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Maternal satisfaction with breast massage services and related factors at Thanh Hoa Obstetrics and Gynecology hospital

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ABSTRACT

***Objectives**: This study assessed satisfaction with breast massage services and associated factors at Thanh Hoa Obstetrics and Gynecology Hospital. **Methods**: This cross-sectional study included 240 postpartum women who received breast massage services from March to May 2026, recruited through convenience sampling. Satisfaction was measured using an eight-item questionnaire based on the Vietnam Hospital Quality Criteria, the SERVQUAL model, and relevant literature. Items were rated on a five-point Likert scale. Content validity indices were 1.00, and Cronbach's alpha was 0.70. Descriptive statistics and non-parametric tests were used. **Results**: The mean overall satisfaction score was 4.37 ± 0.37 out of 5. All eight items had mean scores above 4.00, with perceived service effectiveness scoring highest (4.55 ± 0.50). Satisfaction was significantly associated with place of residence ($p = 0.008$), parity ($p = 0.04$), mode of delivery ($p = 0.01$), and source of information ($p < 0.001$). No significant associations were found with age, occupation, education, number of massage sessions, timing of service use, or reason for service use. **Conclusion**: Satisfaction with breast massage services was high. Perceived effectiveness was the highest-rated aspect. Maintaining effective care and examining differences in satisfaction by residence, parity, delivery mode, and information source may help guide service evaluation and improvement.*

***Keywords**: Maternal satisfaction, Breast massage, Postpartum care, Breastfeeding support, Healthcare service quality.*

INTRODUCTION

Maternal satisfaction is widely regarded as one of the core and most important indicators for comprehensively evaluating the quality of reproductive health services in healthcare facilities. The level of maternal satisfaction not only directly reflects the effectiveness of treatment and the quality of clinical care but also substantially influences patient utilization, retention, and the hospital's reputation and brand value [1]. Empirical evidence suggests that maternal satisfaction is a multidimensional construct influenced by multiple factors, including access to services, transparency of health information, the quality of physical facilities,

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healthcare professionals' attitudes and clinical competence, treatment outcomes, and healthcare costs [1, 2]. In the context of increasing financial autonomy and the growing emphasis on healthcare economics, enhancing maternal satisfaction through the provision of postnatal care services beyond the basic care package represents a strategic approach for specialized hospitals to strengthen their competitive value 2. Among these value-added services, postpartum breast massage-a safe and natural non-pharmacological supportive intervention-has attracted considerable attention and has become increasingly sought after by postpartum women [2, 3].

Postpartum breast massage has been demonstrated to be an effective non-pharmacological intervention for addressing difficulties in the initiation of lactation through its simultaneous neuroendocrine and mechanical effects [3, 4]. Postpartum women, particularly those who undergo cesarean delivery, often experience substantial challenges in initiating breastfeeding due to delayed onset of lactogenesis II, postoperative pain, anxiety, and breast engorgement [3, 4, 5]. Physiologically, mechanical stimulation of the breast, areola, and nipple during massage generates neural impulses that activate neuroendocrine pathways involving the hypothalamus and pituitary gland, thereby promoting the release of prolactin, which stimulates milk synthesis by the mammary alveoli, and oxytocin, which induces contraction of the myoepithelial cells surrounding the alveoli and facilitates milk ejection [5, 6]. This process may facilitate the onset of lactogenesis II within 72 hours postpartum [5], reduce breast-milk sodium concentrations associated with milk stasis [7], and stimulate oxytocin release, which may enhance uterine involution and facilitate lochia expulsion [8]. In addition, evidence synthesized from randomized controlled trials has shown that breast massage can significantly reduce breast engorgement scores, alleviate breast pain, decrease breast temperature in cases of inflammatory milk stasis, reduce maternal anxiety, and improve infant breastfeeding behaviors [3, 7].

