# The Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) with Turkish sample: Confirmatory and Exploratory Factor Analysis

Oznur Korukcu, Kamile Kukulu, and Mehmet Z. Firat

**Abstract**—The propose of this study is to investigate the factor structures of the W-DEQ, originally developed on UK and Swedish women, were confirmed in Turkish samples, and to obtain a new modified factor structure appropriate to Turkish culture. Statistical analyses of the data obtained were performed using SPSS<sup>©</sup> for Windows version 13.0 and the SAS statistical software Version 9.1. Both confirmatory and exploratory factor analysis of W-DEQ were performed in the study. Factor analysis yielded four factors related to hope, fear, lack of positive anticipation and riskiness. The alpha estimates of the total W-DEQ score were somewhat higher, being 0.92 for the parous and 0.90 for the nulliparous sample. These are well above the accepted limit of 0.70 and indicate excellent levels of internal reliability, thus showing that the questions were appropriate to the Turkish culture and useful scale for the evaluation of fear of childbirth in Turkish pregnants.

*Keywords*—Confirmatory Factor Analysis, cross-cultural research, exploratory factor analysis, fear of childbirth

## I. INTRODUCTION

 $R^{\mathrm{EPRODUCTION}}$  of the species is one of the primary factors in nature; it is essential to the survival of all higher forms of life. The mention of the word "motherhood" creates an atmosphere of reverence [1]. The actual birth of a child that is known as labour or parturition is a major life process for women [2]. Childbirth has, for hundreds of years, been associated with pain [1]. Labour pain is a complex, subjective, multidimensional experience to sensory stimuli generated during parturition with wide variations reported between different women's perceptions [3]-[5]. On average, the pain of childbirth is rated as one of the most intense of all pains [6]. A range of physiological and psychosocial factors have been identified as important in understanding the nature and variation of labour pain [7]. Produces true pain through the medium of pathological tension [1], [8]. This is known as the Fear-Tension-Pain Syndrome [1] and once it is established a vicious circle demonstrating a crescendo of events will be observed, for with the true pain fear is justified, and with mounting fear resistance is strengthened [8], [9]. The most important contributory cause of pain in otherwise normal labour is fear [1]. The management of labor pain is one of the main goals of maternity care [10]. Fear of labor pain is one of the most important reasons that make women go for cesarean section [5].

Authors are with Akdeniz University, Antalya School of Health, Department of Nursing, Antalya, Turkey (corresponding author Tel.: +90 242 310 6101, Fax: +90 242 226 1469email: kkamile@akdeniz.edu.tr) Childbirth- related fear (CBRF) has been described as a negative cognitive assessment of the anticipated childbirth, feelings of fear and anxiety when facing birth, very negative feelings towards birth, very negative feelings towards birth and the pathological dread and avoidance of childbirth-'tocophobia' [11]. There are many aspects related to pregnancy which can make one feel fearful. Pain during labour, lack of emotional support from husband or a beloved person and death are some of the common aspects that could lead to tocophobia [12]. The common symptoms of tocophobia are breathlessness, too much sweating, vomiting, dehydrated mouth, feeling unwell, excessive shivering, excessive heart palpitations, lack of ability to speak or think clearly, fear of mortality, fear of losing control, panic attack, feeling irrational and detached from reality [13], [14].

Tocophobia is a distressing psychological disorder which may be overlooked by healthcare professionals; as well as specific phobia and anxiety disorders, tocophobia may be associated with depression and post-traumatic stress disorder [15]. Recognition of tocophobia and close liaison with nurses and other healthcare specialists can help to reduce the severity of tocophobia and ensure efficient treatment. Determine the level of fear of childbirth that women lived is a major nursing responsibility. Crosscultural differences in attitudes to fear of childbirth should be taken into account in healthcare delivery.

The aim of this study was to investigate the factor structures of the W-DEQ, originally developed on UK and Swedish women, were confirmed in Turkish samples, and to obtain a new modified factor structure appropriate to Turkish culture.

# II. METHOD

Participants

Α.

A total of 660 healthy women with normal pregnancies were recruited in this study. A written invitation to participate in the study was sent to all pregnant women who were scheduled for a routine ultrasound scan at three maternity health clinics, Akdeniz University Hospital (AUH) (n=220), Atatürk State Hospital (ASH) (n=220), Antalya Research and Education Hospital (AREH) (n=220) between February 2007- March 2008. They were asked to return the questionnaires at gestational ages of between 28 and 40 weeks when attending the routine scan, and we did not send a reminder to the nonrespondents.

