

Original Article

Research and analysis of collaborative nursing model on prevention of postpartum depression and improvement of self-efficacy in primiparae

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Abstract: Objective: This study aimed at exploring the effect of collaborative nursing model on prevention of postpartum depression and improvement of self-efficacy in primiparae. Methods: The clinical data of 111 primiparae in our hospital were enrolled retrospectively and divided into two groups. The primiparae in group A (n=55) were provided with conventional nursing care, and the primiparae in group B (n=56) were provided with collaborative nursing model. The scores of Edinburgh Perinatal Depression Scale (EPDS), Social Support Rating Scale (SSRS), General Self-efficacy Scale (GSES), sleep quality, quality of life and maternal role adaptability, incidence of depression and nursing satisfaction rate were compared between the two groups before and after nursing. Results: Group B had lower EPDS score and higher GSES score than group A after nursing ($P < 0.05$). The utilization of social support, subjective support, objective support and total score in the SSRS scale in group B were higher than those in group A after nursing ($P < 0.05$). Group B exhibited lower PSQI score and higher score of maternal role adaptability than group A after nursing ($P < 0.05$). The scores of surrounding environment, social relations, mental health and physical health in the WHOQOL-BREF scale in group B were higher than those in group A after nursing ($P < 0.05$). The incidence of postpartum depression in group B was 3.57%, significantly lower than that of 34.55% in group A ($P < 0.05$). The nursing satisfaction rate in group B was higher than that in group A ($P < 0.05$). Conclusion: The application of collaborative nursing model is beneficial to reduce the incidence of postpartum depression and improve maternal self-efficacy in primiparae.

Keywords: Primiparae, collaborative nursing model, conventional nursing care, postpartum depression, self-efficacy

Introduction

Depression is the most common negative emotion in the clinical practice of women during puerperium. The epidemiological results have shown that the incidence of postpartum depression in China is between 9.14% and 28.18% [1]. At present, with the increase of the pace of life, women not only need to take care of their families and their own work, but also face the pressure of work, economy and life at the same time. Therefore, the incidence of postpartum depression in China remains high [2].

With the improvement of the medical level, the demand of perinatal women for knowledge of the newborn health and perinatal health is also

increasing [3]. Due to the experience of the first delivery, the primiparae lack of the knowledge and understanding of parenting, childbirth and normal pregnancy, and are not fully psychologically prepared [4]. Coupled with the influence of parents-in-law, parents, husband and other factors, postpartum depression occurs frequently before and after childbirth. At the same time, due to the love for new life, the phenomenon of "one person in obstetrical check-up, accompanied by the whole family" is very common in China, which will also bring invisible pressure to the primiparae [5]. The attention of relatives and friends during pregnancy can significantly increase the subjective well-being of pregnant women. However, after childbirth, she is no longer the focus of attention, which can easily lead

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to a psychological gap so that it is difficult to adapt to the role of a mother in a short time. This is also highly likely to cause postpartum depression [6]. All in all, the factors leading to postpartum depression are various and may come from obstetrics, society, psychology and physiology [7].

At present, the conventional nursing care is usually provided for the primiparae. In this process, the primiparae only passively receive all kinds of knowledge from the nursing staff. Due to a lack of initiative and enthusiasm, their psychological needs are often ignored. It is difficult to effectively reduce the incidence of postpartum depression [8, 9]. Collaborative nursing model is one of the implementation methods of social support, that is, through the use of existing material and human resources, to promote the primiparae and their families to maximize the ability to participate in healthy teaching and improve the initiative and enthusiasm of maternal care [10]. Meanwhile, collaborative nursing model can also improve the quality of nursing, reduce the workload of nursing staff, and improve nursing efficiency [11]. In view of this, it is innovative and feasible to apply the collaborative nursing model on primiparae to effectively prevent postpartum depression.

