walker and Pender, 1987).

However, not all the barriers to physical exercising during pregnancy are captured by this scale. Since there are multiple layers regarding the influence on physical activity and various social and environmental factors are related to active living (Sallis et al., 2006), the Barriers to Physical Activity During Pregnancy scale (BPAPS) that was used by Amiri-Farahani et al. (2021) followed the socioecological model and offered a more quantitative understanding of pregnant women's barriers to physical activities. A quick review of all the current literature resources has revealed that there is no study reported in which the BPAPS scale has been translated into any language. Also, to date, there are no known barriers to the physical activity scale that directly measure the challenges Turkish pregnant women encounter in performing physical activity or sections that take into account the cultural differences of Turkish women. As such, the research was investigated to assess the informant of the 'Barriers to Physical Activity During Pregnancy Scale' (BPAPS) developed by Amiri-Farahani et al. (2021) in Turkish.

MATERIALS AND METHODS

Study design

This study was cross-sectional and methodological.

Sample of the study

Between January and June of 2022, information was gathered in the gynecology and obstetrics polyclinic and perinatology department is a hospital for training and research located in the eastern region of Turkey. The study population included women who could engaging in safe physical exercise when pregnant and were between the ages of 18 and 45, as well as those who were between 10 and 37 weeks pregnant and was enrolled in the The gynaecology, obstetrics, polyclinic, and perinatology departments of a training and research hospital in eastern Turkey were included. The paper used a convenience sampling technique to select the research sample. The literature suggests the following sample size for psychometric studies: outstanding up to 1000, very good up to 500, and decent 200–500 (Karagöz, 2016). There were 382 women in the sample who fulfilled the requirements for inclusion. Pregnant women who were between the ages between 18 and 45 years, could read and write, were in good physical and mental health, and willingly consented to take part in the research met the inclusion criteria. Women who willingly declined to take part in the study were considered to be exclusion criteria.

Procedure

Permission in writing for the adaptation and usage in BPAPS was adopted via e-mail. Three philologists translated the scale to Turkish. The investigators reviewed and provided feedback on the interpretation. The scale was then examined once more by a specialist in Turkish philology. The measurement tool's content validity is assessed to see if it accurately captures the concept it measures or provides a good representation of the universe (DeVellis and Thorpe, 2021).

It was advised to assess the content validity of scales using the opinions of at least three experts (Şencan, 2005). Ten nurses who worked in clinical or academic settings providing women's health nursing evaluated the items to see whether the Turkish version was appropriate. Each expert was

responsible to each item with 1 = not relevant, 2 = somewhat relevant, 3 = highly relevant, and 4 = extremely relevant. Each expert was also asked to provide an alternative to extremely relevant. The average CVI of all the items was computed, referred to as the Item Content Validity Index (I-CVI), and an average CVI for the entire scale was also computed, called the Scale Content. The scores were analysed using the Davis Content Validity Index (CVI). For every item in the scale as well as the entire scale, the CVI at the item and scale levels were determined. As per earlier research (Hyrkäs, Appelqvist-Schmidlechner and Oksa, 2003), an item was deemed suitable if its computed CVI was higher than 0.79. In the study, scale-level CVI (S-CVI) was 0.821. For content validity, I-CVI and S-CVI values > 0.80 are considered valuable.

Pilot test

The scale was given to 25 women who shared the same variables as the sample, as advised by the literature; the sample did not contain these women. (Şencan, 2005). The scale was given to the research sample once it was decided that the scale's language and scope equivalency were adequate.

Data collection

Consent was gained in writing, informed by from the women before to data collection, and they were spoken informed of the study's purpose. In 20 to 25 minutes, face-to-face data collection took place from 10-37 weeks pregnant women who used to the obstetrics gynecology outpatient clinic and perinatology department of the hospital where the research was carried out.

Data collection tools

A sociodemographic questionnaire and the Turkish version of the Women's Barriers to Physical Activity in Pregnancy Scale (BPAPS) were used to gather the data.

