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ORIGINAL RESEARCH

A Qualitative Study on Midwife-Led Outpatient Care Quality from Multiple Perspectives Based on the Structure–Process–Outcome Model

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Aim: To identify indicators of midwife-led outpatient care quality within the Structure– Process–Outcome (SPO) model by integrating perspectives from pregnant and postpartum women, midwives, nursing managers and obstetricians, informing an SPO-based evaluation framework.

Design: Qualitative study using directed content analysis.

Methods: From May to August 2025, multi-stage purposive sampling was employed at a tertiary hospital. Semi-structured interviews were conducted until data saturation was reached with thirty-three participants: eight pregnant women, six postpartum women, five combined clinic women, seven midwives, four nursing managers and three obstetricians. Audio-recorded transcripts and field notes were analysed; codes and themes were mapped to SPO domains.

Results: Analysis identified eleven themes and eighteen subthemes organised within the three SPO domains. Structure-related themes involved information access and promotion, clinic configuration and operation (staffing, midwives' qualifications and service hours) and facilities and institutional standards. Process-related themes included antenatal services (health education and birth-preparation interventions such as perineal massage), postnatal services (wound care, breastfeeding support and additional counselling) and continuity of care with the same midwife. Outcome-related themes focused on maternal satisfaction, contributions to obstetric practice and maternal–infant outcomes, alongside challenges in quality management (insufficient standardisation of quality indicators, staffing and scheduling constraints and limited prescribing authority) and proposed improvements such as service expansion and incentive mechanisms.

Conclusion: This Structure–Process–Outcome (SPO) based qualitative study integrates diverse perspectives from service users and healthcare providers to identify key factors for quality improvement. The findings reveal that for midwife-led clinics to achieve sustained improvements in continuity and maternal–infant outcomes, health systems must critically strengthen three areas: structural positioning, resource allocation, and the standardization of evidence-informed care processes. Therefore, a necessary next step is the development of robust, SPO-aligned quality indicators, which are directly derived from the study's identified themes. These indicators are essential for the effective monitoring and continuous improvement of outpatient services.

Keywords: midwife-led clinics, outpatient care, qualitative research, structure–process–outcome model, quality indicators

Introduction

The World Health Organization (WHO) identifies maternal and perinatal care quality as a cornerstone for reducing preventable deaths and achieving universal health coverage.[1,2] Consequently, the WHO has urged countries to institutionalize Midwife-Led Continuity of Care (MLCC),[3] a model robustly proven to reduce miscarriage and preterm birth, increase spontaneous vaginal birth, and improve maternal satisfaction.[4] Midwife-led outpatient clinics (MLOCs) serve as the central platform for this model, aiming to provide seamless services across the antenatal, intrapartum, and postnatal continuum. Currently, MLOCs and other midwife-led continuity models have been integrated into mainstream maternity services in countries such as the United Kingdom and Australia to advance woman-centred care and continuity of care.[5–7]

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In China, consistent with national strategies such as *Healthy China 2030* and the *Maternal and Infant Safety Action Plan (2021–2025)*,[8,9] there is a growing mandate to transition toward whole-cycle maternal health services. Since their introduction in 2006,[10] MLOCs have expanded across Chinese provinces, typically governed within obstetric–nursing structures. These clinics provide essential functions ranging from early-pregnancy risk assessment and perineal massage to psychological screening and breastfeeding support.[11–14] While emerging evidence links these clinics to higher maternal satisfaction and lower cesarean rates,[15,16] development remains uneven. Critical issues persist, including restricted prescribing authority, limited service hours, and a lack of standardized quality indicators for end-to-end continuity of care.

Despite the policy-driven expansion, current evaluations of MLOCs remain heavily outcome-oriented, focusing primarily on metrics such as cesarean section rates and neonatal Apgar scores.[17] While valuable, these indicators offer only a partial view of care quality. The structure (eg, staffing mix, governance) and process (eg, education coverage, relational continuity) of care remain under-specified. Furthermore, existing research is predominantly observational, single-center, and relies on fragmented perspectives—often surveying only mothers or midwives in isolation.[18,19] Consequently, there is a lack of comprehensive tools to evaluate the systemic quality of these clinics. A critical research gap exists in the absence of a unified evaluation framework that incorporates multi-stakeholder perspectives to assess the structure and process dimensions of care alongside outcomes.

To address this gap, this study adopts the Structure–Process–Outcome (SPO) model[20] as a theoretical lens to conceptualize quality across interrelated dimensions. The aim of this study is to identify quality indicators for midwife-led outpatient care within the SPO model by integrating perspectives from pregnant women, midwives, managers, and obstetricians.

