Analysis of the Role of the Comprehensive Guided Labor Nursing Intervention in Improving Maternal Adverse Emotions

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Abstract: *Objective:* To analyze the application value of the comprehensive guided labor nursing model in improving maternal negative emotions. *Methods:* Eighty cases of mothers admitted to the hospital from June 2022 to June 2023 were sampled and randomly grouped, with comprehensive guided labor nursing intervention included in Group A and conventional care included in Group B. Emotion scores, labor and delivery, pregnancy outcomes, and nursing satisfaction were compared. *Results:* Maternal self-rating anxiety (SAS) and depression (SDS) scale scores were lower in Group A than in Group B ($P < 0.05$). Maternal visual analog scores (VAS) and postpartum hemorrhage were lower in Group A than in Group B ($P < 0.05$). Additionally, the duration of each stage of labor was shorter than in Group B ($P < 0.05$). The incidence of adverse pregnancy outcomes was lower in Group A than in Group B, and the rate of spontaneous deliveries was higher in Group A compared to Group B ($P < 0.05$). Furthermore, nursing care satisfaction was higher in Group A than in Group B ($P < 0.05$). Overall, Group A had a higher rate of maternal nursing satisfaction than Group B ($P < 0.05$). *Conclusion:* Comprehensive guided labor nursing can shorten the duration of labor, reduce postpartum hemorrhage, and decrease the rate of adverse pregnancy outcomes, thereby contributing to the improvement of maternal mood. This approach proves to be efficient and feasible in clinical practice.

Keywords: Comprehensive guided labor; Midwifery care; Maternal; Adverse emotions.

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1. Introduction

The process of pregnancy and childbirth is extremely complex, encompassing the period of gestation exceeding 28 weeks, involving the initiation of labor in the mother's body, along with various factors such as the size of the fetus, amniotic fluid, and gestational weeks. During this phase, mothers may experience fear and nervousness, compounded by the exertion of delivery. These factors can prolong labor and increase the risk of fetal distress and cesarean section [1]. Consequently, interventions in delivery care play a crucial role in safeguarding maternal health during childbirth. While conventional obstetric care models can alleviate maternal discomfort to some extent, they often fail to stabilize maternal emotions. In some cases, improper care practices may even diminish obstetric care

satisfaction, highlighting the need for improvement in modern obstetric care approaches [2].

Comprehensive guided labor nursing, as a contemporary obstetric care model, embodies the principle of "people-oriented" service. This model has been shown to shorten labor duration, reduce postoperative hemorrhage, and decrease the incidence of neonatal asphyxia and adverse childbirth events [3]. This study examined the efficacy of comprehensive guided labor nursing through an analysis of 80 cases of women admitted to the hospital between June 2022 to June 2023. The aim is to evaluate the value of comprehensive guided labor nursing intervention.

2. Materials and methods

2.1. Data

A total of 80 cases of pregnant women admitted to the hospital from June 2022 to June 2023 were enrolled in this study and randomly grouped into group A (comprehensive guided labor nursing) and group B (routine care). **Table 1** shows the baseline data ($P > 0.05$).

Table 1. Analysis of maternal baseline data

| Group | n | Age (years) | | Gestation period (weeks) | | Number of births (times) | |
		Range	Average	Range	Average	Range	Average
Group A	40	24–38	29.73 ± 1.81	29–39	35.14 ± 1.25	1–3	1.64 ± 0.58
Group B	40	24–39	29.71 ± 1.79	29–40	35.19 ± 1.23	1–3	1.62 ± 0.61
χ^2 / t	-	0.0497		0.1803		0.1503	
P	-	0.9605		0.8574		0.8809	

2.2. Inclusion and exclusion criteria

Inclusion criteria included patients with ultrasound indicating that the fetus is in a cephalic position; patients with informed consent, and patients with no abnormalities in maternal organ function.

Exclusion criteria included patients with severe pregnancy complications, patients with abnormal organ function, and patients with ultrasound suggests that the fetus is in a non-cephalic position.

2.3. Methods

2.3.1. Group A: comprehensive guided labor nursing

(1) Nursing care during the waiting period:
- Routine intervention – Experienced midwives, selected and certified by the department, maintain daily disinfection of the waiting room, ensuring a warm and comfortable environment for mothers. They assist mothers in positioning comfortably upon entering the delivery room, provide detailed explanations of the labor process and each stage's characteristics, and demonstrate procedures to enhance communication and cooperation. Emergency drugs and midwifery equipment are prepared for labor safety.
- Psychological intervention – Continuous monitoring of maternal vital signs for abnormalities, immediate reporting to physicians if any, guidance for family members to prepare nutritious and easily digestible food for the mother, and instructions for correct breathing techniques.

