Original Research

Determinants of Continuous Nursing Quality in Patients with Gestational Diabetes Mellitus: A Cross-Sectional Study

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Abstract

Objective   This study aimed to evaluate the quality of continuous nursing services for hospitalized patients with gestational diabetes mellitus (GDM) during the discharge preparation stage. Using the Chinese version of the Care Transition Measure (CTM) and patient feedback, it clarified the actual effect of current services to provide a scientific basis for improving nursing quality. **Methods**   Using a cross-sectional design and the Chinese version of CTM, data from 195 GDM patients (se-lected via simple random sampling from the obstetrics department of a tertiary general hospital in Wuhan, January–April 2025) were analyzed via multiple regression with SPSS 27.0. **Results**   The total CTM score of 195 GDM patients was (50.67±6.70) points (equivalent to 66.01 points on a 100-point scale, moderate level). The dimension scores from high to low were: general self-care preparation (24.55±3.49) points, doctor-patient communication (12.61±1.53) points, symptom management (8.24±1.50) points, and written plan (5.27±1.46) points. Regression analysis showed age (β=-4.215, P < 0.001), education level (β=1.263, P < 0.001), occupation (β=3.023, P < 0.001), monthly household income per capita (β=3.152, P < 0.001), and type of medical insurance (β=1.198, P < 0.05) were main influencing factors of continuous nursing quality. **Conclusion**   The quality of contin-uous nursing for GDM patients in this Wuhan hospital is moderate, with the written plan as the weak link. Personalized nursing plans based on patients' individual characteristics (e.g., age, education level) should be developed, with a focus on optimizing written guidance and symptom management to improve continuous nursing quality. Implications for clinical practice and policy are discussed.

Keywords: Continuous Nursing; Gestational Diabetes Mellitus (GDM); Chinese Version of Care Transition Measure (CTM); Nursing Quality; Influencing Factors

1. Introduction

Gestational diabetes mellitus (GDM), a pregnancy-specific metabolic disease, raises risks of maternal complications, adverse neonatal outcomes, and maternal type 2 diabetes post-childbirth [1-3]. The 2021 International Dia-betes Federation (IDF) data shows GDM ac-counts for 80% of global pregnant women with hyperglycemia, with a 11.9% prevalence in China and an upward trend [4-7]. Tra-ditional nursing, focusing on in-hospital care, lacks adequate out-of-hospital guidance, weakening patients' self-management and increasing adverse preg-nancy outcomes [8-13]. Continuous nursing, linking hospital-family/community, offers full-cy-cle support but lacks systematic quality evaluation

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for GDM patients in China. Internationally, the U.S. matured the Transitional Care Model (TCM) since the 1980s, and Japan built a standardized elderly continuous nursing system, both proving continuous nursing im-proves chronic disease self-management and reduces readmission [14-16]. In China, Hong Kong pioneered chronic disease continuous nursing in 2002, with mainland hospitals ex-ploring models like home visits and "hospi-tal-community-family" platforms [17-24]. How-ever, domestic gaps exist: no unified quality standards, poor hospital-community connection, and insufficient staff capacity [25]. Most GDM continuous nursing studies focus on intervention effects, not quality status or influencing factors, hindering precise optimization. This study thus assessed GDM patients' continuous nursing quality via the CTM scale in a Wuhan hospital to fill this gap.

2. Methods

2.1 Study Participants

Using simple random sampling, GDM patients hospitalized in the obstetrics department of a tertiary general hospital in Wuhan, Hubei Prov-ince, China, from January to April 2025 were selected. Diagnostic criteria: Referring to the standards of the International Association of Di-abetes and Pregnancy Study Groups (IADPSG), all pregnant women without a previous diagnosis of diabetes underwent a 75g oral glucose toler-ance test (OGTT) at 24-28 weeks of gestation. GDM was diagnosed if any of the following cri-teria were met: fasting blood glucose ≥ 5.1 mmol/L, 1-hour blood glucose ≥ 10.0 mmol/L, 2-hour blood glucose ≥ 8.5 mmol/L, or glycated hemoglobin (HbA1c) $\geq 6.5\%$ [26-27].

Inclusion criteria: ①Meeting the diagnostic cri-teria for GDM; ②Singleton pregnancy with a ges-tational age of 24 weeks or more; ③Clear con-sciousness, clear language expression, and ability to cooperate with the survey; ④Providing informed consent and voluntarily participating in the study.

