

Application Value of the Comprehensive Emergency Nursing Model in the Emergency Treatment of Pregnant Women and Its Effect on Treatment Efficiency

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Abstract: *Objective:* To evaluate the effect of the comprehensive emergency nursing model on the treatment efficiency of emergency pregnant women. *Methods:* A total of 68 emergency pregnant women admitted to the hospital from June 2023 to June 2025 were selected and equally divided into two groups using a random number table. The experimental group received the comprehensive emergency nursing model, while the reference group received conventional emergency nursing. The treatment efficiency indicators and changes in vital signs were compared between the two groups. *Results:* The treatment efficiency indicators in the experimental group were superior to those in the reference group, and vital signs at 30 minutes after emergency treatment were better in the experimental group than in the reference group, with statistically significant differences ($p < 0.05$). At 24 hours after emergency treatment, the severity of illness score in the experimental group was lower than that in the reference group, the incidence of adverse outcomes was lower, and the nursing satisfaction score was higher, with statistically significant differences ($p < 0.05$). *Conclusion:* The comprehensive emergency nursing model can improve the treatment efficiency of emergency pregnant women, stabilize vital signs during emergency care, reduce the severity of illness, decrease adverse outcomes, and increase nursing satisfaction.

Keywords: Comprehensive emergency nursing model; Emergency pregnant women; Treatment efficiency; Vital signs; Adverse outcomes

Online publication: Aug 31, 2026

1. Introduction

Emergency pregnant women often present with suddenonset critical conditions, characterized by severe illness and rapid deterioration. Delayed or inappropriate treatment may lead to adverse maternal and neonatal outcomes and even increase the risk of maternal and infant mortality^[1]. The treatment efficiency of emergency care for pregnant women depends on the appropriateness of emergency measures and the

scientific nature of emergency nursing. Conventional emergency nursing processes suffer from disconnection issues, making it difficult to smoothly coordinate multiple nursing details, resulting in suboptimal emergency efficiency. The comprehensive emergency nursing model encompasses various nursing components, including personnel preparation, emergency equipment management, and optimized admission procedures, which can enhance the professional competence and responsibility awareness of nursing staff, enable orderly emergency operations, and thereby improve the effectiveness of emergency care^[2]. Based on this, the present study selected 68 emergency pregnant women to evaluate the intervention effects of the comprehensive emergency nursing model.

2. Materials and methods

2.1. General information

A total of 68 pregnant women admitted to the emergency department from June 2023 to June 2025 were selected and equally divided using a random number table. In the experimental group ($n = 34$), there were 14 primiparas and 20 multiparas, aged 23–40 years, with a mean age of (29.68 ± 2.67) years; gestational age ranged from 35 to 41 weeks, with a mean of (37.56 ± 2.18) weeks. In the reference group ($n = 34$), there were 15 primiparas and 19 multiparas, aged 22–41 years, with a mean age of (29.71 ± 2.75) years; gestational age ranged from 35 to 42 weeks, with a mean of (37.79 ± 2.25) weeks. There were no statistically significant differences in baseline data between the two groups ($p > 0.05$).

Inclusion criteria: gestational age ≥ 35 weeks; critical condition requiring admission to the emergency department; conscious awareness; complete basic medical records. Exclusion criteria: confirmed stillbirth; coexisting malignant tumors; psychiatric disorders; abnormal function of vital organs such as heart, liver, or kidneys; withdrawal from the study.

2.2. Methods

The reference group received conventional emergency nursing: upon admission, electrocardiographic monitoring was performed, and changes in vital signs such as heart rate were recorded in detail. Abnormal signs were screened and managed early. Nurses communicated patiently with the patients, explained the treatment plans and expected outcomes for critical conditions, and attempted to alleviate their anxiety. Additional nursing support, such as airway humidification, warmth preservation, and prevention of complications, was provided according to the specific disease type.