(2) Nursing care during labor:
- First stage of labor – Monitoring contractions, educating mothers about pain management and

contractions, distracting mothers from pain through deep conversations, guiding breathing adjustments, providing back massages for pain relief, and encouraging energy conservation.
- Second stage of labor – Monitoring abdominal pressure and encouraging prolonged breath-holding during contractions to alleviate discomfort.
- Third stage of labor – Monitoring delivery of the placenta, ensuring rest, and recording vaginal bleeding volume. Encouraging mother-infant bonding, facilitating newborn touch, and minimizing breastfeeding duration.

(3) Postpartum care:
- Two-hour postpartum waiting room stays with explanations of its importance, education on newborn feeding and care, breastfeeding guidance, assessment of maternal mood fluctuations, communication enhancement, and use of music for emotional calming.
- Six-hour postpartum breast massage to stimulate milk discharge and uterine fundal massage to prevent postpartum complications.

(4) Discharge nursing:
- Provision of home nursing program information, guidance on infant feeding and complementary food introduction schedules, and monitoring maternal food intake and body mass fluctuations.

2.3.2. Group B: routine care

(1) Basic information recording and verbal explanation of precautions and related knowledge before delivery, addressing maternal concerns, and mood management.
(2) Targeted care initiation at 3 cm uterine dilation, focusing on hemorrhage prevention. Preparedness for cesarean section in cases of inability to deliver naturally. Assessment of post-delivery hemorrhage situations.

2.4. Observation indicators

(1) Adverse emotions: Scores from Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) are recorded. There is a positive correlation between maternal anxiety and depression.
(2) Delivery situation: Visual Analog Scale (VAS), postpartum hemorrhage, and time indicators of each labor process are recorded.
(3) Adverse pregnancy outcomes: Neonatal asphyxia, fetal distress, postpartum hemorrhage, and spontaneous delivery are recorded.
(4) Satisfaction: A self-made midwifery satisfaction scale was used to assess maternal satisfaction.

2.5. Statistical analysis

Data were processed using SPSS 21.0. Count data were expressed as % and the χ^2 test was used. Measurement data were expressed as mean ± standard deviation (SD) and the t-test was used. There was a statistically significant difference when $P < 0.05$.

3. Results

3.1. Maternal adverse mood scores

After the intervention, SAS and SDS scores were lower in group A than in group B ($P < 0.05$), as described in **Table 2**.

Table 2. Comparison of maternal adverse mood scores (score, mean ± SD)

Group	SAS		SDS	
	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Group A (n = 40)	52.36 ± 2.84	34.28 ± 1.25	53.61 ± 2.79	33.17 ± 1.31
Group B (n = 40)	52.41 ± 2.82	43.66 ± 1.79	53.59 ± 2.77	42.83 ± 2.69
t	0.0790	27.1724	0.0322	20.4194
P	0.9372	0.0000	0.9744	0.0000

3.2. Labor and delivery

Table 3 shows that Group A had a lower VAS score, lower postpartum hemorrhage, and shorter duration of each labor stage than Group B ($P < 0.05$).

Table 3. Comparison of deliveries (mean ± SD)

Group	VAS score (points)	Postpartum hemorrhage (mL)	Duration of the first stage of labor (min)	Duration of the second stage of labor (min)	Duration of the third stage of labor (min)
Group A (n = 40)	3.28 ± 0.82	151.36 ± 4.25	356.41 ± 21.36	41.82 ± 3.28	6.87 ± 1.05
Group B (n = 40)	6.41 ± 1.36	207.43 ± 5.16	461.37 ± 21.49	60.76 ± 4.16	7.91 ± 1.32
t	12.4653	53.0475	21.9087	22.6118	3.8997
P	0.0000	0.0000	0.0000	0.0000	0.0002

3.3. Pregnancy outcomes

Group A had a lower incidence of adverse pregnancy outcomes and a higher rate of spontaneous delivery than Group B ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of pregnancy outcomes [n (%)]

Group	Neonatal asphyxia	Fetal distress	Postpartum hemorrhage	Adverse pregnancy rate	Spontaneous delivery rate
Group A (n = 40)	0 (0.00)	1 (2.50)	1 (2.50)	2 (5.00)	36 (90.00)
Group B (n = 40)	1 (2.50)	5 (12.50)	3 (7.50)	9 (22.50)	27 (67.50)
χ^2	-	-	-	5.1647	6.0504
P	-	-	-	0.0237	0.0139

3.4. Nursing care satisfaction

Table 5 shows that the maternity care satisfaction was higher in group A than in group B ($P < 0.05$).