Sociodemographic form

This sociodemographic form, created by scanning the literature; It uses of questions such as age, education, family type, exercise status, history of working and low income, and number of children (Göker, Yanıkkerem and Topsakal, 2021; Amiri-Farahani et al., 2021).

Barriers to physical activity in pregnancy scale

Barriers to Physical Activity in Pregnancy Scale was developed in 2021 and aimed at assessing the barriers to engaging in physical activity in pregnant groups (Amiri-Farahani et al., 2021). The first developed scale includes 29 items and four subdimensions, and it is divided into a range of 1–5:1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree. In this case, there is no reversely scored. A statistical analysis of the validity of the data collected showed that Cronbach's α coefficient was at 0. 82 when the examination of the scale's internal consistency was conducted. The Cronbach's α values of the sub-dimensions were 0. 81 (Pregnancy self-imposed barriers), 0. 73 (Non-pregnancy related self- barriers), 0. 73 (interpersonal barriers) and 0. 72 (Environmental barriers).

Data analysis

Package for Statistics in the Social Sciences 24.0 (IBM SPSS Corp.; Armonk, NY, USA) and Analysis of Moment Structures 25 (Chicago, IL: Amos Development Corporation) were the statistical programs used for data analysis (IBM Corp, 2017). In the descriptive analysis of sociodemographic variables or data, averages and percentages were used. The normality of the data collected was tested using the Shapiro-Wilk normality test to found if the data followed a normal distribution. The content validity index was used to compare the specialists' perceptions. The Item-Total Score Analysis and product moment correlation coefficient were used to establish the correlation between the scale items' scores and the total scale scores. The reliability of the whole scale and its potential subscales was established using Cronbach's alpha internal consistency coefficient and the half-length reliability method. EFA was employed to find the item-factor relationships. Based on CFA, the structure demonstrated by the explanatory factor analysis has been confirmed. The bias in the scale item responses was assessed using Hotelling's T-square test, and floor and ceiling effect analysis was carried out (DeVellis and

Thorpe, 2021; Karagöz, 2016; Kartal and Bardakçı,2018; Çokluk, Şekercioğlu and Büyüköztürk, 2012; Şencan, 2005). In the study, the significance level $p < 0.05$ was used.

Ethical considerations

The scale owner sent an e-mail with consent for translating the BPAPS scale into Turkish. The university's Scientific Research and Publication Ethics Committee approved the project (date: 07.02.2022, number: 2022/10–1). The data were collected from organisations, and arrangements for the same were made with their permission. The study's objective was analysed to the women, and only those who agreed to participate voluntarily were considered for the study. Both the confidentiality and anonymity of the participants were ensured. Also, consent from the woman in writing and verbal form was sought before the study was conducted. The study conforms to the Principles of the Declaration of Helsinki in conducting the study.

RESULTS

Sample characteristics

The average age of the participants was 29.45±5.50; 82.5% of them were unemployed; 35.1% of graduates; 39.3% of them had less income than expenses; 80.7% of them had no history of miscarriage; 56.6% of them had 1-2 children; 66.0% of them had a height/weight index between 15-28 (Table 1).

Table 1: Socio-demographical characteristics of the Participants (n=382)

Characteristic				
Age				
	Minimum	Maximum	Mean	Std. Deviation
Age	18	45	29.45	5.50
Education status				
	Frequency	Percent	Valid Percent	Cumulative Percent
untrained	37	9.7	9.7	9.7
Primary School	49	12.8	12.8	22.5
Primary education	73	19.1	19.1	41.6
High school	135	35.2	35.3	77
University	88	23	23	100
Working status				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	66	17.2	17.3	17.3
No	316	82.5	82.7	100
Economic Situation				
	Frequency	Percent	Valid Percent	Cumulative Percent
Little	150	39.2	39.3	39.3
Middle	158	41.3	41.4	80.6
A lot	74	19.3	19.4	100
Miscarriage History				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	73	19.1	19.1	19.1
No	309	80.7	80.9	100

Validity

Content validity

Ten experts provided feedback on the draft Turkish version of the scale. It was discovered that the item-based content validity index fluctuate between 0.80 and 1.00. Expert opinions are in agreement if both the I-CVI and S-CVI are over 0.80. 16–18 (19–21). It was discovered that the I-CVI and S-CVI values for the study were both greater than 0.80.

