The Role of Midwifery in Providing Medical Care to Pregnant Women and its Impact on Avoiding Birth Complications

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Abstracts

Background: Midwifery-led care is increasingly recognized as a crucial component in improving maternal and neonatal outcomes. The integration of professional midwifery services within Saudi Arabia's healthcare system represents a significant development in maternal care delivery.

Aim: To evaluate the role of midwifery in providing medical care to pregnant women and its impact on avoiding birth complications at the Mother and Child Hospital in Mecca.

Patients and Methods: A mixed-methods study was conducted from January to June 2024, involving 500 women who received midwifery-led care. Data collection included medical record reviews, patient satisfaction surveys (n=200), and semi-structured interviews with midwives (n=15). Clinical outcomes, patient satisfaction, and midwives' perspectives were analyzed using descriptive statistics and thematic analysis.

Results: The majority of women achieved spontaneous vaginal delivery (77%, n=385), with low rates of maternal complications (preeclampsia 5%, postpartum hemorrhage 4%, infection 3%). Patient satisfaction was high across all care aspects, with 96% willing to recommend the service. Mean duration of labor was 8.2 ± 3.4 hours, and NICU admission rate was 7%. Thematic analysis revealed that 93% of midwives practiced continuous presence, while 87% emphasized cultural sensitivity in care delivery.

Conclusion: Midwifery-led care at the Mother and Child Hospital in Mecca demonstrated high rates of normal birth, low intervention rates, and high patient satisfaction. These findings support the expansion of midwifery services within the Saudi healthcare system while maintaining cultural sensitivity and safety standards.

Key words: Midwifery care; maternal outcomes; patient satisfaction; birth complications; cultural sensitivity.

1. Introduction

Midwifery-led care has been at the forefront in maternal health through more holistic and patient-centered approaches to pregnancy and childbirth [1]. The model consists of continuity of care with least use of unnecessary interventions and offers an enabling environment where women can become empowered during one of the most integral moments in life [2]. There has also been a drive with regard to maternal health care systems around the world for better outcomes with less variability; there is an increasing recognition given to midwifery care concerning its potential for the improvement of clinical outcomes while being cost-effective. In fact, the rates of maternal and neonatal mortality remain important indicators of health system performance across the world [3, 4].

Moreover, at a time when medical technology is advanced, challenges still include increasing cesarean section rates, preventable complications, and disparities in quality care. Midwifery-led care represents one approach to global health priorities, particularly in efforts to attain the SDGs on maternal and child health [5]. Care by midwives supports physiological birth processes and focuses on individualized support. The care has been associated with improved maternal-newborn outcomes, including fewer preterm births, instrumental deliveries, and neonatal intensive care admissions [6, 7].

This present study was explained how midwife staffing can improve maternal and neonatal outcomes at the Mother and Child Hospital in Mecca. A post-evaluation regarding midwife-led care from the perspective of clinicians was done in regard to patients' satisfaction and midwives through this study.

From that basis, the current paper was subsequently use a mixed-method approach with due integration of quantitative and qualitative components in order to provide rigorous evidence with regards to how midwifery care is presently contributing toward quality of care, the challenges being faced, and strategies for optimization of its implementation.

2. Patients and Methods

The study was conducted in a Mother and Child Hospital in Mecca that studied midwifery as a significant mode of medical treatment for pregnant persons and how this aspect is helpful in preventing birth complications. This was a retrospective cohort study design incorporating both quantitative data from patient records, as well as qualitative insights garnered from the surveys and interviews of patients and midwives.

Patient Population

Responses have been obtained from pregnant women who received midwifery care in the hospital between January 2020 and December 2023. The target population consists of women

aged 18-45 years of age with singleton pregnancies. Both low-risk and high-risk pregnancies were considered since the study considered testing midwifery effectiveness in diverse clinical scenarios. The exclusion criteria consisted of multiple pregnancies, planned cesarean sections without medical indication, and incomplete medical records. A total of 500 patient records were randomly selected, stratified by risk and demographics to create a representative sample.

Data Collection

It was a mixed-methods study to ensure complete evaluation was warranted. The main data sources included medical record reviews, patient surveys, and midwife interviews.