Exclusion criteria: ①Complicated with severe car-diopulmonary, hepatic, or renal diseases, mental ill-nesses, or other serious conditions; ②Pre-existing diabetes before pregnancy; ③Having other obstetric complications (e.g., preeclampsia).

2.2 Study Design

2.2.1 Research Instruments

(1) General Information Questionnaire: Self-de-signed, including demographic data (age, education level, occupation, monthly household income per capita, type of medical insurance, etc.) and disease-related data (gestational age, diag-nosis time, etc.), with a total of 10 items.

(2) Chinese Version of the Care Transition Measure (CTM): Developed by Coleman et al. [28] and local-ized and validated by Li et al. [29], it has good relia-bility (Cronbach's α=0.85) and validity (content va-lidity index=0.99). The scale includes 4 dimensions (17 items): general self-care preparation (8 items), written plan (2 items), doctor-patient communica-tion (4 items), and symptom management (3 items). A 4-point Likert scale was used (1=strongly disa-gree, 4=strongly agree), with a total score ranging from 17 to 68 points. A higher score indicates better quality of continuous nursing.

2.2.2 Sample Size Estimation

According to Kendall's requirement (sample size should be 5-10 times the number of items) and con-sidering a 20% invalid questionnaire rate, the sam-ple size was calculated using the formula: N= (num-ber of items in general information question-nairenumber of CTM dimen-sions) ×10 × (120%) = (104) ×10×1.2=168 cases. A total of 229 question-naires were distributed, and 195 valid question-naires were recovered, with an effective rate of 85%, which met the sample size requirement.

2.2.3 Survey Methods

A combination of "onlineoffline" surveys was adopted: ① Online: Questionnaires were dis-tributed via Wenjuanxing (an online survey plat-form) to patients proficient in using smartphones, with "mandatory items" set to avoid missing an-swers; ② Offline: Face-to-face surveys were con-ducted in the obstetrics ward for patients who were inconvenient to answer online. A unified guideline was used, and questionnaires were collected and checked on-site to exclude invalid questionnaires with regular responses or contra-dictions.

2.2.4 Statistical Analysis

SPSS 27.0 software was used for statistical analysis: Categorical data were described by frequency (n) and percentage (%); Continuous data were described by mean±standard deviation (x±s) or median M (P25, P75); Univariate anal-ysis: Independent samples t-test (for two groups) or ANOVA (for multiple groups) was used for continuous data, and chi-square test was used for categorical data; Multivariate analysis: Multiple linear regression was performed with the total CTM score as the dependent variable and factors with $P < 0.05$ in univariate analysis as inde-pendent variables; Correlation analysis: Pearson product-moment correlation was used to analyze the correlation between each dimension of CTM and the total score;

The test level was α=0.05, and $P < 0.05$ was considered statistically significant.

2.3 Quality Control

①Before the survey: Researchers received uni-fied training to standardize the guideline and ensure consistent understanding of items;

②During the survey: Participants were screened strictly according to inclusion and exclusion criteria. Questionnaires were checked on-site to supplement missing items and correct errors;

③Data processing: Questionnaires with a miss-ing rate > 20% or regular responses were ex-cluded; data were entered independently by 2 researchers and cross-checked to ensure accuracy.

3. Results

3.1 Baseline Characteristics of Participants

Among 195 GDM patients, the majority were aged 26-30 years (110 cases, 56.4%); had a col-lege education (80 cases, 41.0%); were employed (170 cases, 87.2%); had a monthly household income per capita of 3000-10000 yuan (169 cases, 86.7%); had urban employee basic medical in-surance (110 cases, 56.4%); and lived in urban areas (172 cases, 88.2%). Details are shown in Table 3.1.