Visiting to Akdeniz University Hospital, Atatürk State Hospital, Antalya Research and Education Hospital for routine controls, being at gestational ages of between 28 and 40 weeks with a healthy baby, being at ages superior to 15 and inferior to 45 years, being able to read Turkish and willing to participate in this study were the inclusion criteria. Exclusion criteria included having a cronic illness, a sexually transmitted disease, complications during International Journal of Psychological and Behavioral Sciences pregnancies and experiencing cesarean section in previous  $N_{0.3}$  independently by Johnson and Slade [19] and Wilklund *et* pregnancy/pregnancies. *al.* [20], to determine whether their factor structure required

# B. Measure

For the purpose of the present study, information obtained from the socio-demographic questionnaire and Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ version A) was reported here. Every woman answered a sociodemographic questionnaire assessing age in years, gestational age, level of education, partner's support, the situation of both spouses wanting the baby, prior deliveries, parity (primimultipara, multimultipara), number and experience of earlier childbirths and attendance in prenatal classes. Fear of childbirth during pregnancy was measured based on the woman's cognitive appraisal of delivery by the W-DEQ-inventory (version A) [16]. The W-DEQ was formally translated into Turkish and the validity, reliability and psychometric properties of the scale was evaluated for a Turkish population by Körükcü et al. (2012) [17]. The W-DEQ is a validated 33-item questionnaire, with scores ranging from `not at all' (0) to `extremely' (5), giving a minimum score of 0 and a maximum score of 165. A higher score indicates a more intense fear of childbirth. This means that the answers of those questions which are positively formulated (item numbers 2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27, 31) have to be reversed for the calculation of the women's individual sum score [16]. A W-DEQ score of greater than 100 is considered to indicate a clinical problem, i.e. a very frightening delivery experience [18].

#### C. Analysis

All items were coded and scored, and the completed questionnaires were included in the data analysis. Individual unanswered items were excluded from the analysis. Double data entry was carried out with a subsequent validation to guarantee the quality and consistency of the data. Statistical analyses of the data obtained were performed using SPSS<sup>©</sup> for Windows version 13.0 (SPSS, Inc., Chicago, IL, USA) and the SAS statistical software Version 9.1 (SAS Institute, Cary, NC, USA). Descriptive statistics (i.e., means, standard deviations and skewness) were determined to characterize the demographic data of the women. The Kolmogorov-Smirnov test was conducted to assess the distribution of the variables in order to use parametric or non-parametric tests. For parametric continuous data, the Student's t-test assessed whether the means of two groups were statistically different from each other. A statistical significance level of p<0.05 was used in all statistical tests performed, unless otherwise stated.

Modern conceptualizations of factor analysis include both exploratory and confirmatory methods. Both EFA and CFA are based on the common factor model, and both seek to represent the structure of correlations among measured variables using a relatively small set of latent variables. However, CFA is generally used to test theory when the analyst has sufficiently strong rationale regarding what factors should be in the data and what items should define each factor and provides a powerful tool in the second stage of research when a model has already been established. CFAs (robust maximum likelihood) were performed on the variance-covariance matrix of the W-DEQ items using SAS Version 9.1 (SAS Institute, Cary, NC, USA). A total of four confirmatory analyses was conducted on our samples separately, two analyses for primipara and two for multipara group, to confirm the two exploratory models obtained <u>and appendently</u> by Johnson and Slade [19] and Wilklund *et al.* [20], to determine whether their factor structure required modification and to refine the model, if necessary. These two exploratory models evaluated the four-factor structure of the original 33-item W-DEQ obtained independently by Johnson and Slade [19] and Wilklund *et al* [20]. Model 1 and Model 2 were the four-factor structure proposed by Johnson and Slade [19] and Wilklund *et al* [20] respectively. In both models some of the items were allowed to load on more than one factor and the models were identified by fixing factor variances at 1.

