

Service Quality Gap of Care During Childbirth and Postpartum and Its Relationship with Childbirth Satisfaction

Niloofer Danehchin¹, MSc;
Nahid Javadifar², PhD;
Mina Iravani², PhD; Maryam
Dastoorpoor³, PhD

¹Department of Midwifery, Ahvaz
Jundishapur University of Medical
Sciences, Ahvaz, Iran

²Reproductive Health Promotion
Research Center, Ahvaz Jundishapur
University of Medical Sciences, Ahvaz,
Iran

³Department of Epidemiology, Ahvaz
Jundishapur University of Medical
Sciences, Ahvaz, Iran

Correspondence:

Nahid Javadifar, PhD;
Reproductive Health Promotion
Research Center, Ahvaz Jundishapur
University of Medical Sciences,
Golestan Blvd, Ahvaz, Iran
Tel: +98 9166121693
Email: nahidjavadifar_341@yahoo.com
Javadifar-n@ajums.ac.ir

Received: 06 October 2022

Revised: 26 November 2022

Accepted: 12 December 2022

Abstract

Background: The purpose of the present study was to evaluate the quality gap of maternity service in the labor and postpartum wards and its relationship with childbirth satisfaction.

Methods: This cross-sectional study was carried out on 332 pregnant women referring to the labor and delivery wards of the two selected hospitals affiliated to Ahvaz University of Medical Sciences in 2020. Pregnant mothers were selected by convenience sampling method and data were collected using SERVQUAL and Mackey Childbirth Satisfaction Rating Scale in labor and postpartum wards. Data analysis was carried out using descriptive and inferential statistics.

Results: The quality gap of maternity service in the postpartum ward (-0.35) was higher than that in the labor ward (-0.28). There was a significant difference between the mothers' expectations and perceptions in all dimensions of the SERVQUAL except for the responsiveness dimension. The highest and lowest gap in the quality of service in labor and postpartum wards was related to empathy (-0.41 and -0.48, respectively) and the responsiveness dimensions (-0.07 and -1, respectively). There was a significant inverse correlation between the gap in the empathy dimension with overall childbirth satisfaction in the labor ward. There was a correlation between empathy and overall childbirth satisfaction and the physician's satisfaction in the postpartum ward ($P < 0.05$).

Conclusion: Empathy is the most important variable affecting the quality of services provided in the maternity wards and it is necessary to improve this skill in maternity health care providers.

Please cite this article as: Danehchin N, Javadifar N, Iravani M, Dastoorpoor M. Service Quality Gap of Care During Childbirth and Postpartum and Its Relationship with Childbirth Satisfaction. *J Health Sci Surveillance Sys*. 2023;11(1):63-69.

Keywords: Quality gap, Care, Childbirth, Postpartum, Satisfaction

Introduction

Ensuring the health of mothers and infants is one of the priorities of health services and one of the basic pillars of health care and indicators of community development that governments are obliged to provide and improve its quality.¹ Annually, more than 200 million women become pregnant and about 140 million babies are born in the world, which indicates the need to pay attention to women's health to achieve sustainable development goals (SDG).² Extensive efforts have been made to improve the

level of maternal health by providing effective solutions, one of the best of which is to evaluate the quality of maternity care services during and after childbirth.³ Although a precise definition of quality has not yet been provided, improving service quality has become a major challenge for service organizations to meet the expectations of service recipients and their satisfaction in recent years.⁴ According to the simplest definition, quality is regarded as a comparison between perceptions and expectations and if a person's expectations are higher than the services received (perceived), the person will be

dissatisfied with the quality of services.^{5,6} Evaluation of customer satisfaction is an important part of evaluating the effectiveness of any organization, and clients' satisfaction is based on their sense of relationship with the organization.⁷ Improving maternal satisfaction and making the delivery experience more enjoyable can increase the mothers' adherence to caregivers' recommendations and indirectly reduce maternal problems.⁸

