The birth satisfaction scale: Turkish adaptation, validation and reliability study

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ABSTRACT

OBJECTIVE: The objective of this study is to investigate the validity and the reliability of Birth Satisfaction Scale (BSS) and to adapt it into the Turkish language. This scale is used for measuring maternal satisfaction with birth in order to evaluate women's birth perceptions.

METHODS: In this study there were 150 women who attended to inpatient postpartum clinic. The participants filled in an information form and the BSS questionnaire forms. The properties of the scale were tested by conducting reliability and validation analyses.

RESULTS: BSS entails 30 Likert-type questions. It was developed by Hollins Martin and Fleming. Total scale scores ranged between 30–150 points. Higher scores from the scale mean increases in birth satisfaction. Three overarching themes were identified in Scale: service provision (home assessment, birth environment, support, relationships with health care professionals); personal attributes (ability to cope during labour, feeling in control, childbirth preparation, relationship with baby); and stress experienced during labour (distress, obstetric injuries, receiving sufficient medical care, obstetric intervention, pain, prolonged labour and baby's health). Cronbach's alfa coefficient was 0.62.

CONCLUSION: According to the present study, BSS entails 30 Likert-type questions and evaluates women's birth perceptions. The Turkish version of BSS has been proven to be a valid and a reliable scale.

Keywords: Birth; reliability; satisfaction; validity.

Nowadays, one of the the most important, and most frequently used criteria in the evaluation of quality of healthcare services is satisfaction of the individuals. Data related to the satisfaction of healthy, and sick individuals who receive healthcare services help administrators, and politicians in the organization, and evaluation of the quality of these services, in addition to continuous improvements in their presentation [1, 2]. Rapid decline in mortality/morbidity rates which are considered as quality indicators in obstetric services, and advanced technology have decreased the importance

of conventional indicators, and arisen the need to perform multidimensional evaluations of quality in accordance with changing conditions. Since women consult to the health organizations most frequently because of childbirth, evaluation of the women's level of satisfaction from intra-, and postpartum health care services provided by health care professionals is very important in increasing the quality of health care. Therefore the experiences of women during intrapartum, and postpartum period, and their levels of satisfaction from health care services they received have gained increasing importance [3, 4, 5].

Another reason which requires assessment of the level of satisfaction the women derived from obstetric services is related to changing politics in the procurement of these services. Increased responsibility of the state, and health organizations towards public, enhanced importance of indulgement of individuals in their self-care, growing number of studies concerning the favourable impact of satisfaction on the individuals, and their families have lead to attachment of importance to the viewpoints of those who received these services [6]. In studies performed in various regions of Turkey, and in different health organizations providing services to individuals with diverse socioeconomical status, women's level of satisfaction from obstetric services was reported to range between 54, and 90 percent [7, 8, 9].

The most important experience in the life of women who want to play a central role in child birth process, is giving birth to a child. In addition, the satisfaction derived from this experience is extremely important for her, her baby's health, and development of positive family rapport. Such that, adverse childbirth experience can lead to many problems as postpartum depression, posttraumatic stress disorder, tendency to miscarriage, preference for cesarean delivery, negative feelings against baby, difficulty in adaptation to maternal role, and breastfeeding problems [6]. Therefore evaluation of women's viewpoints about birth, and determination of potential risks are very important [10]. Inpatient women's satisfaction is effected by many factors including medical care, health care professionals, her hospital room, and her relationship with her environment, however studies performed have emphasized critical

importance of integrated approach [11].

A study conducted in the USA state of North Carolina, control during delivery was indicated as the most important factor determining birth satisfaction. Importance of the use of techniques which will ensure control during labour, and childbirth in collaboration between health care workers, and women giving birth was emphasized, and with this approach increase in the level of birth satisfaction was indicated [12]. In another study, the importance of the approach to pain during labour, and continuity of care were indicated for the popularization of normal vaginal delivery which makes pregnancy, labour, and childbirth a favourable experience for the mother [13].