Materials and Methods

Study Design

This study used a qualitative, descriptive and theory-driven design, employing directed content analysis (DCA)[21] guided by Donabedian's Structure–Process–Outcome (SPO) model.[20] This approach enabled an in-depth exploration of stakeholders' experiences of midwife-led outpatient care, while integrating perspectives from pregnant and postpartum women, clinic-based midwives, nursing managers and obstetricians within a predefined theoretical framework.

Setting and Participants

The study was conducted from May to August 2025 at Guangzhou Women and Children's Medical Center, an affiliated hospital of Guangzhou Medical University. Midwife-led outpatient services were first introduced at this institution in 2012 in the form of midwifery counselling, were formally incorporated into the outpatient system as midwife-led clinics in 2014, and were further expanded into an "Internet plus midwife-led clinic" model during the COVID-19 pandemic in 2020. At the time of the study, these services operated across all three hospital campuses, with an annual service volume of approximately 20,000 visits (around 15,000 in-person). Care was primarily delivered by about 15 clinic-based midwives (approximately 4–5 per campus), providing continuity of care for women during pregnancy and the postpartum period.

At the time of the study, the midwife-led outpatient service followed a relatively standardised protocol. Women could be referred by obstetricians or self-refer for one-to-one consultations of about 20–30 minutes delivered by senior midwives. Antenatal visits typically included late-pregnancy education, birth-preparation classes, perineal-massage instruction and individualised birth-plan review. Postnatal visits focused on perineal-wound assessment and care, breastfeeding support, pelvic-floor recovery advice and basic emotional screening, with online reviews for most uncomplicated cases and prompt referral to obstetricians for complex wounds. Service availability was mainly on weekday mornings, with approximately 18–24 appointment slots per session. Quality management relied on quarterly audits of workload targets and patient satisfaction, as well as a two-tier indicator set: general indicators (eg adverse-event rates, documentation standards) and specialty indicators (eg perineal-wound non-healing rate, antenatal attendance).

Participants were recruited using a multistage purposive sampling strategy to include stakeholder groups directly involved in midwife-led outpatient services. Four groups were enrolled: (1) pregnant and postpartum women receiving antenatal and/or postnatal care in midwife-led clinics; (2) clinic-based midwives providing antenatal or postnatal

outpatient care; (3) nursing managers responsible for outpatient services; and (4) obstetricians collaborating with midwife-led clinics. Sample size was determined according to the principle of data saturation.

Inclusion and Exclusion Criteria

Separate inclusion criteria were defined for each stakeholder group.

Pregnant and Postpartum Women

Eligible women were required to have attended at least three antenatal visits at the midwife-led outpatient clinic, or at least one postnatal visit, or both. They also needed to have essentially intact cognitive function, adequate communication ability, and be able to complete a face-to-face interview in Mandarin. Women were excluded if, in the judgement of the attending midwife, their physical or emotional condition was clearly suboptimal (for example, immediately after a complicated birth or with severe wound pain), such that participation in the interview might impose additional burden.

Clinic-Based Midwives

Eligible midwives were required to have at least 10 years of midwifery experience, a bachelor's degree or higher, and at least an intermediate professional title. At least 50% of the interviewed midwives had experience in outpatient quality control.

Managers

Managers included hospital leaders, department heads, nursing department directors and head nurses. Eligibility criteria were $\geq$ 3 years of outpatient management experience, a bachelor's degree or higher, and at least an intermediate professional title. Managers were excluded if they were not directly responsible for the organisation or quality management of the midwife-led outpatient clinic.

Obstetricians

Eligible obstetricians were required to have at least 10 years of clinical obstetric practice, a master's degree or higher, and at least an intermediate professional title.

All participants received detailed information about the study and provided written informed consent before data collection.

Data Collection

Data were collected through semi-structured, face-to-face interviews. The interview guide was initially developed on the basis of a systematic literature review and team discussions, with the Structure–Process–Outcome (SPO) model used as the overarching analytical framework.

To enhance content validity, the draft guide was reviewed by a panel of four experts, including a clinic-based midwife, an obstetrician, an outpatient nursing manager and a qualitative research specialist. The experts assessed the relevance, clarity and completeness of each question for the four stakeholder groups, and evaluated whether the guide adequately reflected the three domains of the SPO model. Based on their feedback, we refined the wording of several questions, added probes on continuity of care and quality indicators, and adjusted the order of items to improve the flow and acceptability of the interviews. The final interview guide covered experiences and expectations related to the structure, process and outcomes of midwife-led outpatient care, and was tailored for each stakeholder group Table 1.