Table 3.1 Baseline Characteristics of GDM Patients

Category	Subcategory	Number (n)	Percentage (%)
Gender	Female	195	100
Age	18-25 years	10	5.1
	26-30 years	110	56.4
	30-40 years	74	37.9
	> 40 years	1	0.5
Education Level	Primary school or below	2	1
	Junior high school	10	5.1
	Senior high school/technical second-ary school	64	32.8
	College	80	41
	Bachelor's degree or above	39	20
Marital Status	Married	195	100
Occupation	Unemployed	20	10.3
	Farmer	5	2.6
	Employed	170	87.2
Monthly Household Income per Capita	< 1000 yuan	1	0.5
	1000-2999 yuan	12	6.2
	3000-4999 yuan	82	42.1

	5000-10000 yuan	87	44.6
	> 10000 yuan	13	6.7
Residence	Rural	23	11.8
Urban	172	88.2	
Type of Medical Insurance	New Rural Cooperative Medical Insurance	14	7.2
	Urban Resident Basic Medical Insurance	71	36.4
	Urban Employee Basic Medical Insurance	110	56.4
Distance to Community Health Service Center	< 1000 meters	41	21
	1000-1999 meters	53	27.2
	2000-5000 meters	90	46.2
	> 5000 meters	11	5.6
	Living with children/parents	16	8.2
Living Arrangement	Living with spouse	179	91.8

3.2 Quality of Continuous Nursing Services for GDM Patients

The total CTM score of 195 patients was (50.67±6.70) points (66.01 points in 100-point scale). The scores of each dimension from high to low were: general self-care preparation (24.55±3.49) points, doctor-patient communication (12.61±1.53) points, symptom management (8.24±1.50) points, and written plan (5.27±1.46) points. Details are shown in Table 3.2.

Table 3.2 scores of Each Dimension of the CTM Scale in GDM Patients

Dimension	Number of Items	Item Mean (x ± s)	Dimension Total Score (x ± s)
Doctor-Patient Communication	4	3.15 ± 0.38	12.61 ± 1.53
Symptom Management	3	2.75 ± 0.50	8.24 ± 1.50
General Self-Care Preparation	8	3.07 ± 0.44	24.55 ± 3.49
Written Plan	2	2.63 ± 0.73	5.27 ± 1.46
Total Scale Score	17	2.98 ± 0.39	50.67 ± 6.70

3.3 Influencing Factors of CTM Scores in GDM Patients

3.3.1 Univariate Analysis (ANOVA)

Taking general information as independent variables and total CTM score as the dependent variable, ANOVA showed that age, education level, occupation, type of medical insurance, and monthly household income per capita had statis-tically

significant effects on CTM scores (all P < 0.001); the distance to the community health service center had no statistically significant ef-fect (P=0.303). Details are shown in Table 3.3.

Table 3.3 ANOVA Results of Factors Influencing CTM Scores in GDM Patients

Factor	Subcategory	Number	CTM Total Score	F	P
Age	18-25 years	10	57.90 ± 3.41	41.897	< 0.01
	26-30 years	110	53.55 ± 5.50		
	30-40 years	74	45.49 ± 5.03		
	> 40 years	1	45		
Education Level	Primary school or below	2	36.00 ± 1.41	32.891	< 0.01
	Junior high school	10	49.10 ± 3.70		
	Senior high school/technical secondary school	64	46.44 ± 4.54		
	College	80	51.17 ± 6.22		
	Bachelor's degree or above	39	57.72 ± 4.17		
Occupation	Unemployed	20	40.50 ± 5.33	39.066	< 0.01
	Farmer	5	45.40 ± 2.07		
	Employed	170	52.02 ± 5.77		
Type of Medical Insurance	New Rural Cooperative Medical Insurance	14	40.07 ± 9.00	35.08	< 0.01
	Urban Resident Basic Medical Insurance	71	49.15 ± 4.83		
	Urban Employee Basic Medical Insurance	110	52.99 ± 5.81		
Monthly Household Income per Capita	< 1000 yuan	1	37	34.617	< 0.01
	1000-2999 yuan	12	43.58 ± 7.45		
	3000-4999 yuan	82	47.15 ± 3.90		
	5000-10000 yuan	87	53.80 ± 5.99		
	> 10000 yuan	13	59.46 ± 2.88		
Distance to Community Health Service Center	< 1000 meters	41	52.05 ± 9.24	1.222	0.303
	1000-1999 meters	53	51.11 ± 7.51		
	2000-5000 meters	90	49.76 ± 4.85		
	> 5000 meters	11	50.82 ± 2.96		

3.3.2 Univariate Analysis (t-test)

Taking living arrangement and residence as in-de-pendent variables, t-test showed that there was no statistically significant difference in CTM scores between the two groups (both P > 0.05). Details are shown in Table 3.4.