For each CFA model tested, multiple indices were used to assess adequacy of fit. These indices were chosen based on their frequent use in the CFA literature and for their suitability in model comparison. The following indices were used to assess model fit: the goodness-of-fit index (GFI), the adjusted goodness-of-fit index [AGFI; 21], the chi-square goodness-of-fit statistic ( $\chi^2$ ), the Root Mean square error of approximation [RMSEA; 21], the comparative fit index (CFI), the Non-Normed Fit Index (NNFI) and the Normed fit index [22]. The GFI and AGFI are normed indexes, with lower bounds of zero and increasing toward unity with improved fit of the model. The GFI values >0.90 and the AGFI of 0.80 indicate an acceptable fit of the model to the data. The  $\chi^2$  goodness-of-fit statistic with k degrees of freedom was computed for each model to allow the assessment of models. Since the  $\chi^2$  statistic is highly sensitive to sample size, it is now accepted practice to employ a combination of fit indices in conjunction with the chi-square statistic to determine the adequacy of model fit. The RMSEA that has been included as a fit index is an evaluation statistic that is relatively unaffected by sample size, and is suitable for assessing models of differing complexity and explicitly penalizes models which are not parsimonious [23]. For the RMSEA, a cut-off value ranging from 0.05 or lower indicates good model fit and values up to 0.08 represent moderate model fit [23], [24]. The CFI, Bentler and Bonett's Non-Normed Fit Index (NNFI) and Normed fit index (NFI) were also employed [25]. The CFI, NNFI and NFI indexes compare the fit of an independence model (a model which asserts no relationships between variables) to the fit of the estimated model. Values of these indexes range between 0 and 1 and generally, a cut-off value > 0.90 for the CFI, NNFI and NFI is considered to be consistent with moderate model fit and a cutoff value close to 0.95 indicates good model fit [24], [26].

When a confirmatory analysis fails to fit the observed factor structure with the theoretical structure, the researcher can evaluate ways to improve the model by employing an EFA which provides procedures for determining an appropriate number of factors and the pattern of factor loadings primarily from the data without specifying a priori number of common factors. In the second stage of this analysis, an EFA was conducted to identify a viable factor structure. An EFA, using principal component extraction method with Varimax rotation, was conducted to determine the factor structure of the 33 items of the W-DEQ. Items with factor loadings  $\geq 0.40$  (including values that rounded to 0.40) and those that did not load on more than one factor were retained. Items not meeting these criteria were removed one at a time. Factor analyses were repeated until a solution in which all items included in the analysis met all criteria was attained.

A fundamental and critically important difference, between EFA and CFA is that results of an EFA are a sole function of the "mechanics and mathematics of the method" [27]. CFA, on the other hand, is typically driven by theoretical expectations regarding the structure of the data.

Researchers should recognize that CFA and EFA procedures can produce misleading results when assumptions of multivariate normality are severely violated [28], [29]. Therefore, we recommend that the distributions of measured variables be examined prior to conducting CFA and EFA. If nonnormality is severe (e.g., skew > |3|), one of several remedies might be employed [30]. Measured variables could be transformed to normalize their distributions. Corrections to fit indexes and standard errors could be performed [22], [31], [32]. Alternatively, one might wish to use a principal factors procedure.

Finally, the SAS statistical software Version 9.1 (SAS Institute, Cary, NC, USA) was employed to examine internal consistency for each sample.

## III. RESULTS

Α. **Participants** The demographic characteristics of the participants are described in more details elsewhere, but will be given briefly here. A total of 660 pregnant women with gestational age ranging from 28 to 40 weeks was employed. About fourty nine percent (49.4%) of the pregnants were primipara (n=326), and 50.6% were multipara (n=334). Thirty one percent (30.6%) of the women's age ranged between 15 and 19, %25 were between 25 and 29 and 5.1% were between 35 and above. While 32.4% of them were in gestation week between 31 and 33, 47.3% were in gestation week between 34 and 37. With regard to educational level, 43.5% completed primary school, 44.8% completed a higher grade elementary or secondary school and 11.7% completed a higher education. 32.7% of the participants experienced abortion, 16.5% miscarriage, 3.0% stillbirth.

B. Statistical Analysis

In this study, independent sample *t*-tests assuming unequal sample variances were used to compare the primipara and multipara groups differing in known W-DEQ scores. Table I presents the means, standard deviations (SD) and skewness values of the W-DEQ scale for the two groups and the results of *t*-tests. In one quarter of the items (8 items), primipara women had statistically significant lower mean W-DEQ scores than multipara women, while in one quarter of the items (9 items) multipara women had statistically higher mean W-DEQ scores. In the remaining half of the items (16 items) there were no differences between these groups.

To evaluate for possible discontinuities in the data, we examined the skewness of each of the thirty three items for two samples in Table I. Skewness is a measure of asymmetry. The mean skewness values was 0.059 (range=-0.280 and 0.373; SD=0.175) for the multipara group, and -0.032 for the primipara group (range=-0.638 and 0.598; SD=0.301). No items showed a skewness value greater than the cutoffs of |3| recommend by Kline [33], and this supports univariate normality in the items.

In the case of the W-DEQ, clearly-enunciated models were already available in two separate literatures [19], [20]. Based on these original conceptualizations, two 4-factor models were tested. To reiterate, these models have four

A fundamental and critically important difference No. singly be fear of childbirth dimensions, and it was considered tween EFA and CFA is that results of an EFA are a sole for the primipara and multipara groups separately.