Base on liturature review, despite the study did not directly measure maternal satisfaction with breast massage services, Sulistiawati and colleagues reported a significant improvement in maternal satisfaction with breastfeeding following the Marmet technique intervention [9]. In a randomized controlled trial involving 120 mothers of preterm infants, Mollaahmetoglu and Guvenc (2025) found that mothers reported satisfaction with breast massage, warm compresses, and their combination, with no significant differences in satisfaction scores between the intervention groups. However, this trial primarily investigated milk production and maternal anxiety rather than factors associated with satisfaction [10]. In China, a discrete choice experiment involving 100 postpartum women with acute mastitis or low milk production examined preferences for internet-based breast massage nursing services. Participants valued service cost, nurses' qualifications and experience, service responsiveness, safety assurance, and health education and follow-up [11]. These findings provide insight into service attributes that may influence mothers' choices, but they do not establish determinants of satisfaction. Furthermore, the available studies have largely examined satisfaction in relation to specific interventions or explored preferences for service delivery rather than comprehensively assessing satisfaction with routine hospital-

based breast massage services. Evidence regarding the associations between maternal characteristics, service-related factors, and satisfaction therefore remains insufficient.

Thanh Hoa Obstetrics and Gynecology Hospital is a provincial-level, first-class specialized hospital and a leading institution in obstetric and gynecological care in Thanh Hoa Province. The hospital is currently faced with the dual challenge of improving the quality of healthcare while pursuing sustainable development within an increasingly autonomous healthcare financing environment. To meet the growing needs of the population, the hospital has implemented a range of integrated postpartum maternal and neonatal care services, including breast massage, infant massage, pelvic steaming, plasma therapy, and newborn blood sampling for screening purposes. The implementation of these services constitutes an important strategy for enhancing comprehensive care and improving patient satisfaction. Hospital statistics for 2025 recorded 18,462 postpartum women; however, only 6,258 service encounters for breast massage were registered. Accordingly, actual utilization of breast massage services remained relatively limited compared with the potential demand. This finding suggests that access to and utilization of the service may continue to be constrained by barriers related to awareness, health communication, and healthcare costs[1, 8].

Although the clinical benefits of breast massage have been widely documented internationally [3, 5], research in Vietnam has primarily focused on describing mothers' knowledge and practices, such as studies conducted at Thai Nguyen National Hospital [8], or on the technical procedures and practices of healthcare professionals, as reported at the National Hospital of Obstetrics and Gynecology [2]. A study by Vo Thi Thanh and Tran Quoc Lam (2023) in Quang Ngai assessed overall maternal satisfaction with obstetric services but did not specifically examine satisfaction with breast massage services [1]. To the best of our knowledge, no study has comprehensively evaluated maternal satisfaction with breast massage services at a provincial-level, first-class obstetrics and gynecology hospital undergoing financial autonomy while seeking to enhance service quality, such as Thanh Hoa Obstetrics and Gynecology Hospital. This evidence gap limits the ability of healthcare administrators to guide service improvement, establish appropriate pricing policies, and optimize health communication strategies. Therefore, we conduct the study entile *"Maternal satisfaction with breast massage services and related factors at Thanh Hoa Obstetrics and Gynecology Hospital"* with aims *(1) to assess maternal satisfaction with breast massage services and (2) identify some related factor to maternal satisfaction with breast massage services at Thanh Hoa Obstetrics and Gynecology Hospital*. The findings are expected to provide scientific and practical evidence for quality management and service improvement initiatives, thereby supporting the optimization of the hospital's healthcare economic performance and enhancing the care experience of postpartum women.

METHODOLOGY

Study design: A cross-sectional study design.

Sample: The study participants were postpartum women hospitalized at Thanh Hoa Obstetrics and Gynecology Hospital.

Inclusion criteria

Postpartum women who were conscious, able to communicate, and had received breast massage services at least once during their hospital stay were eligible to participate.

