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The Impact of Mother-Infant Separation on the Physical and Mental Health of Women with High-Risk Pregnancies and Corresponding Nursing Strategies

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Abstract: *Objective*: To analyze the impact of maternal-infant separation on the physical and mental state of high-risk pregnancy patients and explore the clinical efficacy of targeted nursing interventions. *Methods*: A total of 80 high-risk pregnancy patients treated in our hospital from January 2023 to January 2024 were selected as the study subjects. These patients were randomly divided into an observation group and a control group (40 cases each) using a random number table. The control group received routine high-risk pregnancy nursing care, while the observation group received specialized maternal-infant separation nursing interventions in addition to routine care. The psychological and physiological states and nursing satisfaction of the two groups were compared before and after the intervention. *Results:* The SAS scores, SDS scores, and sleep quality scores of the observation group were significantly lower than those of the control group, with statistically significant differences ($p < 0.05$). The incidence of postpartum hemorrhage in the observation group was significantly lower than that in the control group, and the initiation time of lactation was significantly earlier than that in the control group, with both differences being statistically significant ($p < 0.05$). The nursing satisfaction of the observation group was significantly higher than that of the control group (80% vs. 32/40), with a statistically significant difference ($p < 0.05$). *Conclusion:* Maternal-infant separation exacerbates anxiety and depression in high-risk pregnancy patients, reduces sleep quality, increases the risk of postpartum hemorrhage, and delays the initiation of lactation. Specialized nursing interventions for maternal-infant separation can improve the physical and mental state of high-risk pregnancy patients, reduce the incidence of postpartum complications, and enhance nursing satisfaction, making them worthy of clinical application and promotion.

Keywords: Mother-infant separation; High-risk pregnancy women; Physical and mental health; Nursing strategies

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1. Introduction

High-risk pregnancy refers to pregnancies complicated by various factors that may endanger the health and lives

of both mother and fetus, such as gestational hypertension, gestational diabetes, placenta previa, fetal distress, and preterm birth risk [1]. These mothers require specialized medical monitoring and interventions both before and after delivery. Occasionally, due to fetal prematurity, asphyxia, congenital disorders, or maternal health conditions, mother-infant separation becomes unavoidable. In recent years, continuous advancements in perinatal medicine have elevated the clinical management standards for high-risk pregnancies. However, comprehensive research on the impact of maternal-infant separation on the physical and mental well-being of high-risk pregnant women remains insufficient, and corresponding nursing interventions require refinement. This study examines 80 high-risk pregnant women using a group-comparison method to investigate the specific effects of mother-infant separation on maternal physical and mental states. It proposes effective nursing strategies aimed at improving the quality of care for high-risk pregnant women and promoting their physical and psychological recovery [2].

2. Materials and methods

2.1 Clinical data

2.1.1. Inclusion criteria

(1) 80 high-risk pregnancy cases from the obstetrics department of our hospital between January 2023 and January 2024.

(2) Patients meeting the diagnostic criteria for gestational hypertension, gestational diabetes, and placenta previa were included.

(3) Informed consent was obtained from the mothers and their families for this study, with signed consent forms.

2.1.2. Exclusion criteria

(1) History of mental illness (depression, anxiety, etc.) or severe cognitive impairment before pregnancy;

(2) Severe dysfunction of vital organs such as the heart, liver, and kidneys;

(3) Chronic diseases such as malignant tumors and immune disorders.

(4) Patients who withdrew from the study mid-process.

2.1.3. Study design

The 80 cases were randomly divided into an observation group and a control group, with 40 cases each. The observation group consisted of mothers aged 22–38 years, with a mean age of 28.56 ± 3.24 years; gestational age 28–40 weeks, with a mean of 35.23 ± 2.15 weeks. The control group consisted of mothers aged 21–39 years, with a mean age of 29.12 ± 3.56 years; gestational age 28–41 weeks, with a mean of 35.67 ± 2.34 weeks. Comparing general clinical data such as age, gestational age, high-risk factors, maternal-infant separation reasons, and separation duration between the two groups showed no statistically significant differences ($p > 0.05$), indicating comparability. This study has been approved by the medical ethics committee of our hospital [3].

