

# Analysis of the Effect of Midwives' Psychological Care Intervention on the Progress of Labor and Cesarean Rate of Elderly Women in Labor

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**Abstract:** *Objective:* To analyze the effect of midwife psychological nursing intervention in the clinical care of elderly women in labor. *Methods:* According to the order of admission, 74 elderly women were divided into the control group and the observation group. In addition to the routine perinatal nursing interventions, the observation group strengthened the implementation of midwives' psychological nursing interventions. The duration of labor, mode of delivery, psychological state, and stress response indexes of the two groups were analyzed and compared. *Results:* The observation group had a shorter duration of all labor stages and total duration of labor than the control group, a lower cesarean section rate than the control group, and a higher degree of improvement in anxiety, depression, and stress response indexes in the 3-day postpartum period as compared to the control group ( $P < 0.05$ ). *Conclusion:* The implementation of midwife psychological care intervention in perinatal care of elderly women can further shorten the duration of labor, reduce the cesarean section rate, and improve the psychological state and stress indicators, which is worth promoting.

**Keywords:** Midwife; Psychological care; Elderly women; Labor; Cesarean section rate

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## 1. Introduction

The advanced maternal age refers to the maternal gestational age  $\geq 35$  years old. These pregnant women in the clinic have a high risk of pregnancy and postpartum complications, thus there is a need to implement high-quality nursing interventions during the perinatal period<sup>[1]</sup>. After reviewing a large number of studies, it was found that the psychological state of the mother will largely affect the progress of her labor and delivery, and even more so, it also determines the outcome of the pregnancy, however, the conventional nursing model has insufficient or even missing interventions in psychological care, therefore, it is necessary to strengthen psychological care<sup>[2]</sup>. Midwife psychological care intervention belongs to a new clinical nursing model, which mainly uses midwives, a special occupational group that can have zero-distance contact with mothers throughout the perinatal period, to provide feasible, scientific, and humanized nursing guidance on the psychological level, thereby helping mothers to better regulate the psychological state of their labor, effectively

reduce physiological stress and achieve the purpose of smooth delivery <sup>[3]</sup>. This study aims to investigate the clinical nursing benefits that can be achieved by strengthening the implementation of the midwife's psychological nursing intervention model during the orderly development of perinatal nursing care for 74 cases of elderly women according to the routine.

## 2. Materials and methods

### 2.1. General information

A total of 74 cases of advanced maternal age, all admitted between January 2021 and December 2023, were selected as the study sample. The order of maternal admission time was used as the basis for group allocation, with 37 cases admitted to the hospital first being categorized into the control group, and the other 37 cases into the observation group. The age of the control group was 35–42 years, with a mean age of  $38.53 \pm 7.12$  years; the gestational weeks were 37–41 weeks, with a mean of  $39.05 \pm 8.02$  weeks. The observation group was aged 35–43 years, with a mean age of  $38.61 \pm 7.19$  years; gestational weeks 37–40 weeks, with a mean of  $38.99 \pm 7.98$  weeks. After the normalized comparison operation of the information presented between the groups, the difference was not statistically significant ( $P > 0.05$ ).

Inclusion criteria: (1) age  $\geq 35$  years; (2) singleton, full-term pregnancy; (3) medical records were checked, and there were no omissions; (4) no history of mental, cognitive, or psychological diseases; (5) knowledge of the content of the study, and have voluntarily signed the relevant certificates.

Exclusion criteria: (1) twin, multiple, or part-term pregnancies; (2) serious pregnancy complications; (3) combined with malignant tumors; (4) combined with hematologic and immune system diseases; (5) combined with serious dysfunction of the heart, brain, kidneys, and other important organs; (6) extremely low compliance behavior; (7) midway out of the study.

### 2.2. Methods

#### 2.2.1. Control group

Routine perinatal nursing interventions were carried out in a standardized manner. This included verbally educating the mothers who regularly attended the hospital for maternity checkups about childbirth. When contractions became evident and the uterus had dilated sufficiently, the mothers were guided into the delivery room and instructed on correct breathing and exertion techniques to ensure smooth delivery. For those undergoing cesarean sections, necessary preparations were made before the operation, and all signs were closely monitored and reported promptly during the procedure. After the delivery of the fetus, the mothers were informed about the sex and health status of their babies. Subsequent nursing care included monitoring vital signs, breastfeeding guidance, dietary advice, and the prevention of complications, all conducted according to routine procedures.