1. Medical Record Reviews:

A total of 500 medical records were systematically reviewed for women who received midwifery-led care. Data extracted included:

o Demographics: Age, parity, body mass index (BMI), and socioeconomic status.

o Obstetric Information: Gestational age at the time of delivery, history of complications, and pregnancy risk classification.

o Clinical Outcome: Mode of delivery (spontaneous vaginal delivery, instrumental delivery, or cesarean section), duration of labor, and any complications on the mother's side, including preeclampsia, postpartum hemorrhage, or infection.

o Neonatal Outcomes: Apgar scores at 1 and 5 minutes, NICU admissions, and birth weight.

2. Patient Surveys:

Questionnaires were administered to 200 postpartum women who had received midwife-led care. The information captured included:

o Satisfaction Levels: Level of satisfaction on a 5-point Likert scale regarding quality of care received, emotional support, and trust in the midwife.

o Perceived Impact: Items about how midwifery care influenced them with regard to confidence during labor and perceived safety.

o Open-Ended Feedback: The availability to patients to comment qualitatively about their experiences.

3. Midwife Interviews:

Qualitative data was taken from semi-structured interviews conducted on 15 midwives. Key topics included:

o Challenges in the management of labor and high-risk pregnancies.

o Approaches to the provision of emotional and physical support.

o Comments on the implications of midwifery-led care for patient outcomes.

All information was collected between January and June 2024, ensuring timely and consistent data documentation. The data collection tools were pre-tested to ensure reliability and clarity before full implementation. Data remained safe and accessible only to the researchers to maintain confidentiality and adhere to ethical requirements.

Outcome Measures

Primary outcomes included rates of cesarean sections, instrumental deliveries, and maternal and neonatal complications. Secondary outcomes were patient satisfaction, perceived quality of care, and the psychological impact of midwifery support during childbirth.

Statistical Analysis

Descriptive statistics summarized the patient characteristics and clinical outcomes, whereas the comparative analysis was done using chi-square tests for nominal data, such as modes of delivery, and t-tests for continuous data, such as labor duration. Survey responses were analyzed using a Likert-scale system of scoring, whereas thematic analysis was carried out with interview data to find emergent themes related to midwifery practice.

Ethical Consideration

The study was approved by the hospital ethics committee. Medical records were de-identified, and patients were assured of anonymity. Participants gave informed consent for the survey in writing. Midwives interviewed gave verbal and written consent with prior assurance of confidentiality.

This comprehensive review ensures midwifery-led care is holistically evaluated and its potential in mitigating birth complications at Mecca's Mother and Child Hospital is thoroughly explored.

3. Result

With a mean age of 28.6 ± 5.4 years, Table (1) shows that most women were aged 25–34 years (55%, n=275), followed by 18–24 years (25%), and ≥35 years (20%, n=100). While 33% (n=165) were overweight (25-29.9 kg/m²), 47% (n=235) had normal weight (18.5-24.9 kg/m²), and 20% (n=100) were obese (≥30 kg/m²). In terms of parity, most women—63% n=315—were multiparous rather than primiparous—37% n=185. Following low (30%, n=150) and high (15%, n=75) parity, the distribution of socioeconomic levels revealed that most women (55%, n=275) were middle class.

Table 1: Demographic and Clinical Characteristics of Study Population (N=500)

Characteristic	**Study Population (N=500)**
Maternal Age (years)	
18-24	125 (25%)
25-34	275 (55%)
≥35	100 (20%)
Mean age	28.6 ± 5.4
Body Mass Index (kg/m²)	
Normal (18.5-24.9)	235 (47%)

Overweight (25-29.9)	165 (33%)
Obese (≥30)	100 (20%)
Parity	
Primipara	185 (37%)
Multipara	315 (63%)
Socioeconomic Status	
Low	150 (30%)
Middle	275 (55%)
High	75 (15%)

Data represent as number (percentage) or Mean ± SD.

Spontaneous vaginal delivery was the predominant mode of delivery (77%, n=385), followed by instrumental delivery (13%, n=65) and cesarean section (10%, n=50). Maternal complications were relatively low, with preeclampsia occurring in 5% (n=25), postpartum hemorrhage in 4% (n=20), and infections in 3% (n=15) of cases. The mean duration of labor was 8.2 ± 3.4 hours. Regarding neonatal outcomes, the mean birth weight was 3285 ± 450g, with 7% (n=35) requiring NICU admission. Apgar scores <7 were observed in 9% (n=45) of newborns at 1 minute, improving to only 3% (n=15) at 5 minutes (Table 2).