2.2. Method

2.2.1. Control group

Implement routine nursing interventions for high-risk pregnancies, including:

(1) Basic nursing care

Closely monitor the mother's vital signs (temperature, pulse, respiration, blood pressure), uterine contractions, vaginal bleeding volume, and assess her consciousness and mental state. Guide the mother on postpartum diet, providing high-protein, high-calorie, easily digestible foods to ensure adequate nutrition. Assist the mother with turning over, getting out of bed, and other activities to promote gastrointestinal recovery and prevent thrombosis.

(2) Disease-specific nursing care

Take targeted measures based on the mother's specific risk factors. For example, mothers with hypertensive disorders during pregnancy should have regular blood pressure monitoring, medication administration as prescribed, and guidance on bed rest. For mothers with gestational diabetes, blood glucose should be measured, diet controlled, and appropriate exercise encouraged [4]. Insulin therapy may be required as prescribed when necessary.

(3) Routine health guidance

Provide postpartum rehabilitation and breastfeeding guidance, address the mother's questions, and inform her about the newborn's general condition (weight, vital signs). No targeted psychological interventions or emotional support for maternal-infant separation are included.

2.2.2. Observation group

On the basis of routine nursing care in the control group, specialized nursing interventions for mother infant separation will be implemented, with the following specific contents:

(1) Psychological intervention

Firstly, establishing a good nurse patient relationship, nurses actively communicate with postpartum women, have a friendly attitude, patiently listen to their complaints, understand their inner concerns and needs (such as the health status of newborns, anxiety about mother infant separation, etc.), and provide emotional support and comfort to postpartum women. Secondly, cognitive intervention involves providing detailed explanations to mothers about the reasons, necessity, and temporary nature of mother infant separation, informing them of the treatment and nursing measures for newborns, and letting them know that medical staff will pay attention to changes in the newborn's condition. Timely feedback on the newborn's feeding, sleep, vital signs, and other conditions is provided to mothers, enabling them to have a correct understanding of mother infant separation and reducing their psychological pressure.

(2) Information support intervention, establish a neonatal condition feedback mechanism, and provide feedback on changes in the newborn's condition, treatment progress, and nursing situation at least twice a day, including changes in the newborn's weight, body temperature, breathing, milk intake, bowel movements, etc.

(3) Lactation nursing intervention, including early contact, early sucking simulation training, 2–3 breast massages per day during mother infant separation to promote smooth breast ducts; Simulate neonatal suckling with a breast pump, suckling for 15–20 minutes each time, 3–4 times a day, to stimulate lactation reflex and prepare for breastfeeding. Secondly, breastfeeding guidance, telling mothers the benefits of breastfeeding, correct breastfeeding methods, and milk storage methods.

(4) Family support intervention: Communicate with the family members of the mother (mainly the husband), explain to them the impact of mother infant separation on the mother's physical and mental health, and encourage their family members to spend more time with the mother, provide care and attention, and

participate in the mother's rehabilitation process. Guide family members on how to communicate and assist postpartum women in alleviating negative emotions.

(5) Sleep care intervention, creating a good sleeping environment, keeping the ward quiet, tidy, and with soft lighting, adjusting to a comfortable temperature and humidity, arranging nursing operations reasonably, and conducting them during the rest of the mother to avoid affecting her rest, guiding the mother to develop good sleep habits, not drinking stimulating drinks such as coffee and strong tea before bedtime, soaking her feet in warm water before bedtime, using sedative hypnotic drugs (diazepam) according to medical advice for insomnia, and observing the efficacy and adverse reactions of the drugs.

2.3. Observation indicators

(1) Psychological state indicators

The anxiety and depression levels of the two groups of parturients were evaluated using the Self Rating Anxiety Scale (SAS) and Self Rating Depression Scale (SDS) before and 7 days after the intervention [5]. SAS scale 20 questions, SDS scale 20 questions, each item is rated on a scale of 1 to 4, with higher scores indicating more severe anxiety and depression. When the total score of SAS is greater than or equal to 50 points, it is considered that there is anxiety, and when the total score of SDS is greater than or equal to 53 points, it is considered that there is depression.