The improvement of the quality of care is considered as the basis for achieving universal health coverage by 2030.³ The study of maternity quality of care is a solution to identify and analyze the challenges and opportunities to improve maternal health, especially in developing countries.⁹ Although Iran, as a developing country, has made good progress in accessing maternal services and reducing mortality in the last 4 decades, the rate of cesarean section is still high (48%).¹⁰⁻¹² A study in Iran has shown that the reason for the high rate of cesarean section in Iran is the prevalence of negative experiences of mothers and the poor quality of maternal services during childbirth.¹² Although there have been several studies that show the satisfaction of Iranian mothers with childbirth,^{13, 14} most studies conducted in Iran show the low quality of services and the existence of a negative gap between the expectations and experiences of mothers during normal delivery and dissatisfaction with it.¹⁵⁻¹⁷

Considering the existing evidence, the present study aims to evaluate the quality gap of services using SERVQUAL as a useful tool for identifying the strengths and weaknesses of service quality¹⁸ and also determining the relationship between the dimensions of quality of service delivery with maternity satisfaction during labor and postpartum.

Methods

This cross-sectional study was conducted from July to December 2020 after obtaining the code of ethics (IR.AJUMS.REC.1398.698) from Ahvaz University of Medical Sciences and obtaining the informed consent of individuals to participate in the research. Inclusion criteria included having a prescription for labor admission order, performing normal delivery with or without episiotomy, and the ability to read and write. Exclusion criteria also included the mothers who needed special care during pregnancy, complicated childbirth (eclampsia, Grade 4 perineal laceration, chorioamnionitis, placental abruption, late deceleration in fetal heart rate, etc.), unwillingness to participate in or continue the study, and incomplete completion of the questionnaire. Given that no similar study (in both labor and postpartum wards) have been conducted to determine the required sample size, a pilot study was conducted on 20 pregnant mothers. The mean±SD of mothers' expectation and perception scores in the

labor and postpartum wards were 126.95±11.85 and 110.50±16.23, respectively. Since the researcher aimed to examine the mean difference (mean expectation score-mean perception score), the final sample size was calculated 273 people, using the following formula and taking into account 95% confidence interval and 90% test power. Given the probable 20% attrition rate, 332 pregnant women aged 18-45 years were selected using convenience sampling from clients who referred to two hospitals affiliated with Ahwaz University of Medical Sciences.

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2 \sigma_{\delta}^2}{\delta^2}$$

To observe the ethical considerations, the researcher explained the aim and method of the research and the confidentiality of the information. The questionnaires used in the present study included a demographic and obstetric history questions. The content of the above instruments was evaluated by 10 faculty members. SERVQUAL and Mackey Childbirth Satisfaction Rating Scale (MCSRS) were also distributed among the participants to determine the quality of maternity services. The SERVQUAL was designed by Parasuraman et al.¹⁹ and the reliability of the instrument was measured by Cronbach alpha, which was 0.93 for expectations and 0.93 for perceptions in Iran.²⁰ This scale consists of two sections: perceptions (22 questions) and expectations (22 questions) of patients. Each section consists of 5 components, including tangibles (the physical facilities, employees' appearance, equipment, and information system with 4 questions), reliability (the capacity to provide services exactly, on time, and credibly with 4 questions), responsiveness (the eagerness to assist the customers with respect and provide quick service to satisfy with 4 questions), assurance (the employee's technical knowledge, practical communication skills, courtesy, credibility, competency, and professionalism with 5 questions), and empathy (focusing on the customers attentively to ensure caring and distinguishing service with 5 questions). SERVQUAL is scored based on a 7-point-Likert scale. The quality gap was defined as the difference of the perceptions and expectations scores.¹⁹ Thus, if the score was positive, it indicated that the services exceeded the expectations of the clients, and if it was negative, it indicated that the provided health services did not meet the expectations of the clients and there was a quality gap. If the score was zero, it meant that there was no quality gap and indicated that the health care services met the clients' expectations.