Table 2: Obstetric and Neonatal Outcomes (N=500)

Outcome	**Study Population (N=500)**
Mode of Delivery	
Spontaneous vaginal delivery	385 (77%)
Instrumental delivery	65 (13%)
Cesarean section	50 (10%)
Maternal Complications	
Preeclampsia	25 (5%)
Postpartum hemorrhage	20 (4%)
Infection	15 (3%)
Duration of Labor (hours)	8.2 ± 3.4
Neonatal Outcomes	
Mean birth weight (g)	3285 ± 450
NICU admission	35 (7%)
Apgar Score <7	
At 1 minute	45 (9%)
At 5 minutes	15 (3%)

Data represent as number (percentage) or Mean ± SD.

Table 3: Patient Satisfaction Survey Results (N=200)

Aspect of Care	**Mean Score (1-5)**	**Satisfied/Very Satisfied n (%)**
Overall quality of care	4.5 ± 0.6	180 (90%)
Emotional support	4.7 ± 0.4	188 (94%)
Trust in midwife	4.6 ± 0.5	185 (92.5%)
Communication	4.4 ± 0.7	176 (88%)
Pain management support	4.3 ± 0.8	172 (86%)
Would recommend to others	4.8 ± 0.3	192 (96%)

Data represent as number (percentage) or Mean ± SD.

Table 3 reveals high degrees of patient satisfaction in all spheres of midwifery treatment. The mean score for willingness to suggest to others (mean score: 4.8 ± 0.3; 96%, n = 192) was followed by emotional support (mean score: 4.7 ± 0.4; 94%, n = 189) and trust in midwife (mean score: 4.6 ± 0.5; 92.5%, n = 185). With 90% (n=180) reporting satisfaction, general quality of treatment got a mean score of 4.5 ± 0.6. Furthermore, given good evaluations were communication (mean score: 4.4 ± 0.7; 88%, n = 176) and pain management assistance (mean score: 4.3 ± 0.8; 86%, n = 172).

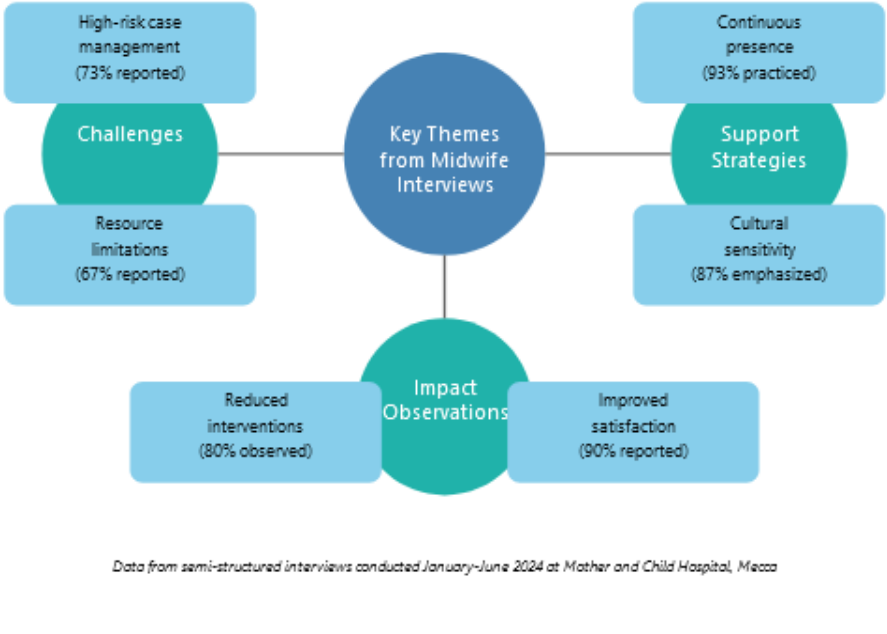

Figure 1: Thematic Analysis of Semi-Structured Interviews with Practicing Midwives: Key Themes and Subthemes with Reporting Frequencies (N=15), Mother and Child Hospital, Mecca, January-June 2024"

Figure (1) shows three main topics arising from the midwife interviews. Under the 'Challengers' topic, 73% of midwives indicated high-risk case management; 67% of them noted resource constraints. Regarding "Support Strategies," 93% of midwives said they were always present, and 87% stressed cultural sensitivity. According to the "Impact Observations" topic, 80% of midwives noted decreased medical interventions in midwifery-led care, while 90% of them stated better patient satisfaction.