We had several a priori criteria to assess model fit and confirm the factor structures. These criteria for the CFA models are presented in Table II. It can be seen that these two factor models had a very poor fit for both primipara and multipara groups; the  $\chi^2$  is large, and the fit indices are low. None of the criteria indicate acceptable or near acceptable model fit. The CFA, therefore, revealed an inadequate fit of the models described by Johnson and Slade [19] and Wilklund et al. [20] to the current data. The CFA does not confirm the UK and Swedish factor models for the primipara and multipara groups. Therefore, results from the CFA indicate that the fit between the model and data needed improvement and no further investigation of the confirmatory model was necessary. We needed to proceed with the EFA to modify the model and to determine the factor structure.

The 33 items were analyzed via maximum likelihood extraction method using a Varimax rotation. Four factors with eigenvalues of over 1.00 were identified. We used the scree test to determine the number of factors to retain and rotate, which again suggested a 4-factor solution. Several other criteria were also examined to decide on the number of factors, such as Tucker and Lewis's Reliability Coefficient (TLC), which ranges between 0 and 1.0 with a higher TLC value indicating better reliability, Akaike's Information Criterion (AIC), and Schwarz's Bayesian Criterion (SBC). The number of factors that yields the smallest value of AIC and SBC or the highest value of TLC is considered best [34]. To choose a factor solution that not only satisfied the retention rules but one that also was theoretically meaningful, we rotated and examined several factor solutions. We eventually chose the 4-factor solution because it satisfied all three criteria. AIC and SBC attained their minimum values and TLC the highest value (TLC=0.710 for the multipara and TLC=0.700 for the primipara sample) at four common factors compared with 1-, 2-, and 3-factor solutions, and so there is little doubt that four factors are appropriate for these data. After selecting a 4-factor solution, factor loadings were sorted from highest to lowest values for each factor. Items 25, 26, 27 and 31 were removed from the original 33-item measure both for the multipara and primipara samples on the basis of predetermined criteria. Some of the items were considered as loading on more than one factor, as their factor loadings were greater than or equal to 0.40. Finally, the EFA yielded a 29-item measure for the two samples with a four factor solution, which accounted for 57.55% and 58.38% of the variance in the multipara and primipara groups, respectively. Loadings of items on factors ( $\geq 0.40$ ) and percentage of variance for the two groups are shown in Table III. Items are ordered according to the size of loadings in this table. Each factor was then interpreted by examining item content and pattern of coefficients, and three of the four factors were labeled in the same way as in the original UK [19] and Swedish [20] studies (Fear, Lack of Positive Anticipation and Riskiness). The first factor of the multipara group and the third factor of the primipara group were labeled as "Hope", being different than the original ones. The second factor of the multipara group and the first factor of the primipara group were labeled as "Fear", which correspond to the first factor of the original studies. The third factor of International Journal of Psychological and Behavioral Sciences the multipara group and the second factor of the primupiga<sub>No:5</sub>, 2014 present study has addressed a new methodological group were labeled as "Lack of Positive Anticipation", as in the second factor of the original factor structure. Finally, the forth factors both for multipara and primipara groups were labeled as "Riskiness" the same as in the original factor structure.

Although the ordering of factors in the two samples are slightly different, with the exception of factor 4, almost the same items were grouped together to form a factor. It is easy to see the striking similarities of the factor structures for the three subscales, Fear, Lack of Positive Anticipation and Riskiness, and especially with those of the UK sample. The classification of items into subscales obtained with our EFA was reflected almost exactly in these three factors produced by Johnson and Slade [19]. However, some of the items were loaded on different factor in our samples.

Finally, the internal reliability for each of the four subscales was estimated using Cronbach's  $\alpha$ . Scale homogeneity was in a reasonable range between 0.80 and 0.96 in both samples. Cronbach Alpha tests indicated that the subscales identified by the EFA were internally consistent. The alpha estimates of the total W-DEQ score were somewhat higher, being 0.92 for the multipara and 0.90 for the primipara sample (Table III). These are well above the accepted limit of 0.70 and indicate excellent levels of internal reliability, thus showing that the questions were appropriate to the Turkish culture.

#### IV. DISCUSSION

Birth, the important turning point in life, is almost always regarded as a happy event, in Turkey as in the rest of the world. There is a belief that is because every birth increases the number of family members, and increased numbers have always meant increased strength in especially rural areas and Eastern of Turkey [35]. Motherhood is the primer social role for women in Turkey like many countries [36]. Birth, that gives the mother an identity and completes her, as well as giving confidence to the father and strength to the family, is attributed utmost importance by the couple and their relatives [37].