(2) Physiological indicators

Sleep quality: The Pittsburgh Sleep Quality Index (PSQI) is used to evaluate the sleep quality of postpartum women before and after intervention for 7 days [6]. The scale includes 7 dimensions: sleep quality, falling asleep time, sleep time, sleep efficiency, sleep disorders, hypnotic drugs, daytime dysfunction, etc. Each dimension is scored from 0 to 3 points, with a total score of 0 to 21 points. The higher the score, the worse the sleep quality. The incidence of postpartum hemorrhage was recorded for two groups of postpartum women within 24 hours after delivery. A bleeding volume of ≥ 500 mL was considered postpartum hemorrhage, and the incidence of postpartum hemorrhage was calculated. The onset time of lactation, which refers to the time from postpartum to the first lactation of a woman [6].

(3) Nursing satisfaction

After 7 days of intervention, a nursing satisfaction survey questionnaire designed by our hospital was used to evaluate the nursing satisfaction of two groups of postpartum women. The questionnaire includes 10 items such as nursing attitude, nursing techniques, health guidance, and information feedback, with each item scoring 1 to 5 points, for a total score of 10 to 50 points. Among them, 45 to 50 points are very satisfied, 35 to 44 points are satisfied, and 34 points and below are dissatisfied. Nursing satisfaction = (very satisfied cases + satisfied cases)/total cases × 100%. The Cronbach's alpha coefficient of the questionnaire is 0.85, indicating good reliability and validity [7].

2.4. Statistical methods

Input the data of this group into SPSS21.0 software for processing and analysis. The quantitative data is represented by ($\bar{x} \pm s$) and *t*-test is used; Count data is expressed as % and tested using the chi square test. $p < 0.05$, The difference is statistically significant.

3. Result

3.1. Comparison of psychological status, sleep quality, lactation initiation time, and incidence of postpartum hemorrhage between two groups of parturients before and after intervention

There was no statistically significant difference ($p > 0.05$) in the SAS score, SDS score, and PSQI score between the two groups of parturients before intervention; After intervention, the SAS score, SDS score, and PSQI score of the observation group were significantly lower than those of the control group, and the onset time of lactation was significantly earlier than that of the control group. The incidence of postpartum hemorrhage was significantly lower than that of the control group, and the differences were statistically significant ($p < 0.05$) [8]. The specific results are shown in **Table 1**.

Table 1. Comparison of psychological status, sleep quality, lactation initiation time, and incidence of postpartum hemorrhage between two groups of parturients before and after intervention ($\bar{x} \pm s$, n,%)

Group	Case	SAS Score (Points) Pre-Intervention	SAS Score (Points) Post-Intervention	SDS Score (Points) Pre-Intervention	SDS Score (Points) Post-Intervention	PSQI Score (Points) Pre-intervention	PSQI Score (Points) Post-intervention	Time to Lactation Initiation (h)	Cases of Postpartum Hemorrhage (n)	Postpartum Hemorrhage Incidence (%)
Observation group	40	56.32 ± 4.56	42.15 ± 3.24	58.78 ± 4.89	45.32 ± 3.56	14.23 ± 2.15	7.89 ± 1.34	24.35 ± 3.12	2	5.00
Control group	40	57.12 ± 4.78	50.23 ± 4.12	59.34 ± 5.12	53.12 ± 4.23	14.56 ± 2.34	11.56 ± 2.05	36.78 ± 4.56	8	20.00
t/χ^2 value	-	0.766	9.750	0.500	8.923	0.657	9.477	14.228	4.114	4.114
p value	-	0.446	0.000	0.618	0.000	0.513	0.000	0.000	0.043	0.043

3.2. Comparison of maternal care satisfaction between two groups

The nursing satisfaction rate of the observation group was 97.50%, significantly higher than that of the control group (80.00%), and the difference was statistically significant ($p < 0.05$). The specific results are shown in **Table 2**.