Construct validity

Using both EFA and CFA analyses, the construct validity of the measure was assessed. An explanation-based factor analysis (EFA) A significant Bartlett's test result and a Kaiser–Meyer–Olkin (KMO) score of 0.864 were obtained from the EFA (×2: 5545.129, p <.001). However, the Turkish scale had four dimensions (Factor 1 consists of intrapersonal hurdles associated with pregnancy, Factor 2 of unrelated intrapersonal barriers, Factor 3 of interpersonal barriers, and Factor 4 of environmental barriers), with 29 items. The total explained variance of the scale was 50.00 percent, according to the EFA. Additionally, the factor load values on the scale varied from 0.33 to 0.87, according to the EFA (Table 2).

Table 2: Factor loads of the four-factor structure of the Turkish version of the barriers to physical activity during pregnancy scale (n=382)

	Factor Loads			
Items	Personal barriers to pregnancy	Personal barriers not related to pregnancy	İnterpersonal barriers	Environ mental barriers
I1	.866			
I2	.857			
I3	.714			
I4	.709			
I5	.701			
I6	.592			
I7	.579			
I8	.553			
I9	.490			
I10	.332			
I11		.792		
I12		.760		
I13		.707		
I14		.657		
I15		.566		
I16			.801	
I17			.589	
I18			.538	
I19			.483	
I20			.442	
I21				.739
I22				.727
I23				710
I24				.689
I25				.621
I26				.602
I27				.549
I28				.533
I29				.531
Explained variance (%)	%33.16	%12.64	%9.21	%4..67

Explained total variance (%)	%33.16	%45.80	%55.01	%59.68
Eigenvalue	8.29	3.16	2.30	1.17
KMO	.864			
Bartlett's Test of Sphericity	Approx. Chi-Square	5545,129		

Confirmatory factor analysis (CFA)

In the CFA, the incremental fit index (IFI) is 0.95, the comparative fit index (CFI) is 0.95, the goodness fit index (GFI) is 0.90, as well as the degrees of freedom statistics for chi-square (χ2/df) are 1.41. Additionally, 0.90 is the root mean square error estimate (RMSEA<0.85). Subscale correlations had a p-value of less than .05. The intrapersonal barriers related to pregnancy sub-dimension had factor loads between 0.33 and 0.87, the interpersonal barriers non-related to pregnancy sub-dimension between 0.57 and 0.79, the interpersonal barriers between 0.44 and 0.80, and the environmental barriers between 0.53 and 0.74 (Table 2).

Reliability

For this scale, correlations between items and total scores were computed. The items' correlation coefficients were indicate to range from 0.36 to 0.67 ($p < .05$). The subscale item scores and the subscale total scores showed correlation coefficients in the following range: 0.42-0.75 for "Factor 1," 0.51-0.71 for "Factor 2," 0.51-0.71 for "Factor 3", 0.44-0.80 for "Factor 4. It was discovered that the correlations were statistically significant ($p <.05$).

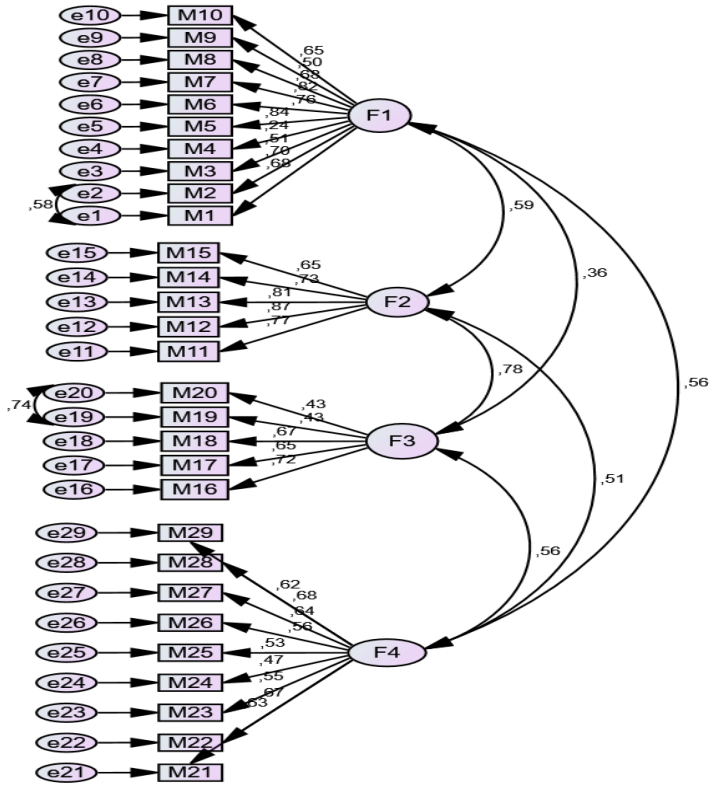
Analysis of exploratory factors (EFA)