Mackey Childbirth Satisfaction Rating Scale (MCSRS) was designed by Mackey and Goodman.²¹ This instrument measures childbirth satisfaction and consists of five subscales, including "self"

(9 items), “Physician” (8 items), “partner” (2 items), “baby” (3 items), “midwife” (9 items), and “overall childbirth satisfaction” (3 items); the participants express their satisfaction with each item on a five-point Likert scale. The original version of the McKee questionnaire contained 34 items, but two partner-related items (“partner” subscale) of the scale were excluded due to cultural barriers and hospital policies in the psychometric survey conducted by Moudi and Tavousi in Iran. They confirmed the reliability of this questionnaire with Cronbach’s alpha of 0.78.²²

In most Iranian hospitals, delivery and postpartum care are performed in two separate wards until discharge. Moreover, after ensuring the stability of the mother’s conditions after delivery and about 2 hours later, they are transferred to the postpartum ward, where there are different personnel and is located in the vicinity of the labor ward. The questionnaires were distributed by the researcher in three shifts and at the appropriate time and ratio among the participants in both hospitals. The eligible mothers completed the questionnaires in two stages. The first stage was implemented upon admission in the labor ward and before hospitalization. At this stage, the participants were asked to fill out the expectations section of the SERVQUAL scale, and, at least 2 hours after childbirth, the perception questionnaire was completed. In the second stage, the expectations

questionnaire was presented upon admission to the postpartum ward, and the perception questionnaire on the quality of postpartum care was completed before discharge. Mothers were asked to score the quality of the same part of care received at each stage of completing the questionnaire (during and after labor). After completing the questionnaire in both labor and postpartum wards, the expectation and perception scores in both wards were calculated separately for each participant, and the differences were measured by reducing the perception score from the expectation score. MCSRS was also given to participating mothers before discharge. Mann-Whitney test was used to examine the quantitative variables and an independent t-test was used to examine the difference between the mean scores of expectations and perceptions (quality gap) and compare the mean score of service quality in the labor and postpartum wards. Pearson correlation was also used to examine the correlations. P value<0.05 was considered as the significance level.

Results

Out of 355 eligible mothers in two hospitals, 23 did not accept to participate in the study. A total of 25% of participants were adolescent mothers, and 30.4% of mothers were primiparous. Demographic and midwifery information of the participants is presented in Table 1.

Table 1: Characteristics of the participants

Demographic variables	N=332	n (%)
Age (yr)	<18	83 (25)
	18-35	223 (67.2)
	>35	26 (7.8)
Mother education	Highschool	60 (18.1)
	Diploma	177 (53.3)
	University	95 (28.6)
Mother’s job	Housewife	312 (94)
	Employed	20 (6)
Spouse job	Governmental job	97 (29.2)
	Nongovernmental job	235 (70.8)
Spouse education	Highschool	88 (26.5)
	Diploma	124 (37.4)
	University	120 (36.1)
Insurrance	With insurance	319 (96.1)
	Without insurance	13 (3.9)
Income	Sifficient	89 (26.8)
	Insufficient	243 (73.2)
Obstetric variables		
Parity	1	109 (30.3)
	2	133 (40.4)
	≥3	90 (29.3)
Pregnancy	Term	300 (90.3)
	Preterm	32 (9.7)
Episiotomy	Yes	45 (13.6)
	No	287 (86.4)
Participate in childbirth preparation classes	Yes	30 (9)
	No	302 (91)
Gestational age (week) (mean±SD)	37±5.21	
Interval with previous childbirth(yr) (mean±SD)	5.11±2.8	

Table 2 compares the gap between expectations and perceptions in the labor and postpartum wards. In both labor and postpartum wards, the largest and smallest gaps were related to empathy (-0.41, -0.48) and responsiveness (-0.07, -0.10), respectively.

The gap in the overall quality of service in the postpartum ward (-0.35) was greater than the labor ward (-0.28). There was a significant difference between the mothers' expectations and perceptions in all dimensions of the SERVQUAL, except the responsiveness dimension.

