

The Intervention Effect of Full-Responsibility Midwifery in Conjunction with Guided Labor Accompaniment on Maternal Birth Outcome

Hongjuan Zhu*

Yancheng Dafeng People's Hospital, Yancheng 224100, Jiangsu Province, China

*Corresponding author: Hongjuan Zhu, 13962091130@163.com

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To investigate and analyze the intervention effect of full responsibility midwifery with guided labor accompaniment on maternal birth outcomes. *Methods:* 68 cases of labor and delivery from January 2021 to December 2022 in Yancheng Dafeng People's Hospital were selected and grouped into the study group ($n = 34$) and the control group ($n = 34$). The pregnant women in the control group were in full-responsibility midwifery nursing intervention, and the pregnant women in the study group were in full-responsibility midwifery with guided labor accompaniment. The duration of labor, the rate of spontaneous delivery, the incidence of adverse pregnancy outcomes, and satisfaction with nursing care between the two groups were recorded and evaluated. *Results:* The duration of labor in the study group was lower than that in the control group ($P < 0.05$); the rate of spontaneous delivery in the study group was higher than that in the control group ($P < 0.05$); the incidence of adverse pregnancy outcomes in the study group was lower than that in the control group ($P < 0.05$); and the nursing care satisfaction in the study group was higher than that in the control group ($P < 0.05$). *Conclusion:* Full-responsibility midwifery with guided labor accompaniment can shorten the duration of labor, increase the rate of spontaneous delivery, reduce the incidence of adverse pregnancy outcomes, and achieve higher satisfaction of maternal care, which is of value for popularization and application.

Keywords: Full-responsibility midwifery; Guided labor accompaniment; Labor; Birth outcomes

Online publication: September 26, 2023

1. Introduction

Physiological and psychological changes can occur to varying degrees during labor and delivery. Pain during labor can lead to a significant increase in maternal catecholamine and adrenocorticotrophic hormone levels, increasing maternal blood pressure and heart rate, and affecting the emotional state of the pregnant women, which can lead to a variety of adverse pregnancy outcomes^[1,2]. In order to ensure the successful completion of labor and delivery, it is necessary to implement effective nursing interventions. Full-responsibility midwifery nursing care assigns experienced and highly skilled nursing staff to be responsible for the implementation of midwifery-related operations and accompany the pregnant women throughout the labor and delivery so that all kinds of abnormalities can be dealt with promptly, which can help to improve the outcome of pregnancy

^[3]. Under the mode of guided labor accompaniment, nursing staff provide comprehensive physiological and psychological interventions for pregnant women and guide them to establish confidence in natural childbirth, which can improve the physical and mental state of the pregnant women ^[4]. In this study, 68 cases of women were selected to analyze the clinical effects of full-responsibility midwifery with guided labor accompaniment.

2. General information and methods

2.1. General information

This study was approved by the Medical Ethics Committee. A total of 68 cases of women who underwent labor and delivery in Yancheng Dafeng People's Hospital were selected for the study period from January 2021 to December 2022 and were into a study group ($n = 34$) and a control group ($n = 34$) using odd and even digits of medical record number grouping. The maternal age range interval in the study group was 22–35 years with a median age of 28.59 ± 3.44 years and the gestational week range interval was 37–40 weeks with a median of 38.42 ± 0.65 weeks. In the control group, the maternal age range was 24–34 years with a median of 28.63 ± 3.49 years, and the gestational week range was 38–40 weeks with a median of 38.72 ± 0.54 weeks. The general data of pregnant women in the two groups were comparable ($P > 0.05$).

Inclusion criteria included patients with single fetus full-term pregnancy, normal intrauterine development of the fetus with no contraindication to a vaginal trial of labor and no complications during pregnancy, and patients who signed the informed consent document for the study.

Exclusion criteria included patients with multiple or non-cephalic pregnancies, diagnosed with psychiatric and psychological diseases, and unable to cooperate with the completion of the study.