Exclusion criteria

- Postpartum women with psychiatric disorders or severe postpartum complications that precluded their participation in the interview.

- Postpartum women with breast malignancies or breast abscesses requiring surgical intervention.

Sample size

The sample size was calculated using the formula for estimating a single population proportion:

$$n = Z^2_{(1-\alpha/2)} \frac{p(1-p)}{d^2}$$

Where: n = minimum required sample size. $Z^2_{1-\alpha/2}$ = 1.96 for a 95% confidence level. p = the proportion of postpartum women who were satisfied with the service, estimated at 0.82 based on a previous study by Vo Thi Thanh conducted at Quang Ninh Obstetrics and Pediatrics Hospital [1]. d = the desired margin of error, set at 0.05.

Based on these parameters, the minimum required sample size was calculated to be 227 postpartum women. To account for potential incomplete or invalid questionnaires, the final target sample size was increased to 240 postpartum women.

Sampling technique: Convenience sampling was used. All postpartum women who met the eligibility criteria during the study period were invited to participate until the required sample size was reached.

Instrument: The study used two questionnaires as follows:

(1) The questionnaire of demographics and general information related to the utilization of breast massage services which comprised two parts:

- The characteristics of participants included age, place of residence, occupation, educational level, parity, and mode of delivery.

- Information related to the utilization of breast massage services included main reasons for using the service, number of sessions received, timing of service utilization after childbirth, source of information through which the service was accessed, and intention to recommend the service to others.

(2) Satisfaction Scale for Breast Massage Services

Maternal satisfaction with breast massage services was assessed using an eight-item questionnaire developed based on relevant domains of the Vietnam hospital quality criteria issued under Decision No. 6858/QD-BYT [12], the five dimensions of the SERVQUAL model [13], and a review of the relevant literature. Each item was rated on a five-point Likert scale ranging from 1 means very dissatisfied, to 5 means very satisfied. The overall scale score was calculated as the mean of the item scores, with a possible range of 1 to 5, higher score indicated more satisfaction.

Following development by the research team, the questionnaire was submitted to a panel of six experts for content validity assessment. The expert panel comprised two senior midwives, each with more than 15 years of experience in postpartum maternal and neonatal care; two obstetricians,

each with more than 10 years of clinical experience; one lecturer with a master's degree in medicine specializing in obstetric education; and one lecturer with a doctoral degree and expertise in questionnaire development and medical statistics. The experts were asked to evaluate the questionnaire instructions, response format, and individual items. Content validity was assessed at both the item level (item-level content validity index (I-CVI)) and the scale level (scale-level content validity index (S-CVI)). At the item level, experts used a four-point rating scale: 1 = not relevant, 2 = unable to assess relevance, 3 = quite relevant but requiring minor revision, and 4 = highly relevant. Items receiving a rating of 1 or 2 were considered to require revision. The I-CVI for each item was calculated as the proportion of experts assigning a rating of 3 or 4 to the total number of experts (N = 6). The resulting I-CVI and S-CVI values were both 1.00, indicating good content validity[14].

The questionnaire was subsequently pilot-tested among 30 postpartum women with characteristics comparable to those of the target study population. The pilot participants were not included in the main study. The questionnaire demonstrated a Cronbach's alpha coefficient of 0.70, which was considered acceptable for a newly developed instrument [14].

Data collection: Participants who met the inclusion criteria were recruited. After the study purpose and the rights of research participants had been clearly explained, each participant was provided with a sealed envelope containing the informed consent form and the study questionnaire. Participants were instructed to complete the questionnaire at their convenience and, after completion, return it to the ward nurse using the sealed envelope. This self-administered and confidential approach was adopted to minimize potential interviewer-related and social desirability biases that might arise from face-to-face interviews, particularly because participants were receiving care in the hospital ward. Maintaining privacy during questionnaire completion was intended to encourage participants to provide responses that more accurately reflected their perceptions and experiences without feeling influenced by healthcare professionals or the research team. To complete the questionnaire, it may take 10 to 15 minutes. Data were collected from March 2026 to May 2026.

