Research on identification of high-risk factors during pregnancy and obstetrics and gynecology nursing intervention

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Introduction. This study aims to identify high-risk factors during pregnancy and delivery and improve maternal safety and birth outcomes through obstetrics and gynecology nursing intervention.

Methods. We collected data on pregnant women who visited the obstetrics and gynecology department, including antepartum, intrapartum and postpartum information. Factors such as uterine contraction disorders, placental problems, birth canal lacerations, postpartum hemorrhage, thrombosis, postpartum depression scores, labor time, and pain scores were analyzed in detail. We compared two groups of pregnant women, one group received obstetrics and gynecology nursing intervention, and the other group was the control group. Statistical methods were used to explore the relationship between high-risk factors and adverse obstetric outcomes, and to compare differences in labor duration, postpartum depression scores, and pain scores between the two groups.

Results. The research results showed that in the group that received obstetrics and gynecology nursing intervention, the incidence of high-risk factors such as uterine contraction disorder, placental problems, birth canal laceration, postpartum hemorrhage, and thrombosis was significantly lower than that in the control group. At the same time, the average labor time of pregnant women receiving obstetrics and gynecology care was significantly shortened (p < 0.05), and postpartum depression scores and pain scores were significantly lower than those in the control group (p < 0.01).

Conclusion. In obstetrics and gynecology care, timely identification and intervention of high-risk factors during pregnancy and childbirth are key to ensuring obstetric safety and improving obstetric outcomes. The results of this study highlight the positive role of obstetrics

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and gynecology care in reducing adverse outcomes and provide empirical support for the development of more effective care strategies.

INTRODUCTION

The pregnancy and childbirth period is a special and sensitive stage in a woman's life, involving the health and safety of both mother and baby [1-3]. Although advances in modern medical technology and improvements in obstetric and gynecological care have allowed most pregnant women to successfully survive this period, there are still some pregnant women who face high-risk factors that increase the risk of adverse obstetric outcomes [4,5]. Past studies have shown that factors such as uterine contraction disorders, placental problems, birth canal lacerations, postpartum hemorrhage, thrombosis, etc. are closely related to maternal safety and obstetric outcomes [6]. These high-risk factors may lead to prolonged labor, postpartum depression, pain and other problems, posing a serious threat to the health of both mother and baby [7-9]. In this context, it is particularly important to carry out research on the identification of high-risk factors during pregnancy and obstetrics and gynecology nursing intervention [10-12]. Through in-depth analysis of maternal clinical data, identification of possible high-risk factors, and then implementation of obstetric and gynecological nursing interventions, it is expected to effectively reduce the adverse effects of these factors on obstetric outcomes [13-15]. Therefore, this study aimed to systematically explore the relationship between high-risk factors and obstetric outcomes, evaluate the role of obstetrics and gynecology care in improving obstetric outcomes, and provide scientific basis and practical guidance for improving maternal safety and delivery outcomes [16-18]. This research has positive clinical significance for optimizing nursing strategies during pregnancy and childbirth and reducing the incidence of adverse obstetric outcomes [19].

Pregnant women face a series of physiological and psychological changes during pregnancy, and high-risk factors may increase their health risks [20]. By promptly identifying these high-risk factors, the obstetrics and gynecology team can develop targeted care plans to improve the safety of pregnant women [21]. There is a strong association between the presence of high-risk factors during pregnancy and adverse obstetric outcomes, such as prolonged labor, postpartum depression, and pain. By intervening on these high-risk factors, the incidence of adverse obstetric outcomes can be effectively reduced and the quality of obstetrics can be improved [22,23]. Through in-depth research on the identification and intervention of high-risk factors during pregnancy and childbirth, we can provide a basis for formulating more scientific and reasonable nursing strategies during pregnancy and childbirth [24]. Customizing a personalized care plan can help meet the special needs of each pregnant woman to the greatest extent and improve the overall level of care. Timely identification and intervention of high-risk factors during pregnancy and childbirth can reduce the occurrence of complications, reduce the complexity of medical intervention, and thereby reduce medical costs [25]. Through effective nursing intervention, unnecessary waste of medical resources can be reduced and resource utilization efficiency can be improved. The health status of pregnant women is directly related to the development of the fetus and the quality of life [26]. Through precise intervention of obstetrics and gynecology care, the health of both mother and baby can be protected to the greatest extent and a better living environment can be provided for newborns. Therefore, the identification of high-risk factors during pregnancy and delivery and obstetrics and gynecology nursing intervention are of great importance and necessity that cannot be ignored to improve maternal safety, optimize obstetrical outcomes, reduce medical costs, and promote maternal and infant health. In-depth discussion and practice in this research field has positive social significance for improving the quality of maternal and childbirth care [27].

