ORIGINAL RESEARCH ARTICLE

Effects of intensive psychological nursing on mental state and delivery mode of pregnant women with premature rupture of membranes

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Abstract

The aim of this study was to explore the effects of intensive psychological nursing on the mental state and delivery mode of pregnant women with premature rupture of membranes (PROM). A total of 96 pregnant women with PROM who were treated at Anhui Province Mengcheng County, People's Hospital between January 2021 and December 2023 were selected and randomly divided into a control group (receiving routine nursing) and a study group (receiving routine nursing + intensive psychological nursing). Compared with the control group, the study group had higher natural delivery rate, shorter duration of the three stages of labor, lower anxiety and depression scores, lower VAS scores, and higher nursing satisfaction rates. We conclude that intensive psychological nursing can improve the emotions of pregnant women with PROM, increase the rate of natural delivery, shorten the labor process, reduce subjective pain, lessen the rate of neonatal asphyxia, and improve nursing satisfaction. *(Afr J Reprod Health 2025; 29 [9]: 91-97).*

Keywords: Psychological nursing; mental state; delivery mode; pregnant women; premature rupture of membranes

Résumé

L'objectif de cette étude était d'explorer les effets des soins psychologiques intensifs sur l'état mental et le mode d'accouchement des femmes enceintes présentant une rupture prématurée des membranes (RPM). Au total, 96 femmes enceintes présentant une RPM, traitées à l'hôpital populaire du comté de Mengcheng, province de l'Anhui, entre janvier 2021 et décembre 2023, ont été sélectionnées et réparties aléatoirement en un groupe témoin (recevant des soins infirmiers de routine) et un groupe d'étude (recevant des soins infirmiers de routine + soins psychologiques intensifs). Comparativement au groupe témoin, le groupe d'étude présentait un taux d'accouchement naturel plus élevé, une durée des trois phases du travail plus courte, des scores d'anxiété et de dépression plus faibles, des scores EVA plus faibles et un taux de satisfaction des infirmières plus élevé. Nous concluons que les soins psychologiques intensifs peuvent améliorer les émotions des femmes enceintes présentant une RPM, augmenter le taux d'accouchement naturel, raccourcir le travail, réduire la douleur subjective, diminuer le taux d'asphyxie néonatale et améliorer la satisfaction des infirmières *(Afr J Reprod Health 2025; 29 [9]: 91-97).*

Mots-clés: Soins psychologiques; état mental; mode d'accouchement; femmes enceintes; rupture prématurée des membranes

Introduction

During pregnancy, the hormones in a woman's body undergo changes.[1,2] Premature rupture of membranes (PROM) is a complication during pregnancy, with a relatively high incidence rate. It is mainly caused by factors such as cervical relaxation, abnormal development of the fetal membranes, uterine trauma, and uterine infection.[3] When PROM occurs, the probability of fetal infection significantly increases, and the mother, due to concerns about the fetus' condition in the uterus, will experience various negative psychological reactions, thereby affecting the outcome of the delivery.[4] Therefore, for women with PROM, psychological nursing intervention is necessary to strengthen the possible psychological health problems.

Most studies only employed conventional psychological nursing (such as simple consolation and health education), lacking targeted assessment and dynamic adjustment.[5] In addition, most existing studies have focused on a single psychological intervention method (such as music therapy or breathing training),[6,7] while intensive psychological nursing integrates multiple dimensions of strategies including emotional release, family support, and pain management.[8] In addition, compared with

conventional nursing methods, intensive psychological nursing takes an approach from the perspective of positive psychology, providing psychological guidance to patients and fully encouraging and supporting them. This not only enhances their subjective well-being but also effectively alleviates their negative emotions, enabling patients to cooperate with treatment in an active manner and further improving their compliance.[9]

Therefore, in this study, we explored the impacts of intensive psychological nursing on mental state and delivery mode of pregnant women with PROM.