The experimental group received the comprehensive emergency nursing model:

(1) Personnel preparation

The head nurse served as the team leader, and team members were emergency department nurses with more than 3 years of work experience. After hospital-level training, they obtained position qualifications and possessed extensive emergency knowledge and good emergency response capabilities. Professional training activities were conducted once a month to clearly explain the latest emergency techniques and concepts for pregnant women, enabling continuous learning for nursing staff.

(2) Emergency equipment management

During the management of emergency instruments, supplies, and medications, the “5S” principle was adhered to. The team leader was responsible for the unified management of emergency equipment, including expiration dates, routine maintenance, and upkeep. Usage logbooks were maintained to clearly record the use

and handover of emergency equipment to ensure normal functioning. Special training sessions on equipment operation procedures were organized monthly, with onsite demonstrations of usage methods and key operational points to ensure all nursing staff mastered the equipment.

(3) Optimized admission procedures

Nursing staff were responsible for the fullcourse emergency care of pregnant women under a “onetoone responsibility system”. Upon admission, nurses arranged examinations or surgeries and comprehensively assessed information including name, age, gestational age, consciousness status, and fetal movement. Vital signs were closely monitored, and the presence of bleeding or rupture of membranes was evaluated. For pregnant women with placenta previa or placental abruption, oxygen therapy was initiated immediately, intravenous access was established, and electrocardiographic monitoring was performed. Blood samples were collected, urinary catheters were routinely placed, and antishock and other symptomatic treatments were administered as ordered. During emergency care, vital signs and fetal heart rate were continuously monitored, and patients were reassured with gentle and kind communication, with guidance on deep or abdominal breathing to alleviate negative emotions. If immediate delivery or surgical intervention was required, nursing staff accompanied the patient throughout transfer, closely monitored changes in condition, and upon arrival at the delivery room or operating room, conducted bedside handover with a detailed introduction of the patient’s basic condition. For routine emergency cases, after the patient’s condition stabilized, she could be transferred to the delivery room.

(4) Quality control

A quality control team was established, composed of the hospital’s quality inspection department or corresponding units, responsible for quality control. The emergency nursing process for pregnant women was assessed, nursing quality at each step was evaluated, nursing problems were summarized, and targeted improvement suggestions were provided. Nursing disputes or complaints were comprehensively reviewed, underlying causes were analyzed, and corresponding corrective measures were implemented.

2.3. Outcome measures

(1) Treatment efficiency indicators

Time to admission, emergency response time, time for emergency equipment preparation, and intrahospital transfer time.

(2) Changes in vital signs

Heart rate, oxygen saturation, and mean arterial pressure were measured at admission and at 30 minutes after emergency treatment.

(3) Severity of illness

The Acute Physiology and Chronic Health Evaluation II (APACHE II) score was used at admission and at 24 hours after emergency treatment, including the Acute Physiology Score (APS, maximum 48 points) and Chronic Health Score (CPS, maximum 17 points). A higher score indicated greater severity.

(4) Incidence of adverse outcomes

Rates of preterm delivery, fetal distress, neonatal death, and neonatal asphyxia were recorded.

(5) Nursing satisfaction score

A selfdesigned nursing satisfaction scale was used, covering five dimensions: risk awareness, nursing skills, nursing responsibility, service attitude, and nursepatient communication. Each dimension was scored

out of 100, with higher scores indicating greater satisfaction.

2.4. Statistical analysis

Data were analyzed using SPSS 28.0 statistical software. Categorical data were expressed as rates and compared using the chisquare test. Continuous data were expressed as mean $\pm$ standard deviation ($\bar{x} \pm s$) and compared using the *t* test. A *p* value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of treatment efficiency indicators between the two groups

The treatment efficiency indicators in the experimental group were superior to those in the reference group, with statistically significant differences ($p < 0.05$). See **Table 1**.