The revised guide was then piloted with two women attending the clinic and one midwife to further assess comprehensibility and feasibility. Minor revisions were made in light of the pilot, and these pilot interviews were not included in the final analysis.

Formal interviews were conducted in quiet, private rooms within the hospital to ensure participant comfort and confidentiality. Each interview lasted approximately 30 minutes. Interviews with pregnant and postpartum women were usually scheduled immediately before or after their outpatient appointments, whereas interviews with midwives, managers and obstetricians were typically arranged outside peak working hours. With participants' permission, all interviews were audio-recorded. The interviewer also took brief field notes during and immediately after each interview to capture contextual information, key points and non-verbal cues (such as pauses, changes in tone, facial expressions

Table 1 Interview Guide for Different Stakeholder Groups

Stakeholder Group	Example Questions
Pregnant women	1. How did you first learn about the midwife clinic? 2. What nursing care services did you receive? Were your needs met? 3. All in all, can you describe your overall experience on visits? 4. What is the most important part of care to you?
Postpartum women	1. What services did you receive after delivery such as wound care, lactation counseling? 2. Were you helped to the recovery by them? 3. How would you assess the continuity of care? 4. What recommendations would you give to enhance postnatal care?
Pregnant & Postpartum women	1. How would you relate your experiences from the two stages? 2. Did you feel continuity of care between pregnancy and postpartum? 3. Were there breaks or disconnects? 4. What is most important to you in a covering clinic for both the stages?
Midwives	1. How is the clinic currently operating? 2. What aspects are most relevant to assess the quality? 3. What problems do you face regarding quality management? 4. Which variables best predict nursing quality?
Nursing managers	1. Where are the greatest resources allocated in quality management? 2. Do existing indicators cover all stages? Which is weakest? 3. Are there systems supporting continuity (eg, unified records)? 4. What strategies are effective for strengthening quality management?
Obstetricians	1. How has the establishment of midwife clinics impacted your work? 2. What aspects should midwives prioritize during visits? 3. What factors influence clinic quality? 4. Which indicators could quantitatively evaluate quality?

and body language). To protect anonymity, all participants were identified by role-based codes. In total, 33 participants from the four stakeholder groups were included in the study.

Data Analysis

Data analysis proceeded concurrently with data collection. Within 24 hours of each interview, audio recordings were transcribed verbatim, and relevant non-verbal cues noted in the field notes were incorporated into the transcripts. We used directed content analysis guided by the SPO framework.

First, the research team developed a concise codebook with three top-level categories (structure, process, outcome) and practical definitions and coding rules for each category. Two researchers independently piloted this codebook on an initial subset of transcripts, refining definitions and inclusion/exclusion rules and adding inductive subcodes emerging from the data.

An initial group of transcripts was double-coded, and discrepancies were discussed until consensus was reached. All coding decisions and revisions were documented in the codebook and a decision log. Using the stabilised codebook, the research team coded the remaining transcripts and met regularly to monitor coder drift and to discuss atypical or contradictory cases. Related codes were then grouped into subthemes and themes within each SPO domain. Patterns were compared across stakeholder groups (pregnant and postpartum women, clinic-based midwives, nursing managers, obstetricians) to identify both convergences and divergences in perceptions of quality. Themes and subthemes were refined and named through iterative team discussion. Data saturation was considered achieved when no new themes or subthemes appeared in later interviews.

To enhance rigour and reflexivity, several strategies were used. Triangulation of perspectives was achieved by including four stakeholder groups. A coding manual was iteratively refined to improve interpretive consistency.[22] The first author maintained reflective memos throughout data collection and analysis, documenting assumptions, emerging insights and potential biases, while regular team meetings were used to challenge interpretations and surface latent themes.[23] These strategies strengthened the credibility, dependability and confirmability of the findings.[22–25]

Ethical Considerations

This study was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of Guangzhou Women and Children's Medical Center (Approval No. [2025]156A01). All participants received oral and written information about the study aims, procedures, potential risks and benefits, and their right to decline or withdraw from the study at any time without affecting their access to care. Written informed consent, including consent for the publication of anonymized responses and direct quotations, was obtained from all participants prior to data collection.

Results

This study included 19 women who had attended midwife-led outpatient clinics, comprising eight antenatal attendees (A1–A7), six postnatal attendees (P1–P6), and five women who attended both antenatal and postnatal clinics (A+P1–A+P5). In addition, seven clinic-based midwives (B1–B7), four nursing managers (M1–M4), and three obstetricians (O1–O3) were included. Across stakeholder groups, the mean ages were 32.9 years for pregnant women, 30.2 years for postpartum women, 31.6 years for women attending both antenatal and postnatal clinics, 43.6 years for midwives, 44.3 years for nursing managers, and 42.0 years for obstetricians. Throughout the study, role-based coding was used to protect participant privacy, and all personally identifiable information was removed Tables 2–8.