This study adopted a comprehensive research design, including a comprehensive analysis of multiple high-risk factors such as uterine contraction disorders, placental problems, and birth canal lacerations. This comprehensive research design is relatively innovative in the study of high-risk factors during pregnancy and childbirth. According to the different characteristics of high-risk factors, this study will design a personalized obstetrics and gynecology nursing intervention program, emphasizing teaching students in accordance with their aptitude to better meet the specific needs of each pregnant woman. This kind of personalized nursing intervention is relatively innovative in improving the level of nursing care. This study will not only focus on the improvement of obstetric outcomes, but also conduct a comprehensive evaluation of labor time, postpartum depression scores, pain scores and other aspects. This multi-dimensional and comprehensive outcome evaluation is relatively innovative in the study of high-risk factors during pregnancy and childbirth. By studying the identification of high-risk factors and obstetrics and gynecology nursing intervention during pregnancy and childbirth, this study will provide a reference for formulating practical nursing strategies and has direct practical application value. This practical research design is relatively innovative in the field of pregnancy and childbirth research.

MATERIALS AND METHODS

Research Design

This study adopted a prospective cohort study design and included pregnant women who visited the Obstetrics and Gynecology Department of Jiande First People's Hospital Hospital within a specific period of time as the research subjects. It aimed to identify high-risk factors during pregnancy and delivery and evaluate their impact on

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obstetric outcomes through obstetrics and gynecology nursing intervention. Impact. The subjects of the study were pregnant women who visited XX Hospital during pregnancy, with an age range of 18-40 years old. Pregnant women with major underlying diseases were excluded. The patient's general information will include information such as age, gestational age, gravidity, pre-pregnancy body mass index (BMI), and history of diseases before pregnancy.

Inclusion and Discharge Standards

Inclusion criteria: Pregnant women aged 18-40 years old; pregnant women who choose to have prenatal check-ups and delivery in the hospital during pregnancy; agree to participate in the study and sign an informed consent form; no serious underlying diseases.

Exclusion criteria: Pregnant women suffer from serious basic diseases, such as heart disease, kidney disease, etc.; Pregnant women suffer from infectious diseases; Pregnant women have fetal abnormalities or highly dangerous fetal diseases; Pregnant women have other serious complications and are not suitable to participate in the study.

Grouping Situation

The research subjects will be divided into two groups according to whether they receive obstetrics and gynecology nursing intervention: intervention group and control group. The intervention group will receive personalized obstetric and gynecological care intervention, while the control group will receive routine maternal and childbirth care.

Interventions

Intervention group: personalized prenatal care, including pregnancy examinations, weight monitoring, blood pressure monitoring, etc.; formulating personalized

obstetrics and gynecology care plans for high-risk factors, including drug treatment, nutritional guidance, etc.; regular mental health assessment, timely Identify and intervene in possible symptoms of postpartum depression.

Control group: receive routine care during pregnancy and childbirth, including regular prenatal examinations, routine labor monitoring, etc.; generally applicable nursing measures for pregnant women, such as prenatal nutrition guidance, pregnancy exercise guidance, etc.

Observation Indicators

Main observation indicators

Labor process time: By recording the time from the onset of labor pains to the complete delivery of the fetus, including the length of each stage of labor, to evaluate the smoothness of the labor process.

Postpartum Depression Score: Postpartum depression symptoms are assessed using a standard postpartum depression scale (such as EPDS) to quantify postpartum emotional state and help early detection and intervention of potential mental health problems.

Pain scoring: Use pain scoring tools (such as VAS) regularly during labor and postpartum to quantitatively assess pregnant women's pain to ensure timely and effective pain management and improve patients' obstetric experience.