Table 3 shows the correlation between the gap

of the SERVQUAL dimensions and the domains of childbirth satisfaction in the two wards. In the labor ward, with increasing the gap in the empathy dimension, the overall childbirth satisfaction decreases, and an increase in the empathy gap in the postpartum ward leads to a decrease in both overall childbirth satisfaction and physician satisfaction.

Discussion

According to the results of the present study, although there are differences in the quality gap of different dimensions of the SERVQUAL in both labor and

Table 2: Comparison of the perceptions and expectations of the clients based on the SERVQUAL (Service Quality) questionnaire in labor and postpartum wards

Variable		Labor			Postpartum		
		Mean±SD	Quality gap	P value	Mean±SD	Quality gap	P value
Tangible	Expectations	5.73±1.09	-0.29	<0.001	5.68±1.18	-0.35	<0.001
	Perceptions	5.44±1.17			5.33±1.98		
Reliability	Expectations	5.64±1.11	-0.34	<0.001	5.73±1.13	-0.38	<0.001
	Perceptions	5.30±1.13			3.35±1.11		
Responsiveness	Expectations	2.95±1.76	-0.07	0.39	3.04±1.64	-0.10	0.24
	Perceptions	2.88±1.66			2.94±1.64		
Assurance	Expectations	5.13±1.23	-0.28	<0.001	5.62±1.25	-0.45	<0.001
	Perceptions	5.42±1.31			5.16±1.26		
Empathy	Expectations	3.63±1.82	-0.41	<0.001	3.75±1.75	-0.48	<0.001
	Perceptions	2.04±1.66			2.24±1.63		
Total	Expectations	4.56±1.01	-0.28	<0.001	4.67±0.98	-0.35	<0.001
	Perceptions	4.28±0.93			4.31±0.93		

Table 3: Correlation between the quality gap of the SERVQUAL (Service Quality) scale dimensions in the labor and postpartum wards and the domains of Mackey Childbirth Satisfaction Rating Scale (n=332)

Quality gap in labor		Overall	Self	Baby	Midwife	Physician	
Tangible (gap)	r	0.024	0.052	0.049	-0.005	-0.001	
	P value	0.659	0.342	0.369	0.933	0.992	
Reliability (gap)	r	-0.004	0.050	0.001	0.012	0.024	
	P value	0.939	0.359	0.980	0.831	0.668	
Responsiveness (gap)	r	-0.010	0.049	-0.046	-0.102	-0.098	
	P value	0.859	0.377	0.405	0.065	0.074	
Assurance (gap)	r	0.029	0.021	0.076	0.040	0.067	
	P value	0.594	0.703	0.167	0.467	0.226	
Empathy (gap)	r	-0.111	-0.033	-0.059	-0.081	-0.077	
	P value	0.043*	0.548	0.285	0.139	0.164	
Total (gap)	r	-0.031	0.045	0.004	-0.055	-0.037	
	P value	0.579	0.415	0.948	0.315	0.503	
Quality gap in postpartum		Overall	Self	Baby	midwife	Physician	
Tangible (gap)	r	0.076	0.018	0.063	-0.012	-0.020	
	P value	0.169	0.744	0.252	0.828	0.720	
Reliability (gap)	r	0.031	-0.028	0.017	0.023	0.026	
	P value	0.577	0.610	0.762	0.672	0.632	
Responsiveness (gap)	r	-0.038	-0.004	-0.053	-0.072	-0.070	
	P value	0.488	0.936	0.333	0.193	0.200	
Assurance (gap)	r	-0.016	-0.057	-0.036	0.018	0.024	
	P value	0.766	0.303	0.508	0.747	0.660	
Empathy (gap)	r	-0.119	-0.090	-0.069	-0.105	-0.110	
	P-value	0.030*	0.103	0.212	0.056	0.046*	
Total (gap)	r	-0.033	-0.056	-0.033	-0.060	-0.061	
	P value	0.552	0.308	0.550	0.276	0.267	
MCSRS (Mean±SD)		11.66±2.65	29.72±9.08	12.41±2.26	35.81±6.42	31.59±5.99	11.66±2.65

*The correlation was significant (P<0.05). MCSRS: Mackey Childbirth Satisfaction Rating Scale

postpartum wards, empathy has been the most important priority of mothers in both wards; there was also the strongest relationship between empathy with the satisfaction of childbirth in the two wards.