Methods

Materials

From January 2021 to December 2023, a total of 96 pregnant women with PROM who were treated at the Anhui Province Mengcheng County, People's Hospital were selected as the study participants. The diagnostic criteria of PROM included (1) vaginal secretion of a large amount of liquid or endoscopic examination of cervical fluid outflow, and the pH value of the liquid >6.5; (2) the presence of ferrat-like crystals on vaginal fluid smear examination. A group randomization design was adopted for random grouping. The random allocation sequence was generated by a computer. The allocation confidentiality measures were achieved through sequential numbering, sealing, and opaque envelopes. After being deemed to meet the inclusion criteria, patients were randomly assigned to the control group (CG) or the study group (SG) in a 1:1 ratio. This study was single-blind, and the participants were unaware of the allocation. No statistical significance was seen in general information between 2 groups (P>0.05, Table 1).

The inclusion criteria were: (1) those who met the PROM diagnostic criteria as described in "Practical Obstetrics and Gynecology"[2], and met the above clinical symptoms; (2) all were single pregnancies; (3) no serious gynecological diseases; (4) B-ultrasound examination of the fetus without umbilical cord around the neck; (5) normal pelvis. The exclusion criteria were: (1) those with pre-existing mental disorders; (2) gestational age <35 weeks; (3) those with malignant tumors; (4) Damage to the heart, liver, kidney and other important organs; (5) audio-visual impairment; and (6) those with other complications of pregnancy. Table 1

Treatment methods

The CG was given routine nursing, including admission guidance, creating a good recuperation environment for the mothers, closely monitoring the changes of the maternal vital signs, conducting fetal heart rate monitoring, regular cleaning of the perineum, and providing dietary guidance.

In addition to routine nursing, the SG added intensive psychological nursing, which included:

(1) Strengthening maternal psychological support. When pregnant women with PROM were admitted to the hospital, the nurses used the Anxiety Scale (SAS) and self-rating Depression Scale (SDS)[10] to conduct psychological assessments based on the specific conditions of the pregnant women. Then, the nurses analyzed the evaluation results to find out the causes of the pregnant women's psychological problems. Next, the nurses implemented targeted psychological intervention measures to adjust the psychological state of the pregnant women. During the communication with pregnant women, the nurses maintained a calm attitude and showed respect and support to the pregnant women.

(2) Health education. Many pregnant women lacked a clear understanding of PROM, which led to psychological reactions such as anxiety, tension, thereby seriously affecting the outcome of childbirth. Therefore, the nurses paid attention to the emotions of pregnant women, and actively explained the relevant knowledge of PROM. At the same time, before the pregnant women gave birth, the nurses provided detailed explanation about the relevant knowledge of childbirth, especially the precautions during the delivery process, in order to alleviate their fear of childbirth. In addition, the nurses also helped the pregnant women regulate their emotions during the delivery, reducing excessive tension and anxiety during and after the delivery.

(3) The nurses helped the pregnant women build confidence in the process of natural birth.

Table 1: General data in 2 groups [(x±s)/n (%)]

Groups	Cases	Age (years)		Gestational age (weeks)	Type of parturient	
					Primipara	Multipara
Control group	48	26.6±2.3		37.8±0.5	25 (52.1)	23 (47.9)
Study group	48	26.7±2.3		37.9±0.6	26 (54.2)	22 (45.8)
χ^2/t		0.08	0.17		0.04	
P		0.93	0.86		0.83	

The nurses also explained to the pregnant women about the knowledge of natural childbirth, especially numerous benefits of natural childbirth and its impact on the resistance and immunity of both the mother and the baby. At the same time, the nurses elaborated on the various advantages of natural childbirth to better enhance the pregnant women' confidence in natural childbirth.

