

*Full Length Research Paper*

# Satisfaction with childbirth care: Correlations between SERVICEQUAL dimensions

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The model known as SERVICEQUAL (SQ) examines the correlation between service satisfaction and the gaps that occur between customers' expectations prior to service and perceptions after being served. The gaps are tested over five dimensions: tangibles of the service, assurance, empathy, reliability, and responsiveness of the service provider. This paper aims to examine the satisfaction of women with childbirth care by exploring correlations between the gaps in the five SQ dimensions and testing the influence of each dimension on the others. Closed-ended questionnaires were used to evaluate satisfaction from SQ dimensions using 1-5 on Likert scale. This study adds to existing literature by offering an insight into the way mothers assess their birthing services by looking at their pre-procedure expectations compared to how they perceive performance post-delivery. The correlations between the gaps in the service's dimensions were higher after birth than before birth. Significant correlations between the gaps themselves were seen in all five dimensions. The findings suggest that a successful child delivery reduces the mother's anxiety, such that if prior to birth, the five service dimensions exhibit no correlation, then after birth when the mother is less anxious, and her cognitive dissonance is reduced. Stronger correlations form between all five service dimensions. The significant correlations between all five dimensions suggest that receiving empathic treatment from the service provider causes the mother to be pleased with the tangibles, responsiveness, reliability, assurance of the medical staff.

**Key words:** SERVICEQUAL, mother's satisfaction, childbirth-care, service perceptions, service expectations.

## INTRODUCTION

The gaps between customers' pre-purchase expectation and post-purchase performance perception affect their satisfaction with the service (Johnston, 1998; Fatima et

al., 2018). Higher expectations compared to perceived performance led to lower satisfaction, whereas higher performance perception leads to satisfaction with the

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service.

The SERVICEQUAL (SQ) model was developed by Parasuraman et al. (1985; 1991) and Zeithaml et al. (1990) to evaluate the quality of service. The model assesses customer satisfaction by measuring the gaps between the customers' expectations, beliefs, and images prior to the service and their perceptions and insights after receiving the service (James, 2009; Swan and Trawick, 1980).

To measure the gaps between expectations and perceptions, the model employs a set of 22 statements that relate to the following five dimensions (Parasuraman et al. (1985, 1991) and Yarimoglu (2014).

Reliability - clear answers, information, and consulting with the customer.

Assurance - Professional and skilled, confidence and alternative care of the stuff.

Tangible - comfortable in the surrounding, hygienic, professional, and emergency equipment

Empathy - courtesy, respect, and caring staff.

Responsiveness - accessible staff, waiting time, and presence of the staff.

The gaps within these dimensions (known for their acronym RATER) represent the best indicators for service satisfaction (Buttle, 1996; Sharma and Das, 2017). Identifying the gaps and evaluating their significance can help the service provider to minimize them and improve the performance of the company. The gaps indicate customer's dissatisfaction since his or her expectations were higher than perceptions. When the expectations were fulfilled, the perceptions are matched and the customer is satisfied with the service (Buttle, 1996; Sharma and Das, 2017)

Satisfaction of the mother with her childbirth care not only improves her loyalty to the organization but also affects her well-being and relationship with the infant. Women who have enjoyed a positive childbirth experience have greater self-esteem, stronger association with their infant and positive expectations for future childbirths. In contrast, dissatisfaction with the experience of childbirth increases the likelihood of postpartum depression, anxiety, and depression (Moryossef and Chen, 2021; Jafari et al., 2017). Previous studies have shown that a mother's satisfaction or dissatisfaction with childbirth care is unrelated to physical pain but is tightly connected to her relationship with the medical staff. When the staff shows knowledge of her needs and allows her to be involved in the labor, the level of satisfaction increases (Moryossef and Chen, 2021; Brown et al., 2009; Spaich et al., 2013)..

Mothers' childbirth' satisfaction with childbirth is a broad and multi-dimensional concept (Rudman et al., 2008; Christiaens and Bracke, 2009), measuring the gaps between prior expectations and perception of performance is one of the most important tools for evaluating

customer satisfaction.

