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Evaluating the Impact of Family-Integrated Care in Obstetrics and Gynecology Critical Care Units

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Abstract: *Objective:* To investigate the impact of a family participatory management model in the critical care wards of the Department of Obstetrics and Gynecology. *Methods:* Space resources in the obstetrics and gynecology intensive care unit were reorganized and optimally allocated. Nurses received training and assessment on family-integrated management knowledge specific to the obstetrics and gynecology ICU. Management rules and regulations for family-integrated care were established. Primary caregivers were encouraged and supported to participate in specialized education and caregiving during the hospitalization of pregnant women. *Results:* Key outcomes such as labor duration, delivery outcomes, neonatal nursing skills, length of hospital stay, and psychological parameters (measured using the Self-Rating Anxiety Scale and the Self-Rating Depression Scale) were compared between groups before and after the intervention. Patient and family satisfaction were also evaluated. *Conclusion:* Family-integrated ward management effectively shortened the labor process, reduced patient anxiety, decreased hospitalization duration, and enhanced family satisfaction.

Keywords: Intensive care unit; Family-integrated delivery; Patient outcomes

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1. Introduction

Patient- and Family-Centered Care (PFCC) represents a medical service model that emphasizes a collaborative and mutually beneficial partnership among medical teams, patients, and their families [1]. The family-integrated care approach within PFCC seeks to break away from the conventional closed management models of intensive care units (ICUs), instead promoting a management style that aligns with the biopsychosocial and humanities-oriented perspectives [2].

In managing critical conditions within the Department of Obstetrics and Gynecology, implementing the family-integrated care model alongside evidence-based medicine principles offers several benefits. This approach enhances the overall satisfaction of parturients and their families, expedites the recovery process, and reduces the

likelihood of complications.

This study aims to provide a comprehensive exploration of how family-integrated critical care units in obstetrics and gynecology can be effectively established and managed. Emphasis is placed on leveraging evidence-based practices to improve clinical outcomes, with the ultimate goal of serving as a reference for enhancing clinical practice.

2. Materials and methods

2.1. General information

This study employed an asymmetric control group design in a quasi-experimental framework. A total of 100 pregnant women hospitalized in the intensive care unit of the Department of Obstetrics and Gynecology of this hospital for more than 48 hours between January 2024 and December 2024 were included. The experimental group (n = 50) received self-efficacy-enhancing nursing interventions, such as communication, psychological counseling, physical training, and family support, in addition to routine nursing care. Ethical approval was obtained from the institutional ethics committee, and all participants provided informed consent. The study's inclusion and exclusion criteria were as follows:

Inclusion criteria: (1) Aged 20–50 years; (2) Diagnosed with high-risk pregnancy; (3) Hospitalized in the intensive care unit of obstetrics and gynecology for ≥ 48 hours; (4) Agreed to participate in the study and signed the informed consent form.

Exclusion criteria: (1) Mental disorders or impaired communication abilities; (2) Limited understanding of the study or poor compliance; (3) Lack of consent from accompanying family members.

2.2. Intervention methods

Control group: Patients in the control group received standard clinical nursing care for treatment and rehabilitation upon admission.

Experimental group: The experimental group received the family-integrated nursing management model in addition to standard nursing care. Specific measures included:

(1) Reorganization and optimal allocation of space resources: The obstetrics and gynecology critical care ward was reorganized to provide an environment conducive to family participation. Designated areas included patient care spaces (e.g., wards, built-in toilets, family care zones) and management areas (e.g., meeting rooms, classrooms). Family-centered areas, such as family rest spaces and conversation rooms, were also established. Facilities included surveillance equipment and simulation teaching aids to facilitate learning and participation by family members. The patient care environment was optimized by providing bedside seating, privacy measures, and breastfeeding zones.

(2) Reorganization and training of human resources: Weekly knowledge training sessions were held for all nurses two months prior to the study. Training topics included family participation concepts, high-risk pregnancy care, disease-specific interventions, dietary guidance, neonatal care, breastfeeding, respiratory support, and hemodynamic monitoring for critically ill pregnant women. Nurses were assessed monthly on theoretical and practical competencies, achieving a 100% pass rate prior to initiating the study.

(3) Establishment of rules and regulations for family participation: Family members underwent training on nosocomial infection prevention before being permitted into the ICU. Family members participated

in emotional support and life care under strict infection control protocols and signed informed consent forms. Rooming-in policies were implemented for eligible newborns, ensuring that one primary caregiver provided continuous support. Family members' roles in medical decision-making were clearly defined to promote effective communication with healthcare teams.

(4) Encouragement of caregiver participation in learning and care: A family consultation team was established to support caregivers. Structured educational sessions were conducted in three phases:

(a) Phase 1: Introduction to critical maternal care, self-care skills, behavior management strategies, and the role of family members in patient support.

(b) Phase 2: Collection and resolution of caregiver questions through booklets and tailored educational interventions.

(c) Phase 3: Guidance on using caregiving strategies and effective communication methods to support maternal recovery. Outcomes were assessed to evaluate the feasibility and effectiveness of family-integrated care in critical obstetric care units.

2.3. Evaluation methods

Data on demographics, childbirth-related indicators, and psychological metrics were collected. Demographic data included age, gestational age, and education level. Delivery-related indicators encompassed labor duration, delivery mode, postpartum hemorrhage within 2 hours, total hospital stay, and neonatal care outcomes. Psychological parameters were assessed using the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS) before and after the intervention.