Thematic analysis identified 11 major themes and 15 subthemes across the three dimensions of structure, process, and outcome Figure 1. The structural dimension covered information channels, staff qualifications and allocation, and clinic environment and regulations. The process dimension included antenatal services (health education, perineal massage, per-sonalised birth planning), postnatal services (wound care, breastfeeding guidance, emotional support), and continuity of care. The outcome dimension encompassed maternal satisfaction, support for physicians, maternal–infant outcomes, postnatal follow-up, and issues in quality management.

Table 2 Participant Characteristics (Summary for Main Manuscript)

Group	N	Age, Mean	Stage/Experience, Median [IQR]	Education, n (%)		
				Bachelor	Master	Doctor
Pregnant women	8	32.9	Gestational weeks 35.5 [34.0, 36.8]	4 (50.0%)	4 (50.0%)	0 (0.0%)
Postpartum women	6	30.2	Postpartum days 19.0 [13.5, 28.2]	4 (66.7%)	1 (16.7%)	1 (16.7%)
Antenatal–Postnatal women	5	31.6	/	3 (60.0%)	2 (40.0%)	0 (0.0%)
Midwives	7	43.6	Experience years 18.0 [16.0, 27.0]	5 (71.4%)	2 (28.6%)	0 (0.0%)
Nursing managers	4	44.3	Experience years 22.5 [19.5, 25.5]	4 (100.0%)	0 (0.0%)	0 (0.0%)
Obstetricians	3	42.0	Experience years 15.0 [14.5, 17.0]	0 (0.0%)	3 (100.0%)	0 (0.0%)

Notes: For obstetricians, gender distribution was Male 1 (33.3%), Female 2 (66.7%). Age reported in years. Stage/experience reports gestational weeks (pregnant women), postpartum days (postpartum women), or years of professional experience (staff).

Table 3 General Information of Pregnant Women Attending Midwife-Led Antenatal Clinics week (First Visit)

ID	Age	Education	Gestational	Type of Visit	Number of Visits
A1	33	Master	34 weeks	Antenatal clinic	4
A2	39	Master	34 weeks	Antenatal clinic	3
A3	30	Master	30 weeks	Antenatal clinic	5
A4	37	Bachelor	36+5 weeks	Antenatal clinic	4
A5	33	Master	36 weeks	Antenatal clinic	3
A6	35	Bachelor	37 weeks	Antenatal clinic	5
A7	29	Bachelor	37+1 weeks	Antenatal clinic	3
A8	27	Bachelor	35 weeks	Antenatal clinic	3

Table 4 General Information of Postpartum Women Attending Midwife-Led Postnatal Clinics

ID	Age	Education	Postpartum Days	Type of Visit	Number of Visits
P1	30	Bachelor	20	Postnatal clinic	1
P2	27	Master	12	Postnatal clinic	1
P3	31	Bachelor	18	Postnatal clinic	1
P4	31	Doctor	31	Postnatal clinic	1
P5	30	Bachelor	32	Postnatal clinic	1
P6	32	Bachelor	10	Postnatal clinic	1

Table 5 General Information of Women Attending Midwife-Led Antenatal–Postnatal Clinics

ID	Age	Education	Type of Visit	Number of Visits
A+P1	29	Master	Antenatal–Postnatal clinic	Antenatal 2 – Postnatal 1
A+P2	31	Bachelor	Antenatal–Postnatal clinic	Antenatal 2 – Postnatal 2
A+P3	35	Bachelor	Antenatal–Postnatal clinic	Antenatal 2 – Postnatal 1
A+P4	35	Master	Antenatal–Postnatal clinic	Antenatal 2 – Postnatal 2
A+P5	28	Bachelor	Antenatal–Postnatal clinic	Antenatal 2 – Postnatal 1

Table 6 General Information of Midwives

ID	Age	Education	Years of Experience	Professional Title
B1	39	Bachelor	14	Associate Chief Nurse
B2	37	Master	15	Associate Chief Nurse
B3	42	Bachelor	18	Senior Nurse
B4	54	Bachelor	35+	Associate Chief Nurse
B5	51	Bachelor	31	Associate Chief Nurse
B6	42	Bachelor	23	Senior Nurse
B7	40	Master	17	Associate Chief Nurse

Structure Dimension

Theme 1: Information Access and Promotion

Most pregnant women learned about MLOCs through informal channels such as social media, peer groups, or personal recommendations. However, awareness often came late in pregnancy, limiting early engagement. Midwives acknowledged that current promotional efforts were insufficient.

