

INVESTIGATION AND ANALYSIS OF DIABETES COGNITION AMONG CLINICAL INTERVENTION IN A MATERNITY HOSPITAL

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ABSTRACT

Introduction: To elucidate the mastery of diabetes knowledge of nurses with different professional titles, educational backgrounds, departments, etc., and to understand the contents of nurses' training needs for diabetes knowledge; to clarify the training direction of nurses' diabetes knowledge for managers.

Materials and methods: Through convenience sampling from March 2019 to April 2020, 326 clinical nurses in our hospital were enrolled and assessed using the self-designed general data scale and clinical nurses diabetes knowledge assessment scale.

Results: The total scores of diabetes knowledge of 326 obstetrics and gynecology nurses was (61.89 ± 10.38) points, with a total score rate of 61.89%, the highest score rate of 71.66% in diet therapy and the lowest score rate of 43.58% in drug therapy. The drug therapy scores and blood glucose monitoring scores presented the highest correlation with total scores, with correlation coefficients both greater than 0.7. The stepwise regression analysis demonstrated that nurses' departments and whether nurses participated in training were the main factors for nurses in Obstetrics & Gynecology to master diabetes knowledge.

Conclusion: The diabetes cognition among nurses in Obstetrics & Gynecology hospitals is at a moderate-to-low level, suggesting that hospital managers should pay attention to diabetes cognition among specialized nurses, and should pay attention to training nurses on related diabetes knowledge, improving nurses' ability to deal with emergencies of diabetic patients.

Keywords: Diabetes, knowledge level, influencing factors, obstetrics & gynecology, nurses.

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Introduction

According to the latest data from the International Diabetes Federation (IDF), the number of diabetic patients worldwide has reached 425 million in 2017, of which approximately 80% are concentrated in low- and middle-income countries. It is estimated that the number of diabetic patients can reach 629 million by 2045. Diabetes is an increasingly serious global disease, and China has become the country with the largest number of cases and undiagnosed diabetes in the world. According to the IDF statistics, there were approximately 114 million diabetic patients in China, with the

undiagnosed rate of as high as 53.6% in 2017⁽¹⁾. Diabetes is characterized by high morbidity, multiple complications, high disability rate and high mortality. Thus, reasonable control of blood glucose, reduction of complications, improvement of quality of life and prolongation of life have become the main goals for currently treating diabetes⁽²⁾. Pregnancy complicated with diabetes includes pregestational diabetes mellitus (PGDM) and gestational diabetes Mellitus (GDM). GDM is a state of glucose intolerance occurring or being first detected during pregnancy, including a subset of patients having had impaired glucose tolerance before pregnancy but being first identified during pregnancy. GDM accounts for over

90% of pregnancy complicated with diabetes, and 20%-50% develop type 2 diabetes mellitus (T2DM) after delivery⁽³⁾. Poor blood glucose control during pregnancy can have adverse effects on pregnant women and fetuses. Pregnant women are more likely to develop T2DM in the future, and their fetuses will also be more likely to develop metabolic syndrome in adulthood, which is passed down from generation to generation⁽⁴⁾. Patients need accurate, scientific and systematic diabetes knowledge to promote changes in their behaviors, thus blood glucose levels can be well controlled. Clinical nurses exert a vital role in providing patients with appropriate nursing and health education. Nevertheless, relevant reports reveal that the clinical nurses not in the Endocrinology have a low-level diabetes knowledge cognition. Nursing managers should strengthen training and management of diabetes knowledge for non-endocrinology specialist nurses and elevate clinical nurses' diabetes cognition, providing scientific and effective nursing methods for patients⁽⁵⁻⁹⁾.

As an Obstetrics and Gynecology hospital, pregnancy complicated with diabetes is common in our hospital. But in fact, in clinical nursing work, though nurses have more contact with diabetic patients, the contents of diabetes-related nursing provided to patients is quite small, and the mastery of nurses' diabetes knowledge remains unknown. The clinical nurses being trained to possess rich professional diabetes knowledge and providing high-quality personalized nursing will exert a positive role in the management of blood glucose during pregnancy, prognosis of pregnant women and fetuses, healing of patients' surgical openings, etc.

Materials and methods

Research subjects

Through convenience sampling from March 2019 to April 2020, 326 clinical nurses from a tertiary and first-class Obstetrics and Gynecology hospital in Beijing were enrolled.

Inclusion criteria:

- Clinical nurses who had obtained nurse qualification;
- On-the-job during investigation period;
- Those who volunteered to participate in this research.

Exclusion criteria:

- Clinical nurses with long-term sick leave and maternity leave;
- Nurses engaged in non-clinical work.