Numerous studies have taken place in developing countries, such as in Ethiopia (Rudman et al., 2008; McAuliffe et al., 2013). It was found that the high rate of maternal mortality in these countries is related to inefficient use of childbirth services, problematic facilities, and poor communication between the staff and the mother. Some of the contributors to mother satisfaction in these countries were positive and empathic communication between the mother and the obstetric staff, courteous treatment, and a pleasant attitude towards the mother (Jafari et al., 2017; Kumsa et al., 2016).

In the current study, we focus on the correlations between the different satisfaction dimensions before and after delivery, as well as on the correlations between the gaps, attempting to examine whether the dimensions have effect on each other, whether such effect changes after childbirth, and whether one gap influences another. We were interested in finding out whether in addition to affecting mothers' satisfaction; the dimensions also affect each other, such that if one dimension is enhanced or decreased, the other dimensions will change accordingly (Spaich et al., 2013; Rudman et al., 2008; Kumsa et al., 2016).

## METHODOLOGY

The study focused on women's satisfaction from childbirth within the preceding 12 months. The subjects were identified and contacted through internet childbirth forums (such as <https://www.medabrotimahut.co.il> and <https://derech-leida.co.il/mothers-circle/>) and using a random study (friend sending to a friend)/

Closed-ended questionnaires were used based on validated questionnaires from the literature and contained 22 items, served as independent variables classified into the five RATER dimensions (Kumsa et al., 2016; Coeytaux et al., 2011): Reliability (5 items), Assurance (4 items), Tangibles (4 items), Empathy (5 items), and Responsiveness (4 items). Participants were asked to rate their expectations prior to childbirth using a 5-points Likert scale (1 - very low expectations, 2 - low expectations, 3 - mid expectations, 4 - high expectations, and 5 - very high expectations). Similarly, they were instructed to rate their perceptions of the service after childbirth using a 5-point Likert scale (1 - very dissatisfied, 2 - dissatisfied, 3 - mid satisfaction, 4 - satisfied, and 5 - very satisfied). The participants responded to the questionnaires within 5 to 10 min.

Satisfaction during childbirth was dependent variable influenced by the gaps between mother's expectations and perception from childbirth (independent variables).

A total of 110 questionnaires were obtained in March-May 2021. The responses also covered socio-demographic data including age, income, level of education, and marital status. The socio-demographic data of the sample are presented in Table 1. Data analysis was performed using Statistical Package for the Social Sciences (SPSS). An Exploratory Factor Analysis (EFA) was performed by Principal Component Analysis (PCA) with varimax rotation (Zeithaml et al., 1990; Goranczewski and Puciato, 2011) to classify the items into five dimensions (Cronbach's  $\alpha$  0.79-0.89) as shown in Table 2.

**Table 1.** Socio-demographic characteristics  $N = (110)$ 

Variable		%	N=110
Age	18-24		38
	25-34		46
	35-42		26
Education	Low level of education (high school)		27
	High level of education (BA or higher)		73
Income	Lower than average	40	35
	Average	10	20
	Higher than average	50	55
Marital status	Married/Living in a partnership	90	100
	Not living in a partnership	10	10

Source: Author 2022

**Table 2.** Exploratory factor analysis of the five dimensions.

Dimension of SERVICEQUAL	Items	Cronbach's $\alpha$
Reliability	The staff provides clear answers. The staff asks for my consent before procedures. The staff informs me of every procedure. The staff shows interest in my needs. The staff provides reliable answers	0.84
Assurance	The staff provides professional care. The staff is skilled and experienced. I feel confident during the treatment. The staff is trained in alternative care	0.79
Tangibles	The delivery room is comfortable and has a hot tub. The staff is hygienic. The delivery room has professional equipment. The delivery room has emergency care equipment	0.89
Empathy	The staff is empathic. The staff is courteous. The staff helps me relax. The staff respects me. The staff cares about me	0.82
Responsiveness	The staff is easily accessible. The staff is present in the room. The wait time for the staff is short. There is always a staff member who responds to me.	0.86

Source: Author 2022

## RESULTS

Using Spearman's rank coefficient, we measured the correlations between the five SQ dimensions before and after birth. The data are presented in Table 3. Results indicate no significant correlations between the dimensions prior to childbirth, except for a correlation between empathy and tangibles. In other words, a patient's high expectations in terms of service tangibles

will increase her expectations for empathy of the service provider and vice versa. As for the other dimensions, one does not associate with the others. After birth, a significant positive correlation between all dimensions was seen, suggesting that when one dimension intensifies, the other dimensions intensify as well. The most pronounced correlations were found between empathy and tangibles (0.38\*\*), empathy and responsiveness (0.7\*\*), empathy and assurance (0.45\*\*),