Williams detected that enlightened patients had felt increased confidence towards health care personnel, and entertained higher levels of satisfaction [14]. Mohammad et al. [15] evaluated maternal satisfaction in Jordan, and found that 75.6% of the puerperal women were dissatisfied with the health care they had received during delivery. Dissatisfaction of the women was associated with involvement of unwanted, and unacquainted individuals present in the delivery room, unpredictably painful delivery, and inadequacy of health care providers in the management of labor pain.

In addition to the importance of evaluating birth experiences of women, objective assessment of this satisfaction is very difficult, and multidimensional [2, 6]. Difficulties encountered in the measurement of birth satisfaction include negative effects of this subjective evaluation on objective nature of outcomes, need for a multidimensional assessment, and requirement for combined evaluation of satisfaction, and dissatisfaction, tendency to overestimate satisfaction levels during overall evaluation process, women's refraining from criticising their health care providing institute, inconveniencies related to the place, and time of the application of the scale, problems arising from ambiguously explained concepts, the impact of the feelings of the mother during immediate postpartum period, and difficulties encountered in the discrimination of alternative responses (ie. inability to perceive the difference between satisfied, and very dissatisfied women) [2, 3, 6, 16].

Therefore, valid, and reliable measurement tools suitable to Turkish culture, and today's applications which evaluate birth satisfaction levels of the women are needed.

Objective; The objective of this study is to evaluate validity, and reliability of the Turkish version of the original 'The Birth Satisfaction Scale (BSS)' developed by Caroline Hollins Martin and Valerie Fleming in the year 2009 with the intention to be able to evaluate birth satisfaction, and perception of the mothers.

MATERIALS AND METHODS

Sampling universe

The universe of this investigation encompassed all inpatient women who gave birth through normal vaginal delivery in the postpartum clinic of Zeynep Kamil Women's, and Children's Diseases Training and Research Hospital between January, and March 2014. Sample selection was not performed, and we targeted to reach all parous women. Study population consisted of 150 individuals. Although a clear-cut information about determination of the study group for adaptation, and development studies are not available, some publications have indicated increase in the reliability of the scale with growing study population. However for factor analysis, sampling size should be large enough to contain at least five individuals for each variable [17, 18].

Data collection tools

In this study, for the collection of demographic data, the questionnaire form developed by the investigator in compliance with the literature, and The Birth Satisfaction Scale (BSS) were used (Table 1).

Birth satisfaction scale

The original "The Birth Satisfaction Scale (BSS)" was developed in the year 2009 by Caroline Hollins Martin and Valerie Fleming with the intention to evaluate birth perception of the women. The original language of the scale is English. Before initiation of the adaptation process of the original form of the scale, approval from the creators of the original

scale was obtained via e-mail. BSS is a Likert-type scale which is scored according to the responses as indicated: I Strongly Agree. 5; I Agree. 4; I Neither Agree or Disagree: 3; • I Disagree.2; • I Strongly Disagree: 1. In the scale items 4, 8, 12, 15, 16, 17, 19, 20, 21, 23, 25, and 29. are scored in reverse order. Orijinal form of the scale consists of 30 items, and total number of scores to be obtained from the scale change between 30, and 150 points. As the scores obtained from the scale increase, level of birth satisfaction increases. Cut-off point of the scale does not exist. In the original version of the scale, the authors did not perform validity, and reliability studies, and main themes, and sub-themes were determined in line with the literature screening results. Sub-themes of the main theme of the care quality include home assessment, birth environment, sufficient support, and relationship with health care professionals. Women's personal attributes include ability to cope with labour, feeling in control, preparation for childbirth, and relationship with baby. Sub-themes of the main theme of the stress experienced during labor include distress experienced during labour, obstetric injuries, perception of having received sufficient medical care, medical interventions, pain experienced, prolonged labor, and health of baby.

Collection of data

The investigator collected data face-to-face interviews with the participants.

Ethical aspect of the study

For adaptation of the original Birth Satisfaction Scale into Turkish, approval of the patent holder of the scale ie. Caroline J Hollins Martin PhD was obtained via e-mail. Institutional consent, and approval were obtained from the ethics committee of Zeynep Kamil Women's, and Children's Training and Research Hospital.