2.2. Methods

The control group received full-responsibility midwifery nursing intervention, the specific measures are as follows:

- (1) Classification of midwifery nursing personnel: Nursing management personnel selected experienced nursing staff with skilled nursing operation techniques to be responsible for midwifery nursing interventions, determined the pregnant women for whom each nursing staff is responsible, required the nursing staff to understand the individual conditions of the pregnant women in detail, and formulated midwifery nursing measures according to the physical and mental state of the pregnant women.
- (2) Midwifery nursing intervention:
 - a. Pre-delivery care: Before delivery, nursing staff took the initiative to communicate with pregnant women and their families, introduced the delivery process and precautions, and emphasized the advantages of natural delivery. Nursing staff carried out psychological interventions for the pregnant women, introduced information to the pregnant women who gave birth naturally, instructed the pregnant women to relax their bodies and minds through deep breathing, and made the pregnant women build up confidence in natural childbirth through positive language guidance.
 - b. Nursing care during labor: The nursing staff strictly monitored the progress of labor, observed whether there were any abnormalities in the vital signs of pregnant women, instructed pregnant women to breathe correctly and exert, and then instructed pregnant women to replenish water and energy, and rest appropriately after entering the contraction interval. During labor, nursing staff massaged the uterus of pregnant women and promoted contractions through physical touch, verbal encouragement, and other ways to accelerate the progress of labor.
 - c. Post-delivery care: After the delivery of the fetus, the nursing staff cleaned the nasal cavity and oral

secretions, monitored the contractions and vaginal bleeding, and guided pregnant women to have early contact with their newborn.

The study group underwent full-responsibility midwifery with guided labor accompaniment. The full-responsibility midwifery nursing intervention was the same as the control group. The measures for the guided labor accompaniment are as follows:

- (1) Hospitalization: After admission, the nursing staff introduced the hospital environment and the medical staff team, explained the content and role of guided labor accompaniment in a simple manner, and answered any questions raised by pregnant women.
- (2) Nursing care in the first stage of labor:
 - a. Nursing staff monitored the progress of labor, arranged for family members of pregnant women to enter the delivery room during the first stage of labor for accompaniment until the patients completed the delivery, and guided the family members to provide psychological comfort to the pregnant women.
 - b. When pregnant women entered the latent phase of the first stage of labor, nursing staff assessed the degree of maternal pain and guided them to perform the Lamaze breathing pain relief method to relieve pain. When pregnant women entered the first active stage of labor, the ball nursing intervention was used, the nursing staff instructed the pregnant women to hold the bedrail and have their legs apart while sitting on the top of the ball, slowly rotating the hip joints, allowing the use of gravity and pelvic activity to drive the rotation and descent of fetus in the birth canal, and instructing the pregnant women to rotate while maintaining a standing, squatting, walking and other positions.

Nursing staff accompanied the pregnant women throughout the whole process, informed the progress of labor promptly, gave psychological support to the pregnant women through physical touch and other ways, and cooperated with hot compresses on the waist and back as well as massage to reduce physical and mental discomfort.
- (3) Nursing care in the second stage of labor:
 - a. In the early stage of the second stage of labor, the nursing staff instructed pregnant women to stay in semi-sitting, squatting, and standing positions alternately according to their personal wishes, and adjusted to other positions after 4–6 contractions were produced in each position.
 - b. After the fetal head was exposed, the nursing staff instructed pregnant women to keep the side-lying position, breathe correctly, and relax, provided the pregnant women with drinking water promptly, wiped the sweat off for pregnant women, and protected the perineum properly.
- (4) Post-delivery care: After the delivery, nursing staff congratulated pregnant women and their family members, gave explanations on breastfeeding, newborn care, and other knowledge to pregnant women, and arranged for early contact between pregnant women and their newborns.

2.3. Evaluation criteria

Statistics on the duration of labor, natural delivery rate, the incidence of adverse pregnancy outcomes, and the satisfaction of maternal care in the two groups were recorded using the hospital's self-developed questionnaire.

2.4. Statistical methods

SPSS 23.0 software was used to calculate all kinds of data. The measurement data is mean \pm standard deviation (SD), and the *t*-test method was used. The count data is %, and the χ^2 test method was used. $P < 0.05$ if there is a difference between the groups.

3. Results

3.1. Comparison of maternal labor time between the two groups

Table 1 shows that the maternal labor time in the study group was lower than that in the control group ($P < 0.05$).

Table 1. Comparison of maternal labor time between the two groups (mean \pm SD, min)

Group	The first stage of labor	The second stage of labor	Total stage of labor
Study group ($n = 34$)	384.75 \pm 12.66	42.05 \pm 5.72	426.47 \pm 25.06
Control group ($n = 34$)	411.73 \pm 15.98	51.88 \pm 6.94	462.74 \pm 28.35
<i>t</i> -value	7.717	6.373	5.589
<i>P</i> -value	0.000	0.000	0.000

3.2. Comparison of the rate of spontaneous delivery of women in the two groups

Table 2 shows that the maternal natural delivery rate of the study group was higher than that of the control group ($P < 0.05$).