**Table 3.** Pearson's rank correlation efficient between SQ dimensions prior to birth and after birth.

Prior to birth	Assurance	Reliability	Tangibles	Empathy	Responsiveness
Assurance					
Reliability	-0.1				
Tangibles	0.01	0.12			
Empathy	0.19	0.02	0.27*		
Responsiveness	0.04	-0.04	0.02	0.25**	
<b>After birth</b>					
Assurance					
Reliability	0.36**				
Tangibles	0.30**	0.33**			
Empathy	0.45**	0.46**	0.57**		
Responsiveness	0.29**	0.34**	0.34**	0.70**	

\*p &lt; 0.05; \*\*p &lt; 0.01.

Source: Author 2022

**Table 4.** Correlations between gaps in SQ dimensions after birth.

After birth	Assurance	Reliability	Tangibles	Empathy	Responsiveness
Assurance					
Reliability	0.25*				
Tangibles	0.27**	0.21**			
Empathy	0.39**	.041**	0.54**		
Responsiveness	0.24*	0.24*	0.20**	0.57**	

Source: Author 2022

and empathy and reliability (0.46\*\*).

Using Pearson's rank coefficient, we measured the correlations between the SQ gaps themselves. An adjusted odds ratio was used to determine the level of association between selected variables, and variables having \*p<0.05 were retained. The results are presented in Table 4. As shown in Table 4, significant positive correlations were found between all the gaps. The most significant correlations were those between the perceptions-expectations gap in empathy and the gaps in the following dimensions: responsiveness (0.57\*\*), tangibles (0.54\*\*), assurance (0.39\*\*), and reliability (0.41\*\*).

Further, we measured the correlations between participants' satisfaction with each SQ dimension and their demographic data using Chi Square. The results are presented in Table 5. Results indicate no significant correlations between SQ dimensions and demographic variables. In other words, the mother's age, education, marital status, or income had no effect on her satisfaction with any of the dimensions.

Finally, we performed linear multiple regressions to explore which factors (independents variables) predict

the level of the patients' satisfaction (dependent variable: the gap between expectations and perceptions). Linear regression explained 12% of the satisfaction variance [F (5,74) =2.08, p=0.078] (Table 6). Results indicate that the dimension of tangibles was the only predictor of satisfaction ( $\beta$ =0.37). All the other gaps did not predict the mother's level of satisfaction.

Using a linear regression model (which explains 12% of the variance) indicates that the gap in the Tangible dimension is the main significant variable predicting the mother's childbirth satisfaction [F (5,74) =2.08, p=0.078]. This variable was found to have the largest contribution to predicting general satisfaction,  $\beta$ =0.37. In the other SQ dimensions, the gaps did not significantly predict the mother's satisfaction.

## DISCUSSION

Using SERVICEQUAL instrument to measure the gaps between customers' expectations prior to service and their post-service perceptions is substantial to evaluate service satisfaction in terms of reliability, assurance,

**Table 5.** Relationship between participants' satisfaction and demographic variables.

Variable	Assurance	Reliability	Tangibles	Empathy	Responsiveness
Age	$\chi^2 (1) = 124.19$	$\chi^2 (1) = 60.85$	$\chi^2 (1) = 49.63$	$\chi^2 (1) = 94.34$	$\chi^2 (1) = 67.93$
Education	$\chi^2 (1) = 47.90$	$\chi^2 (1) = 29.01$	$\chi^2 (1) = 21.80$	$\chi^2 (1) = 48.88$	$\chi^2 (1) = 28.00$
Marital status	$\chi^2 (1) = 32.64$	$\chi^2 (1) = 4.86$	$\chi^2 (1) = 5.98$	$\chi^2 (1) = 36.98$	$\chi^2 (1) = 11.81$
Income	$\chi^2 (1) = 123.77$	$\chi^2 (1) = 64.31$	$\chi^2 (1) = 4.59$	$\chi^2 (1) = 116.62$	$\chi^2 (1) = 65.27$

\*p &lt; 0.05.