#### 2.2.2. Observation group

In addition to the routine nursing care provided to the control group, the observation group received midwife psychological care interventions. The specific content of this intervention included:

- (1) Prenatal psychological care: (a) Individualized psychological intervention: Starting from the 32nd week of pregnancy, midwives conducted one-on-one communication sessions with the mothers during their maternity checkups. These sessions focused on understanding the mothers' pregnancy experiences and mental health. Mothers were encouraged to discuss their anxieties and concerns. Successful childbirth cases were introduced, and methods such as meditation, suggestion, and motivation were taught.

Positive influences from family and society were leveraged to enhance the mothers' confidence in labor and delivery; (b) Cognitive psychological intervention: Depending on the mother's age, education, and family situation, various educational methods such as graphics, videos, group lectures, and face-to-face education were used. These helped mothers understand the benefits of natural childbirth, recognize the clinical signs of abnormal labor, and learn techniques for whole-body muscle relaxation and pain reduction.

- (2) Psychological care during labor: (a) A trusted midwife familiar to the mother accompanied her throughout the labor process. During the first stage of labor, the focus was on alleviating the mother's nervousness and anxiety through touch, massage, communication, and music. Mothers were encouraged to get out of bed to promote labor progression. During the second stage, the midwife instructed the mother on correct breathing and exertion techniques, praised her performance, assessed labor risks scientifically, and treated symptoms as needed; (b) For cesarean-section mothers, midwives closely observed their expressions, skin color, and stress reactions upon entering the operating room. They inquired about any pain and used touch, eye contact, and verbal encouragement to alleviate tension and anxiety.
- (3) Postnatal psychological care: (a) Immediately after delivery, the mothers were informed about the sex and health condition of the newborn to reassure them. After safely escorting the mothers back to the ward, they were informed about potential complications and instructed on maintaining emotional stability. Close monitoring of vital signs and prevention of complications such as postpartum hemorrhage were conducted; (b) Daily bed rounds were increased in frequency, communication with mothers was strengthened, and their mental health levels were regularly assessed. Relevant psychological care interventions were implemented based on assessment results, including encouraging early contact with newborns and breastfeeding to promote the parent-child relationship and help mothers transition smoothly into their new role.

### 2.3. Observation indicators

- (1) The duration of labor (including the duration of the first, second, and third stages of labor).
- (2) Mode of delivery (categorized into natural delivery and cesarean section).
- (3) Indicators of psychological state and stress reaction.
- (4) The self-assessment scale of anxiety (SAS) and self-assessment scale of depression (SDS) were applied before nursing and in the 3d postpartum period, respectively; if the observed scores exceeded 50/53 and were close to 100, it suggested the presence of anxiety/depression and its severity was more and more unsatisfactory<sup>[4]</sup>.
- (5) 3 mL of venous blood was taken from the two groups for obtaining superoxide dismutase (SOD) and norepinephrine (NE) levels.

### 2.4. Statistical analysis

Statistical analysis was carried out using SPSS 25.0, and the observed data were compared in a normalized manner. Measurement data were expressed as mean  $\pm$  standard deviation (SD) and analyzed using the *t*-test, while count data were expressed as [*n* (%)] and analyzed using the chi-squared test. *P*-values of less than 0.05 indicated statistically significant differences.

### 3. Results

#### 3.1. Labor duration

**Table 1** shows that the duration of each stage of labor and the total duration of labor of the observation group was shorter than that of the control group ( $P < 0.05$ ).

**Table 1.** Comparison of labor duration between the two groups (mean  $\pm$  SD; min)

Group	1st labor stage	2nd labor stage	3rd labor stage	Total labor duration
Control group ( $n = 37$ )	211.02 $\pm$ 28.69	59.41 $\pm$ 7.11	15.01 $\pm$ 2.87	279.25 $\pm$ 33.56
Observation group ( $n = 37$ )	85.12 $\pm$ 9.52	40.35 $\pm$ 5.19	10.85 $\pm$ 1.24	138.59 $\pm$ 23.28
<i>t</i>	25.335	13.171	8.094	20.948
<i>P</i>	0.001	0.001	0.001	0.001

#### 3.2. Mode of delivery

As shown in **Table 2**, the cesarean section rate of the observation group was significantly lower than that of the control group ( $P < 0.05$ ).