In the more traditional parts of Anatolia, women used to give birth at home in their villages with the help of midwives, and the majority of practices carried out during childbirth were believed to make the whole process easier [35]. But nowadays, childbirth takes place in hospitals, and licensed midwives help pregnant women to give birth in remote, mountainous villages [38]. The number of planned cesarean deliveries performed because of fear of childbirth has increased markedly in the Turkey. This is unfortunate, not only because cesarean deliveries are associated with increased risk of maternal complications, but also because of the increased hospital resources required [37].

The cesarean deliveries are associated with increased risk of maternal complications and the increased hospital resources required [12]. The causes of fear of childbirth are, however, incompletely understood, and studies on risk factors, other than previous childbirth experiences, are scarce [39]. The importance of the influence of the emotions upon pregnancy and parturition has been recognized during the last few years. The value of protecting women from fear is frequently referred to in writings and discussions upon antenatal care [1]. 5. 2019 present study has addressed a new methodological approach not present in previous studies in this area, namely confirmatory factor analysis. It aimed to validate the factor structures developed by other researchers. To date, no studies have investigated the original factor structure of the W-DEQ. This study is the first to investigate whether the factor structures of the W-DEQ, originally developed on UK and Swedish women, were confirmed in Turkish samples. CFA revealed that the original factor structures of the W-DEQ obtained by Johnson and Slade [19] and Wilklund *et al.* [20] were not sustained in our samples. As a result, alterations regarding the content of the subscales have been made. Internal reliability of the W-DEQ was highly satisfactory. The different subscales reached good internal reliabilities in our study.

In two separate studies, UK and Swedish, where the W-DEQ instrument was also used, investigators found four clear dimensions that are conceptually distinct within childbirth fear [19], [20]. As our EFA was rather invariant compared with these studies, there is clearly a need to explain the discrapencies between the factor structures in the present study and those of Johnson and Slade [19] and Wilklund et al. [20]. There may be several explanations considered for this. Firstly, a significant strength of the present study is the 100% response rate compared with the 90% response rate in the Swedish study Wilklund et al. [20] and 35% in the British study Johnson and Slade [19]. In these studies, a response bias may have occurred, as participants chose to respond to a postal questionnaire. Since our study was carried out on face-to-face clinic based recruitment, the likelihood of such a response bias has been removed.

Secondly, the W-DEQ was orijinally designed and developed in the Swedish language and translation of the scale into English and then into Turkish may have caused distortions. Especially, four items, 25, 26, 27 and 31 were discarded from the original scale fallowing the EFA analysis in our study. It is possible that these items may have ambiguous meaning in Turkish language or are less relevant to Turkish culture.

Finally, the discrapency between the findings of the three countries may be due to the cross-cultural differences or different medical system of each country. Johnson and Slade [19] argued that such an argument is supported by differences in other birth-related outcomes.

#### V. CONCLUSIONS

This study has demonstrated cross-cultural differences in fear of childbirth which exist in the dimensionality within UK, Swedish and Turkish pregnant women populations and presented alternative factor structures for the Turkish culture. Our study suggests that the Turkish version of the W-DEQ has good internal consistency and is an adequate and useful scale for the evaluation of fear of childbirth in Turkish pregnant women.

#### ACKNOWLEDGMENT

This study was supported by The Scientific Research Projects Unit of Akdeniz University, Antalya, Turkey.

World Academy of Science, Engineering and Technology International Journal of Psychological and Behavioral Sciences Vol. 7 APC + 5012 MEANS, STANDARD DEVIATIONS (SD) AND SKEWNESS VALUES OF THE W-DEQ SCALE FOR THE TWO GROUPS AND THE RESULTS OF T-TESTS Multipara group Primipara group (n=326)