Source: Author 2022

**Table 6.** Linear multiple regression of SQ dimensions.

Variable	t	B	Std. Error	B
Tangibles	2.78*	0.37	0.13	0.37
Assurance	-0.21	-0.03	0.12	-0.03
Reliability	-1.63	-0.19	0.12	-0.19
Empathy	-0.68	-0.10	0.15	-0.10
Responsiveness	0.29	0.04	0.13	0.04

Source: Author 2022

tangibles, empathy, and responsiveness (Parasuraman et al. (1985) and Anbari et al. (2014). The results can imply reasons for the satisfaction or dissatisfaction of the customer from the service. Using this instrument may improve the satisfaction of customers and thus enhance their loyalty and assure repeated purchase (Donabedian, 1980; Agrawal et al., 2015).

The findings that emerge from the study reveal that for a woman who has given birth, the most significant gap between her expectations and perception of childbirth is in the dimension of tangibles. Mothers in birth are expecting the service to be more tangible and sustainable than it is, are expecting the delivery room to be more comfortable professional equipment, and hygienic as compared to their perceptions after service (Jafari et al., 2017; Miao et al., 2020). Numerous studies on satisfaction with healthcare services have highlighted the role of the service provider (Miao et al., 2020; Kishada and Wahab, 2015), showing that customer satisfaction increases when the service provider is more professional and courteous. In this study, however, the gaps (before and after using the service) of the four remaining SQ dimensions of empathy, reliability, assurance, and responsiveness did not demonstrate any correlation with mothers' satisfaction except for a non-significant three-way correlation (with assurance, reliability, and empathy). This finding suggests that the expectations of participants regarding the attitude of service providers were high, but the performance was high as well. Today, service providers, particularly those in healthcare, receive extensive training to improve their interpersonal skills (Draper et al., 2001; Fatima et al., 2018), which may explain this finding.

Yet, the tangibles dimension is still lacking and does not receive proper attention. The tangibles of delivery rooms must be improved. Women today have higher expectations: they expect a comfortable and pleasant delivery room, with a hot tub and other amenities that will improve their birth experience; this is in addition to not in place of the quality of the service. Such improvements will decrease the before-after gap in the dimension of tangibles and increase the satisfaction of women in labor.

The fact that the service is not concrete and can only be evaluated after the purchase (Mosadeghrad, 2014; Naidu, 2009), raises the customer's level of anxiety before the purchase, a point which must be addressed by the service provider. Making the service more tangible through visible physical elements in the environment, such as equipment, atmosphere, or medical devices, can enhance the customer's sense of assurance and the mother's satisfaction (Mosadeghrad, 2014; Boshoff and Gray, 2004).

Another interesting finding from this study is that prior to the baby delivery, there is no correlation between the SQ dimensions, while post-delivery, we see significant positive correlations between all dimensions. This means that when a mother is satisfied with one dimension, she will be satisfied with all other dimensions and with the overall care. A similar finding was obtained in previous studies, showing that service satisfaction is affected by the process, the environment, and the service provider, and a positive birthing experience increases the mother's satisfaction with all these dimensions (Kim and Lee, 2011; Sureshchandar et al., 2002).

The single significant positive correlation between pre-

service expectations was shown between the dimensions of empathy and responsiveness and between empathy and tangibles. This suggests that the empathy of service providers including being courteous, caring, respectful, reassuring, and compassionate has an important role in determining the mother's satisfaction prior to receiving the service. When a mother anticipates high levels of empathy from the service providers, she will also expect high responsiveness and tangible service.

After the delivery, a mother's satisfaction with one dimension affects her satisfaction with the other dimensions, which might result from her being more calm, peaceful, and gratified once the procedure is over and the baby is born (Kim and Lee, 2011; O'Neill and Palmer 2004). The findings of this study emphasize the importance of all service dimensions to be analyzed and evaluated by the organization as an important instrument to improve service satisfaction in term of reliability, assurance, tangibles, empathy, and responsiveness of the service providers.

## Limitations

This study focused on women after giving birth and examined their satisfaction with the delivery room services, without considering hormonal and physiological effects which may influence the responses. We have also not considered the number of former childbirths of the woman or other elements such as who accompanied her in the delivery room (e.g., spouse or friend). These elements may have an influence on the mother's satisfaction and should be considered in future research.

## CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

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