Table 7 General Information of Nursing Managers

ID	Age	Education	Years of Experience	Professional Title
M1	39	Bachelor	15	Senior Nurse
M2	49	Bachelor	30	Associate Chief Nurse
M3	45	Bachelor	21	Associate Chief Nurse
M4	44	Bachelor	24	Associate Chief Nurse

Table 8 General Information of Obstetricians

ID	Gender	Age	Education	Years of Experience	Professional Title
O1	Male	43	Master	19	Chief Physician
O2	Female	41	Master	14	Associate Chief Physician
O3	Female	42	Master	15	Associate Chief Physician

I joined a mothers' group, and someone recommended it there, also through Xiaohongshu. (Pregnant woman 3, antenatal)

I wish there had been promotion during early pregnancy check-ups, so I could have come earlier to learn pregnancy knowledge. I only found out at 37 weeks. (Pregnant woman 6, antenatal)

We usually promote in the fetal monitoring room and antenatal clinics; sometimes nurses in the registration office help too. (Midwife 4)

The publicity is still insufficient, many pregnant women don't know the benefits of MLOCs. (Midwife 5)

If we had videos explaining the role of MLOCs, they could play on corridor screens during antenatal visits so women would learn while waiting. (Midwife 6)

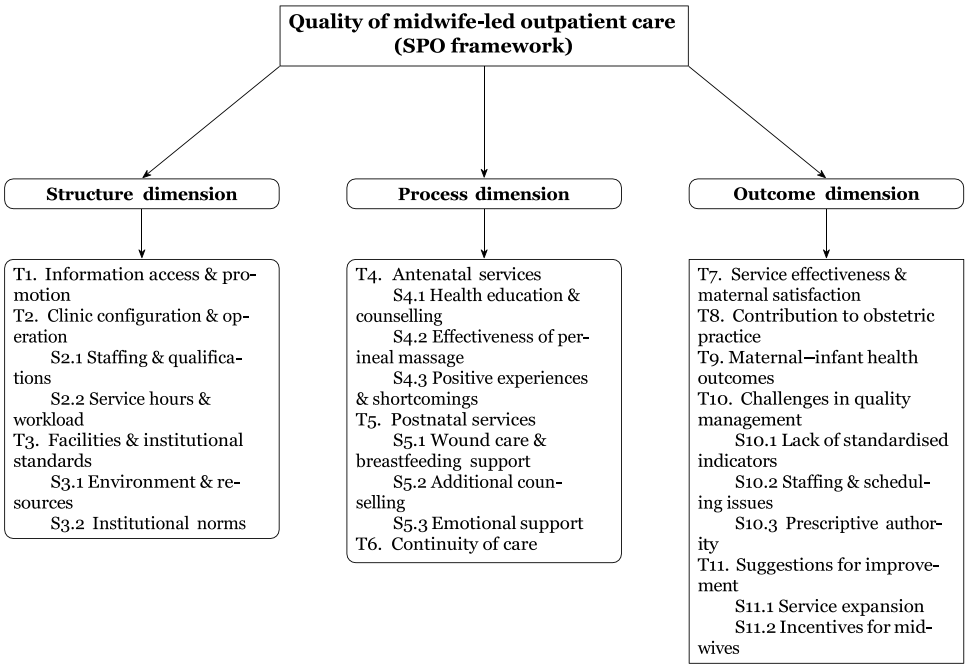

Figure 1 Themes and subthemes across the Structure–Process–Outcome (SPO) dimensions.

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Theme 2: Clinic Configuration and Operation

Subtheme: Staffing and Qualifications

Staffing emphasised qualified and experienced midwives, although resources were limited.

> Currently across three campuses, there are about 15 midwives. (Midwife 2)

> Our three campuses are managed homogeneously. MLOC midwives must have at least a bachelor's degree, senior nurse title, and specialist certification, with rich delivery room experience. We are also training backup talent. (Midwife 1)

> We try to assign experienced midwives, at least with delivery room background, preferably with specialist nurse training. (Nurse manager 1)

Subtheme: Service Hours and Workload

Operating hours were limited to weekday mornings, creating barriers for working families.

> Currently it's Monday to Friday, 8:00–12:00, about 18–24 appointments. (Midwife 1)

> Previously more than 20 came per session, and we sometimes finished after 1 p.m. Now the system only releases 20 slots, extras are added on-site. (Midwife 4)

> My husband and I both work weekdays. If the clinic opened on weekends, he could come with me to learn perineal massage. (Pregnant woman 1, antenatal)

Theme 3: Facilities and Institutional Standards

Subtheme: Environmental and Resource Constraints

Facilities for simulation training were sometimes inadequate.