**Table 2.** Comparison of the mode of delivery between the two groups [ $n$  (%)]

Group	Spontaneous delivery	Cesarean section
Control group ( $n = 37$ )	18 (48.65)	19 (51.35)
Observation group ( $n = 37$ )	27 (72.97)	10 (27.03)
$\chi^2$		4.593
<i>P</i>		0.032

#### 3.3. Indicators of psychological state and stress reaction

**Table 3** shows that the difference between the two groups for the relevant indicators before nursing is not statistically significant ( $P > 0.05$ ); in the 3d postpartum, the observation group's SAS score, SDS score, SOD level, and NE level are significantly lower than the control group ( $P < 0.05$ ).

**Table 3.** Comparison of psychological state and stress response indexes between the two groups (mean  $\pm$  SD)

Group	Time	SAS (points)	SDS (points)	SOD (NU/mL)	NE (pmol/L)
Control group ( $n = 37$ )	Pre-nursing	59.63 $\pm$ 9.11	55.41 $\pm$ 7.92	135.77 $\pm$ 12.65	3,258.44 $\pm$ 64.85
	3d postpartum	48.52 $\pm$ 6.98	44.21 $\pm$ 6.41	116.25 $\pm$ 10.05	3,189.68 $\pm$ 62.15
Observation group ( $n = 37$ )	Pre-nursing	59.28 $\pm$ 9.01	55.52 $\pm$ 8.03	135.89 $\pm$ 12.81	3,271.45 $\pm$ 65.25
	3d postpartum	31.74 $\pm$ 4.82	28.75 $\pm$ 4.12	101.05 $\pm$ 9.12	2,854.12 $\pm$ 50.85
<i>t</i>	Pre-nursing	0.166	0.059	0.041	0.860
	3d postpartum	12.033	12.341	6.813	25.418
<i>P</i>	Pre-nursing	0.868	0.953	0.968	0.393
	3d postpartum	0.001	0.001	0.001	0.001

## 4. Discussion

Pregnancy and childbirth are complex yet coordinated physiological processes of human reproduction. In recent years, changes in national marriage and childbirth concepts, along with the implementation of the “two-child” policy, have led to an increase in the rate of advanced maternal age in clinical settings. This trend inadvertently adds numerous difficulties and challenges to the clinical management of labor and delivery <sup>[5]</sup>. Compared to women of typical childbearing age, elderly women have relatively lower body function and a more rigid pelvic structure. Consequently, they are at higher risk for prolonged labor, obstructed labor, postpartum hemorrhage, and other adverse pregnancy conditions. To avoid these complications, many elderly women opt for cesarean sections. Although this can effectively reduce labor pain and associated delivery risks, the invasive nature of surgery can cause varying degrees of health damage to both the mother and fetus. Therefore, natural delivery is recommended whenever possible <sup>[6,7]</sup>.

Regardless of the delivery method, elderly women often experience significant psychological stress during the perinatal period. Uncontrollable events or unpredictable delivery outcomes can induce negative emotions such as nervousness, anxiety, and fear. Without timely and high-quality clinical care, these emotions can lead to substantial physiological stress responses, potentially resulting in adverse delivery outcomes <sup>[8,9]</sup>.

Historically, clinical practice has relied on conventional perinatal care models, which primarily focus on ensuring smooth delivery. These models include verbal health education, close monitoring of signs and symptoms, and labor guidance. However, the overall quality of care has been suboptimal, partly due to insufficient psychological intervention. Strong adverse psychological emotions can lower the maternal pain threshold, increase labor pain, and, in severe cases, affect hemodynamics and cause coagulation disorders. Thus, there is a pressing need to enhance psychological care interventions <sup>[10]</sup>.

The results from **Tables 1–3** in this paper indicate that, compared to the control group, the observation group experienced shorter labor durations, lower cesarean section rates, and reduced levels of postpartum anxiety, depression, and stress indicators. This suggests that midwives’ psychological care interventions offer significant advantages. Midwives, familiar and trusted by mothers, provide individualized psychological care at different perinatal stages. This approach is more acceptable to mothers, helps correct medical misconceptions, and better regulates adverse psychological states. Additionally, it facilitates the detection and prevention of nursing risks associated with the perinatal period that might trigger strong stress responses, ensuring healthier outcomes for both mothers and infants <sup>[11-13]</sup>.

In conclusion, implementing midwife-led psychological care interventions for elderly women in labor can effectively improve their mental health, accelerate delivery, and increase the rate of natural delivery. This approach is recommended for broader adoption.

## Disclosure statement

The author declares no conflict of interest.

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