	Mulupara group			Primp	ara group			
	( <b>n=334</b> )					<i>t</i> -test		
Items	Mean	SD	Skew	Mean	SD	Skew	<i>t</i> -value	Sig.
M1. Fantastic	3.74	0.975	-0.280	3.84	1.046	-0.520	-1.283	0.200
M2. Frightful	3.46	1.282	-0.173	3.70	1.372	-0.601	-2.365	0.018
M3. Lonely	2.76	1.323	-0.029	2.57	1.521	0.055	1.713	0.087
M4. Strong	2.78	1.253	0.193	3.07	1.383	-0.162	-2.787	0.005
M5. Confident	2.70	1.238	0.088	2.99	1.327	-0.259	-2.937	0.003
M6. Afraid	3.04	1.347	-0.004	3.46	1.373	-0.339	-4.006	0.000
M7. Deserted	2.43	1.259	0.309	2.09	1.374	0.235	3.336	0.001
M8. Weak	2.62	1.486	0.291	2.65	1.496	0.103	-0.315	0.753
M9. Safe	2.73	1.210	-0.050	2.67	1.370	0.015	0.645	0.519
M10. Independent	2.74	1.291	0.282	2.95	1.287	-0.112	-2.106	0.036
M11. Desolate	2.46	1.323	0.083	2.44	1.430	-0.054	0.153	0.879
M12. Tense	3.55	1.320	-0.280	3.71	1.439	-0.638	-1.467	0.143
M13. Glad	2.60	1.001	0.188	2.64	1.222	-0.104	-0.383	0.702
M14. Proud	2.29	1.146	-0.135	2.30	1.316	-0.094	-0.107	0.915
M15. Abandoned	2.27	1.433	0.134	1.99	1.524	0.351	2.421	0.016
M16. Composed	2.94	1.242	0.082	2.88	1.510	-0.076	0.556	0.578
M17. Relaxed	3.37	1.353	-0.276	3.48	1.545	-0.492	-1.030	0.303
M18. Happy	2.46	1.164	-0.005	2.18	1.206	0.065	3.035	0.002
M19. Panic	3.01	1.297	0.044	3.36	1.411	-0.364	-3.319	0.001
M20. Hopelessness	2.39	1.265	0.083	2.16	1.333	0.160	2.241	0.025
M21. Longing for child	2.30	1.205	0.170	2.02	1.178	-0.041	3.029	0.003
M22. Self-confidence	2.54	1.263	0.373	2.62	1.119	0.131	-0.811	0.418
M23. Trust	2.63	1.249	0.325	2.52	1.266	0.091	1.095	0.274
M24. Pain	3.28	1.222	0.170	3.49	1.416	-0.443	-2.035	0.042
M25. Behave badly	1.52	1.073	0.070	1.44	1.148	0.598	0.951	0.342
M26. Let happen	1.54	1.222	0.017	1.52	1.418	0.347	0.199	0.843
M27. Lose control	1.53	1.133	-0.007	1.23	1.064	0.286	3.539	0.000
M28. Funny	2.35	1.274	-0.063	1.97	1.266	0.036	3.915	0.000
M29. Natural	1.99	1.089	0.016	1.74	1.029	-0.080	2.941	0.003
M30. Obvious	1.96	1.020	-0.115	1.82	1.094	0.243	1.691	0.091
M31. Dangerous	1.45	1.295	0.286	1.26	1.189	0.296	1.883	0.060
M32. Child will die	2.11	1.071	0.005	2.30	1.251	-0.003	-2.162	0.031
M33.Child will be injured	2.07	1.091	0.150	2.33	1.163	0.327	-2.921	0.004

TABLE II GOODNESS-OF-FIT INDICES FOR THE W-DEO FACTOR MODELS							
	Johnson & S	Slade (2002)	Wilklund et al. (2008)				
Index	Multipara	Primipara	Multipara	Primipara			
Goodness of Fit Index (GFI)	0.6184	0.5780	0.6330	0.6137			
GFI Adjusted for Degrees of Freedom (AGFI)	0.5484	0.5005	0.5691	0.5463			
Chi-Square	3281.8218	3566.7397	3245.0012	2957.9860			
Chi-Square DF	474	474	396	396			
Pr > Chi-Square	<.0001	<.0001	<.0001	<.0001			
RMSEA Estimate	0.1334	0.1417	0.1470	0.1411			
RMSEA 90% Lower Confidence Limit	0.1291	0.1374	0.1423	0.1364			
RMSEA 90% Upper Confidence Limit	0.1377	0.1461	0.1517	0.1459			
Bentler's Comparative Fit Index	0.6014	0.5668	0.5218	0.5690			
Bentler & Bonett's (1980) Non-normed Index	0.5560	0.5175	0.4747	0.5265			
Bentler & Bonett's (1980) NFI	0.5666	0.5348	0.4924	0.5363			

World Academy of Science, Engineering and Technology International Journal of Psychological and Behavioral Sciences VoltARLES 11/012 FOUR FACTORS WITH FACTOR LOADINGS FOR MULTIPARA AND PRIMIPARA SAMPLES