The coefficient of Kaiser-Meyer-Olkin (0.864), Bartlett's test χ2 value (5545.129), and $p< 0.01$ were obtained from the EFA. This analysis determinate that there were four sub-dimensions in the scale. A total of 59.68% of the variance is explained by the four-dimensional scale. The first sub-dimension's factor loads range from 0.33 to 0.87. Items in the second sub-dimension have factor loads ranging from 0.57 to 0.79. The third sub-dimension's factor loads range from 0.44 to 0.80. The factor loads of the items on the fourth sub-dimension range from 0.53 to 0.74 (Table 2). In the study, it was determined that the difference between the common variance load below 0.45 and the factor loads attributed by a substance to multiple sub-factors was not less than 0.1; 29 items were collected under four dimensions and explained 59.68% of the total variance (Table 2).

Confirmatory factor analysis – CFA

After the modifications made when the compliance indices were examined, RMSEA, NNFI, CFI, NFI, IFI and CMIN/DF values were found to be within perfect limits, and GFI and AGFI values were within acceptable limits. In line with these findings, the factor structure obtained by EFA was confirmed by CFA, and it was supported that the scale consisted of four factors consisting of 29 items. In addition, according to the Hoelter Model, the number of populations required for CFA is 23 at a significance level of 0.05; it was found as 25 people with a significance level of 0.01 and this finding supported that the sample size was appropriate. After modification, χ^2 value is 523.93, and df = 369.

Based on the modification indices and similarity in meaning, two covariances between residuals were specified in order to further improve fit: item 1 with item 2, item 20 with item 19 (Figure 1). The four-factor model's confirmatory factor analysis results displayed that factor loads were 0.24–0.84 for the : Personal barriers to pregnancy sub-dimension, 0.65–0.87 for the Personal barriers not related to pregnancy sub-dimension, 0.43–0.72 for the İnterpersonal barriers sub-dimension, and 0.47–0.84 for the t Environmental barriers sub-dimension (Figure 1).



Chi-squared=523,93 df=369 P-value=0,000 RMSEA=0,05

Figure 1. Confirmatory Factor Analysis

The scale's overall It was discovered that Cronbach's alpha was 0.910. The findings revealed that the Cronbach's alpha value for the first sub-dimension was 0.888. The values for the second, third, and fourth sub-dimensions were 0.89, 0.87, and 0.80, in that order. All of these values were found to be significant (Table 3).

The split-half division shows the following results: 0.880 for the first half, 0.868 for the second half, 0.812 for the Spearmen Brown coefficient, 0.702 for the two halves' correlation coefficient and 0.810 for the Guttman-split-half coefficient (Table 3).

Table 3. Reliability Analysis Results of the Scale (n=382)

Dimensions	Cronbach's α	Split Half Halves				
		First Half Cronbach's α	Second Half Cronbach's α	Spearman-Brown	Guttman split-half	Correlation between two halves
Scale Total	0.91	0.88	0.86	0.81	0.81	0.70
Personal barriers to pregnancy	0.88					
Personal barriers not related to pregnancy	0.89					
İnterpersonal barriers	0.87					
Environmental barriers	0.80					

The analysis revealed that Hotelling's T2 value was 445.597, F=17. 446 with a significance level of 0.000. The inter-item correlation was found to vary between 0.097 and 0.690 (Tablo 4).