Researchers believe that every service provider organization should have its service quality evaluation framework.²³ In this study, empathy had the largest gap compared to other dimensions. Empathy refers to the observance and attention to the customer and their morale, so that clients are convinced that the organization understands them.¹⁹ Empathy is a powerful communication ability that refers to understanding the experiences, concerns, and views of another person along with the ability to express them. Despite the importance of empathy, studies have shown that many health care providers have a limited ability to provide empathetic care.⁷ Empathy is a necessity of the midwifery profession and having an effective and empathetic relationship with the mother can bring countless positive outcomes for the mother and baby, including the ability to control childbirth, reduce stress and anxiety, and reduce pain and fear of childbirth.²⁴ On the other hand, since the midwifery profession is one of the most stressful jobs, empathetic communications can also improve the quality of work and personal life.^{25, 26} Therefore, the existence of a negative gap in this dimension can also be a sign of weakness in training and applying this skill among midwives.

Although there has been no study examining the labor and postpartum wards separately in terms of service quality, the findings of the present study are consistent with the study carried out by Rohi et al.²⁷ and Lu et al.;²⁸ however, the results are inconsistent with the result of the study conducted by Golipour et al. This study was designed to determine the quality of pregnancy care in health care centers of Sanandaj (Iran) and showed that the smallest gap was related to empathy.¹⁵

In the present study, the smallest quality gap in both wards is related to the responsiveness dimension. This dimension is the only area of service quality where the difference between expectations and perceptions has not been significant despite the negative gap. Responsiveness means the availability, willingness, and readiness of employees to provide services at the right and required time.¹⁹ The results of a study in the labor wards of Zahedan (southeast Iran) showed that the smallest and largest quality gap was related to the responsiveness and the reliability dimensions, respectively.¹⁶ Results of a study in Poland also showed that the smallest and largest gap was related to the responsiveness and tangibles dimensions, respectively.²⁹ In the present study, reliability, tangibles, and assurance had the largest gap in the labor ward, respectively. Reliability, assurance, and tangibles also respectively accounted for the largest

gap in the postnatal ward. The tangibles dimension is an attractive view of the equipment, supplies, personnel, and physical conditions of the environment, such as cleanliness, which is tangible evidence of the service provider. Reliability means the ability to fulfill service obligations reliably and properly. Assurance refers to the knowledge, decency, and ability of the staff to create reassurance in clients' and patients' sense of security with employees.¹⁹ The present study showed that the reliability of the staff and organization is more important than the tangibles dimension from the perspective of participating mothers. However, the largest gap in service delivery was related to the tangibles and then empathy dimensions, respectively, from the perspective of pregnant mothers referring (for prenatal care) to Isfahan urban health centers.³⁰ The above findings can re-emphasize the importance and priority of empathy, reliability, and assurance to tangibles dimension for the mothers during and after childbirth.

Factors such as effective communication, respect, dignity, and emotional support are the most important factors affecting the quality of care.³¹ Overall satisfaction reflects the customer's perception of the overall performance of an organization.³² In the present study, although the largest gap in the quality of care delivery was related to the empathy dimension, there was a significant relationship between the gap in the empathy dimension with overall satisfaction in the labor and postnatal wards. There was a significant relationship between empathy and obstetrician satisfaction in the postnatal ward, which shows the importance of this variable in an organization where its customers need to receive a sense of empathy from service providers more than any other organization.