Materials and methods

General information

The clinical data of 111 primiparae in our hospital were enrolled retrospectively and divided into two groups based on the intervention methods. Group A included 55 cases of primiparae with conventional nursing care, and group B included 56 cases of primiparae with collaborative nursing model. (1) Inclusion criteria are as below: the primiparae and their families who voluntarily signed informed consent; the primiparae with singleton; those who had the ability to use QQ or WeChat; those who were able to write, express and understand. This study was under the approval by the medical ethics committee of the Second Affiliated Hospital of Chongqing Medical University. (2) Exclusion criteria are as below: the primiparae who experienced major stress events within 3 months before enrolment; who were combined with complications such as amniotic fluid embolism, uterine rupture, postpartum hemorrhage, etc.;

who were combined with chronic diseases such as renal disease, hypertension, and diabetes before or during pregnancy; who were combined with severe organic diseases; who were combined with mental or cognitive dysfunction.

Methods

Conventional nursing care was provided to the primiparae in group A. During the hospitalization, the nursing staff introduced various maternal and infant symptoms before and after delivery, and at the same time strengthened medication management and dietary care according to the actual situation of the primiparae, and instructed the primiparae to exercise appropriately. After delivery, newborn related care was strengthened by a series of measures such as infant touching, bathing, umbilical nursing, buttock nursing, health education of breastfeeding and observing methods of infant urine and feces, complexion, and stress response. Prior to discharge from the hospital, the primiparae were given Routine discharge guidance was given to the primiparae before discharge, and they were instructed to return to the hospital on time for health examination.

Collaborative nursing model was provided to the primiparae in group B. A special collaborative nursing team was established to conduct a comprehensive assessment of the physical and mental conditions of each primipara and cooperate with each primipara and her family to jointly develop a nursing plan. Harmonious nurse-patient relationship was established on mutual trust by actively guiding the primiparae and their families to participate in neonatal care. The primiparae were encouraged to actively take care of their newborns to improve their sense of self-efficacy and self-care ability and enhance their satisfaction and confidence. The skills and knowledge that the primiparae and their families had not fully mastered could be guided and demonstrated again. The family members of each primipara were given health education on knowledge about postpartum depression, and were enjoined to give more care and love to the primipara, and can also participate in the analysis of the mental state of the primipara in order to give specific psychological guidance to her. The details of collaborative nursing can be described as follows

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according to the two periods: during hospitalization and post-discharge.

Nursing details during hospitalization are: (1) Guidance of skills and theory. The family members of the primiparae needed to be involved in the nursing process and required health education as well as the primiparae. Health education for the primiparae mainly covered breast health, breastfeeding, etc., while health education for the family members included nutritional and environmental needs of primiparae during lactation, observation of infant urine and feces, methods of skin care, etc. (2) Improvement of self-care ability. Primiparae were encouraged to do whatever they could for their newborns according to their actual conditions, such as bathing, changing clothes and diapers, while their family members could provide help at any time. The benefits and importance of breastfeeding were emphasized to primiparae and their families in order to improve the breastfeeding rate of newborns. (3) Proper exercise. Iyengar yoga-based rehabilitation therapy could be used for gradual activities, which included breathing exercises, reparative exercises of rectus abdominis, and functional exercises for pelvic floor. Generally speaking, it was recommended to start exercise about 3 months after caesarean delivery and about 1 month after vaginal delivery. (4) Information support. All primiparae were invited to join a specific QQ group or WeChat group, which would update the content of health education by a dedicated person every day, so as to improve the understanding of maternal and infant knowledge, including infant bathing, massage, touching, measurement of body temperature, observation of infant urine and feces, etc. (5) Early screening. When one primipara was admitted to the hospital, the EPDS scale was used to understand her psychological status. If the screening result showed that the primipara had a tendency to depression, her family would promptly be given feedback, at same time targeted measures would be taken to prevent further aggravation of depression. (6) Evaluation. The primiparae and their family members were provided targeted guidance based on their mastering degree of the skills and knowledge, so as to carry out self-care better. After observation of the ability of primiparae to complete various nursing care independently, primiparae could

be guided in view of their shortcomings at the point-of-care.

