

Persian translation of the Pregnancy Experience Scale (PES) – Brief Version: Confirmatory Factor Analysis

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ABSTRACT

Background: Pregnancy is a physiological state. Women are prone to many disorders during this period. Effect psychological status of the mother on pregnancy outcome is an important issue in mental health. The assessment scale of experience pregnancy can study Uplifts and Hassles status in pregnant women.

Aim: This research investigated the reliability and confirmatory factor analysis of Persian version of the pregnancy experience scale – Brief Version.

Place of study: Prenatal clinics of Shiraz University Medical Science, Shiraz, Iran, from February to April 2016.

Methods: In this cross-sectional study, the Persian version of the Pregnancy Experience Scale – Brief Version was completed by 260 eligible pregnant women living in Shiraz, Iran 2016. Confirmatory factor analysis was used to evaluate the validity of constructs. Total Cronbach's alpha coefficient was 0.716 and Intra-class correlation coefficient 0.721, which both showed the appropriate reliability of Persian version scale.

Results: The findings showed that the Persian brief version of Pregnancy Experience Scale, with two factor, has adequate validity and reliability.

Conclusion: The Persian version of the Pregnancy Experience Scale – Brief Version can be used as an appropriate tool for evaluating of Uplifts and Hassles pregnancy in Shiraz, Iran.

Keywords: Confirmatory Factor Analysis, Iran, Pregnancy Experience Scale.

INTRODUCTION

Pregnancy is a particular experience in women's life¹. that appear some physical and mental changes in this period^{2,3}. For example, in the 4th month of pregnancy, the mother can feel her fetus movement. That is very exciting for most of the pregnant women and usually make them satisfied^{4,5,6}. However, pregnancy is very pleasure sense for more women, but Mother will experience a special worry during fetal growth period⁷. Psychological changes are prevalent in pregnancy period and several factors are implicated in increasing and decreasing it⁶.

Women might perceive the pregnancy not only as a source of happiness but it can also be a period involving adverse mental effects such as anxiety and concerned waiting⁸. More than 50% of pregnant women have somewhat anxious⁶. The previous

researches had shown 14-54% prevalence of childbirth fears and anxiety were reported from England, Iran, Sweden, Hong Kong, Portugal, Danish and Spain⁹.

Psychological health of pregnant women is one of the most important factors during pregnancy, and it can effect on developing fetus and children^{10,11,12}. For example, obvious maternal anxiety in the last weeks of pregnancy can cause behavioral and emotional disorders of children till seven years old¹³. Also anxiety during pregnancy can cause premature labor, low birth weight and low Apgar number^{11,14,15}.

Also anxiety can increase severe vomiting pregnancy¹³. Pregnant women subjected to domestic violence experience more mood disorders¹⁶ and in the case of anxiety during pregnancy increases the risk of postpartum mood disorders^{14,17}. It is essential for creating a psychological adaptation and preventing complications caused by psychological disorders, service providers must monitor pregnant women carefully and if any disorder is referred to a specialist^{7,18,19}.

The evaluation of the psychological status in pregnancy needs a valid measurement tool¹. One of the tools is Pregnancy Experience Scale (PES) with 41 items. It evaluates uplifts and hassles of pregnant mothers²⁰. The designers had changed 41 items scale to a brief version include 20 items for saving

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time. In brief version uplifts and hassles evaluate each by ten items. Validity and reliability of the brief version of PES were assessed by designers²¹.

Although anxiety is an experience, it is influenced by various cultures and to determine the instrument's usefulness is necessary for other population²². Therefore, authors have evaluated the PES's reliability and validity in Iranian population.

Exploratory factor analysis of the pregnancy experience scale–brief version was done by Ebadi and his colleagues in Iran. Exploratory factor analysis represented the correlation pattern between of variables structure. Simplicity, abridgment, and specificity of this scale from one side and the permission by designer for translating from other side were the most important of reasons for translating and Psychometric Properties that researchers cited²³.

Confirmatory factor analysis is a multivariate statistical analysis method that let researcher observe and analysis the correlation between variables and the researcher be able to present an alternative method²⁴. Considering the fact that Confirmatory factor analysis didn't use in Iran for this scale until now, so this study focuses on the confirmatory factor analysis for testing validity and reliability of the Pregnancy Experience Scale for the first time. The aim of the present study was to translate and investigate confirmatory factor analysis of the Pregnancy Experience Scale (PES) – Brief Version in Iran.