Although the two concepts of satisfaction and quality are closely interrelated, they are two different concepts and researchers believe that the most important predictor of customer satisfaction is their perception of service quality.³³ Zarei et al. investigated the effect of service quality on patient satisfaction in private hospitals in Iran. They showed that the variables of cost, service delivery, and interpersonal aspects of care have the greatest impact on patient satisfaction.³⁴ Another study was also carried out on the satisfaction of outpatients with hospital services in Ghana. The results showed that patient satisfaction was more related to the responsiveness and empathy of the treatment team than any other variable.³⁵

The quality gap varies according to performance, characteristics, and customers in each organization and setting, even in different sectors of the health system. Because childbirth and maternity care is a special type of health service that is related to a specific event in the life of every mother and child,²⁹ it is very important to analyze it when adopting appropriate strategies to promote maternal health.

In the present study, the similarity of mothers' priorities (empathy) in the two wards can be due to the short time interval between discharge from the labor and transfer to the postnatal ward and the difficulty of separating expectations and perceptions of service quality in the two wards. It may also be due to the importance of empathy and its priority for the mother in the whole childbirth process until discharge. Lu believes that the decrease in emotional relationships and people's attention to empathy in the workplace and living environment is due to urbanization.²⁸ Since empathy has both emotional and cognitive dimensions, strengthening empathy through communication skills training, in addition to improving service quality and customer satisfaction, can also be an effective solution to improve wellbeing and reduce stress among service providers.³⁶

The study of mothers' views on the quality of maternity services in both labor and postpartum wards and its relationship with childbirth satisfaction can be considered as a strength of the present study. Also, the outbreak of Covid-19 pandemic and the imposition of problems on the health system can affect the quality of service delivery. However, the generalization of the results is limited since the present study was conducted in two hospitals, and there were differences between hospitals in terms of facilities, equipment, and personnel.

Conclusion

The findings of the present study indicate that empathy is the most important component in maternity care organizations that affects customer satisfaction throughout the childbirth process. Also, such an organization needs investment and special attention to improve communication and empathy skills among its staff to improve the quality of services in addition to promoting other components of quality of care.

Financial Support

This research article was extracted from a master's thesis (RHPRC9817). Financial support was provided by Ahvaz Jundishapur University of Medical Sciences (AJUMS).

Conflict of Interest: None declared.

References

1 Alkema L, Chou D, Hogan D, Zhang S, Moller AB, Gemmill A, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet* (London, England). 2016;387(10017):462-74. doi: 10.1016/

S0140-6736(15)00838-7.

- 2 Graham W, Woodd S, Byass P, et al. Diversity and divergence: the dynamic burden of poor maternal health. *Lancet*. 2016;388(10056):2164-2175. doi: org/10.1016/S0140-6736(16)31533-1.
- 3 World Health Organization. Sexual and reproductive health. Standards for improving quality of maternal and newborn care in health facilities. 2016 [Available from: http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/improving-mnh-health-facilities/en/].
- 4 Donabedian A. Evaluating the quality of medical care. 1966. *Milbank Q*. 2005;83(4):691-729. doi: 10.1111/j.1468-0009.2005.00397.x. PMID: 16279964.
- 5 Chakraborty R, Majumdar A. Measuring consumer satisfaction in health care sector: The applicability of SERVQUAL. *Journal of Arts, Science & Commerce*.2011; 2: 149-160.
- 6 Zun AB, Ibrahim MI, Hamid AA. Level of Satisfaction on Service Quality Dimensions Based on SERVQUAL Model Among Patients Attending 1 Malaysia Clinic in Kota Bharu, Malaysia. *Oman Med J*. 2018;33(5):416-22. doi: 10.5001/omj.2018.76. PMID: 30210721.
- 7 Moudatsou M, Stavropoulou A, Philalithis A, Koukoulis S. The Role of Empathy in Health and Social Care Professionals. *Healthcare (Basel)*. 2020;8(1):26. doi: 10.3390/healthcare8010026. PMID: 32019104.
- 8 World Health Organization. WHO global strategy on people-centred and integrated health services: Interim report. Geneva: World Health Organization; 2015. 48p. Report No.: WHO/HIS/SDS/2015.6. <https://apps.who.int/iris/handle/10665/155002>
- 9 Wilson AN, Spotswood N, Hayman GS, et al. Improving the quality of maternal and newborn care in the Pacific region: A scoping review. *Lancet Reg Health West Pac*. 2020 , 23;3:100028. doi: 10.1016/j.lanwpc.2020.100028. PMID: 34327381.
- 10 Farhud DD, Kamali MS, Marzban M. Annuality of birth, delivery types and sex ratio in Tehran, Iran. *Anthropol Anz*. 1986;44(2):137-41. PMID: 3740819.
- 11 Bahadori F, Hakimi S, Heidarzade M. The trend of caesarean delivery in the Islamic Republic of Iran. *East Mediterr Health J*. 2014;19 Suppl 3:S67-S70. PMID: 24995763.
- 12 Azami-Aghdash S, Ghojzadeh M, Dehdilani N, Mohammadi M, Asl Amin Abad R. Prevalence and Causes of Cesarean Section in Iran: Systematic Review and Meta-Analysis. *Iran J Public Health*. 2014;43(5):545-55. PMID: 26060756. PMID: 26060756.
- 13 Jafari E, Mohebbi P, Rastegari L, Mazloomzadeh S. The Comparison of Physiologic and Routine Method of Delivery in Mother's Satisfaction Level in Ayatollah Mosavai Hospital, Zanjan, Iran, 2012. *The Iranian Journal of Obstetrics, Gynecology and Infertility*. 2013;16(73):9-18. doi: 10.22038/IJOGI.2013.1949.
- 14 Hoseini BL, Saedi M, Beheshti Norouzi Z, Kiani MA,