Table 2. Comparison of satisfaction with maternal care between two groups (n,%)

Group	Case	Very satisfied (n)	Satisfied (n)	Not satisfied (n)	Nursing satisfaction (%)
Observation group	40	25	14	1	97.50
Control group	40	18	14	8	80.00
χ^2 value	-	-	-	-	6.135
p value	-	-	-	-	0.013

4. Discussion

According to the results of this study, both groups of postpartum women had varying degrees of anxiety, depression, and decreased sleep quality before intervention, which was associated with the stress response triggered by high-risk pregnancy itself. Mother infant separation has become a new source of stress, exacerbating the physical and mental burden on mothers [9]. After intervention, the psychological condition and sleep quality of the control group of pregnant women who did not receive specialized care did not improve significantly, the incidence of postpartum hemorrhage was high, and the onset of lactation was late, fully reflecting the adverse

effects of mother infant separation on the physical and mental state of high-risk pregnant women [10]. The observation group received specialized nursing interventions for mother infant separation on the basis of routine care, including psychological intervention, information support intervention, lactation nursing intervention, family support intervention, and sleep nursing intervention. After intervention, their physical and mental state indicators and nursing satisfaction were better than those of the control group, indicating that this specialized nursing strategy has good clinical effects. Psychological intervention is crucial for improving the psychological state of postpartum women. Establishing a good nurse patient relationship can deepen understanding of the psychological needs of postpartum women and provide emotional support; Cognitive intervention can correctly understand mother infant separation and alleviate concerns about newborn health; Emotional regulation guidance provides specific methods for postpartum women to alleviate negative emotions, which is beneficial for actively regulating their psychological state [11]. The results of this study indicate that the SAS and SDS scores of the observation group were lower than those of the control group after intervention, indicating that psychological intervention can improve the anxiety and depression of parturients. Information support intervention can provide timely information on the condition of newborns to mothers and eliminate anxiety caused by information asymmetry. Using photos, videos, and other forms to show the newborn's condition can increase emotional connection between the mother and the newborn, and enhance the mother's confidence in the newborn's recovery. Due to multiple daily feedback on the condition of the newborn, the observation group of parturients have a clear understanding of the newborn's situation, and their psychological pressure has significantly decreased, which is also one of the reasons for the improvement of their psychological state [12].

Lactation nursing intervention involves using breast massage and a breast pump to stimulate the mammary ducts by mimicking sucking, which can promote the secretion of prolactin and shorten the onset time of lactation, laying the foundation for subsequent breastfeeding. Guidance on breastfeeding knowledge can improve the breastfeeding skills of mothers and enhance their confidence in breastfeeding. In this study, the onset time of lactation in the observation group was earlier than that in the control group, indicating that lactation nursing intervention had a better effect.

Family support is an important guarantee for the physical and mental recovery of postpartum women. The companionship and care of family members can make mothers feel the warmth of the family, enhance their sense of belonging and security. Guiding family members to participate in postpartum rehabilitation can reduce the pressure on postpartum women and improve their psychological state. At the same time, family members' understanding of the newborn's condition can better support the mother and work together for the recovery of the newborn. Sleep care intervention is the process of creating a good sleep environment, guiding postpartum women to develop good sleep habits, and improving the quality of their sleep. Adequate sleep is beneficial for postpartum women's physical recovery, psychological adjustment, emotional stability, and reducing negative emotions such as anxiety and depression. The PSQI scores of the observation group in this study were significantly lower than those of the control group, indicating that implementing sleep care interventions can improve maternal sleep [13].

This study is a single center study with a small sample size, and the research results have certain limitations. In addition, the observation time of this study was relatively short, only observing the effect 7 days after intervention. Further research is needed to investigate the impact of maternal infant separation on the long-term physical and mental state of postpartum women and the long-term effects of nursing strategies. Prospective studies with multiple centers and large sample sizes can be conducted to extend the observation period, investigate the long-term effects of mother infant separation on the physical and mental health of postpartum women, and

improve nursing effectiveness and quality.

5. Conclusion

In summary, mother infant separation can have adverse effects on the physical and mental health of high-risk pregnant women, leading to increased anxiety and depression, poorer sleep quality, increased risk of postpartum hemorrhage, and delayed onset of lactation. Special nursing interventions during the separation of mother and baby, including psychological intervention, information support intervention, lactation nursing intervention, family support intervention, and sleep nursing intervention, can improve the psychological state and sleep quality of postpartum women, reduce the occurrence of postpartum hemorrhage, shorten the start time of lactation, and improve nursing satisfaction. Therefore, this specialized nursing strategy can be promoted for clinical use to improve the quality of care for high-risk pregnant women and promote their physical and mental recovery [14,15].

Disclosure statement

The author declares no conflict of interest.

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