Outcome indicators

(1) The methods of delivery, including natural delivery and cesarean section, were compared between the two groups.
(2) The duration of labor between the two groups were compared, including the first stage of labor (cervical dilation period), the second stage of labor (fetal delivery period), and the third stage of labor (delivery of placenta).
(3) Utilizing Self-rating Anxiety Scale (SAS) and self-rating Depression Scale (SDS), the degree of anxiety and depression of patients were assessed in 2 groups.[11]
(4) Utilizing visual analogue scale (VAS), the degree of pain was assessed.[12] A straight line was drawn on the white paper with "0" and "10" at both ends, 0 indicating no pain and 10 indicating severe pain. The patient was asked to mark their pain degree according to their subjective consciousness.
(5) The nursing satisfaction questionnaire developed by our hospital[13] was adopted, including comprehensive literacy (0 ~ 24 points), timeliness of service (0 ~ 18 points), service attitude (0 ~ 20 points), ward environment (0 ~ 14 points), management norms (0 ~ 24 points), etc. The full score of 100 was 91 ~ 100 points. 81 ~ 90 points was very satisfied; 71 ~ 80 points was satisfied; A score of 70 or less was considered unsatisfactory. Nursing satisfaction = (very satisfied + satisfied) number of cases/total number of cases ×100%.

Statistical analysis

Utilizing SPSS 22.0 statistical software, data in this study were analyzed and processed. Measurement data were represented as (x±s), and t test was adopted for comparison. Counting data was represented by [n (%)], and χ^2 test was employed for comparison. $P<0.05$ indicated the difference was statistically significant.

Ethical consideration

This study was approved by the Medical Ethics Committee of Anhui Province Mengcheng County, People's Hospital on September 3, 2024, and the Ethical Approval Number was WYL23015. All pregnant women were aware of this study and voluntarily signed the informed consent.

Results

Methods of delivery in 2 groups

The natural delivery rate of the SG was 52.1%, which was higher than that of the CG (20.8%), was statistically significant ($P<0.05$, Table 2).

Labor time of 2 groups

As shown in Figure 1, after nursing, the duration of 3 labor stages in the SG was shorter than that in the CG ($P<0.05$).

Psychological states in 2 groups

Prior to nursing, no significant difference was seen in SAS score and SDS score between the two groups ($P>0.05$). Following nursing, both scores were declined in the two groups ($P<0.05$), but those in the SG were significantly lower than those in the CG ($P<0.05$, Figure 2).

Table 2: Methods of delivery in 2 groups [n (%)]

Groups	Cases	Natural delivery	Cesarean section
Control group	48	10 (20.8)	38 (79.2)
Study group	48	25 (52.1)	23 (47.9)
χ^2		10.1	
P		<0.01	

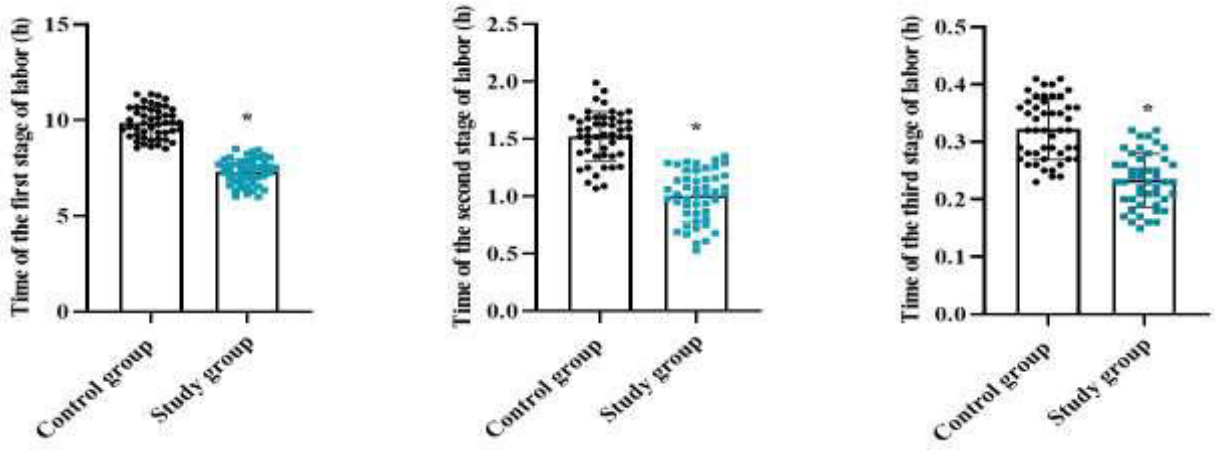

Figure 1: Labor time of 2 groups. * meant P<0.05.