Data analysis

In the analysis of data, SPSS 16.0 program was used, and for the interpretation of the results the level of significance was accepted as $p < 0.05$. For content/scope validity (Expert Opinion) Kendal W

analysis, for internal consistency Cronbach's alpha coefficient, and for split-half test Pearson Correlation Analysis were used.

Limitations of the study

At the onset of the study, because of renovations initiated in the building of obstetrics, and gynecology clinics of our hospital, number of patient population changed. The predicted sampling size decreased. Besides, changes in the physical structure of the patient clinics during renovation process affected level of patients' satisfaction

Application plan of the study

Language adaptation

For the adaptation of the scale into Turkish language, both group and back translation methods were used. For group translation, the scale was translated from English into Turkish by six native speakers who received education in English. While back translation of the scale was performed by a Turkish expert living in the USA.

Validation study

Following adaptation of the scale into Turkish language, in order to evaluate internal consistency of the scale, content (scope) validation study was performed using expert opinion method. To that end, expert opinions of 10 academician interested in this subject were obtained. These experts were asked to evaluate each item of the scale both for accurate assessment of birth satisfaction, and also their eligibility on a scale of 4 points as follows: not appropriate, 1; it should be customized, 2; appropriate, but small modifications are needed, 3; perfectly appropriate, 4. Following content validity factorial design of the scale was evaluated using factor analysis.

Reliability study

Reliability of the scale was evaluated using item analysis, internal consistency, and split-half test.

RESULTS

Language adaptation

As an outcome of language adaptation back-trans-

lated scale, and original scale were deemed to be equivalent.

Findings related to the validity of the birth satisfaction scale

Content validity: Following content validity tests, assessment scores of ten experts were evaluated by Kendall W analysis, and W value was found to be 0.12 points without any difference among experts (p>0.05) (Table 1).

Construct validity: As a result of factor analysis, since KMO value was over 0.50, and Barlett's test was statistically significant at a level of p=0.05, items of the scale were found to be eligible, and adequate for factor analysis (KMO=0.65, p=0.00) (Table 2). Based on these findings in order to reveal the factor structure of the Birth Satisfaction Scale, from exploratory factor analysis methods, analysis of principal components, and varimax rotation method were used. As an outcome of factor analysis, a four- factor structure which explains 37.61% of total variance and having an Eigen value above 1.000 was revealed.

Findings related to the reliability of the birth satisfaction scale

Item analysis: As a result of item total score analysis, correlation values of the scale were found to range between −.022, and −.40. Since items with correlation values below 0.20 did not effect Cronbach's alpha value, their retention in the analysis was deemed to be appropriate.

Internal Consistency: The scale with Cronbach's alpha coefficient of 0.62 had a moderate degree of reliability.

Split-half test: Split-half correlation coefficients of the scale were calculated as r=0.41, and r=0.42 based on Guttman, and Spearman-Brown double length formulas, respectively.

DISCUSSION

Validity checks that the scale actually measures what the investigator thinks to measure or in other words, it indicates how precisely/accurately it measures that variable. Validity coefficient determines how accurately a measurement tool measures the intended feature.