Table 1. Comparison of treatment efficiency indicators between the two groups ($\bar{x} \pm s$, min)

Group	Number of cases	Reception time	Emergency treatment time	Emergency supply preparation time	In-hospital transfer time
Experimental group	34	6.53 $\pm$ 1.57	42.63 $\pm$ 5.98	15.44 $\pm$ 3.68	12.34 $\pm$ 2.51
Control group	34	9.75 $\pm$ 1.68	51.79 $\pm$ 6.35	20.18 $\pm$ 3.76	17.39 $\pm$ 2.60
<i>t</i> value	-	8.165	6.123	5.253	8.148
<i>P</i> value	-	< 0.001	< 0.001	< 0.001	< 0.001

3.2. Changes in vital signs between the two groups

At 30 minutes after emergency treatment, the vital signs in the experimental group were superior to those in the reference group, and the difference was statistically significant ($p < 0.05$). See **Table 2**.

Table 2. Changes in vital signs between the two groups ($\bar{x} \pm s$)

Group	Number of cases	Heart rate (beats/min)		Oxygen saturation (%)		Mean arterial pressure (mmHg)	
		On admission	30 min after emergency	On admission	30 min after emergency	On admission	30 min after emergency
Experimental group	34	96.45 $\pm$ 6.24	88.48 $\pm$ 5.34	92.45 $\pm$ 2.15	96.35 $\pm$ 2.34	108.65 $\pm$ 4.57	87.35 $\pm$ 3.28
Control group	34	96.18 $\pm$ 6.17	92.16 $\pm$ 5.47	92.37 $\pm$ 2.12	94.11 $\pm$ 2.18	108.43 $\pm$ 4.62	90.74 $\pm$ 3.56
<i>t</i> value	-	0.179	2.807	0.154	4.084	0.197	4.084
<i>P</i> value	-	0.858	0.007	0.878	< 0.001	0.844	< 0.001

3.3. Comparison of disease severity between the two groups

At 24 hours after emergency treatment, the disease severity score in the experimental group was lower than that in the control group, and the difference was statistically significant ($p < 0.05$). See **Table 3**.

Table 3. Comparison of disease severity between the two groups ($\bar{x} \pm s$, points)

Group	n	APS		CPS	
		On admission	24 h after emergency treatment	On admission	24 h after emergency treatment
Experimental group	34	12.33 $\pm$ 2.18	8.11 $\pm$ 1.53	5.16 $\pm$ 1.32	2.02 $\pm$ 0.51
Control group	34	12.37 $\pm$ 2.23	10.32 $\pm$ 1.69	5.19 $\pm$ 1.36	2.39 $\pm$ 0.57
<i>t</i> value	-	0.075	5.653	0.092	2.821
<i>p</i> value	-	0.941	< 0.001	0.927	0.006

3.4. Comparison of the incidence of adverse outcomes between the two groups

The incidence of adverse outcomes in the experimental group was lower than that in the control group, and the difference was statistically significant ($p < 0.05$). See **Table 4**.

Table 4. Comparison of the incidence of adverse outcomes between the two groups [n/%]

Group	Number of cases	Premature birth	Fetal distress	Neonatal death	Neonatal asphyxia	Incidence rate
Experimental group	34	1 (2.94)	1 (2.94)	0	1 (2.94)	8.82 (3/34)
Control group	34	3 (8.82)	2 (5.88)	1 (2.94)	4 (11.76)	29.41 (10/34)
χ^2	—	—	—	—	—	4.660
<i>p</i>	—	—	—	—	—	0.031

3.5. Comparison of nursing satisfaction scores between the two groups

The nursing satisfaction score in the experimental group was higher than that in the control group, and the difference was statistically significant ($p < 0.05$). See **Table 5**.