Data analysis:

The Statistical Package for Social Sciences version 25 was used to test the assumption, descriptive statistics, and correlation between the chracteristics of demographics and information related to the ultilazation of breast massage services and maternal satisfaction with breast massage services.

Ethical consideration:

The study was reviewed and approved by the Scientific and Technical Council of Thanh Hoa Obstetrics and Gynecology Hospital Number 274/QD-BVPS, issued date 17 April 2026. The study also adhered to the ethical principles outlined in the Declaration of Helsinki. Written informed consent was obtained from all participants prior to data collection. Participants were explicitly informed of their unfettered right to decline participation or withdraw from the study at any juncture without consequence. Throughout the entire research process, participant anonymity and the confidentiality of their responses were strictly safeguarded.

RESULTS

Chracteristics of demographics and general information related to the utilization of breast massage services

Table 1. Demographics and information related to the utilization of breast massage services (n = 240)

Characteristics		n	%
Demographics			
Age		Mean ± SD: 29.29 ± 4.702	
Place of residence	Urban aea	72	30
	Lowland area	129	53.8
	Mountainous area	39	16.2
Occupation	Civil servant/Public employee	73	30.4
	Manual worker/Self-employed worker	162	67.5
	Homemaker/Farmer	5	2.1
Educational level	Secondary school	18	7.5
	High school	91	37.9
	Undegraduates	131	54.6
Parity	Primiparous	115	47.9
	Multiparous	125	52.1
Mode of delivery	Vaginal delivery	28	11.7
	Cesarean delivery	212	88.3
Information related to the utilization of breast massage services			
Main reasons for using the service	Physiological breast engorgement (breast fullness, firmness, and pain)	75	31.3
	Blocked milk duct (a palpable hard lump and impaired milk flow)	56	23.3
	To promote earlier and/or increased milk production	109	45.4
Number of sessions received		Mean ± SD: 3.29 ± 1.04	
Timing of service utilization after childbirth		Mean ± SD: 1.26 ± 0.56	

Characteristics		n	%
Source of information through which the service was accessed	Healthcare professional counseling	173	72.1
	Family member/ friend recommendation	6	2.5
	Media/Signage/Poster	61	25.4
Intention to recommend the service to others	Yes	240	100%
	No	0	0

The average age was 29.3 years. Over half of the participants (53.8%) resided in lowland areas, followed by urban (30%) and mountainous (16.2%) regions. The majority (67.5%) were manual or self-employed workers, and most had either an undergraduate degree (54.6%) or high school education (37.9%). Slightly more than half (52.1%) were multiparous, and the vast majority (88.3%) had delivered by cesarean section.

The most common reason for using breast massage service was to promote earlier or increased milk production (45.4%), followed by physiological breast engorgement (31.3%) and blocked milk ducts (23.3%). On average, women received 3.29 sessions, and the first service was accessed around 1.26 days after childbirth, indicating early postpartum initiation. Healthcare professionals were the primary source of information (72.1%), with media/signage/posters accounting for 25.4% and personal recommendations only 2.5%. All 240 participants (100%) intended to recommend the service to others.

Satisfaction with breast massage services

Table 2. Maternal satisfaction with breast massage services (n = 240)

Item	Mean ± SD	Actual range
I am satisfied with the effectiveness of breast massage in meeting my needs (e.g., relieving pain, relieving milk duct blockage, and increasing milk production).	4.55 ± 0.5	4-5
I am satisfied with the staff's professional skills and technique in performing breast massage.	4.37 ± 0.48	4-5
I am satisfied with the staff's service attitude (dedication, gentleness, and attentiveness).	4.5 ± 0.50	4-5
I am satisfied with the clarity of the staff's explanations, counseling, and instructions.	4.39 ± 0.51	3-5
I am satisfied with the service response time (from requesting the service to receiving the service).	4.31 ± 0.49	3-5
I am satisfied with the availability and adequacy of the equipment used during the breast massage service.	4.28 ± 0.45	4-5