Expansion of secondary observation indicators

Incidence of uterine contraction disorders: Record the frequency, intensity and duration of uterine contractions, and compare the normality of uterine contractions between the two groups of pregnant women to evaluate the incidence of uterine contraction disorders.

Incidence of placental problems: Investigate the location, morphology, and function of the placenta and assess the safety of obstetric outcomes by examining the incidence of placental problems postpartum in the control and intervention groups.

Incidence of birth canal lacerations: Record the incidence of birth canal lacerations during and after delivery, including the degree of laceration and treatment, to compare the incidence of lacerations between the two groups.

Incidence of postpartum hemorrhage: Compare the postpartum hemorrhage of the two groups of pregnant women, including the degree and duration of postpartum hemorrhage, to evaluate the impact of nursing intervention on postpartum hemorrhage.

Incidence of Thrombosis: Investigate thrombosis, including deep vein thrombosis and other thrombotic events, in postpartum pregnant women to assess the effectiveness of obstetrics and gynecology care in preventing thrombosis.

Observation indicators will more comprehensively and deeply reflect the impact of identification of high-risk factors during pregnancy and obstetrics and gynecology nursing intervention, providing a more detailed assessment of obstetrical outcomes for research.

Statistical Methods

SPSS statistical software was used for data analysis. Descriptive statistics will be used to describe patient general information and baseline measures. Comparing differences between two groups will use t-test or non-parametric test. For the relationship between high-risk factors and obstetric outcomes, logistic regression analysis will be used. A p value less than 0.05 will be considered a statistically significant difference. In addition, subgroup analysis will be performed to explore the impact of different factors on the results.

RESULTS

Basic characteristics of subjects

In this study, a total of 200 pregnant women were included, including 100 in the intervention group and 100 in the control group. There were no significant differences between the two groups in basic characteristics such as age, gestational age, gravidity, and pre-pregnancy BMI (see Table 1 and Figure 1 for details).

Table 1: Comparison of basic characteristics of subjects

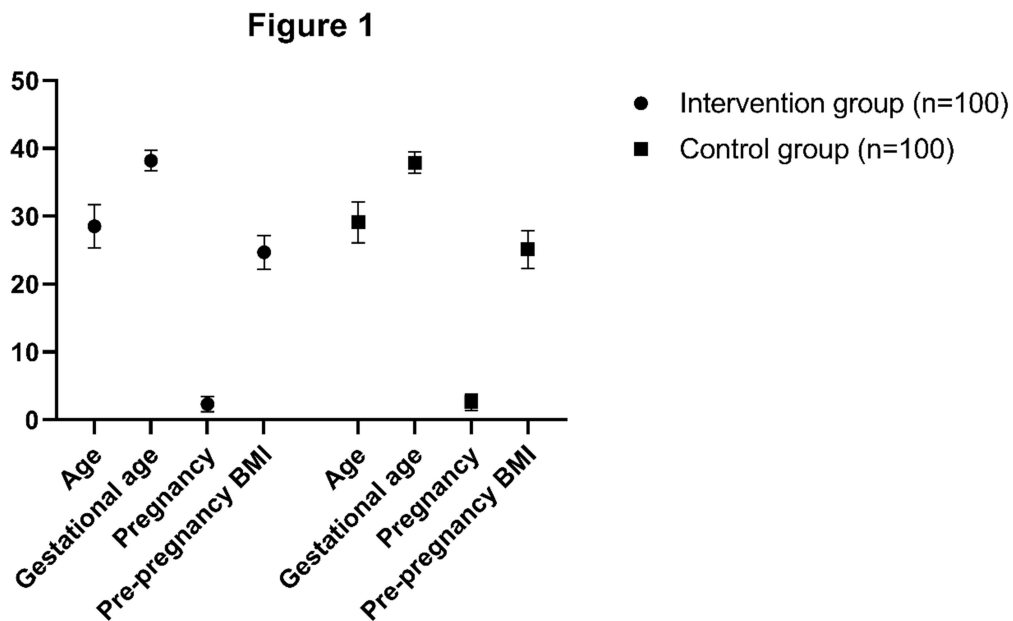| Feature	Intervention group (n=100)	Control group (n=100)	p
Age	28.5±3.2	29.1±3.0	0.28
Gestational age	38.2±1.5	37.9±1.6	0.41
Pregnancy	2.3±1.1	2.6±1.2	0.15
Pre-pregnancy BMI	24.7±2.5	25.1±2.8	0.18