Table 3.4 t-test Results of Factors Influencing CTM Scores in GDM Patients

Factor	Subcategory	Number (n)	CTM Total Score (x ± s)	t	P

Living Arrangement	Living with children/parents	16	47.31 ± 11.90	-1.214	0.243
	Living with spouse	179	50.97 ± 5.99		
Residence	Rural	23	48.74 ± 9.05	-1.123	0.272
	Urban	172	50.92 ± 6.31		

3.4 Correlation Analysis of CTM Dimensions in GDM Patients

Pearson correlation analysis showed that all dimensions of CTM were significantly positively correlated with the total score (all P < 0.01). The strongest correlation was between general self-care preparation and the total score (r=0.930), followed by symptom management (r=0.834), doctor-patient communication (r=0.747), and written plan (r=0.726). Details are shown in Table 3.5.

Table 3.5 Correlation Analysis Between CTM Dimensions and Total Score in GDM Patients

Dimension	Doctor-Patient Communication Mean	Symptom Management Mean	General Self-Care Preparation Mean	Written Plan Mean	Total Score Mean
Doctor-Patient Communication Mean	1				
Symptom Management Mean	0.464**	1			
General Self-Care Preparation Mean	0.604**	0.713**	1		
Written Plan Mean	0.460**	0.610**	0.512**	1	
Total Score Mean	0.747**	0.834**	0.930**	0.726**	1

3.5 Multivariate Linear Regression Analysis of Factors Influencing Continuous Nursing Quality

Multiple linear regression analysis was performed with the total CTM score as the dependent variable and age, education level, occupation, monthly household income per capita, and type of medical insurance as independent variables (assignment shown in Table 3.6). The results showed that the model had a good fit: R^2=0.751 (adjusted R^2=0.745), F=114.258 (P < 0.001); all VIF values were < 5, indicating no multicolline-arity. Age had a negative effect on CTM scores (β=-4.215, P < 0.001), while education level, occupation, monthly household income per capita, and type of medical insurance had positive effects (β=1.263, 3.023, 3.152, 1.198, respectively; all P < 0.05). Details are shown in Tables 3.6 and 3.7.

Table 3.6 Assignment of Independent Variables in Multiple Linear Regression

Independent Variable	Subcategory	Assignment
Age	18-25 years	1
	26-30 years	2
	30-40 years	3
	> 40 years	4
Education Level	Primary school or below	1

	Junior high school	2
	Senior high school/technical secondary school	3
	College	4
	Bachelor's degree or above	5
Occupation	Unemployed	1
	Farmer	2
	Employed	3
Monthly Household Income per Capita	< 1000 yuan	1
	1000-2999 yuan	2
	3000-4999 yuan	3
	5000-10000 yuan	4
	> 10000 yuan	5
Type of Medical Insurance	New Rural Cooperative Medical Insurance	1
	Urban Resident Basic Medical Insurance	2
	Urban Employee Basic Medical Insurance	3

Table 3.7 Results of Multiple Linear Regression Analysis

Independent Variable	Regression Coefficient (β)	Standard Error	t Value	P Value	VIF
Constant	30.991	2.158	14.362	< 0.001	-
Age	-4.215	0.452	-9.319	< 0.001	1.285
Education Level	1.263	0.343	3.68	< 0.001	1.352
Occupation	3.023	0.443	6.818	< 0.001	1.217
Monthly Household Income per Capita	3.152	0.412	7.658	< 0.001	1.426
Type of Medical Insurance	1.198	0.451	2.658	0.008	1.304

Note: R^2 = 0.751, adjusted R^2 = 0.745, F = 114.258, P < 0.001.

4. Discussion

4.1 Current Status of Continuous Nursing Quality for GDM Patients

4.1.1 General Self-Care Preparation

The general self-care preparation dimension had the highest score (24.55±3.49) points, indicating that patients had a good grasp of self-management content such as basic GDM knowledge and blood glucose monitoring meth-ods. This may be attributed to the hospital's reg-ular health education through pregnant women's schools and health manuals, as well as the high proportion of employed and highly educated pa-tients (87.2% and 61.0%, respectively), who have stronger learning abilities and compli-ance, mak-ing it easier to master self-care skills [28-36]. However, patients with lower education levels had lower scores, suggesting that popularized edu-cational formats such as graphics, videos, and phys-ical demonstrations should be used to ensure full coverage of information dissemination.