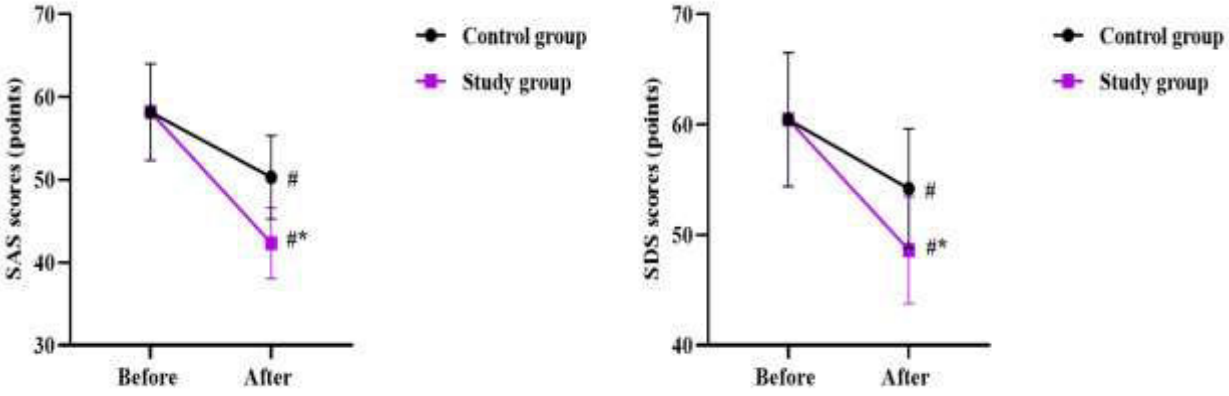

Figure 2: Psychological states in 2 groups. Compared with before nursing, # meant P<0.05. Compared with CG, * meant P<0.05.

Table 3: Nursing satisfaction in 2 groups [n (%)]

Groups	Cases	Very satisfied	Satisfied	Dissatisfied	Satisfaction rate
Control group	48	23 (47.9)	18 (37.5)	7 (14.6)	41 (85.4)
Study group	48	26 (54.2)	21 (43.8)	1 (2.1)	47 (98.0)
χ^2					4.81
P					0.02

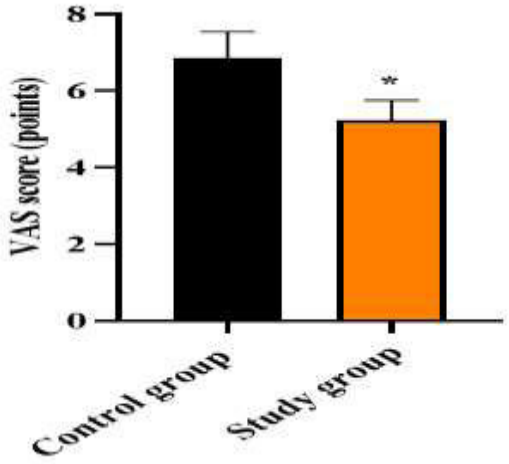

Figure 3: VAS score in 2 groups. * meant P<0.05.

VAS score in 2 groups

Following nursing, the VAS score in the SG were significantly lower as compared with the CG (P<0.05, Figure 3).

Nursing satisfaction in 2 groups

The nursing satisfaction rate of the SG was 98.0%, which was significantly higher than that of the CG (85.4%) (P<0.05, Table 3)

Discussion

PROM refers to the phenomenon where the fetal membranes naturally rupture during the clinical pregnancy period, which is a relatively common pregnancy complication.[14] After PROM occurs, the probability of premature delivery increases significantly, thereby leading to an increase in the risk of perinatal death.[15]

There are many factors that can influence the occurrence of PROM, such as infection, poor fetal membrane development, cervical relaxation, intrauterine pressure, trauma, and mechanical stimulation.[16] Clinical studies have shown that PROM can affect the delivery process of pregnant women.[17] Some pregnant women feel extremely uncomfortable due to the need to maintain a high position of the buttocks, which can affect eating and defecation. Many pregnant women with PROM will experience negative emotions such as anxiety, depression, tension, and fear.[18] Therefore, for pregnant women with PROM, in addition to providing necessary treatment, good nursing interventions should be provided, especially psychological care, to alleviate the negative emotions of pregnant women and ensure the safety of the mother and the baby.