Nursing details during post-discharge are: (1) Follow-up during puerperium. All primiparae had received follow-up care by WeChat, QQ or telephone for 40 days. Based on feedback from the puerperae and their families, targeted suggestions and guidance were given. (2) General information support. Parenting and perinatal knowledge in WeChat or QQ groups were updated every 3 days, including postpartum health examination, neonatal immunization, precautions against postpartum depression, puerperal health exercises, layout of living environment, breast care, nutritional knowledge, hazards and symptoms of postpartum depression, risk factors related to postpartum depression, methods of infant bathing, and the importance and methods of breastfeeding. The family members were asked to pay attention to carefully observe the mood of primipara. Once abnormalities were found, they should contact the nursing staff in time. The nursing staff could guide them to vent her bad feelings in the correct way. Back to the hospital for diagnosis and treatment was needed in case of serious postpartum depression.

Outcome measurement

(1) Edinburgh Perinatal Depression Scale (EPDS) score [12]. EPDS scale was used to evaluate depression status before nursing (when one primipara was admitted to the hospital) and after nursing (40 days after childbirth). There are 10 items in total, and each item is scored with 0-3 points. The total score of all items is between 0-30 points. The severity of depression is directly proportional to the total score of all items.

(2) General Self-efficacy Scale (GSES) score [13]. The GSES scale was used to evaluate the self-efficacy of the two groups of primiparae before and after nursing. There are 10 items in total, all of which are evaluated by a scoring method of 1-4 points. The self-efficacy is directly proportional to the total score of all items.

(3) Social Support Rating Scale (SSRS) score [14]. The SSRS scale was used to evaluate the social support of the two groups of primiparae before and after nursing. The scale includes 3 domains of utilization of social support, subjec-

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Table 1. Comparison of general information between the two groups [n (%)]/($\bar{x} \pm s$)

Data	Group A (n=55)	Group B (n=56)	t/X ²	P
Average age (year)	28.56±1.28	28.62±1.22	0.253	0.801
Average gestational age (week)	39.52±2.13	39.56±2.12	0.099	0.921
Delivery mode (case)				
Caesarean delivery	23 (41.82)	25 (44.64)	0.090	0.764
Vaginal delivery	32 (58.18)	31 (55.36)		
Educational level (case)				
Senior high school and below	19 (34.55)	22 (39.29)	0.268	0.605
College degree or above	36 (65.45)	34 (60.71)		

higher indicates postpartum depression.

(8) Nursing satisfaction score. The two groups of primiparae were surveyed after nursing. The survey included nursing professional knowledge, professional skills, attitude, responsibility, etc. The total score was 100 points, which was directly proportional to nursing satisfaction.

tive support, and objective support, with a total of 10 items. The social support is directly proportional to the total score of all items.

(4) Pittsburgh Sleep Quality Index (PSQI) score [15]. The PSQI was used to evaluate sleep conditions before and after nursing, including 7 items of daytime dysfunction, hypnotic use, sleep disturbance, sleep efficiency, sleep duration, sleep latency and sleep quality. The sleep quality is inversely proportional to the total score of all items.

(5) Maternal role adaptability [16]. The questionnaire of maternal role adaptability was used to investigate the two groups of primiparae before and after nursing, including beliefs, the ability to take care of the newborn's daily life, the SWB as maternal role, and the newborn's influence on the life of the puerperae. There are 16 items in total, all of which are evaluated using a scoring method of 1-5 points. The total score is between 16-80 points. The maternal role adaptability is directly proportional to the total score.

(6) Quality of life [17]. The World Health Organization Quality of Life Questionnaire abbreviated version (WHOQOL-BREF) was used to assess the quality of life of the two groups of primiparae before and after nursing, including the surrounding environment, social relations, mental health and physical health. There are 16 items in total, all of which are evaluated using a scoring method of 1-5 points. The quality of life is directly proportional to the total score.

(7) Incidence of depression [18]. The incidence of postpartum depression was evaluated based on EPDS score. An EPDS score of 13 or

Statistical analysis

SPSS22.0 statistical software was used to process the data. The measurement data were expressed as ($\bar{X} \pm S$). Data conforming to the normal distribution were subjected to t test, otherwise Mann-Whitney U test was performed. The count data were expressed as n (%). X² test was used to compare count data between groups. GraphPad Prism was used to draw the plot. $P < 0.05$ was considered statistically significant.