Table 2. Comparison of maternal natural delivery rate in the two groups [n (%)]

Group	Natural delivery	Lateral episiotomy	Staged cesarean section	Natural delivery rate
Study group ($n = 34$)	28	5	1	28 (82.4)
Control group ($n = 34$)	20	10	4	20 (58.8)
χ^2 -value				4.533
<i>P</i> -value				0.033

3.3. Comparison of the incidence rate of maternal adverse pregnancy outcomes between the two groups

Table 3 shows that the incidence rate of maternal adverse pregnancy outcomes in the study group was lower than that in the control group ($P < 0.05$).

Table 3. Comparison of the incidence rate of maternal adverse pregnancy outcomes between the two groups [n (%)]

Group	Postpartum hemorrhage	Fetal distress	Neonatal asphyxia	Incidence of adverse pregnancy outcomes
Study group ($n = 34$)	1	1	0	2 (5.9)
Control group ($n = 34$)	3	3	2	8 (23.5)
χ^2 -value				4.220
<i>P</i> -value				0.039

3.4. Comparison of maternal care satisfaction between the two groups

Table 4 shows that the maternal care satisfaction of the study group was higher than that of the control group ($P < 0.05$).

Table 4. Comparison of maternal nursing satisfaction between the two groups [n (%)]

Group	Satisfied	More satisfied	Dissatisfied	Nursing care satisfaction
Study group (n = 34)	27	6	1	33 (97.1)
Control group (n = 34)	22	6	6	28 (82.4)
χ^2 -value				3.981
P-value				0.046

4. Discussion

Research statistics show that more than 90% of women in labor have serious fear and nervousness during delivery, and the psychological burden is more severe as adverse emotions may lead to a reduction in maternal tolerance of labor pain, an increase in the body's secretion of catecholamines, accelerated heart rate and respiratory rate, and irregular contractions, which can then lead to a variety of adverse pregnancy outcomes^[5,6]. In order to ensure the successful completion of natural labor, it is necessary to adopt a comprehensive and systematic nursing intervention to improve the physical and mental state of pregnant women^[7].

The full-responsibility system of midwifery is a widely-used nursing service model in obstetrics, in which nursing staff establish a one-on-one nursing service relationship with pregnant women and provide a complete and systematic nursing service, which meets the requirements of pregnant women for the quality of nursing care and ensure the safety of labor and delivery. Mothers' emotions fluctuate greatly during labor and delivery, and adverse emotions can affect the process of labor and delivery outcomes. Casually performing the whole process of responsible midwifery nursing care is ineffective in relieving labor pain, and cannot improve the emotional state of mothers. Guided labor accompaniment is a humanized mode of delivery care, in which nursing staff accompany mothers throughout the delivery and give necessary psychological support, which then relieves pain and promotes the delivery of the fetus through specialized guided labor measures. The combination of full-responsibility midwifery and guided labor accompaniment can realize the synergistic effect of the two programs, which can help improve the physical and mental state of pregnant women and reduce the incidence of adverse pregnancy outcomes.

The results of this study show that the duration of labor and the rate of spontaneous delivery in the study group were better than those in the control group, suggesting that the full-responsibility system of midwifery together with the guided labor accompaniment can shorten the duration of labor and improve the rate of spontaneous delivery. Analyzing the related reasons, under the full-responsibility system of midwifery nursing intervention, nursing staff establish one-to-one service relationships with mothers, which can provide professional delivery care services for mothers and timely deal with abnormalities during labor, but cannot relieve pain during labor, and the psychological state of mothers is not in place, which leads to low maternal nursing compliance, and thus affects the duration of labor and the rate of spontaneous delivery^[8,9]. Under the mode of guided labor accompaniment, nursing staff accompany the pregnant women throughout the labor and delivery, and through the comprehensive use of technical support, psychological intervention, experience explanation, etc., it can improve the negative emotions of the pregnant women, relieve the pain of contractions, accelerate the process of delivery of the fetus, and improve the nursing care adherence of mothers to establish confidence in natural delivery, thus improving the rate of natural delivery^[10,11]. The results of this study showed that the incidence of adverse pregnancy outcomes in the study group was lower than that in the control group, and nursing satisfaction was higher than that in the control group, suggesting that total responsible midwifery

with guided labor accompaniment can improve pregnancy outcomes and nursing satisfaction. The reason is that full-responsibility midwifery nursing can provide professional nursing services such as labor monitoring, abnormality disposal, delivery, and other nursing services to ensure the safety of the delivery process^[12,13]. On the other hand, guided labor can provide physiological and psychological support for mothers, measures such as the guided ball, Lamaze breathing method, and massage can reduce the pain of contractions, psychological comfort and health guidance can improve the emotional state of mothers, so that they can breathe correctly and exert, thus reducing the incidence of adverse pregnancy outcomes and improving the maternal satisfaction with nursing services^[14,15].