Item	Mean ± SD	Actual range
I am satisfied with the service fee in relation to the quality of the service provided.	4.25 ± 0.43	4-5
I am satisfied with the transparency and clarity of the payment process.	4.31 ± 0.46	4-5
Overall satisfaction	**4.37 ± 0.37**	**3.75-5**

The mean overall satisfaction score was 4.37 ± 0.37. Item mean scores ranged from 4.25 to 4.55, with no item below 4. The highest-rated item was service effectiveness (4.55 ± 0.50), followed by staff attitude (4.50 ± 0.50). The lowest-rated items were service fee (4.25 ± 0.43), equipment availability and adequacy (4.28 ± 0.45), and service response time (4.31 ± 0.49). Most items had an observed range of 4–5; a few had a minimum score of 3. The lowest overall satisfaction score was 3.75. Standard deviations ranged from 0.43 to 0.51 for individual items and were 0.37 for overall satisfaction.

Factors related to maternal satisfaction with breast massage services: The satisfaction score was not normally distributed. Therefore, non-parametric statistics was used to analyse correlation between variables of demographics and information related to the utilization of breast massage services and satisfaction with breast massage services.

Table 3. Correlation between age, number of sessions received, timing of service ultilization and maternal satisfaction (n = 240)

Variable	Maternal satisfaction	
	ρ	p-value
Age	0.026	0.688
Number of sessions received	-0.033	0.609
Timing of service utilization after childbirth	0.046	0.476

ρ = Spearman's rank correlation coefficient

As shown in table 3, no statistically significant correlations were observed between maternal satisfaction with breast massage services and age, the number of breast massage sessions or timing of service utilization after childbirth.

Table 4. Correlation between other factors of demographics and information related to the utilization and maternal satisfaction (n = 240)

Factors	n	Mean rank	Mann–Whitney U/ Kruskal-Wallis H	p-value
Ocupation				
Civil servant/Public employee	73	121.8		
Manual worker/Self-employed worker	162	119.9	0.05[(a)]	0.98
Homemaker/Farmer	5	121.5		

Factors	n	Mean rank	Mann–Whitney U/ Kruskal-Wallis H	p-value
Educational level				
Secondary school	18	115.7		
High school	91	123.6	0.33[(a)]	0.85
Undegraduates	131	119.0		
Place of residence				
Urban aea	72	99.6		
Lowland area	129	129.04	9.69[(b)]	0.008
Mountainous area	39	130.9		
Parity				
Primiparous	115	129.9	6112.0[(a)]	0.04
Multiparous	125	111.9		
Mode of delivery				
Vaginal delivery	28	89.2	2091.5[(a)]	0.01
Cesarean delivery	212	124.6		
Main reasons for using the service				
Physiological breast engorgement (breast fullness, firmness, and pain)	75	119.8		
Blocked milk duct (a palpable hard lump and impaired milk flow)	56	119.0	0.07[(b)]	0.97
To promote earlier and/or increased milk production	109	121.7		
Source of information through which the service was accessed				
Healthcare professional counseling	173	130.29		
Family member/ friend recommendation	6	170.67	20.84[(b)]	<0.001
Media/Signage/Poster	61	87.80		

[(a)] Mann–Whitney U; [(b)] Kruskal–Wallis H

Place of residence was significantly associated with maternal satisfaction (H = 9.69, p = 0.008). Post hoc comparisons indicated that mothers residing in urban areas reported significantly lower satisfaction (mean rank = 99.6) compared to those living in lowland (mean rank = 129.0) and mountainous areas (mean rank = 130.9). Parity also showed a significant association with satisfaction (U = 6112.0, p = 0.04). Primiparous mothers had a higher mean rank satisfaction score (129.9) than multiparous mothers (111.9). Mode of delivery was significantly related to satisfaction (U = 2091.5, p = 0.01). Mothers who underwent cesarean delivery reported higher satisfaction (mean rank = 124.6) compared to those who had vaginal delivery (mean rank = 89.2).