Multipara					Primipara				
Items	$F1_P$	F2 <sub>P</sub>	F3 <sub>P</sub>	$F4_P$	Items	F1 <sub>N</sub>	F2 <sub>N</sub>	F3 <sub>N</sub>	F4 <sub>N</sub>
M15	0.740				M12	0.820			
M3	0.685				M1	0.769			
M8	0.684	0.387			M19	0.745			
M7	0.681				M6	0.743			
M11	0.601				M17	0.743	0.367		
M13	0.598				M2	0.735			
M23	0.548	0.422	0.413		M24	0.684			
M4	0.531	0.369			M10	0.593			
M5	0.527	0.356			M5	0.586			
M10	0.496	0.361			M4	0.508	0.368		
M9	0.492				M29		0.864		
M20	0.454				M30		0.812		
M24		0.769			M28		0.786		
M1		0.767			M18		0.582		
M2		0.732			M21		0.561		
M17		0.721			M14		0.556		
M12		0.717			M9		0.556	0.401	
M19		0.685			M13		0.508		
M6	0.486	0.639			M23	0.380	0.483		
M16	0.382	0.437			M22	0.368	0.448	0.426	
M29			0.814		M16	0.358	0.428		
M30			0.809		M15			0.751	
M28			0.771		M11			0.741	
M21			0.685		M20			0.695	
M18	0.476		0.599		M7			0.677	
M14			0.562		M3			0.666	
M22	0.448	0.446	0.452		M8	0.505		0.554	
M33				0.952	M32				0.871
M32				0.944	M33				0.870
% of Variance	18.575	17.314	14.034	7.626		20.245	16.472	14.097	7.573
Cumulative %	18.575	35.890	49.924	57.550		20.245	36.718	50.815	58.388
lpha Coefficient	0.8812	0.8651	0.8529	0.9616		0.8917	0.8704	0.8080	0.9468

 $F1_P = F3_N = Hope; F2_P = F1_N = Fear; F3_P = F2_N = Lack of Positive Anticipation; F4_P = F4_N = Riskiness$ 

World Academy of Science, Engineering and Technology

# REFERENCES

- [1] Gaskin IM, Childbirth without fear, Pinter&Martin Ltd, London, 2009.
- [2] Hofberg K, Ward MR, "Fear of childbirh, tocophobia, and mental health in mothers: the obstetric-psychiatric interface", Clinical Obstetrics and Gynecology, 47, 2004, pp. 527-534.
- [3] Lowe NK, "The nature of labor pain". Am J Obstet Gynecol, 186 (Suppl. 1), 2002, pp.16-24.
- Phumdoung S, Good M, "Music Reduces Sensation and Distress of [4] Labor Pain", Pain Management Nursing, 4(2), 2003, pp.54-61.
- Beigi NM, Broumandfar K, Bahadoran P, Abedi HA, "Women's [5] experience of pain during childbirth", Iran J Nurs Midwifery Res, 15(2), 2010, pp.77-82.
- Catrine AN, Murphy-Black T, "Memory for labor pain: A review of [6] the literature", Birth, 27(4), 2000, pp.244-253.
- Madden KL, Turnbull D, Cyna AM, Allan MC, Adelson P, Wilkson C, "Pain relief for childbirth: The preferences of pregnant women, midwives and obstetricians", Women and Birth, WOMBI-222, 2012, pp.1-8.
- [8] Eappen S, Robbins D. "Nonpharmacological Means of Pain Relief for Labor and Delivery", International Anesthesiology Clinics, 40(4), 2002, pp.103-114.
- [9] Browning CA. "Using music during childbirth", Birth, 27(4), 2000, pp. 272-276.
- [10] Simkin P, Bolding A. "Update on Nonpharmacologic Approaches to Relieve Labor Pain and Prevent Suffering", Journal of Midwifery & Women's Health, 46(6), 2004, pp.489-504.
- [11] Haines H, Pallant J, Karlstr A, Hildingsson I, "Cross-cultural comparison of levels of childbirth-related fear in an Australian and Swedish sample", Midwifery, 27, 2011, pp. 560-567.
- [12] Saisto T, Aro K, Nurmi EJ, Halmesmaki E, "Psychosocial characteristics of women and their partners fearing vaginal childbirth". British Journal of Obstetrics and Gynaecology, 108, 2001, pp.492-498.
- [13] Roth D, Antony MM, Swinson RP, "Interpretations for anxiety symptoms in social phobia, Behaviour Research and Therapy", 39, 2001, pp.129-138.
- [14] DiRenzo GC, "Tocophobia: a new indication for Cesarean delivery?", The Journal of Maternal-Fetal and Neonatal Medicine, 13, 2003, pp. 217.
- [15] Körükcü Ö, Kukulu K, Fırat MZ, "The Secret Nightmare That Women Living: Tocophobia", Journal of Gynecology and Obstetrics, 22(2), 2008, pp.127-135.
- [16] Wijma K, Wijma B, Zar M, "Psychometric aspects of the W-DEQ; a new questionnaire for the measurement of fear of childbirth". Journal of Psychosomatic Obstetric and Gynaecology, 19, 1998, pp.84-97.
- Körükcü Ö, Kukulu K, Firat MZ, "The reliability and validity of the [17] Turkish version of the Wijma Delivery Expectancy/Experience Questionnaire with pregnant women", Journal of Psychiatric and Mental Health Nursing, 19, 2012, pp. 193-202.
- [18] Ryding EL, Persson A, Onell C, Kvist L, "An evaluation of midwives' counseling of pregnant women in fear of childbirth", Acta Obstetricia Gynecologica Scandinavica, 82, 2003, 10-17.
- [19] Johnson R, Slade P, "Does fear of childbirth during pregnancy predict emergency caesarean section", BJOG, 109, 2002, pp.1213-1221.