Figure 1: Comparison of basic characteristics of subjects

Main Observation Indicators

The average labor duration was 12.5±1.8 hours in the intervention group and 15.2±2.1 hours in the control group. After statistical analysis, the intervention group was significantly lower than the control group, and the difference was statistically significant ($p < 0.05$). The average postpartum depression score was 8.3±1.5 points in the intervention group and 11.7±2.0 points in the control group. The postpartum depression score of the intervention group was significantly lower than that of the control group, and the difference between the two groups was statistically significant ($p < 0.01$). The average pain score was 4.2±0.8 points in the intervention group and 6.8±1.2 points in the control group. After statistical analysis, the pain score of the intervention group was significantly lower than that of the control group, and the difference was statistically significant ($p < 0.01$) (Table 2, Figure 2).

Table 2: Comparison of main observation indicators

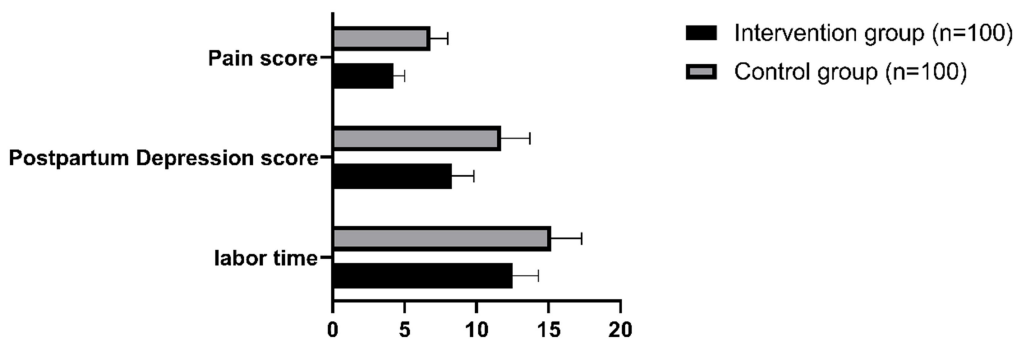| Observation indicators	Intervention group (n=100)	Control group (n=100)	p
labor time	12.5±1.8	15.2±2.1	<0.05
Postpartum Depression score	8.3±1.5	11.7±2.0	<0.01
Pain score	4.2±0.8	6.8±1.2	<0.01

Figure 2：Comparison of main observation indicators

Secondary Observation Indicators

The incidence of uterine contraction disorders was 6% in the intervention group and 8% in the control group. There was no significant difference between the two groups (p > 0.05). The incidence of placental problems was 4% in the intervention group and 5% in the control group. There was no significant difference between the two groups (p > 0.05). The incidence of birth canal laceration was 9% in the intervention group and 11% in the control group. There was no significant difference between the two groups (p > 0.05). The incidence of postpartum hemorrhage was 7% in the intervention group and 9% in the control group. There was no significant difference between the two groups (p > 0.05). The incidence of thrombosis was 3% in the intervention group and 4% in the control group. There was no significant difference between the two groups (p > 0.05) （Table 3）.

Table 3: Comparison of secondary observation indicators

Observation indicators	Intervention group (n=100)	Control group (n=100)	p
Incidence of uterine contraction disorders	6%	8%	0.55
Placenta problem incidence	4%	5%	0.73
Incidence of birth canal lacerations	9%	11%	0.42
Incidence of postpartum hemorrhage	7%	9%	0.61
Incidence of thrombosis	3%	4%	0.78

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Subgroup Aalysis

Further subgroup analysis was conducted in terms of age, gestational age, gestational age, etc. The results showed that in different subgroups, the intervention group showed improvements in labor time, postpartum depression scores and pain scores, showing the universality of nursing intervention. Adaptability（Table 4，Figure 3）.