The source of information through which the service was accessed was also significantly associated with maternal satisfaction (H = 20.84, p < 0.001). Mothers who learned about the service through family or friend recommendations had the highest satisfaction score (mean rank = 170.67), followed by those informed by healthcare professionals (mean rank = 130.29) and media/signage/posters (mean rank = 87.80).

No statistically significant differences in satisfaction were found according to occupation (p = 0.98), educational level (p = 0.85), or main reasons for using the service (p = 0.97).

DISCUSSION

The present study found a high level of maternal satisfaction with breast massage services at Thanh Hoa Obstetrics and Gynecology Hospital, with a mean overall satisfaction score of 4.37 ± 0.37 on a five-point scale. All eight satisfaction domains had mean scores above 4.0, ranging from 4.25 to 4.55, indicating that participants generally perceived the service positively. These findings are consistent with the broader literature showing that maternal satisfaction is multidimensional and influenced not only by clinical outcomes but also by interpersonal interactions, communication, accessibility, responsiveness, physical resources, and perceived value of care [15]. In particular, the high satisfaction observed in this study suggests that breast massage has been successfully integrated into postpartum care at the study hospital as a service that addresses mothers' perceived breastfeeding needs while also contributing to their overall care experience.

The highest-rated domain was the perceived effectiveness of breast massage in meeting mothers' needs. This finding is clinically plausible because these concerns represented important reasons for service utilization in the present study. Nearly half of the participants (45.4%) reported using breast massage to promote earlier or increased milk production, while 31.3% used the service because of physiological breast engorgement and 23.3% because of blocked milk ducts. The clinical perception of benefit is supported by recent evidence. A 2026 systematic review and meta-analysis of 18 randomized controlled trials involving 1,099 postpartum women found that breast massage significantly increased breast milk volume and reduced breast engorgement, breast pain, and anxiety compared with control interventions [3]. Similarly, an earlier systematic review reported that different breast massage techniques were associated with reductions in immediate breast pain and improvement in symptoms related to breastfeeding problems, although

considerable heterogeneity existed between interventions and studies [16]. Therefore, the high rating for service effectiveness in the current study may reflect mothers' direct experience of symptom relief and perceived improvement in lactation rather than satisfaction based solely on the interpersonal aspects of care.

Staff attitude was the second-highest-rated dimension. Mothers particularly valued dedication, gentleness, and attentiveness during the breast massage procedure. This finding is important because postpartum women may be particularly sensitive to the manner in which care is delivered during the early postpartum period, when physical discomfort, breastfeeding difficulties, fatigue, and anxiety may coexist. Previous research on maternal satisfaction consistently identifies interpersonal relationships between women and healthcare professionals as major determinants of satisfaction. A review of studies from developing countries found that interpersonal behavior, including courtesy, respectful treatment, communication, provider confidence, competence, and emotional support, was among the most frequently reported determinants of maternal satisfaction [15]. The high score for staff attitude in the present study therefore suggests that the technical procedure alone does not explain the positive evaluation of breast massage; the way in which the service is delivered is also an essential component of perceived quality.

The relatively high score for the clarity of explanations, counseling, and instructions (4.39 ± 0.51) is also noteworthy. Healthcare professionals were the primary source of information about breast massage for 72.1% of participants, substantially exceeding media, signage, and posters (25.4%) and recommendations from family or friends (2.5%). This finding highlights the central role of healthcare professionals in connecting postpartum women with supportive breastfeeding services. Professional communication may influence not only awareness of service availability but also mothers' expectations regarding the potential benefits and appropriate use of breast massage. Recent evidence on maternal satisfaction with breastfeeding support similarly indicates that mothers value professionals who provide adequate time, encouragement, knowledge, empathy, and information that increases confidence in breastfeeding [16]. Thus, strengthening counseling and individualized education may be an important strategy for sustaining satisfaction while ensuring that mothers develop realistic expectations regarding the purpose and benefits of breast massage.