- Rakhshani MH. Assessment of Maternal Satisfaction with the Quality of Obstetric Care Provided in the Maternity Unit of Mobini Hospital, Sabzevar, Iran. *International Journal of Pediatrics*. 2019;7(5):9369-77. doi: 10.22038/IJP.2019.36862.3283.
- 15 Gholipour R, Shahoei R, Ghaderkhani G, Zakaryae S, Bahmani S. The Quality of Postpartum Care from the Perspective of the Recipients of the Comprehensive Health Center Service Using the SERVQUAL Pattern. *Avicenna Journal of Nursing and Midwifery Care*. 2019;27(4):281-91. doi: 10.30699/ajnmc.27.4.281.
 - 16 Tabatabaei SM, Behmanesh Pour F, Share Mollashahi S, Sargazi Moakhar Z, Zaboli M. The Quality Gap in the Services Provided by Rural Maternity Units in Southeast of Iran. *Health Scope*. 2015;4(4):e25344. doi: 10.17795/jhealthscope-25344.
 - 17 Vizvari P, Moradi M, Asadi L. Assessment of Customer Satisfaction with Quality of Services Provided in Maternity Ward of Shahid Sayyad Shirazi Hospital in Gorgan, Iran. *Journal of Clinical and Basic Research*. 2018;2(3):39-44. doi: 10.29252/jcbr.2.3.39.
 - 18 Ko C-H, Chou C-M. Apply the SERVQUAL Instrument to Measure Service Quality for the Adaptation of ICT Technologies: A Case Study of Nursing Homes in Taiwan. *Healthcare*. 2020;8:108. doi: 10.3390/healthcare8020108. PMID: 32344589.
 - 19 Parasuraman AP, Zeithaml V, Berry L. SERVQUAL: A multiple- Item Scale for measuring consumer perceptions of service quality. *Journal of retailing*. 1988;64:12-40.
 - 20 Abari AAF, Yarmohammadian MH, Esteki M. Assessment of quality of education a non-governmental university via SERVQUAL model. *Procedia - Social and Behavioral Sciences*. 2011;15:2299-304. doi.org/10.1016/j.sbspro.2011.04.097. PMID: 32344589.
 - 21 Goodman P, Mackey M, Tavakoli A. Factors related to childbirth satisfaction. *Journal of advanced nursing*. 2004;46:212-9. doi: 10.1111/j.1365-2648.2003.02981.x. PMID: 15056335.
 - 22 Moudi Z, Tavousi M. Evaluation of Mackey Childbirth Satisfaction Rating Scale in Iran: What Are the Psychometric Properties? *Nurs Midwifery Stud*. 2016;5(2):e29952-e. doi: 10.17795/nmsjournal29952. PMID: 27556053.
 - 23 Endeshaw B. Healthcare service quality-measurement models: a review. *Journal of Health Research*. 2020;35(2):106-17. doi: 10.1108/jhr-07-2019-0152.
 - 24 Charitou A, Fifi P, Vivilaki VG. Is empathy an important attribute of midwives and other health professionals?: A review. *Eur J Midwifery*. 2019; 12;3:4. doi: 10.18332/ejm/100612. PMID: 33537583.
 - 25 Rouleau D, Fournier P, Philibert A, Mbengue B, Dumont A. The effects of midwives' job satisfaction on burnout, intention to quit and turnover: a longitudinal study in Senegal. *Human Resources for Health*. 2012;10(1):9. doi.org/10.1186/1478-4491-10-9.