> The teaching venue was noisy, using a small blackboard. It was hard to see from the back. (Pregnant woman 3, antenatal)

> During simulated labor there were only a few yoga balls, set up in the corridor where blood pressure was measured. I hope for real delivery room settings so I won't feel as fearful when giving birth. (Pregnant woman 5, antenatal)

Subtheme: Institutional Norms

Standardisation efforts existed but required further refinement.

> We have formulated clinic work standards, like unified consultation processes and follow-up record formats. (Nurse manager 1)

> MLOC has a separate system and electronic records, and our regulations are based on hospital context and national policies. (Midwife 1)

Process Dimension

Theme 1: Antenatal Services

Subtheme: Health Education and Counselling

Women appreciated personalised guidance but noted gaps in early pregnancy education and postpartum follow-up.

> They mainly guided me based on my personal problems. (Pregnant woman 2, antenatal)

> I hope for more health education in early and middle pregnancy. (Pregnant woman 1, antenatal)

> Birth plans should be more targeted — not just intrapartum, but also prenatal and postnatal. (Pregnant woman 4, antenatal)

Subtheme: Effectiveness of Perineal Massage

Perineal massage was widely recognised as effective.

It let me experience the sensation of vaginal delivery in advance, so I was less afraid during birth. (Woman 1, both antenatal and postnatal visits)

It helped me a lot, made delivery smoother, and strengthened my confidence in natural birth. (Woman 2, both antenatal and postnatal visits)

Subtheme: Positive Experiences and Shortcomings

Participants valued the supportive atmosphere but wanted more structured, continuous education.

Massage, simulated birth courses, and acupressure reduced pain, and the class atmosphere was good. Postpartum education was less, should include pelvic floor recovery. (Pregnant woman 1, antenatal)

I prefer offline classes for stronger experience. (Pregnant woman 2, antenatal)

I hope prenatal–intrapartum–postpartum education is more individualised. (Pregnant woman 5, antenatal)

A checklist would help me know what to learn in early, middle, and late pregnancy. (Pregnant woman 6, antenatal)

Theme 2: Postnatal Services

Subtheme: Wound Care and Breastfeeding Support

The midwife checked my perineal wound and explained why I felt uncomfortable, which helped me a lot. (Postpartum woman 1)

She explained my episiotomy healing, taught me cleaning and pain relief, and guided me to use potassium permanganate sitz baths for 10–15 minutes, plus ointment. (Postpartum woman 4)

I had uneven milk supply, the midwife taught me to use a pump regularly and not just on one side. (Postpartum woman 4)

Most postpartum wound reviews are done online via the internet MLOC, with abnormal cases referred offline. (Midwife 5)

Subtheme: Additional Counselling

I couldn't come for the 42-day check, the midwife suggested going to a community clinic, but not doing it earlier than 42 days. (Postpartum woman 6)

I asked about iron supplements, and the midwife recommended food first since I was still within 42 days. (Postpartum woman 3)

Subtheme: Emotional Support

While checking my wound, the midwife comforted me patiently. (Postpartum woman 2)

I was worried about low milk supply, she told me to stay happy and relaxed while breastfeeding. (Postpartum woman 6)

Theme 3: Continuity of Care

I always saw the same midwife, she knew me well, and I felt reassured. (Pregnant woman 3, antenatal)

She scheduled me for online review a week later, considering my childcare duties. (Postpartum woman 6)

Two antenatal and two postnatal visits with the same midwife made my vaginal birth smoother and boosted my confidence. (Woman 2, both antenatal and postnatal)

Outcome Dimension

Theme 1: Service Effectiveness and Maternal Satisfaction

The midwife's perineal massage was very professional and patient, I was very satisfied. (Pregnant woman 1, antenatal)

The prenatal and postnatal services were continuous, I could prepare for post-partum during pregnancy. (Woman 1, both antenatal and postnatal)

I had an 8 a.m. appointment but wasn't seen by 9, which was painful since my wound hurt and my baby needed feeding. (Postpartum woman 3)

Theme 2: Contribution to Obstetric Practice

Women become more informed, promoting natural birth, improving communication, and even accepting emergency cesarean more easily after trying vaginal delivery with midwives. (Obstetrician 1)

Postnatal clinics help address wound risks early, reducing our outpatient work-load. (Obstetrician 2)

Theme 3: Maternal–Infant Health Outcomes

Through MLOC I learned I could hire a doula, which made my vaginal birth smooth. (Postpartum woman 1)

Perineal massage boosted my confidence and made vaginal delivery smoother. (Woman 2, both antenatal and postnatal)

Theme 4: Challenges in Quality Management Subtheme: Lack of Standardised Indicators