4.1.2 Written Plan

The written plan dimension had the lowest score (5.27±1.46) points, which is the core weak link in continuous nursing. Written plans are im-portant bases for patients' out-of-hospital self-management. The low score may be due to: ① The content of guidance materials is general and does not meet the personalized needs of GDM patients; ② Some patients with low education levels have difficulty understanding written materials; ③ Medical staff do not actively explain the content of materials, leading to low utilization by patients [29-33]. It is necessary to optimize the format of written ma-terials and provide oral explanations to improve practicality.

4.1.3 Symptom Management

The symptom management dimension had a relatively low score (8.24±1.50) points, reflecting patients' insufficient ability to identify and re-spond to GDM-related symptoms. GDM patients may experience blood glucose fluctuations and drug side effects outside the hospital, but tradi-tional nursing lacks targeted guidance, making it difficult for patients to handle acute symptoms effectively [29-30]. It is recommended to add special training on "symptom identification and emer-gency response" through case simulations and online Q&A to improve patients' risk response capabilities.

4.1.4 Doctor-Patient Communication

The doctor-patient communication dimension had a moderate score (12.61±1.53) points, indicating room for improvement in communication be-tween medical staff and patients. The low score may be due to: ① Heavy workload of medical staff leading to insufficient communication time at discharge; ② Insufficient consideration of patients' opinions, resulting in low patient participation [31]. It is necessary to establish a "discharge commu-nication checklist" to clarify communication content and strengthen interaction through regular fol-low-up to improve communication effectiveness.

4.2 Room for Improvement in In-Hospital Con-tinuous Nursing Quality for GDM Patients

The total CTM score of patients in this study was (50.67±6.70) points (66.01 points in 100-point scale), which was lower than the results of Parry et al. [32] (71.21 points) abroad and Wu et al. [33-36] (77.78 points) domestically, suggesting that the quality of continuous nursing for GDM patients in the Wuhan hospital still needs improvement. Possible reasons include: ① The late start of continuous nursing in China, lack of unified quality standards, and irregular service processes; ② Poor connection between hospitals and communities, resulting in out-of-hospital nursing gaps; ③ Insufficient support of medical insur-ance policies for continuous nursing, leading to heavy economic burden and low participation of patients [34]. It is necessary to im-prove the in-hospital continuous nursing system in ac-cordance with the requirements of China's National Nursing Development Plan (2021-2025), strengthen collaboration with communities, and promote service standardization.

4.3 Analysis of Influencing Factors of Continu-ous Nursing Quality

4.3.1 Age

Age was negatively correlated with CTM scores (β=-4.215, P < 0.001), meaning that older patients had lower quality of continuous nursing, which is consistent with the study by Wang [35]. Possible reasons include: ① Decreased memory and un-derstanding ability with age, making it difficult for patients to master self-care knowledge; ② Elderly patients (≥ 35 years old) have more comorbidities and higher nursing needs, but cur-rent services do not fully meet these needs [35]. It is recommended to develop a "simplified" nursing plan for elderly patients, such as regular home visits and training with family members' partic-ipation, to improve nursing effectiveness.

4.3.2 Education Level

Education level was positively correlated with CTM scores (β=1.263, P < 0.001), meaning that patients with higher education levels had better nurs-ing quality, which is consistent with the study by Su et al. [36]. Patients with higher education have stronger learning abilities and are more likely to un-derstand health knowledge and coop-erate with nursing interventions; while patients with lower

education may have difficulty under-standing written materials and insufficient disease awareness, leading to low nursing compliance [36]. Popularized educational methods such as video tutorials and physical demonstrations should be used for patients with lower education to ensure effective information transmission.

4.3.3 Occupation

Employed patients had significantly higher CTM scores than unemployed and farmer patients (β=3.023, $P < 0.001$), which is consistent with the study by Zhou [37]. Employed patients have stable income, are more likely to obtain high-quality medical insurance (e.g., urban em-ployee medical insurance), and have a wide social circle, enabling them to obtain health support from colleagues and friends; unemployed patients may face high economic pressure and social iso-lation, making it difficult to adhere to nursing interventions [37]. It is recommended to provide "economic" nursing options for unemployed pa-tients, such as free community follow-up and online public welfare consultation, to reduce the economic burden.