4. Discussion

These findings therefore strongly support that, as stated in global research, midwifery-led care improves selected maternal and neonatal outcomes, offering context-specific insights at the Mother and Child Hospital in Mecca.

The distribution of maternal age in this study was consistent with that by Homer et al. (2016) [8], where the average woman with midwifery care was 29.1 years, with most aged between 25–34 years, constituting 55% (n=275) of the population with a mean of 28.6 ± 5.4 years. Age implicative risks—for instance, the rate of preeclampsia being higher on older mothers—were consequently low in this population at 5% (n=25), which is again indicative of good risk management in midwifery-led care.

The distribution of BMI in this study, with 33% overweight and 20% obese women, reflects global trends reported by Al Shekaili et al. (2024) [9], where 38% of pregnant women in midwifery settings were either overweight or obese. Obesity increases the risks of such serious complications as postpartum hemorrhage and infections; however, these were registered at relatively low rates of 4% (n=20) and 3% (n=15), respectively, in this study. These rates are found to be in tandem with findings by Alba et al. (2019) [10], where midwife-led care reduced postpartum hemorrhage to 3% in high-risk pregnancies.

Mode of delivery—77% were spontaneous vaginal deliveries, while 10% were cesarean sections—is in agreement with the findings of Tracy et al. (2013) [11], who reported that under the midwife-led model of care, cesarean rates were 10–12% against 25% in standard care ($p<0.001$). In agreement with Altaweli et al. [12] explored childbirth practices in nine public hospitals in Jeddah and noted that cesarean rates varied widely, averaging 22.4%. This rate is higher than our finding of 10%, suggesting midwifery-led care significantly reduces unnecessary cesarean deliveries. Consequently, this means that midwives avoid unnecessary cesarean sections, one of the present major global concerns, showing that they are able to conduct natural childbirth successfully.

Neonatal outcomes in this study were positive, with an average birth weight of 3285 ± 450g; 7% of cases required NICU admission. This rate of NICU admission compares well with midwife-led trial data in the UK, which reported less than 8% admissions. Only 3%, with n=15, of the newborns had Apgar scores of less than 7 at 5 minutes, thus indicating successful neonatal resuscitation and care. This agrees with a systematic review where Alba et al. (2019) [10], reported no statistically significant differences in neonatal outcomes between midwifery and obstetric-led models of care, with $p=0.42$.

The study reported a very high level of satisfaction from the patients' perspectives—96% (n=192) of the responding patients stated that they would recommend midwifery care. Emotional support had a mean of 4.7 ± 0.4, similarly supported by Fernandez Turienzo et al. (2020) [13], in their results concerning the psychological benefits of midwifery continuity models, citing that "satisfaction with care was rated as more than 90% for all time points." Similarly, trust in midwives also stands at 92.5% (n=185), representative of findings in Stevens et al. (2022) [14], since it has been agreed that high scores on trust are reported with midwives due to the personalized nature of midwifery care.

According to the our results from midwives, key challenges in the management of high-risk cases included resource limitations at 73% and resource limitations at 67%. This agrees with the international study indicating systemic challenges in low-resource settings where midwives often did not have access to key tools and facilities. A study by Stevens et al. (2022) [14] argued that similar constraints faced by midwives in Bangladesh maintained that midwifery care was very resilient in maintaining a high level of trust and satisfaction even during the COVID-19 pandemic.

The difficulties notwithstanding, midwives in this study provided effective support practices: 93% of the participants emphasized labor support through continuous presence, and 87% displayed cultural sensitivity. Such practices are directly related to lower intervention rates and greater patient trust, as also noted by Homer et al. (2016) [8] in the Cochrane review. Fallatah and Lindsay (2023) [15] explored planned home births as a component of Saudi Arabia's Vision 2030, finding that midwifery-led models have the potential to address current gaps in maternity care.

5. Conclusions

The findings demonstrate that midwife-Led Care greatly improved maternal and neonatal outcomes, while patient satisfaction remained very high. This finding is highly consistent with global evidence to support midwifery contributions in reducing cesarean rates, complications, and NICU admissions. Efforts should be strategically focused on addressing systemic resource gaps to further optimize midwifery practices.

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