Results

Comparison of general information between the two groups

There was no significant difference in terms of general information including average age, average gestational age, delivery mode and education level ($P > 0.05$) (Table 1).

Comparison of scores of EPDS and GSES between the two groups

There was no significant difference in EPDS score and GSES score before nursing between the two groups ($P > 0.05$). After nursing, the EPDS scores were decreased and the GSES scores were increased in both groups ($P < 0.05$). Group B exhibited lower EPDS score and higher GSES score than group A after nursing ($P < 0.05$) (Figure 1).

Comparison of SSRS scores between the two groups

There was no significant difference in utilization of social support, subjective support, objective

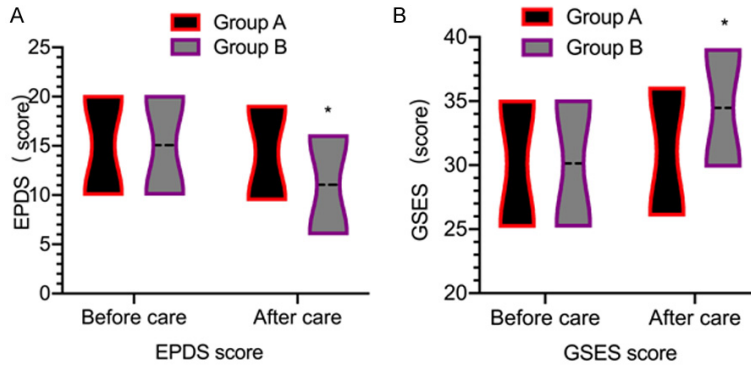


Figure 1. Comparison of scores of EPDS and GSES between the two groups. A. Shows that the EPDS scores before nursing between the two groups showed no significant difference ($P > 0.05$). After nursing, the EPDS score in group B was lower than that in group A ($P < 0.05$). B. Shows that the GSES scores before nursing between the two groups showed no significant difference ($P > 0.05$). After nursing, the GSES score in group B was higher than that in group A ($P < 0.05$). “*” indicates that the difference between the two groups was statistically significant.

intervention was higher than that in group A, $P < 0.05$; D. Shows that the total score of the SSRS scale after intervention in group B was higher than that in group A, $P < 0.05$. Note: * means compared with group A, $P < 0.05$.

support and total score in the SSRS scale before nursing between the two groups ($P > 0.05$). The score of each item and total score in the SSRS scale after nursing were all improved ($P < 0.05$). The score of each item and total score in group B after nursing were higher than those in group A ($P < 0.05$) (Figure 2).