Table 1. Items of the birth satisfaction scale both in English, and Turkish

1) I coped well with my birth.	1) Doğumumla iyi baş edebildim.
2) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.	2) Doğumhane personeli istediğim doğum şekli konusunda beni cesaretlendirdi.
3) I was well prepared for my labour, i.e., read a lot of literature and/or attended parenthood education classes.	3) Doğumum için iyi hazırlandım (örn: çok kitap okudum ve/veya doğuma hazırlık sınıfına katıldım, vs.).
4) I found giving birth a distressing experience.	4) Benim için doğum stresli bir deneyimdi.
5) I came through childbirth virtually unscathed	5) Doğumum çok kolay oldu.
6) I gave birth to a healthy normal baby.	6) Sağlıklı normal bir doğum yaptım.
7) During labour I received outstanding medical care.	7) Doğum süresince etkin bir tıbbi bakım aldım.
8) I received a lot of medical intervention, i.e., induction, forceps, section etc.	8) Doğumumda birçok tıbbi müdahale uygulandı (Ör: Suni sancı, forseps, epizyotomi).
9) I had a swift and speedy labour.	9) Doğumum çabuk ve hızlı oldu.
10) I felt well supported by my partner during labour and birth.	10) Doğum eylemim süresince partnerim bana çok iyi destek oldu.
11) I was encouraged to hold my baby for a substantial amount of time after birth.	11) Doğumdan sonra zamanımın büyük bir kısmında bebeğimi kucağıma almam konusunda cesaretlendirildim.
12) My birth experience was considerably different from what I intended.	12) Doğumum planladığımdan çok farklı oldu.
13) I had the same midwife throughout the entire process of labour and delivery.	13) Doğumumun başından sonuna kadar benimle aynı ebe ilgilendi.
14) I felt that the delivery room was unthreatening and comfortable.	14) Doğumhanenin tehlikesiz ve rahat olduğunu hissettim.
15) I felt very anxious during my labour and birth.	15) Doğum süresince ve doğumda çok endişeliydim.
16) I felt out of control during my birth experience.	16) Doğumumu kontrol edemediğimi hissettim.
17) I felt it was better not to know in advance about the processes of giving birth.	17) Doğum süreci hakkında önceden bilgi sahibi olmasam daha iyi olurdu diye hissettim.
18) I was not distressed at all during labour.	18) Doğum süresince hiçbir sıkıntı yaşamadım.
19) I felt mutilated by my birth experience.	19) Bu doğumdaki tecrübemde çok hasar görmüş ve vücudumdan bir parça gitmiş gibi hissettim.
20) My baby was avoidably hurt during birth.	20) Çok kolay bir şekilde engellenebilecekken, bebeğim doğumda zarar gördü.
21) The staff provided me with insufficient medical care during my birth.	21) Doğumum sırasında benimle ilgilenen personel bana yetersiz tıbbi bakım uyguladı.
22) I had a natural labour, i.e., minimal medical intervention.	22) Doğal doğum yaptım (ör: Çok az tıbbi girişim uygulandı).
23) I thought my labour was excessively long.	23) Doğumumun çok uzun sürdüğünü düşünüyorum.
24) I felt well supported by staff during my labour and birth.	24) Doğum eylemim süresince ve doğumda doğum ekibi tarafından iyi desteklendiğimi hissettim.
25) I was separated from my baby for a considerable period of time after my birth.	25) Doğumdan sonra oldukça uzun bir süre bebeğimden ayrı kaldım.
26) My birth proceeded as I planned it.	26) Doğumum plandığım gibi gerçekleşti.
27) The staff communicated well with me during labour.	27) Doğum eylemim süresince ekibinin benimle iletişimi güzeldi.
28) The delivery room was clean and hygienic.	28) Doğum odası temiz ve hijyenikti.
29) Giving birth was incredibly painful.	29) Doğum yapmak inanılmaz derecede ağrılı bir olaydı.
30) Labour was not as painful as I imagined.	30) Doğum tahmin ettiğim kadar ağrılı bir olay değilmiş.

For a measurement tool to be considered valid, as the first prerequisite it should be reliable. Reliability is obtaining the same results after pursuing the same processes, and using the same criteria, and consistency between independent measurements of the same variable [19]. Use of a scale prepared for a specific culture in different cultural settings by translating the scale into various languages requires analysis of its psycholinguistic, and psychometric properties [18, 19].

In a scale adaptation study, after adaptation of the original scale into another language, validity, and reliability of this scale in this population should be tested. In this study validity of the Birth Satisfaction Scale was evaluated with factor analysis, and content validity, and its reliability with item-total score correlation, internal consistency, and split-half methods Validation Study of the Scale Validity Study assessment of whether or not the items are adequate in terms of quantity and quality to measure the characteristics that are wanted to be measured.