Table 5. Comparison of satisfaction with care [n (%)]

Group	Satisfied	Generally satisfied	Dissatisfied	Satisfaction
Group A (n = 40)	31 (77.50)	8 (20.00)	1 (2.50)	39 (97.50)
Group B (n = 40)	25 (62.50)	9 (22.50)	6 (15.00)	34 (85.00)
χ^2	-	-	-	3.9139
P	-	-	-	0.0479

4. Discussion

In the current landscape of rapid medical technological advancements, the rate of cesarean sections has steadily risen. However, despite these advancements, the risks associated with cesarean delivery, such as postpartum hemorrhage, anesthesia complications, and postoperative infections, remain significant. Moreover, the severe postoperative pain following cesarean section can impede maternal mobility. Additionally, cesarean deliveries bypass the natural birth canal, increasing the likelihood of neonatal respiratory complications [4]. It is within this context that comprehensive guided labor and delivery care has emerged.

Comprehensive guided labor and delivery care, tailored to the psychological state of the mother, assesses both maternal mental health and physiological health. Through prenatal education, labor and delivery guidance, and postpartum communication programs, this approach aims to enhance maternal understanding, alleviate labor-related fears and anxieties, and encourage cooperation with medical staff [5]. Furthermore, continuous monitoring of maternal vital signs and risk assessments, along with early mother-infant bonding and breastfeeding support, contribute to maternal well-being and emotional stability [6].

The analysis in this study revealed that Group A, receiving comprehensive guided labor and delivery nursing, exhibited significantly lower SAS (34.28 ± 1.25) and SDS (33.17 ± 1.31) scores compared to Group B ($P < 0.05$), indicating a pacifying effect on maternal anxiety and depression. The intervention's success can be attributed to various factors, including personalized nursing care through labor stages. During the first stage, limb arrangement for comfort, dietary guidance for maternal strength, and enhanced communication with family members are implemented. In the second stage, breath-holding techniques and verbal encouragement were utilized to boost maternal confidence. In the third stage, facilitating early mother-infant interaction and promoting breastfeeding fostered a sense of closeness and maternal empowerment [7]. Another data set showed that Group A's VAS score (3.28 ± 0.82), postpartum hemorrhage (151.36 ± 4.25 mL), and the duration of each labor stage (first, 356.41 ± 21.36 min; second, 41.82 ± 3.28 min; third, 6.87 ± 1.05) were significantly better than those in Group B ($P < 0.05$). This suggests that continuous maternal escort, vital sign monitoring, and uninterrupted support contributed to maternal security and confidence, resulting in shortened labor durations [8].

Comprehensive guided labor nursing also provided technical guidance to alleviate contraction pain, enhancing maternal labor progression and reducing cesarean section rates. Moreover, it minimized the risks of edema, infection, and perineal tearing, reflecting modern high-quality obstetric care standards [9]. Notably, Group A demonstrated a lower incidence of adverse pregnancy outcomes (5.00% vs. 22.50%) and a higher rate of spontaneous deliveries (90.00% vs. 67.50%), with $P < 0.05$. Maternal satisfaction was significantly higher in Group A (97.50%) compared to Group B (85.00%), further highlighting the intervention's efficacy. This can be attributed to the following advantages: (1) Comprehensive guided labor nursing, provided by professional midwives, ensures continuous and holistic care for mothers, thereby guaranteeing the continuity and integrity of midwifery services and maintaining the quality of care. (2) Professional midwives play a pivotal role in calming mothers, offering childbirth guidance, and boosting maternal confidence. By alleviating maternal tension and anxiety, they enhance maternal comfort, encouraging cooperation during delivery and facilitating the labor process. (3) Comprehensive guided labor nursing involves the timely detection and treatment of maternal abnormalities. This proactive approach can stimulate uterine contractions, thus reducing the risk of postpartum hemorrhage and other complications, ultimately ensuring the safety of both mothers and infants. (4) Guided music midwifery intervention throughout the labor process effectively relaxes the mother's body and mind. This relaxation aids in diverting the mother's attention from pain and contributes to a reduction in vasoconstrictive substances in maternal blood. Consequently, this intervention helps maintain uterine blood supply, balances uterine acidity, and mitigates the risks of neonatal asphyxia and fetal distress [10].

In summary, comprehensive guided assisted delivery nursing interventions effectively mitigate maternal distress, reduce labor pain, and minimize postpartum complications. These interventions contribute to improved labor and delivery outcomes, advocating for their widespread adoption in obstetric care.

Disclosure statement

The authors declare no conflict of interest.

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