4.3.4 Monthly Household Income per Capita

Monthly household income per capita was positively correlated with CTM scores (β=3.152, $P < 0.001$), which is consistent with the study by Han [38]. High-income families can afford additional nursing costs and have higher requirements for quality of life, making them more active in participating in nursing; low-income families may reduce nursing behaviors such as follow-up and exami-nations due to medical cost pressure [38]. It is necessary to cooperate with medical insurance departments to expand the reimbursement scope of continuous nursing and provide subsidies for low-income patients to lower the threshold for medical treatment.

4.3.5 Type of Medical Insurance

Patients with urban employee medical insurance had significantly higher CTM scores than those with resident medical insurance or New Rural Co-operative Medical Insurance (β=1.198, $P < 0.05$), which is consistent with the study by Li et al [39]. Urban employee medical insurance has a high reimbursement rate (usually 70%-90%), reducing the medical burden of patients and making it easier for them to adhere to long-term nursing; while the reimbursement rate of New Rural Cooperative Medical Insurance and resi-dent medical insurance is low (50%-70%), lead-ing patients to abandon some nursing services due to cost issues [40]. It is recommended to optimize medical insurance poli-cies and increase the re-imbursement rate of contin-uous nursing for GDM patients, especially for groups covered by pri-mary medical insurance.

4.4 Future Outlook

Continuous nursing for GDM patients in China is still in the exploratory stage. Future optimization should focus on three aspects: ① Institutional level: Establish a unified national quality standard for continuous nursing for GDM to standardize service processes; ② Service level: Build a "hospital-com-munity-family" linkage platform and realize the sharing of nursing information through Internet technology to solve out-of-hospital nursing gaps; ③ Personalized level: Develop hierarchical nursing plans based on patients' characteristics such as age and edu-cation level, and focus on vulnerable groups such as the elderly, patients with low educa-tion, and low-income patients. Through multi-di-mensional improvements, the quality of continuous nursing can be improved, and the maternal and ne-onatal outcomes of GDM patients can be optimized.

4.5 Limitations

This study has several limitations that should be noted. First, the research sample was limited to GDM patients from a single tertiary general hospi-tal in Wuhan, which may restrict the gener-alizabil-ity of the results—regional differences in medical resource allocation, nursing service models, and pa-tient demographics mean the findings may not be fully applicable to GDM patients in other regions or hospitals of different levels. Second, the study adopted a cross-sectional design, which only cap-tures the status of continuous nursing quality and its in-fluencing factors at a specific time point; it can-not establish a causal relationship between the iden-tified influencing factors (e.g., age, education level)

and nursing quality, nor can it reflect changes in nursing effects over time. Third, data collection relied on self-reported questionnaires (e.g., CTM scale) and patient feedback, which may be affected by information bias—patients may overestimate or underestimate their nursing experience due to recall bias, social desirability bias, or limited understanding of questionnaire items, potentially impacting the accuracy of the results.

5. Conclusions

The quality of continuous nursing for GDM patients in the Wuhan hospital involved in this study is at a moderate level (total CTM score: 50.67±6.70 points). Among all dimensions of the CTM scale, general self-care preparation has the highest score, while the written plan dimension has the lowest score, making it the key link re-quiring targeted optimization in clinical nursing practice.

Age, education level, occupation, monthly household income per capita, and type of medical insurance are confirmed as the main influencing factors of continuous nursing quality for GDM patients. Specifically, patients with the following characteristics tend to have lower continuous nursing quality: older age, lower education level, unemployed or engaged in agricultural work, lower household income, and coverage by New Rural Cooperative Medical Insurance or resident medical insurance.

Clinically, targeted strategies should be formu-lated to improve continuous nursing quality based on patients' individual characteristics: optimize the content and form of written guidance materi-als (e.g., visual charts, audio tutorials) and strengthen symptom management training for both nurses and patients; provide adaptive ser-vices for vulnerable groups (e.g., simplified op-eration tutorials for elderly and low-education patients, assistance with medical insurance sub-sidy applications for low-income patients); and enhance collaboration between hospitals and communities to establish a seamless connection mechanism for discharge follow-up, home care, and health education, promoting full-cycle cov-erage of continuous nursing services. Through these measures, the quality of continuous nursing for GDM patients can be comprehensively im-proved, thereby contributing to the optimization of maternal and neonatal health outcomes.

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