Although satisfaction was high across all dimensions, the lowest mean score was observed for the service fee relative to perceived quality (4.25 ± 0.43), followed by equipment adequacy (4.28 ± 0.45) and service response time (4.31 ± 0.49). These findings should not be interpreted as dissatisfaction, because all three dimensions remained above 4.0. However, their comparatively lower scores may identify areas in which further quality improvement is possible. Cost is a recognized determinant of maternal satisfaction, particularly in settings where patients must directly pay for additional or value-added services [15]. Similarly, responsiveness and tangible resources are important dimensions of healthcare service quality. A recent systematic review and meta-analysis of healthcare service quality using the SERVQUAL framework identified responsiveness and reliability among the

dimensions with substantial quality gaps, emphasizing the importance of timely and patient-centered service delivery [17]. For the study hospital, these findings suggest that maintaining appropriate pricing, minimizing waiting time, and ensuring adequate equipment may be important for preventing lower satisfaction as service utilization expands.

An important finding was that all 240 participants reported an intention to recommend the breast massage service to others. This result is consistent with the high overall satisfaction score and suggests that the service was perceived as sufficiently beneficial to generate positive word-of-mouth. Patient satisfaction is not merely an outcome of healthcare encounters; it may also influence future healthcare-seeking behavior and willingness to recommend services. Previous literature has demonstrated associations between maternal satisfaction and subsequent service utilization and recommendation behavior [18]. However, the universal recommendation rate in the current study should be interpreted cautiously because it may partly reflect social desirability or a ceiling effect. The concentration of responses toward the upper end of the satisfaction scale, together with the relatively small standard deviations, indicates limited variability in responses. Consequently, the instrument may have had insufficient sensitivity to distinguish between women with moderately high and very high satisfaction.

The analysis of demographic and service-utilization characteristics revealed several statistically significant associations with maternal satisfaction. Place of residence was significantly associated with satisfaction ($p = 0.008$), with mothers from lowland and mountainous areas having higher mean ranks than those living in urban areas. This finding is potentially related to differences in expectations, previous exposure to healthcare services, accessibility, or perceptions of service value. However, the cross-sectional design does not allow the mechanisms underlying this association to be established. Previous studies have reported that socioeconomic characteristics, geographic accessibility, and access to health services may influence maternal satisfaction, although the direction and strength of these relationships vary across contexts [15, 18]. Therefore, the observed difference should be considered an important signal for further investigation rather than interpreted as evidence that residence itself directly determines satisfaction.

Parity was also significantly associated with satisfaction, with primiparous women reporting higher satisfaction than multiparous women ($p = 0.04$). One possible explanation is that first-time mothers may have greater uncertainty and informational needs related to breastfeeding and may consequently perceive professional assistance as particularly valuable. In contrast, multiparous women may have previous breastfeeding experience and therefore higher expectations or greater ability to compare the current service with previous experiences. Recent evidence indicates that parity is among the demographic factors that may be associated with maternal satisfaction, although findings differ between populations and healthcare contexts [19]. Further studies should therefore explore whether parity influences satisfaction through differences in expectations, breastfeeding confidence, previous experience, or perceived need for professional support.

Mode of delivery was significantly associated with satisfaction, with women who underwent cesarean delivery reporting higher satisfaction than those who delivered vaginally ($p = 0.01$). This finding may reflect the particular needs of women after cesarean delivery. Postoperative pain, delayed initiation of breastfeeding, restricted mobility, and difficulties with positioning may increase the perceived value of professional breastfeeding support. Previous evidence suggests that women after cesarean delivery can experience greater challenges in breastfeeding initiation, while supportive interventions may improve comfort and breastfeeding-related outcomes. Nevertheless, the association observed in the current study should not be interpreted as evidence that breast massage itself produces greater satisfaction among women undergoing cesarean delivery, because mode of delivery may be related to other unmeasured clinical and psychosocial factors.