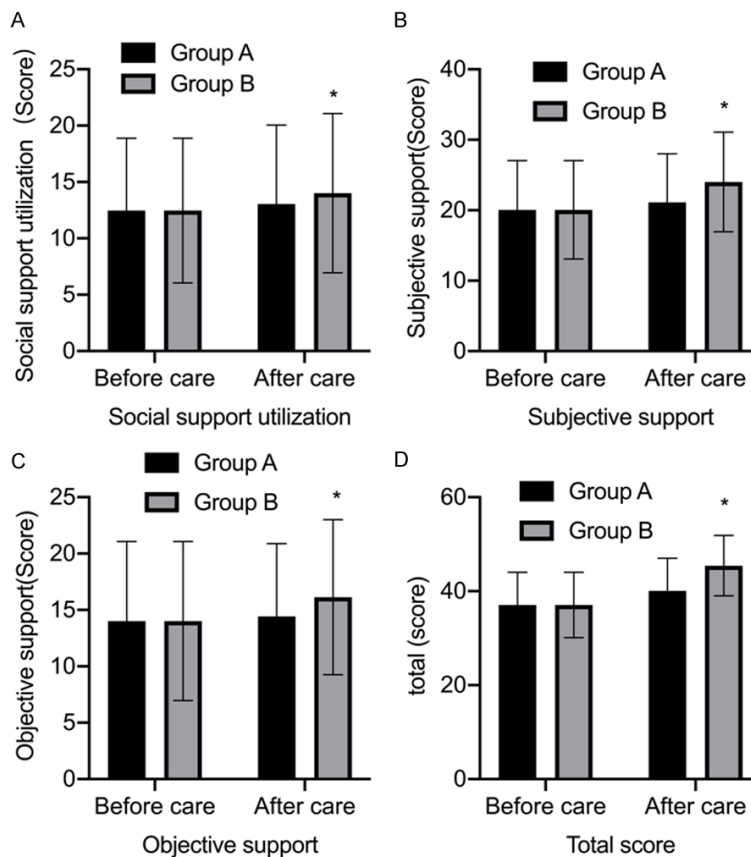


Figure 2. Comparison of SSRS scores between the two groups. A. Shows the comparison of the social support scores of the two groups before intervention, $P > 0.05$, and the social support scores in group B after intervention were higher than those in group A, $P < 0.05$; B. Shows the comparison of subjective support scores before intervention, $P > 0.05$, the subjective support scores in group B after intervention were higher than those in group A, $P < 0.05$; C. Shows comparison of objective support scores of the two groups before intervention, $P > 0.05$, the objective support scores in group B after

Comparison of scores of PSQI and maternal role adaptability between the two groups

There was no significant difference in the scores of PSQI and maternal role adaptability between the two groups before nursing ($P > 0.05$). The PSQI scores were decreased after nursing, and the scores of maternal role adaptability were increased in both groups ($P < 0.05$). Group B showed lower PSQI score and higher score of maternal role adaptability than group A after nursing ($P < 0.05$) (Figure 3).

Comparison of scores of quality of life between the two groups

There was no significant difference in the scores of surrounding environment, social relations, mental health and physical health in the WHO-QOL-BREF scale before nursing between the two groups ($P > 0.05$). The score of each item in the WHOQOL-BREF scale after nursing was all improved ($P < 0.05$). The score of each item in group B after

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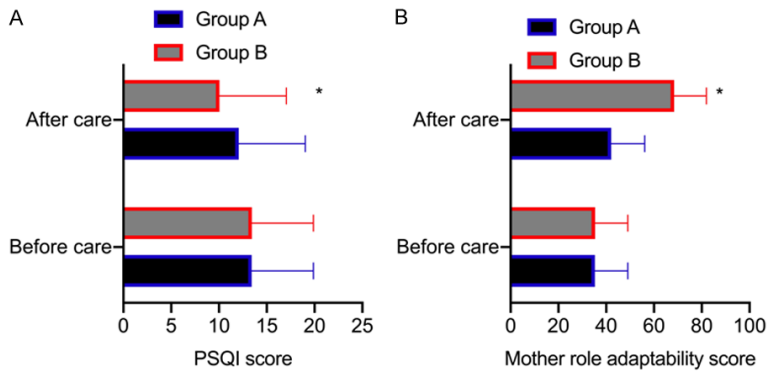


Figure 3. Comparison of scores of PSQI and maternal role adaptability between the two groups. A. Shows that the scores of PSQI before nursing between the two groups were not significantly different ($P > 0.05$). After nursing, the PSQI score in group B was lower than that in group A ($P < 0.05$). B. Shows that the scores of maternal role adaptability before nursing between the two groups were not significantly different ($P > 0.05$). After nursing, the score of maternal role adaptability in group B was higher than that in group A ($P < 0.05$). “*” indicates that the difference between the two groups was statistically significant.