 - 26 Wilkinson H, Whittington R, Perry L, Eames C. Examining the relationship between burnout and empathy in healthcare professionals: A systematic review. *Burnout research*. 2017;6:18-29. doi: 10.1016/j.burn.2017.06.003. PMID: 28868237.
 - 27 Roohi G, Asayesh H, Abdollahi A. Evaluation of the client's expectations and perceptions gap about the quality of primary health services in Gorgan health center. *jumsjmj*. 2011;9(3):41-7. doi: 10.29252/jmj.9.3.7.
 - 28 Lu SJ, Kao HO, Chang BL, et al. Identification of quality gaps in healthcare services using the SERVQUAL instrument and importance-performance analysis in medical intensive care: a prospective study at a medical center in Taiwan. *BMC Health Serv Res*. 2020 ;29;20(1):908. doi: 10.1186/s12913-020-05764-8. PMID: 32993641.
 - 29 Gajewska P, Piskrzyńska K. Measuring Quality of Maternity Services Using the Servqual Method. *Regional Formation and Development Studies*. 2021;20(3):50-9. doi :10.15181/rfds.v20i3.1343.
 - 30 Oliae Z, Jabbari A, Ehsanpour S. An investigation on the quality of midwifery services from the viewpoint of the clients in Isfahan through SERVQUAL model. *Iranian journal of nursing and midwifery research*. 2016;21(3):291-6. doi: 10.4103/1735-9066.180377. PMID: 27186207.
 - 31 Mocumbi S, Högberg U, Lampa E, et al. Mothers' satisfaction with care during facility-based childbirth: a cross-sectional survey in southern Mozambique. *BMC Pregnancy Childbirth*. 2019 ; 19;19(1):303. doi: 10.1186/s12884-019-2449-6. PMID: 31426758.
 - 32 Wang Y, Lo H-P, Yang Y. An Integrated Framework for Service Quality, Customer Value, Satisfaction: Evidence from China's Telecommunication Industry. *Information Systems Frontiers*. 2004;6(4):325-40. doi:10.1023/B:ISFI.0000046375.72726.67.
 - 33 Padma P, Rajendran C, Lokachari PS. Service quality and its impact on customer satisfaction in Indian hospitals. *Benchmarking: An International Journal*. 2010;17:807-41. doi.org/10.1108/14635771011089746.
 - 34 Zarei E, Daneshkohan A, Pouragha B, Marzban S, Arab M. An empirical study of the impact of service quality on patient satisfaction in private hospitals, Iran. *Glob J Health Sci*. 2014;7(1):1-9. doi: 10.5539/gjhs.v7n1p1. PMID: 25560338.
 - 35 Essiam JO. Service Quality and Patients Satisfaction with Healthcare Delivery: Empirical Evidence from Patients of the Out Patient Department of a Public University Hospital in Ghana. *European Journal of Business and Management*. 2013;5:52-9.
 - 36 White CN, Buchanan TW. Empathy for the Stressed. *Adaptive Human Behavior and Physiology*. 2016;2(4):311-24. doi.org/10.1007/s40750-016-0049-5.