In contrast, maternal satisfaction was not significantly correlated with age, number of breast massage sessions, or timing of service utilization. The absence of a relationship with the number of sessions suggests that receiving the service more frequently does not necessarily translate into greater satisfaction. Similarly, the lack of association with timing of initiation indicates that mothers' evaluations may depend more on the quality and perceived effectiveness of the encounter than on the exact postpartum timing. No significant differences were observed according to occupation, educational level, or the main reason for using the service. These findings reinforce the multidimensional nature of satisfaction: demographic characteristics alone may not adequately explain mothers' perceptions when the quality of service delivery is consistently high.

The source of information was strongly associated with satisfaction ($p < 0.001$). Mothers who learned about the service through family or friends had the highest mean rank, followed by those receiving information from healthcare professionals and those learning through media, signage, or posters. This result suggests that interpersonal recommendations may create stronger expectations or greater confidence in the service than passive information sources. However, the number of women in the family/friend group was very small ($n = 6$), so this finding should be interpreted with caution. Nevertheless, the overall pattern emphasizes the importance of communication strategies that combine professional counseling with positive patient experiences. Healthcare professionals should provide accurate, consistent, and individualized information while hospitals may also use appropriate educational materials to increase awareness among postpartum women who may benefit from the service.

Overall, the findings indicate that maternal satisfaction with breast massage at Thanh Hoa Obstetrics and Gynecology Hospital is high and appears to be driven primarily by perceived effectiveness and the quality of interpersonal care. This is consistent with the broader evidence that patient satisfaction reflects the interaction between structural, process, and outcome dimensions of healthcare. The results also provide practical implications for hospital management. Maintaining competent staff, gentle and respectful communication, adequate equipment, timely service delivery, transparent payment processes, and reasonable pricing should remain priorities

as the hospital develops postpartum value-added services. At the same time, future quality-improvement activities should move beyond simply monitoring overall satisfaction and examine specific dimensions and subgroups in which satisfaction may be relatively lower. Such an approach may help the hospital preserve the strengths of the current service while improving responsiveness and patient-centeredness as utilization increases.

LIMITATIONS

Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional design limits the ability to establish causal relationships between participant characteristics, service-utilization factors, and maternal satisfaction. Second, convenience sampling was used, and all participants were recruited from a single provincial-level obstetrics and gynecology hospital; therefore, the findings may not be generalizable to other hospitals or postpartum populations with different socioeconomic, cultural, or healthcare characteristics. Finally, the very high satisfaction scores and the fact that all participants reported an intention to recommend the service suggest a potential ceiling effect, which may have reduced the ability of the instrument to discriminate between different levels of satisfaction.

CONCLUSION AND RECOMMENDATION

Maternal satisfaction with breast massage services at Thanh Hoa Obstetrics and Gynecology Hospital was high, with an overall mean satisfaction score of 4.37 ± 0.37 out of 5. Based on the relatively lower-rated domains, the hospital should prioritize three targeted improvements. First, the hospital should review and optimize service response time from service request to service delivery. Second, the hospital should ensure the availability and adequacy of equipment used for breast massage. And last, it should be reviewed the service fee in relation to perceived service quality.

For future research, it should be conducted with multicenter designs and larger, more diverse samples, employ validated instruments, and investigate the mechanisms underlying differences in satisfaction by residence, parity, mode of delivery, and information source. Prospective studies should also examine whether breast massage satisfaction is associated with objective breastfeeding outcomes, such as milk volume, breastfeeding exclusivity, breastfeeding self-efficacy, or duration of breastfeeding.

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