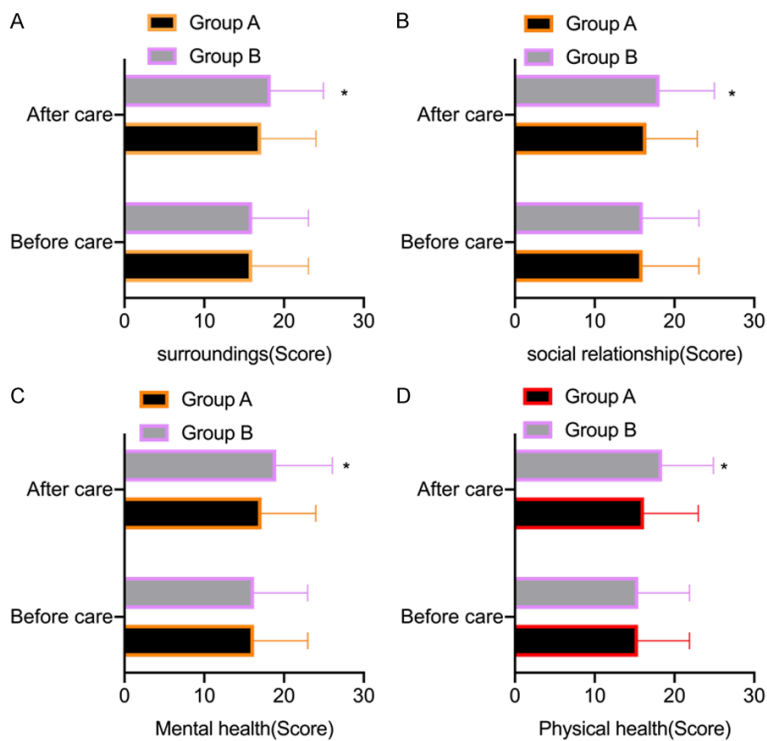


Figure 4. Comparison of scores of quality of life between the two groups. A. Shows that the scores of surrounding environment before nursing between the two groups were not significantly different ($P > 0.05$). After nursing, the score of surrounding environment in group B was higher than that in group A ($P < 0.05$). B. Shows that the scores of social relations before nursing between the two groups were not significantly different ($P > 0.05$). After nursing, the score of social relations in group B was higher than that in group A ($P < 0.05$). C. Shows that the scores of mental health before nursing between the two groups were not significantly different ($P > 0.05$). After nursing, the score of mental health in group B was higher than that in group A ($P < 0.05$). D. Shows that the scores of physical health before nursing between the two

groups were not significantly different ($P > 0.05$). After nursing, the score of physical health in group B was higher than that in group A ($P < 0.05$). “*” indicates that the difference between the two groups was statistically significant.

nursing was higher than that in group A ($P < 0.05$) (Figure 4).

Comparison of incidence of postpartum depression and nursing satisfaction scores between the two groups

There were 19 cases of postpartum depression in group A and 2 cases of postpartum depression in group B. The incidence of postpartum depression in group B was 3.57%, significantly lower than that of 34.55% in group A ($P < 0.05$) (Table 2). The nursing satisfaction score in group B was (91.28 ± 2.38) points, higher than that of (72.15 ± 2.23) points in group A ($P < 0.05$) (Table 3).

Discussion

From pregnancy to childbirth, women’s physiology and psychology will undergo significant changes, and there is a high incidence of depression during this period [19]. Due to the lack of knowledge of pregnancy and understanding of maternal and infant knowledge, coupled with the influence of family factors, the primiparae usually experienced great range of mood swings in the face of different emotions such as despair, anxiety, sadness, disappointment and joy during the perinatal period. It is easy to produce depression, and some may even have suicidal tendency [20, 21]. Prenatal bad mood will hinder the

Table 2. Comparison of incidence of postpartum depression between the two groups [n (%)]

Group	Case	Postpartum depression
Group A	55	19 (34.55)
Group B	56	2 (3.57)*
χ^2		17.354
<i>P</i>		0.000

“*” indicates that the difference between the two groups is statistically significant.

Table 3. Comparison of nursing satisfaction scores between the two groups ($\bar{x} \pm s$)

Group	Nursing satisfaction score (point)
Group A (n=55)	72.15±2.23
Group B (n=56)	91.28±2.38*
χ^2	43.682
<i>P</i>	0.000

“*” indicates that the difference between the two groups was statistically significant.

progress of delivery to some extent, and may also influence the delivery mode and outcome [22]. Generally speaking, depression is more obvious during prenatal and postpartum period. The main causes of prenatal depression are concerns for the health of the foetus, fear of the pain caused by childbirth, and not yet ready for the transition to motherhood. Postpartum depression is closely related to many factors such as obstetrics, maternal physiology, psychology and social support [23].