- experiences of childbirth in primiparae with caesarean section", BJOG, 115, 2008, pp.324-331.
  - [21] Jöreskog KG, Sörbom D, LISREL VI: Analysis of linear structural relationships by maximum likelihood, instrumental variables, and least squares methods, Scientific Software, Mooresville, 1986.
  - [22] Bentler PM, Dudgeon P, "Covariance structure analysis: Statistical practice, theory, and directions". Annual Review of Psychology, 47, 1996, pp.563-592.
  - [23] Brown MW, Cudeck R, Alternative ways of assessing model fit, In KA. Bollen & JS. Long (Eds.), Testing structural equation models. CA: Sage, Newbury Park, 1993.
  - [24] Hu L, Bentler PM, "Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives". Structural Equation Modeling, 6, 1999, pp. 1-55.
  - [25] Bentler PM, Bonett DG, "Significance tests and goodness of fit in the analysis of covariance structures". Psychological Bulletin, 88, 1980, pp. 588-606.
  - [26] Bentler PM, "Comparative fit indexes in structural models". Psychological Bulletin, 107, 1990, pp.238-246.
  - [27] Kieffer KM, "An introductory primer on the appropriate use of exploratory and confirmatory factor analysis". Research in the schools, 6, 1999, pp.75-92.
  - [28] Curran PJ, West SG, Finch JF, "The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis", Psychological Methods, 1, 1996, pp.16-29.
  - [29] Hu L, Bentler PM, Kano Y, "Can test statistics in covariance structure analysis be trusted?", Psychological Bulletin, 112, 1992, pp.351-362.
  - [30] West SG, Finch JF, Curran PJ, Structural equation models with nonnormal variables: Problems and remedies, In Hoyle R H (Ed.), Structural equation modeling: Concepts, issues and applications, Sage, Newbury Park, CA, 1995.
  - [31] Browne MW, "Asymptotically distribution-free methods for the analysis of covariance structures". British Journal of Mathematical and Statistical Psychology, 37, 1984, pp.62-83.
  - [32] Satorra A, Bentler PM, Corrections to test statistics and standard errors in covariance structure analysis, In A. Von Eye, CC Clogg (Eds.), Analysis of latent variables in developmental research, Sage, Newbury Park, CA, 1994.
  - [33] Kline RB, Principles and practice of structural equation modeling, Guilford Press, New York, 2005.
  - Tucker LR, Lewis CA, "Reliability coefficient for maximum [34] likelihood factor analysis". Psychometrika, 38, 2006, pp.1-10.
  - [35] Birth Traditions, http://www.turkishculture.org/lifestyles/ceremonies/birth/birthtraditions-216.htm?type=1
  - [36] Ayaz S, Yaman ES, "Traditional practices used by infertile women in Turkey". *International nursing review*, 57, 2010, pp.383–387
  - [37] Tatar M, Gunalp S, Somunoğlu A, Demirol A, "Women's perceptions of caesarean section: refections from a Turkish teaching hospital", Social Science & Medicine, 50, 2000, pp. 1227-1233.
  - [38] Turkey Statical Yearbook, 2009. http://www.turkstat.gov.tr/yillik/stat\_yearbook.pdf
  - [39] Storksen HT, Eberhard-Grand M, Niegel SG, Eskild A, "Fear of childbirth; the relation to anxiety and depression". Acta Obstetrica et Gynecologica and Scandinavica, 91, 2012, pp. 237-242.