Validity is a concept related to what extent a test measures a specific variable accurately to the purpose, and it indicates whether it really measures the variable which the researchers thought to measure [18, 20]. In other words it can be defined as appropriatess, and adequacy of the measurements obtained by a test or a measurement tool applied to a universe or sampling [21]. Validity is tested using many criteria. These are content validity, criterion-relation, and construct validity [18, 20, 21]. In this study, content and construct validity of the scale were analyzed so as to test scale validity.

Content validity

For content validity, expert opinions were obtained, and consensus between experts was detected. Appropriateness of the expressions contained in the scale for our culture was determined. Besides we also concluded that they represented birth satisfaction.

Construct validity

Construct validity of the scale was tested using factor analysis.

In factor analysis basically interrelated variables are reduced to a lesser number of independent variables, in other words, this method is applied to reveal, and in case of need to designate the variables /factors, dimensions /components which presumably explain the cause of the structure [22].

In the factor analysis, the researcher has priorly the opportunity to see the principal (basic) factors which constitute the basis of the set of variables used within the context of investigation. Besides the researcher has the chance to see to what extent can each one of the variables explain another variable With this approach, the researcher will have the opportunity to express, and comprehend the set of many variables at hand with newly constructed lesser number of variables (factors) [19].

There exists two types of factor analysis as Confirmatory Factor Analysis, and Explanatory Factor Analysis.

Confirmatory factor analysis: It is a hypothetical test. Confirmatory factor analysis tries to confirm the interelationships between both observed variables which are based on theoretical information with underlying latent factors, and also intercorrelations between latent factors. All assumptions related to these relationships are determined based on the results of the previous investigations or theoretical information [18]. Confirmatory factor analysis gives an idea about to what extent available data can predict the values of the variables wanted to be measured [18].

Explanatory factor analysis: this test is applied if number of factors in a certain cluster of items or a scale are not known or inadequate theoretical information about this issue exists. Then explanatory factor analysis is applied to disclose latent variables whose presence is suspected [18]. Explanatory factor analysis was applied in this study.

In the application of factor analysis, sample size, and suitability of the sample for factor analysis are important issues to be considered. Before analyzing the structure of the factor, in order to evaluate sampling adequacy for factor analysis, Kaiser-Meyer-Olkin (KMO)-measure of sampling adequacy, and appropriateness of the sampling for

Table 2. Factor Analysis Based on Items

		Factor 1	Factor 2	Factor 3	Factor 4
1)	I coped well with my birth.		0.30		0.29
2)	The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.	0.66			
3)	I was well prepared for my labour, i.e., read a lot of literature and/or attended parenthood education classes.				0.44
4)	I found giving birth a distressing experience.		0.49		
5)	I came through childbirth virtually unscathed		0.66		
6)	I gave birth to a healthy normal baby.				0.46
7)	During labour I received outstanding medical care.	0.43			
8)	I received a lot of medical intervention, i.e., induction, forceps, section etc.			0.39	
9)	I had a swift and speedy labour.		0.45		0.44
10)	I felt well supported by my partner during labour and birth.	0.46			
11)	I was encouraged to hold my baby for a substantial amount of time after birth.				0.43
12)	My birth experience was considerably different from what I intended.			0.40	
13)	I had the same midwife throughout the entire process of labour and delivery.				0.31
14)	I felt that the delivery room was unthreatening and comfortable.	0.72			
15)	I felt very anxious during my labour and birth.			0.63	
16)	I felt out of control during my birth experience.			0.70	
17)	I felt it was better not to know in advance about the processes of giving birth.			0.50	
18)	I was not distressed at all during labour.	0.51			
19)	I felt mutilated by my birth experience.			0.49	
20)	My baby was avoidably hurt during birth.		0.58		
21)	The staff provided me with insufficient medical care during my birth.		0.36	0.35	
22)	I had a natural labour, i.e., minimal medical intervention.				0.63
23)	I thought my labour was excessively long.			0.42	−0.49
24)	I felt well supported by staff during my labour and birth.	0.57			
25)	I was separated from my baby for a considerable period of time after my birth.			0.44	
26)	My birth proceeded as I planned it.			−0.31	
27)	The staff communicated well with me during labour.	0.68			
28)	The delivery room was clean and hygienic.	0.68			
29)	Giving birth was incredibly painful.		−0.69		
30)	Labour was not as painful as I imagined.		−0.68		