Currently evaluation uses general indicators like adverse events and documentation, plus special ones like wound healing and antenatal visits, but overall it's confusing. (Midwife 2)

There are no unified quality management indicators. (Midwife 3)

Subtheme: Staffing and Scheduling Issues

Seeing more than 20 women is exhausting, since we must teach, do perineal massage, and check wounds. (Midwife 1)

Scheduling depends on delivery room shifts, so one midwife cannot always attend on a fixed day. (Midwife 4)

Too few staff means we cannot open on weekends. (Midwife 5)

Subtheme: Prescriptive Authority

Midwives could handle simple wound treatment and consumables, but lack pre-scription rights. (Obstetrician 1)

Theme 5: Suggestions for Improvement Subtheme: Service Expansion

Include education in early and mid-pregnancy to better accompany women. (Midwife 1)

Strengthen promotion, use more credible channels, and provide standardised answers for common questions. (Midwife 4)

Subtheme: Incentives for Midwives

Perineal massage has no performance credit, so enthusiasm is low. (Midwife 1)

Payment issues lower our motivation, we need institutional support. (Midwife 6)

Discussion

This study, grounded in Donabedian's Structure–Process–Outcome (SPO) framework, aimed to understand and articulate the core dimensions of quality in midwife-led outpatient clinics from multiple stakeholder perspectives, and to distil potential quality indicators from these accounts. By integrating views from pregnant and postpartum women, midwives, nursing managers and obstetricians, we identified 11 themes and 15 subthemes mapped onto the structural, process and outcome dimensions, providing an initial experiential basis for constructing a quality-assessment framework for midwife-led outpatient services. The discussion below interprets these findings along the three SPO dimensions.

Institutional and Resource Support as Foundational Conditions for Quality Improvement

Our findings indicate that institutional and resource support is a key structural pre-requisite for ensuring accessibility and efficiency of midwife-led outpatient services. Many women reported that they only became aware of the clinic through "Xiaohongshu", mothers' chat groups or personal recommendations—informal channels—and often not until late pregnancy, thereby missing the optimal window in early pregnancy for systematic health education. Midwives and nursing managers confirmed that current outreach mainly relies on sporadic referrals from registration-desk nurses or antenatal care providers, with no unified workflow and limited, fragmented promotional platforms. This aligns with existing evidence that early pregnancy is a critical window for health education, and that inadequate publicity is directly linked to low health literacy and suboptimal health practices among women.[26,27] Accordingly, in the structural dimension we recommend including explicit indicators of the coverage and timing of information channels, such as the proportion of women who learn about midwife-led clinics within the first trimester and the number and types of formal promotional channels.

With respect to human resources and the physical environment, midwives reported staffing pressures due to concurrent delivery-room rotations, which make stable scheduling and weekend clinics difficult to achieve. Women highlighted noisy teaching environments and insufficient facilities for simulation training. When defining structural indicators, hospital managers therefore need to pay attention to elements such as the midwife–client ratio, stability of duty rosters, provision of weekend and extended clinic hours, and adequacy of teaching and simulation facilities. Reasonable staffing, extended opening hours and improved infrastructure can offer a robust foundation for the sustained operation of midwife-led outpatient clinics.

Full-Cycle, Individualised Care as a Core Direction for Optimising Service Quality

Within the process dimension, this study shows that "full-cycle, individualised care spanning pre-pregnancy, perinatal and postpartum periods" is both the core expectation of women and a defining feature of midwife-led clinics. Health education, perineal massage and perineal wound care emerged as the most valued service components.

First, although midwives generally tailor health education to individual needs, the overall content remains fragmented and skewed towards late pregnancy. Several women first attended the clinic only in the third trimester, clearly missing the opportunity for systematic education in early and mid-pregnancy, and explicitly expressed a desire for a "knowledge checklist" covering all three trimesters. These accounts suggest that quality assessment should not only focus on whether health education is provided, but also incorporate indicators of the coverage, systematicity and continuity of health education across different gestational stages, for example, coverage of structured health education in each trimester and whether content is standardised by pregnancy stage.

Second, perineal massage, a key clinic service, was widely perceived as helpful in enabling women to experience sensations similar to vaginal birth in advance, alleviating fear and enhancing confidence in natural delivery. Some women, however, could not receive massage at home due to family or work constraints and therefore hoped that midwife-delivered perineal massage could be incorporated as a routine paid service. In the postpartum phase, perineal wound care was mainly delivered by midwives, including wound assessment, cleansing and pain management. Nevertheless, heavy reliance on online follow-up and limited flexibility in scheduling meant that some complex problems were not addressed in a timely manner. Previous research has shown that standardised perineal wound management can significantly reduce the risk of postpartum infection.[28,29] Based on our findings, we propose that process-level indicators

should include items such as the coverage rate of perineal massage services, adherence to standard wound-care protocols, timeliness of referral for abnormal wounds and responsiveness of online follow-up. This shifts attention from simply asking whether services are available to considering whether they are standardised, continuous and timely.