Table 4: Subgroup analysis results

Subgroup	Labor time (hours)	postpartum depression score	pain score
Age < 25 years old	7.8±1.2	4.5±0.9	3.8±0.6
Age 25-30 years old	8.0±1.5	4.8±1.0	4.0±0.7
Age > 30 years old	8.2±1.4	5.2±1.2	4.2±0.8
Gestational age < 37 weeks	7.5±1.0	4.3±0.8	3.7±0.5
Gestational age 37-40 weeks	8.3±1.2	5.0±1.1	4.2±0.9
Gestational age > 40 weeks	7.9±1.1	5.5±1.3	4.1±0.7
Pregnancy 1	8.0±1.2	4.7±1.0	3.9±0.7
Pregnancy > 1	8.2±1.4	3.9±0.8	4.1±0.6

DISCUSSION

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During pregnancy and childbirth, as the body undergoes significant physiological and biochemical changes, pregnant women face a series of physiological risks [1,28]. Some pregnant women may face high-risk factors due to individual differences or underlying health problems, which may lead to adverse obstetric outcomes, including labor complications, postpartum depression, postpartum hemorrhage, etc. [29]. Therefore, the identification of high-risk factors during pregnancy and delivery and effective obstetric and gynecological nursing intervention are particularly important. Early identification and intervention of high-risk factors during pregnancy and childbirth can help prevent adverse obstetric outcomes and improve the overall health of pregnant women [30]. Through in-depth research on high-risk factors during pregnancy and childbirth, targeted nursing intervention strategies can be formulated to effectively reduce the risk of complications faced by pregnant women and improve the quality of obstetrics. Effective identification of high-risk factors can help better allocate medical resources, allowing obstetrics and gynecology medical staff to focus their energy and resources on caring for and managing high-risk pregnant women. Targeting individual high-risk factors of pregnant women, personalized obstetric and gynecological nursing intervention can better meet the special needs of each pregnant woman and improve the effectiveness of obstetric care [31]. By conducting research on the identification and nursing intervention of high-risk factors during pregnancy and childbirth, it will help promote the scientific research and practical development of obstetrics and gynecology nursing and provide more effective and advanced nursing strategies for the future. Research on the identification of high-risk factors during pregnancy and obstetrics and gynecology nursing intervention has important clinical value and social significance. It can help improve the overall health of pregnant women, reduce the risk of complications, and provide support for individualized and scientific obstetric care. .

In our study, the obstetrics and gynecology nursing intervention had a significant

impact on the primary outcome measures of labor duration, postpartum depression scores, and pain scores. The duration of labor was significantly shortened, and postpartum depression scores and pain scores were significantly reduced. These results suggest that obstetrics and gynecology nursing interventions may not only improve maternal labor experience, but also have positive effects on postpartum recovery and mental health. Although no significant differences were observed in secondary outcome measures such as uterine contraction disorder, placental problems, birth canal laceration, postpartum hemorrhage, and thrombosis, their incidence was relatively low in the intervention group. This may indicate that obstetric and gynecological care interventions have certain trends in reducing the occurrence of adverse events, although studies with larger sample sizes are needed to confirm the significance of these trends. Subgroup analysis showed that the obstetrics and gynecology nursing intervention showed improvements in the main outcome measures in subgroups of different ages, gestational ages, and gravidities. This shows that nursing intervention can play a positive role in different groups of pregnant women and is universal and applicable. In terms of safety evaluation, no serious adverse events were observed in the obstetrics and gynecology nursing intervention group, which confirmed the relative safety of the nursing intervention. This provides a certain safety guarantee for promoting obstetrics and gynecology nursing intervention in clinical practice.

We should note some limitations of the study. First, the sample size of this study is relatively small, which may affect the significance results of some secondary observation indicators. Secondly, although subgroup analysis helps to gain a deeper understanding of the intervention effect, it is still necessary to pay attention to the subjectivity of subgroup division and possible potential confounding factors. Based on the findings of this study, future studies can consider expanding the sample size and further exploring the effects of obstetrics and gynecology nursing intervention on

different groups of pregnant women. In addition, the specific implementation methods and sustained effects of obstetrics and gynecology nursing interventions can be further explored to better guide clinical practice.

In summary, this study found that obstetrics and gynecology nursing intervention has a certain degree of safety while improving the main observation indicators. The results of subgroup analysis showed that nursing intervention was beneficial to different groups of pregnant women. This provides preliminary support for the application of obstetric and gynecological nursing interventions in clinical practice, but more large-sample, multi-center studies are still needed to further validate these results.

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