factor analysis was audited with Bartlett's Sphericity test both contained in SPSS package program. Kaiser-Meyer-Olkin (KMO) test is an index which compares observed magnitude of correlation coefficients with magnitude of partial correlation coefficients. KMO measurements are evaluated as follows: KMO value, .90–1.00 (excellent); .80–.89 (very good); .70–.79 (good); 60–.69 (moderate); 50–.59 (weak), and <.50 (unacceptable) [18, 22]. Barlett's test yields chi-square statistics. Level of significance of this test is p<0.05 [18, 22]. KMO coefficient of Adult Health Literacy Scale (AHLS) was 0.71 which indicated adequacy of sampling for factor analysis. Barlett's Test result with a level of significance of p<0.01 means that results of the measurements were not affected by sampling size, and indicated adequacy, and appropriateness of the sample size for factor analysis.

Explanatory factor revealed a 4-factor structure which explained 37.61% of the total variance with an Eigen value of 1.00. Therefore, the higher the percentage of variance, the scale has more robust factor structure. In analyses performed, factor loads ranging between 40, and 60% of the explained variance have been deemed to be adequate [18]. In our study, the first sudden change concerned the fourth factor in the Scree Plot graph. Since in 4-factor structure some factors contained two variables, and inclusion of presumably interrelated variables within the structure of different factors, 4-factor structure was not deemed to be appropriate for our study. Other factor structures of the scale were not found to be appropriate for our study, so we decided to use an integrated approach.

Reliability study of the scale

Reliability can be defined as the consistency of the measurements obtained by applying a test or measurement tool on a certain population or sampling [21]. Reliability is related to the degree of accuracy of a test while measuring a certain variable. Correlation (r) estimated in terms of reliability coefficient of the test is used to determine to what extent do individual differences really exist or related to an error factor [20]. As reliability tests, measurement of stability and reliability of an instrument over time.

(test-retest), parallel (or equivalent form), and internal consistency (split-half test, Kuder-Richardson, and Cronbach's alpha coefficient) methods are used [18, 20, 22]. In this study, split-half test, and internal consistency methods were used.

Internal consistency

Item analysis signifies the relationship between the value assigned to each item, and the sum of all the values of the items of the scale. Positive, and high item-total correlations exemplify similar behaviours, and indicate higher internal consistency of the test. Items with item-total correlation coefficients of ≥.30 have an improved discriminative power, while items with item-total correlation coefficient between .20, and .30 can be included in the test if deemed necessary or they should be corrected. Those with correlation coefficients lower than .20 should not be included in the analyses [18, 20, 22]. However, in this study, since items with lower correlation coefficients did not effect Cronbach's alpha values, they were not excluded from the analyses.

Internal consistency also evaluates validity of a scale. For the evaluation of internal consistency most frequently Cronbach's alpha internal consistency coefficient is used. Cronbach's alpha internal consistency coefficient lower than 0.40 indicates that the test is not reliable. While values between 0.40–0.59, 0.60–0.79, and 0.80–1.00 demonstrate low, moderate, and high degrees of reliability, respectively [23]. In this study, Cronbach's alpha coefficient of the Birth Satisfaction Scale was 0.62 (moderate reliability).

Split-half reliability test demonstrates consistency between test scores obtained [20, 24]. Coefficients of Spearman-Brown, Guttman split-half, and Cronbach alpha reliability tests performed to calculate split-half reliability coefficients of the scale were found to be adequate.

Conclusion and recommendations

Validity, and reliability outcomes of The Birth Satisfaction Scale developed originally in English by Martin et al. have been found to be satisfactory. Although, use of this scale has been recommended

for the evaluation of health perception of Turkish population, its retrial on other groups has been also advised.

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