MATERIAL AND METHODS

This research had done in cross-sectional method and is a part of the multistage study that approved by Ethics committee in Shahid Beheshti Medical Sciences University, Iran. Pregnant women how referred to prenatal care unit in Shiraz governmental hospital from Jan to Feb 2016 were selected for this research.

The sample size was determined according to the number of items because 10-20 samples per item are considered as desirable²⁵. To take into view of 10 samples for each variable and PES with 20 variables, 200 pregnant women must participate, but with 30 percent attrition²⁶ researchers decided to increase the sample size to 260 pregnant women.

In this research, the Iranian pregnant women were chosen that visited prenatal care unit. All participants filled Informed consent before involved in this research. They had some characteristics like non-smoking, single fetus with the low-risk pregnancy, educated at least finished elementary school, living with legal husband, without any mental illness. Gestational age was determined based on

last normal menstrual period or first-trimester ultrasound (sonography) or both of them⁶

Samples were chosen based on convenience sampling. The pregnant women with particular conditions were omitted such as high-risk pregnant women, history of infertility, placental disorders, heart diseases, kidney diseases, liver diseases, diabetes and hypertension²⁷.

The tool for collecting information was the pregnancy experience scale – brief version that designed in 2008 by professor DiPietro, Department of Population, Family and Reproductive Health at Johns Hopkins University(21). This scale has two factors, happiness (uplifts) and upset (hassles) feeling in pregnancy duration with 20 items that ten items assigned to happiness and ten items assigned to upset and this research focus on the impact of each category. In the scale has used 4-point Likert scale. "not at all" up to "A great deal" was considered from Zero up to three. "not at all" is equal to Zero, "somewhat" is equal to One, "Quite a bit" is equal to Two and finally " A great deal " is equal to Three. So that, each number shift to three, it has shown more than uplifts or hassles in each volunteer.

To validate the scale and adapt it to other culture, authors needed first to translate the original English version into Persian²⁸, so after pregnancy experience scale preparation and getting permission from the main designer, used forward backward translation. The original English version was translated into Persian by two skilled persons in medical texts translation with extensive experience of translating scales. Then, translated texts were compared together. The items were matched regarding the meaning and finally a Persian version was prepared. After that, for more confidence of meaning between both of versions, The Persian version was translated by two expert translator in English who hadn't read the original version before. The new English versions were compared together²⁹.

After reviewing and doing some revisions, final English version was made. In this step to achieve scale designer approval, the final version was sent for Pro. Janet DiPietro and her suggestions in two items were considered and the final version in English was translated in Persian³⁰. After confidence of succeeding the above steps, the Persian version of the pregnancy experience scale was given to 260 eligible pregnant women to self-report completed. Ethical issues were compliance in this research include expressing the purpose of study, confidential, getting the permission of each volunteer, preparing mentally of each volunteer.

In this study, data analysis was carried out using SPSS version 22 and LISREL version 8.8 and used from descriptive statistic to calculate central

indicators also frequency and percentage in statistical society. Confirmatory factor analysis was used to confirm scale factors, to determine the item-factor relations and to test the data fit indices³¹. To determine internal consistency was used Cronbach's coefficient Alpha^{32,22}. If Cronbach's alpha coefficient is greater than or equal to 0.70, the scale will have an appropriate reliability³⁴. Time stability or repeatability was examined by test retest that interval time between two tests has been suggested two weeks or one month³².

In this research, in an interval time of four weeks, the scales were completed two times by 30 pregnant women who were part of the original participants. Correlation between result's scores with Intra-class Correlation Coefficient (ICC) was determined that it is the most accurate index for stability test. Whatever, if this index is closer to number one, it is better and usually the scores greater 0.7 is regarded as acceptable stability³³.

RESULTS

In this research 260 pregnant women participated, but the analysis was done on 244 volunteers because 16 persons didn't fill out the scale completely. The results of data analysis indicated that the mean and standard deviation for the age of participants was 28.68 ± 5.87 with a minimum of 15 and a maximum of 44 years old. The gestational age of them has been between 15 and 38 weeks with the mean and standard deviation 31.38 ± 6.31 .

Seventy-seven percent of volunteers were passed less than ten years of their marriage and 82.4 percent of them finished high school or less and the others had the bachelor of science or higher. More than two-thirds of samples (78.7%) were housewife and rest of them were employed.