Studies have shown that when pregnant women are in a state of high tension and anxiety, it can trigger the activation of the sympathetic nervous system. This will accelerate the body's metabolism, the contraction of abdominal organs and blood vessels in the skin. The contraction of the uterine muscles loses its tension, increasing the possibility of difficult labor, and ultimately may lead to the need for a cesarean section.[19] The results of this study indicated that the natural delivery rate in the SG (52.1%) was higher than that of the CG (20.8%); the total duration of labor in the SG was shorter than that in the CG; and the SAS and SDS scores in the SG were lower than the CG, implying intensive psychological nursing could alleviate the negative emotions of pregnant women with PROM, increase the natural delivery rate, and shorten the duration of labor. These results were consistent with a previous study.[20] The reason for this might be that the nurses paid attention to the emotions of the pregnant women and took targeted psychological intervention measures based on the specific conditions of the pregnant women to alleviate their tension, anxiety and fear. At the same time, the nurses strengthened the health education to the pregnant women, enabling them to better understand the relevant knowledge about PROM, thereby eliminating their anxiety.[21] In addition, during the childbirth, the nurses provided guidance to the pregnant women on more delivery techniques, thereby reducing their pain and enabling them to complete the natural delivery more smoothly.

Due to the pregnant women's emotional stress and depression, the secretion of neurochemical substances such as adrenaline and dopamine in her body will increase. This will intensify the pregnant women's subjective pain sensation and affect the rhythm of uterine contractions, thereby increasing the risk of fetal asphyxia.[22] The results of this study indicated that after receiving the nursing care, the VAS score in the SG was lower than that in the CG. This suggested that intensive psychological nursing

could reduce the degree of pain of pregnant women with PROM. This was consistent with the results of a previous study.[23] The reason might be that before the pregnant women gave birth, the nurses provided detailed explanation about the relevant knowledge of childbirth, especially the precautions during the delivery process, in order to alleviate their fear of childbirth, and thus effectively reduced the subjective pain of the mother.

With the development of society, have increasingly placed importance on health and the comfort of treatment. Therefore, the requirements for medical staff are also gradually increasing.[24] In our study, the nursing satisfaction rate of the SG was 98.0%, which was higher than that of the CG (85.4%), reflecting that intensive psychological nursing could effectively improve nursing satisfaction and establish a good nurse-patient relationship, which was in accordance with previous study results.[25].

Study strengths and weaknesses

The key strengths of this study were its randomized design and multiple observation indicators. Our study might provide a clinical nursing reference for pregnant women with PROM. Our research has some limitations. Firstly, our sample size is relatively small, which may lead to deviations between the data results and the actual values. Secondly, our research adopted a single-blind design, which inevitably resulted in subjective biases from the researchers, leading to an imbalance in the treatment between the two groups. Thirdly, our research was a single-center study, and the sample was not representative, which may not accurately reflect the characteristics of a broader population.

Conclusion

Intensive psychological nursing can reduce the bad mood of pregnant women with PROM, improve the rate of natural delivery, shorten the labor process, reduce their subjective pain, lessen the rate of neonatal asphyxia, as well as increase nursing satisfaction.

Competing interests

The authors report no actual or potential conflicts of interest.

Acknowledgement

None

Contribution of authors

Mei Song and Lei He: conceived and designed the study. Lei He and Wenzhen Shan: collected and analysed the data. Mei Song and Wenzhen Shan: prepared the manuscript. All authors mentioned in the article approved the manuscript.

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