Table 5. Comparison of nursing satisfaction scores between the two groups ($\bar{x} \pm s$, points)

Group	Number of cases	Risk awareness	Nursing skills	Nursing responsibility	Service attitude	Nurse-patient communication
Experimental group	34	88.53 $\pm$ 3.42	90.21 $\pm$ 2.87	91.85 $\pm$ 2.13	91.34 $\pm$ 2.96	88.97 $\pm$ 3.28
Control group	34	84.91 $\pm$ 3.58	87.84 $\pm$ 3.02	87.12 $\pm$ 1.94	87.98 $\pm$ 3.17	85.24 $\pm$ 3.45
<i>t</i> value	-	4.263	3.317	9.573	4.517	4.569
<i>p</i> value	-	< 0.001	0.001	< 0.001	< 0.001	< 0.001

4. Discussion

Maternal critical illness progresses rapidly and may evolve into a lifethreatening clinical crisis within minutes or hours, carrying a high risk of maternal and neonatal mortality^[3]. Early treatment is a key measure to improve prognosis, as it can eliminate risk factors for critical illness and ensure maternal and fetal safety as much as possible. Conventional emergency nursing focuses on vital sign monitoring and comprehensive nursing cooperation, but it fails to fully mobilize the initiative of emergency department nurses, potentially delaying emergency treatment and reducing the success rate of resuscitation^[4].

The comprehensive emergency nursing model establishes detailed nursing procedures based on the disease characteristics and emergency needs of maternal critical illness, enabling comprehensive and

refined nursing management for parturients ^[5]. This model pays continuous attention to the nursing needs of parturients throughout the entire process, placing them at the core of emergency care, and improves the quality of treatment through standardized, individualized, and orderly nursing protocols ^[6].

The results showed that the treatment efficacy indicators in the experimental group were superior to those in the control group, with statistically significant differences ($p < 0.05$). Analysis of the reasons suggests that the comprehensive emergency nursing model incorporates clear personnel access criteria, allowing for the formation of a high-level team and preventing nursing decision-making from being compromised by insufficient competence ^[7]. Regular professional training activities can continuously update nursing staff's professional skills, enabling them to perform emergency procedures, such as condition assessment, comprehensive examination, and specimen collection, thereby shortening emergency treatment time. In addition, the 5S management of emergency equipment ensures device performance and prevents hidden time consumption.

At 30 minutes after emergency treatment, the vital signs in the experimental group were better than those in the control group, with statistically significant differences ($p < 0.05$). Analysis of the reasons indicates that after emergency admission, specialized nursing interventions—including oxygen therapy, electrocardiographic monitoring, and catheterization—are implemented for parturients. Standardized management procedures help stabilize vital signs as soon as possible and prevent deterioration of the condition. Continuous monitoring of vital signs and fetal heart rate allows early identification of abnormalities, enabling timely adjustment of nursing measures and thus preventing fluctuations in vital signs.

At 24 hours after emergency treatment, the disease severity score in the experimental group was lower than that in the control group, and the incidence of adverse outcomes was also lower, with statistically significant differences ($p < 0.05$). Analysis of the reasons suggests that the comprehensive emergency nursing model enables targeted treatment for parturients within a relatively short time, corrects the state of hypoperfusion, and prevents adverse events such as metabolic acidosis, thereby reducing disease severity. The smooth connection of emergency procedures in this model, combined with continuous attention to changes in vital signs, allows early identification of signs of adverse outcomes and improves nursing safety. The nursing satisfaction score in the experimental group was higher than that in the control group, with a statistically significant difference ($p < 0.05$). Analysis of the reasons indicates that under this model, nursing staff can perform nursing operations proficiently and accurately identify nursing risks, thereby enhancing parturients' sense of safety and fostering a high level of trust in the nursing staff. Good nurse-patient communication can alleviate psychological stress in parturients, provide emotional support, and thus improve their satisfaction with nursing care.

5. Conclusion

In summary, implementing a comprehensive emergency nursing model for emergency parturients can improve treatment efficacy, stabilize vital signs, control the condition as early as possible, and prevent adverse outcomes, with high nursing satisfaction.

Disclosure statement

The authors declare no conflict of interest.

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