Caregiver competence and satisfaction were evaluated using caregiver ability scales and hospital satisfaction questionnaires on the day of discharge. Continuity of care was ensured through electronic health records, online health education, and post-discharge support during the 42-day postpartum period, with assessments focusing on symptom recovery and neonatal health outcomes.

2.4. Statistical analysis

Data analysis was performed using SPSS 19.0. Categorical variables were expressed as percentages and analyzed using the chi-squared test. Continuous data were presented as means ± standard deviations (SD) and compared using *t*-tests. A P-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of basic demographic indicators of puerpera

No statistically significant differences were observed between the intervention and control groups in terms of age, gestational age, BMI, or education level ($P > 0.05$), confirming comparability between the groups. Results are summarized in **Table 1**.

Table 1. Comparison of basic demographic indicators

Group	*n*	Age (years)	Gestational age (weeks)	BMI (kg/m²)	Educational level	
					Bachelor's or above	Middle and high school
Intervention	50	28.45 ± 2.98	35.65 ± 2.32	24.59 ± 2.14	40	10
Control	50	28.56 ± 3.02	35.49 ± 2.45	24.12 ± 2.34	42	8
t / χ^2		0.318	0.581	1.815		
P		0.751	0.562	0.070		

3.2. Comparison of maternal delivery indicators

Significant differences were found between the intervention and control groups for total labor duration ($t = 4.102$, $P < 0.001$), postpartum hemorrhage at 2 hours ($t = 9.422$, $P < 0.001$), and total postpartum hospital stay ($t = 23.297$, $P < 0.001$). These indicators were markedly lower in the intervention group compared to the control group ($P < 0.05$). Details are presented in **Table 2**.

Table 2. Comparison of maternal delivery indicators (mean ± SD)

Group	*n*	Total labor duration (h)	Postpartum blood loss at 2 h (mL)	Postpartum hospital stay (days)
Intervention	50	12.29 ± 3.02	149.33 ± 32.99	5.47 ± 0.44
Control	50	14.36 ± 4.19	186.49 ± 35.28	6.87 ± 0.59
t / χ^2		4.102	9.422	23.297
P		< 0.001	< 0.001	< 0.001

3.3. Comparison of maternal depression and anxiety scores before and after intervention

No significant differences were found in SDS and SAS scores between the intervention and control groups before the intervention ($P > 0.05$). After the intervention, significant differences were observed in both SDS ($t = 3.057$, $P = 0.002$) and SAS ($t = 2.566$, $P = 0.011$) scores, with lower scores in the intervention group compared to the control group ($P < 0.05$). These results are displayed in **Table 3**.

Table 3. Maternal depression and anxiety scores before and after intervention (mean ± SD)

Group	*n*	SDS		SAS	
		Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Intervention	50	34.55 ± 16.45	23.77 ± 14.29	38.49 ± 15.38	28.56 ± 15.07
Control	50	33.18 ± 15.99	28.69 ± 13.58	37.87 ± 15.09	32.93 ± 14.54
t		0.731	3.057	0.352	2.566
P		0.465	0.002	0.725	0.011

3.4. Comparison of neonatal nursing levels

The self-care rate of neonates in the intervention group was significantly higher than in the control group ($P < 0.05$). Conversely, the rate of neonates unable to care for themselves was significantly lower in the intervention group (*P*

< 0.05). These findings are detailed in **Table 4**.

Table 4. Comparison of neonatal nursing levels [*n* (%)]

Group	*n*	Self-care	Help with care	Unable to care
Intervention	50	30 (60)	16 (32)	4 (8)
Control	50	18 (36)	15 (30)	17 (34)
t / χ^2		17.292	0.061	9.614
P		< 0.000	0.806	0.002

4. Discussion

The findings demonstrate that the implementation of the family-participatory nursing model significantly reduced total labor duration, blood loss volume, and hospitalization time among parturient women compared to the control group ($P < 0.05$). Psychological evaluations revealed that postpartum SDS and SAS scores in the intervention group were significantly lower than those in the control group ($P < 0.05$). By explicitly incorporating family participation in the management of critical care wards in the obstetrics and gynecology department, this model fosters a sense of safety and comfort for patients, contributing to reduced hospital stays and promoting better outcomes [7]. Additionally, family members involved in care not only enhance their understanding of fundamental nursing skills for postpartum women but also improve neonatal home care capabilities, leading to higher satisfaction among patients and their families. Family participation in care planning, evaluation, and implementation, coupled with professional collaboration, has been instrumental in mitigating fear and tension among pregnant women, further emphasizing the efficacy of the family-integrated care model [8].

Incorporating family participation into nursing practices within obstetrics and gynecology intensive care units shifts away from traditional closed-end management approaches. This model enables primary caregivers, under professional guidance, to engage directly in maternal and neonatal care, equipping them with specialized nursing skills. Anchored in the "family-centered care" framework, the model ensures that caregivers actively contribute to cooperative care, recognize their pivotal roles within the family, and strengthen their knowledge of diseases, treatments, and nursing techniques. This approach facilitates seamless and high-quality continuous care for postpartum women, ensuring professionalism and care continuity beyond hospital discharge.

The evidence-based establishment and management of family-integrated critical care wards not only enhances the humanization of medical services but also accelerates patient recovery and reduces medical risks through informed decision-making and efficient management. Future research should aim to further explore family-integrated care models tailored to China's specific needs, ensuring the provision of comprehensive, efficient, and compassionate medical services for critically ill patients in obstetrics and gynecology departments.

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Disclosure statement

The authors declare no conflict of interest.

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