Taken together, the coverage of health education and the quality of perineal wound management reflect both the breadth and depth of services delivered in midwife-led clinics, and offer concrete directions for refining process-dimension quality indicators.

Collaboration Between Medical and Nursing Staff as a Key Driver of Quality

Our study further demonstrates that interprofessional collaboration is a crucial process link connecting structural conditions with improved outcomes. Some obstetricians reported that midwife-led clinics facilitated natural birth, increased acceptance of labour analgesia and doula support, and helped women better understand and accept emergency caesarean sections when required. Postpartum clinics were seen as enabling early detection and management of perineal wounds and other complications, thereby reducing outpatient workload for physicians.

These findings collectively depict a collaborative model in which midwives take the lead in basic care and education, while physicians are responsible for diagnosis and surgical or high-risk interventions. Prior literature suggests that expanding professional role boundaries and implementing task sharing can enhance team efficiency and improve outcomes.[30] On this basis, we recommend that the multi-professional collaboration model be explicitly incorporated into the quality-indicator system, for example through indicators such as the presence of standardised communication and referral pathways, the proportion of joint follow-up or case discussions, and the implementation of shared care plans. Such indicators capture an important aspect of process quality in midwife-led outpatient care.

Maternal and Infant Outcomes as Key Indicators of Service Effectiveness

In the outcome dimension, both women and physicians emphasised the positive impact of midwife-led clinics on birth confidence, childbirth experience and postpartum recovery. Women who received perineal massage and doula support generally reported smoother vaginal births and a stronger sense of control during labour.[31] Many women indicated that learning about postpartum rehabilitation during pregnancy helped them to achieve better psychological and physical recovery during childbirth and the postpartum period. Obstetricians perceived the clinics as providing a "buffer and complement" in managing conversions from planned vaginal birth to caesarean section and in preventing perinatal complications, thereby reducing complication rates and physician workload.

Overall, our findings support positioning maternal and infant outcomes as core outcome indicators for evaluating midwife-led outpatient services. These could include, but are not limited to, vaginal birth and successful trial-of-labour rates, incidence of perineal wound complications, postpartum readmission rates, women's subjective recovery and satisfaction, and rates of adverse maternal or neonatal events. Such outcomes directly reflect the extent to which midwife-led clinics safeguard maternal and infant health, enhance physical and psychological well-being and reduce clinical risk, and therefore warrant prioritised measurement within the SPO framework.

Limitations and Future Directions

This is an interpretive qualitative study. Although we employed reflexive memos, team debriefings and an audit trail, the influence of researcher subjectivity cannot be completely excluded. Furthermore, the analysis was explicitly organised around the SPO framework. While this facilitated a clear focus on structural, process and outcome dimensions, it may have under-represented cross-cutting or extra-framework determinants, such as payment and regulatory environments, digital infrastructure, informal caregiver networks and broader organisational culture. The sample was drawn from a single tertiary women-and-children's hospital in Guangzhou, which also limits the transferability of the findings.

Future research could adopt mixed-methods designs, introducing quantitative tools to test the indicator set derived from this study for reliability and validity. Larger, multicentre samples across different regions and levels of care are needed to assess the applicability and robustness of the proposed indicators under diverse service contexts. Building on this, subsequent work may extend or reconfigure domains and subdomains beyond the SPO scaffold, so that the indicator system more comprehensively

captures key determinants of quality in midwife-led outpatient clinics. Such efforts would provide stronger evidence for quality assessment, policy making and continuous quality improvement of midwife-led outpatient services in China.

Conclusion

This study showed that pregnant and postpartum women, clinic-based midwives, nursing managers and obstetricians all perceived a lack of a systematic, scientific and operational framework for evaluating the quality of midwife-led outpatient clinics, which constrains standardised management and continuous improvement. Although the four stakeholder groups emphasised different gaps, together they highlighted the need for a multidimensional indicator system grounded in the Structure–Process–Outcome model. Based on the themes identified, we propose potential indicators such as public awareness and information recognition rate, defined as the proportion of pregnant women who are aware of midwife-led clinics, and online-to-offline transition rate, defined as the proportion of abnormalities detected via online follow-up that are referred for in-person care, to support the refinement and implementation of a context-appropriate quality evaluation system for midwife-led outpatient services.

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