Table 4: Hotellings T-Squared Test

Hotellings T-Squared	F	Sig.
445.597	17.446	.000

The findings indicated the sub-dimension items' correlation with the total score varied; the first sub-dimension's ranged between 0.42-0.75, the second sub-dimension between 0.51-0.71, the third sub-dimension between 0.51-0.71, and the fourth sub-dimension between 0.44-0.80. It was discovered that a relationship existed between the scale and items and the overall score of 0.36–0.67.

DISCUSSION

The aim of this research was investigate the BPAPS, created by Amiri-Farahani et al., (2021). for validity and reliability in Turkish.. The scale provides deeper quantitative insights into barriers to pregnant women participating in physical activity (Sallis et al., 2006). The final BPAPS consists of 29 items organised into four categories: environmental barriers, interpersonal hurdles not linked to pregnancy, interpersonal barriers related to pregnancy, and interpersonal barriers related to non-pregnancy.

At least 0.80 CVI is required for content validity (DeVellis and Thorpe, 2021). The study's I-CVI and S-CVI values were both found to be higher than 0.80. The I-CVI and S-CVI results in the current study demonstrated that scope validity was attained experts reached a consensus, and the scale accurately evaluted the issue. Content validity results observed to be similar to the original measurement (Amiri-Farahani et al., 2021).

For sample adequacy, the KMO coefficient and Bartlett's sphericity test are recommended in order to confirm the construct validity of a measure (Kartal and Bardakçı, 2018; Seçer, 2018). The KMO value is divided into the following categories: less than 0.50, poor, fair, good, very good, excellent, and 0.90–1.00 (DeVellis and Thorpe, 2021;Kösem, Bektaş and Gawronski, 2023). When the KMO value is near to 1 and above 0.60, factor analysis can be performed on the data (Johnson and Christensen, 2024). The current study's EFA yielded results regarding the Kaiser-Meyer-Olkin coefficient of 0.864 and the Bartlett's test χ 2 value of 523.93, $p<0.01$, indicating that the sample size and database were appropriate for the factor analysis (Çokluk, Şekercioğlu and Büyüköztürk, 2012). The original study's sample size and data sets were found to be comparable to those of this investigation (Amiri-Farahani et al., 2021).

Variance rates in the range of 40% to 60% are thought to be suitable for changing the number of components (DeVellis and Thorpe, 2021). 59.68% of the variance in this research was explained by the four-factor scale. 53.911% of the variance was found to be explained by the scale in the initial investigation (Amiri-Farahani et al., 2021)

The measure items' factor loads were found to be ≥0.30 based on EFA (Kösem, Bektaş and Gawronski, 2023). The four sub-dimensions' factor loads vary from 0.33 to 0.87 as a result of EFA. The field literature highlights that items below 0.30 should be eliminated from the scale and that the minimum factor load, which determines which factor the items will be included in, should be 0.30 and above(DeVellis and Thorpe, 2021; Kartal and Bardakçı, 2018; Seçer, 2018). In their study, Amiri-Farahani et al. (2021) found that the factor loads of the substances in the four sub-scales ranged from 0.42 to 0.86. Similar results with the original scale demonstrate the robust factor structure of the scale.

CFA is another technique used in measure adaptation research to ascertain the measure structure (Karagöz, 2016; Kartal and Bardakçı, 2018). The goodness of fit indices in CFA demonstrate how estimates of the variables for the acquired data. The model's acceptability or rejection is determined in part by the goodness of fit indicators. Among the most popular goodness of fit indices are CMIN/DF, GFI, CFI, NFI, IFI, and RMSEA (Karagöz, 2016). It is expected that the CMIN/DF value will be less than 5, the CFI value will be more than 0.85, and the GFI, NFI, and TLI values will be less than 0.80 (Kartal