From the aforementioned analysis, it can be seen that full-responsibility midwifery with guided labor accompaniment can shorten the duration of labor, increase the rate of spontaneous delivery, reduce the incidence of adverse pregnancy outcomes, and achieve a high degree of satisfaction with maternal care, hence it has the value of popularization and application. However, the number of women enrolled in this study was relatively small, the analysis process still needs to be improved and adjusted, no multi-center comparative analysis of the same type of study has been carried out, and the study has been conducted for a relatively short period of time, thus the mechanisms related to the full-responsibility system of assisted delivery with the guided labor accompaniment require in-depth study and analysis.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Li F, 2023, The Effect of One-to-One Guided Labour Accompaniment by Midwives on the Psychological State of Primiparous Women and Labour Indicators. *Practical Chinese and Western Medicine Clinic*, 23(2): 121–124.
- [2] Xu T, 2023, The Effect of Midwife-Guided Nursing Care in Painless Labor. *Maternal and Child Health Guide*, 2(9): 149–151.
- [3] Yang Q, Yang W, 2023, Research on the Intervention Effect of Positional Training Combined with One-to-One Guided Accompaniment by Midwives on Women in Natural Labor. *Shanxi Medical Journal*, 52(5): 396–399.
- [4] Sun S, 2022, Analysis of the Intervention Effect of Full-Responsibility Midwifery with Guided-Music Accompaniment on the Outcome of Labor and Delivery. *Practical Gynecological Endocrinology Electronic Journal*, 9(25): 85–87.
- [5] Wang H, Hu S, 2022, The Effect of Midwife-Guided Labor on the Labor Process and Pregnancy Outcome. *Clinical Medicine Research and Practice*, 7(26): 169–171.
- [6] Liu M, 2022, The Effect of Midwife-Guided Labor and Delivery Combined with Lamaze Pain Relief on the Fear of Labor and Sleep Quality of Primiparous Women. *World Journal of Sleep Medicine*, 9(12): 2338–2341.
- [7] Liu X, 2021, Analysis of the Effect of Midwife-Guided Nursing Care on the Nursing Care of Women Giving Birth Without Pain and the Outcome of Pregnancy. *China Health Nutrition*, 31(17): 173.
- [8] Li X, Xu S, Zhu L, 2020, Effects of Midwife-Led Partner-Guided Accompaniment on Labor and Delivery Outcomes in Primiparous Women. *Nursing Practice and Research*, 17(19): 99–101.
- [9] Wang J, 2020, Analysis of the Effect of Midwife-Guided Nursing Care on the Nursing Care of Women Giving Birth Without Pain and the Outcome of Pregnancy. *Medical Aesthetics and Cosmetology*, 29(20): 186.
- [10] Wang L, 2019, The Effect of Labor Ball Combined with One-on-One Guided Accompaniment by Midwives on the

Natural Delivery Rate of Full-Term Singleton Primigravid Women. *Heilongjiang Medical Science*, 42(3): 165–166.

- [11] Deng M, 2017, Research on the Application Effect of Full-Responsibility Midwifery Method and Guided Labor Accompaniment Method in Assisting Primigravid Women to Have a Natural Delivery. *Contemporary Medicine Series*, 15(21): 240–241.
- [12] Zhong X, Cui J, Chen Y, et al., 2021, Improvement Effect of Guided Music Accompaniment on the Prenatal and Postnatal Psychological State of Primiparous Women and Its Influence on Labor Outcomes. *China Maternal and Child Health Care*, 36(4): 770–772.
- [13] Xu N, 2023, Discussion on the Application Value of Midwife-Led Partner-Guided Accompaniment in the Labor and Delivery Care of Primiparous Women. *Diabetes World*, 2023(5): 163–164.
- [14] Chen Y, 2020, Analysis of the Effect of Labor Ball with One-to-One Guided Labor Accompanied by Midwives on the Mode of Delivery and Birth Outcomes of Primigravid Women. *Jilin Medical Science*, 41(9): 2287–2288.
- [15] Zeng X, Liu L, Zeng B, et al., 2019, The Effect of Labor Ball with Midwife’s One-on-One Guided Labor Accompaniment on the Mode of Delivery and Birth Outcomes of Primiparous Women. *Nursing Practice and Research*, 16(4): 91–94.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.