In reliability of the Pregnancy Experience Scale, the Cronbach's Coefficient Alpha was equal to 0.716 for all items. Also the total ICC (Intra-class Correlation Coefficient) was calculated with four weeks' interval, 0.721. Because the reliability score from acceptable cut-off point (0.7) was higher³², it had shown that if this tool is repeatedly used, the conclusions will be same (Table 1).

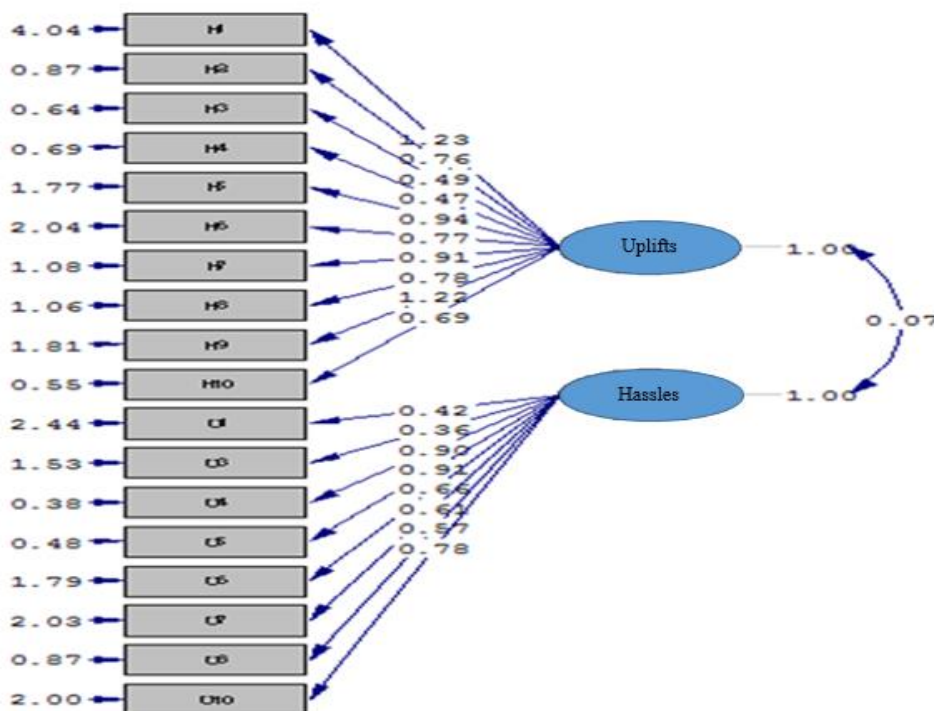
In confirmatory factor analysis, the correlation between every item with relevant factor is named with loading factor. In the other hand, the weight given to each factor for a particular item is called a "loading." As a contract, if loading factor is less than 0.3, the relation between factor and item will be weak and it's better to delete that item because it can't explain the variable properly. Loading factor between 0.3 up to 0.6 can be acceptable but greater than 0.6 is favorable²⁵.

Initial assessment of factor loadings found that factor loadings of items 2 and 9 in hassles factor were 0.24 and 0.20, respectively. Because they were less than 0.3, not acceptable and therefore excluded. Figure 1 shows confirmatory factor analysis after deleting items 2 and 9.

Table 1: Reliability of pregnancy experience scale

Factors	Item total	Cronbach's alpha	Intra-class correlation coefficient		Confidence interval of 95%
			ICC	P-Value	
Uplifts	10	0.777	0.712	<0.001	0.589-0.809
Hassles	8	0.691	0.672	< 0.001	0.532-0.783
Total	18	0.716	0.721	<0.001	0.607-0.814

Fig. 1: Confirmatory Factor Analysis of Pregnancy Experience Scale



Fit Indices of the Pregnancy Experience Scale were $\chi^2 = 312.52$, $\chi^2 / df = 2.20$, Comparative Fit Index (CFI) = 0.88, Standardized Root Mean Square Residual (SRMR) = 0.075, Parsimonious Normed Fit Index (PNFI) = 0.69 and Root Mean Square Error of Approximation (RMSEA) = 0.07 (0.060; 0.081) that represented an adequate-to-good fit to the data.

DISCUSSION

Even though, reliability and validity of the original version of pregnancy experience scale evaluated by the main designer¹⁹. When a scale is used for a new society, it's necessary to assess validity and reliability for that society again. Because when an original tool is translated to another language, there is the possibility of lexical shifts during translation process³².