and Bardakçı, 2018). Interpretation of the root mean square error of approximation values is as follows: ≤0.05 indicates a good fit; 0.05–0.08, a sufficient match; 0.08–0.10 indicates an acceptable fit; and >0.10, an inadequate fit (Kaplan, 2008; MacCallum, Browne and Sugawara, 1996). In the study, CMIN/DF = 2.60, CFI = 0.91, RMSEA = 0.070, GFI = 0.90, NFI = 0.91, GFI = 0.90, CFI = 0.95 and IFI = 0.95 are the CFA results, , X^2 divided by df *was found to be 1.419, and RMSEA<0·85 In the field literature,* if the results of $\chi 2/df$ divided by <5 and if average root mean square is < 0.08, it is considered an indication of good fit (Sechrist, Walker and Pender, 1987; Johnson and Christensen, 2024; Karagöz, 2016). The CFA results complied with the literature's specified criteria. Amiri-Farahani et al. (2021) confirmed in their study that the final model has satisfactory goodness of fit. The findings of this investigation were in line with those of the first study.

There are several ways to identify a measure's reliability (Polit, Beck and Owen, 2007). The reliability of our research was evaluting through the internal consistency coefficient, and split-half and item total score correlation structures were carried out (Kösem, Bektaş and Gawronski, 2023). The internal consistency coefficient, also known as Cronbach's α, is a measure of internal consistency and define reliability. A higher score indicates coherence among the items. The metric is considered very reliable if its $0.80 \leq \alpha < 1.00$ is the Cronbach's alpha value (Polit, Beck and Owen, 2007; Kösem, Bektaş and Gawronski, 2023). The overall measure's Cronbach's α value in this study was determined to be 0.91, while the sub-dimensions' values were >0.80. These results demonstrated how highly reliable the measure was. The reliability value exceeded that of the initial study (0.824) (Amiri-Farahani et al., 2021).

To verify the estimated points of explanatory power on the overall score, an item analysis should be performed as part of the reliability assessment process (33, 26). the items' and the overall score's correlation coefficients should be more than 0.20 (33, Polit, Beck and Owen, 2007). The items in this study had adjusted item-total correlation coefficients (0.35–0.67) that were above 0.20 and satisfied the necessary criteria. It was not possible to compare the original measurement (Amiri-Farahani et al., 2021) item-total correlation data. due to the fact that they were left out of the original research.

Split-half analysis is one technique used to gauge reliability. The split half coefficients for Guttman and Spearman-Brown in this study should be more than 0.80 (Kösem, Bektaş and Gawronski, 2023). Spearman-Brown and Guttman split-half coefficients in this study were both >0.80, demonstrating the strong reliability of the measure items and structure. Our results could not be relate to the specific research's findings since split-half analysis was not used in that study (Amiri-Farahani et al., 2021). It was demonstrated in this study that the measure was dependable and that the items were appropriate for the theoretical framework.

LIMITATIONS

This study has certain limitations, even if it has several strong points. The first is the convenience sampling technique, which may affect the present work's external validity. The drawback is that the information is gatherd on the basis of individuals' subscriptions. The scale was only applied to childbearing-aged females who were clinically presumed to be in a low-risk pregnancy in a singular encounter. Inevitably, the present study has limitations; first, the test-retest method was not utilised in this research.

CONCLUSION

When calculating the barriers to physical activity for low-risk expectant mothers who can exercise safely the entire pregnancy, the BPAPS shows adequate validity and reliability. Pregnant women's involvement in the study and attendance were crucial in determining the scale's psychometric qualities. 23.00% of the participants were well educated, and 41.4% of them self-reported as having "income equal to expenditure" as their socioeconomic level. They were residents of Van, a particular cultural and geographic setting. Future studies with populations with a wider range of socioeconomic backgrounds and educational attainment could be beneficially carried out in different geographic areas. Future studies could show that a deeper comprehension of obstacles to physical activity influences behavior; in that case, nurses and midwives could benefit from the BPAPS as well.

Author's contribution

The corresponding author of the article developed the idea behind the research and conducted the literature review and composed the manuscript. The second author helped in data collection, finalising the manuscript, editing the manuscript and in obtaining ethical approvals.

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