Studies have shown that the higher maternal self-efficacy and social support leads to the lower incidence of postpartum depression. In order to improve maternal self-efficacy and social support, it is necessary to provide scientific and reasonable nursing interventions for puerperae [24]. In this study, the EPDS score after nursing and the incidence of postpartum depression in group B were lower than those in group A, while the GSES score in group B was higher than that in group A, suggesting that collaborative nursing model for primiparae was beneficial to improve maternal self-efficacy and alleviate depressive mood. The research results of Liu et al. [25] also showed that the EPDS score and the incidence of postpartum depression in the collaborative nursing group were lower than those in the conventional nursing group, while the GSES score in the collab-

orative nursing group was higher than that in the conventional nursing group, which was highly consistent with the results of this study. Collaborative nursing model belongs to a two-way care model, which encourages patients and their families to actively participate in the nursing process, advocates giving full play to the subjective initiative of patients and improves their self-care ability. This nursing model maximizes the role of nursing staff as supporters, caregivers, coordinators and educators through collaborative nursing, and builds a stable, efficient and united nursing team. During hospitalization, the nursing staff should strengthen the targeted theoretical and technical guidance to the primiparae and their family members, which is conducive to improving their awareness of maternal and infant knowledge, and making full physical and mental preparations in advance to welcome the new life. Secondly, the primiparae are instructed to do what they can according to their actual situation, which is conducive to improving self-care ability. All primiparae are invited to join WeChat group or QQ group by which they can get information support, which is conducive to improving the cognition and understanding of maternal and infant knowledge and avoiding blind anxiety and tension. The measure can not only significantly improve the self-efficacy of the primiparae, but also significantly reduce their depression [26]. At the time of admission, the primiparae should be screened for depression and intervention measures should be developed to reduce the incidence of depression.

Once one puerpera loses social support, she is prone to psychological disorders, and then shows different degrees of depression. The research shows that the social support of the primiparae is closely correlated with the psychological burden, and the maternal psychological burden with higher social support is relatively light [27]. In this study, the utilization of social support, subjective support, objective support scores and total score in SSRS scale in group B after nursing were higher than those in group A, suggesting that collaborative nursing model is conducive to improving the social support of primiparae. The social support system of puerperae includes colleagues, friends, relatives, husbands and parents. The collaborative nursing model encourages the family members of patients to actively participate in the nursing

process and provide primiparae with sufficient care and love. Psychological and behavioural support together with loving care will help improve their social support. Secondly, the medical staff not only provide professional psychological support and guidance for the primiparae, but also help them get more support and encouragement from the family members, and help build a complete social support system. With the improvement of social support and self-efficacy, the incidence of depression is significantly reduced, thereby improving the sleep quality and the quality of life. The results of this study show that the sleep quality score in group B is lower than that in group A, and the score of quality of life in group B is higher than that in group A. Maternal role adaptation means that the primiparae imitate and learn the social role of motherhood in accordance with the behavioural standard of this role. If one primipara has not obtained the relevant guidance of pregnancy and parenting, coupled with changes of social role, it is very easy to cause a disorder of maternal role adaptation. In this study, the score of maternal role adaptability in group B was higher than that in group A, suggesting that the collaborative nursing model is beneficial to improve the role adaptability of primiparae. The health knowledge guidance for the primiparae during hospitalization and post-discharge will help them obtain various resources to play the role of motherhood and help promote the maternal role adaptability [28].

In summary, the application of collaborative nursing model is beneficial to reduce the incidence of postpartum depression and improve maternal self-efficacy in primiparae.

This study has achieved certain results, but due to the limitation of a small sample size, a larger sample size, longer time, and more comprehensive research and analysis is required in the future.

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Disclosure of conflict of interest

None.

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