The result of confirmatory factor analysis of this scale supports the Persian pregnancy experience scale - brief version validity. The reliability of this tool almost is compatible with the original scale. So that total scale, the reliability was 0.716 and for uplifts and hassles factors respectively were 0.777 and 0.691 that it had shown acceptable reliability for the Persian version scale.

While the main designer of this scale has gained 0.8 for reliability coefficient in the English version that for the factor of uplifts (the first one) was equal to 0.82 and hassles (the second one) was 0.83(19). The Cronbach's Alpha is sensitive to the number of items³². For this reason, in the uplifts factor that the items are more, Cronbach's Alpha is more than the hassles factor.

The result has gained of internal consistency from two times of this instrument's performance within four weeks was satisfactory that it has shown the stability results during the time and had consistent with main version²¹. Authors suggest a minimum of two weeks to reduce the effects of memory and no more than one month to reduce the chance of a change of the phenomenon reported³⁵.

So the Persian version has acceptable consistency in Iran and usable for assessing of Iranian pregnant women. It's necessary to mention due to lack of additional visit for pregnant women; the scale was completed by participates in two prenatal care consecutive with an interval four weeks. The result has shown although reliability was acceptable for each factor ($p < 0.001$) but uplifts factor against hassles factor had a more suitable stability.

For evaluating the construct validity of this scale using confirmatory factor analysis that two factors of uplifts and hassles were confirmed at this stage. The result of the research was the same with the original scale²¹. These findings had shown the stability and consistency of pregnancy experience during in two different populations that studied by researchers.

Confirmatory factor analysis of scale has shown that in the first model, the loading factor for all of the items in the uplifts factor is higher of 0.3 (acceptable

value) that is indicate a significant relation between all items with its factor. Loading factor for items 2 and 9 were less than 0.3 in hassles factor, so they were omitted.

Cultural, racial and social differences or various experiences that exist between Iranian and non-Iranian samples, may be a reason to delete two items of "physical intimacy "and "concerns about physical symptoms such as pain, spotting, etc.". After omitted items (number 2 and 9), the second model was designed that the loading factor of all items was more than the cut-off value.

Kline strongly advocated the use of the Chi-Square test, the RMSEA, the CFI and the SRMR³⁶. Acceptable threshold levels of SRMR is less than 0.08^{31,36,37}. Browne and Cudeck (1993) propose, as a rule of thumb, that RMSEA values less than 0.08 suggest adequate model fit³⁸. χ^2/df ratio recommend with the goal of having the ratio of less than 3.0 and Root Mean Squared Residual (SRMR) values less than 0.10 is desired³⁹. The CFI has a range of possible values of 0.0 to 1.0, with values closer to 1.0 implying good model fit³⁸ and The CFI value of close to 0.9, shows a relatively good fit⁴⁰. When PNFI value exceeds 0.5, it is considered fit⁴¹. Several fit indices were selected to test of this scale. Based on cut-off values of fit indices, can conclude this tool has a suitable fitness in Iran.

The result of a research had shown depression associate with increasing of maternal and neonatal complications²⁶. Also, psychological screening for pregnant mothers may prevent complications of depression in mothers and their babies and help to improve the result of prenatal care services¹⁸. Therefore the use of this scale in the psychological screening of pregnant women will be useful and can be a first step to screen of pregnant women that need treatment, Because of their emotional changes. Women using PES were suspected to have mental disorders, were referred to a psychiatrist.

Despite the strengths of this study, there are some limitations as well. Given that this scale has not been validated in other populations, the researchers were not able to compare the results of present research with other studies. Because this study was done in a city, its results cannot be generalized to all population of Iran. It is suggested in future research that reliability and validity of the scale be accessed in other cities of Iran and then compare the results together, till it can be generalized to all Iranian pregnant women and used in prenatal care. Next suggestion, comparison validity, and reliability of this scale with other assessment tools of uplifts and hassles in pregnancy. Also given that social and cultural factors can be useful on experiences of pregnant women, it's suggested to that reliability and

validity of this scale be accessed in various countries till use this tool with more confident.

CONCLUSION

The results of the present analysis showed that the Persian version of pregnancy experience scale has ability to use as a suitable instrument to assessment uplifts and hassles in low risk pregnant women. Also acceptable reliability and validity of the scale and shortly and easily to used, Provides research field for wider application.

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