A total of 326 clinical nurses were included in this research. Among them, there were 1 male (0.3%) and 325 females (99.7%), aged 20-56 years old, with mean age of (31.42±7.21) years old; education level: 52 of technical secondary school, 133 of junior college, 138 of undergraduate, and 3 of master or above; professional titles: 82 nurses, 206 senior nurses, 36 supervisor nurses, and 2 deputy directors and above; nursing age: 23 of <1 year, 81 of 1-5 years, 92 of 5-10 years, 52 of 10-15 years, 41 of 15-20 years, and 37 of 20 years or more; position: 316 nurses and 10 head nurses; department classification: 99 from Obstetrics, 75 from Gynecology, 38 from Pediatrics, 53 from Emergency and Outpatients, and 61 from delivery room and operating room; 232 had received diabetes knowledge training, and 94 had not received diabetes knowledge training; 179 had relatives with diabetes, and 147 had relatives without diabetes.

Research tools

- General data: the self-designed general data questionnaire, including gender, age, professional title, nursing age, education, position, department, whether having received diabetes knowledge training, and whether there were diabetic patients in their relatives.

- Clinical nurses diabetes knowledge assessment scale^(10, 11): under the guidance of China Guidelines for the Prevention and Treatment of Type 2 Diabetes Mellitus (2013 Edition) and China Diabetes Nursing and Education Guidelines 2009, on the basis of reviewing relevant domestic and foreign literature, combining with contents of diabetes health education and extensively soliciting opinions from professional medical staff and endocrine experts, Ding Biao, Xu Yanling, Zhang Nina et al. from the Nursing Department of the Sixth People's Hospital Affiliated to Shanghai Jiaotong University designed by themselves according to the procedure of compiling scale. The reliability and validity of the scale were evaluated.

The item content validity of the scale was 1.00, and the content validity index of average scale level was 1; the test-retest reliability coefficient of total scale was 0.898, and the test-retest reliability coefficient of each dimension was 0.578-0.802; the Cronbach's alpha coefficient of total scale was 0.727-0.890. The scale included 7 dimensions (20 items in total), namely basic diabetes knowledge (3 items), diabetes complications (4 items), blood glucose monitoring (3 items), drug therapy (3

items), exercise therapy (3 items), diet therapy (3 items) and injection skills (1 item). Each answer was a judgmental answer, with 1 point for a correct answer, and no points for a wrong or unclear answer. Scores ranged from 0-100 points. The higher scores suggested the better mastery of diabetes knowledge.

Data collection

Special personnel distributed questionnaires to each department, explained the purpose and significance of the research, obtained the understanding and consent of research subjects, distributed the questionnaires on the spot, and recovered them on the spot; a total of 330 questionnaires were distributed, and 326 effective questionnaires were recovered, with an effective recovery rate of 98%.

Statistical analysis

Quantitative data were described using , and comparisons between groups were performed using t-test or one-way ANOVA. Statistical description of enumeration data adopted n (%). Pearson correlation analysis calculated the correlation coefficient between total scores and scores in each dimension. Multivariate stepwise linear regression model analyzed the influencing factors of nurses' diabetes knowledge scores. Statistical analysis was conducted using SAS 9.4 statistical software. P<0.05 was considered statistically significant using a two-sided test.

Results

The status of Obstetrics and Gynecology nurses' mastery of diabetes cognition

The Obstetrics and Gynecology nurses had a moderate-to-low-level mastery of diabetes cognition. They had the highest score rate in diet therapy, with better knowledge mastery, and the lowest score rate in drug therapy, with poorer knowledge mastery (Table 1).

Correlation of total scores and each dimension scores of clinical nurses' diabetes knowledge assessment scale

The drug therapy scores and blood glucose monitoring scores presented the highest correlation with total scores, with correlation coefficients of both greater than 0.7. Diabetes complications scores presented the highest correlation with blood glucose monitoring scores among all dimensions, with a correlation coefficient of 0.4257. The basic diabetes

knowledge scores presented the lowest correlation with exercise therapy scores, with a correlation coefficient of 0.1139 (Figure 1).

Items	Average	Minimum	Maximum	Score rate (%)
Total scores for diabetes knowledge	61.89±10.38	27	86	61.89
Basic diabetes knowledge	10.72±1.94	4	15	71.45
Diabetes complications	12.70±2.45	6	19	63.51
Blood glucose monitoring	7.79±2.71	0	14	51.92
Drug therapy	6.54±3.92	0	15	43.58
Exercise therapy	10.51±1.93	0	15	70.06
Diet therapy	7.17±1.81	0	10	71.66
Injection skills	6.47±1.67	1	10	64.66

Table 1: The total scores and each dimension scores of diabetes knowledge assessment scale for Obstetrics and Gynecology nurses.

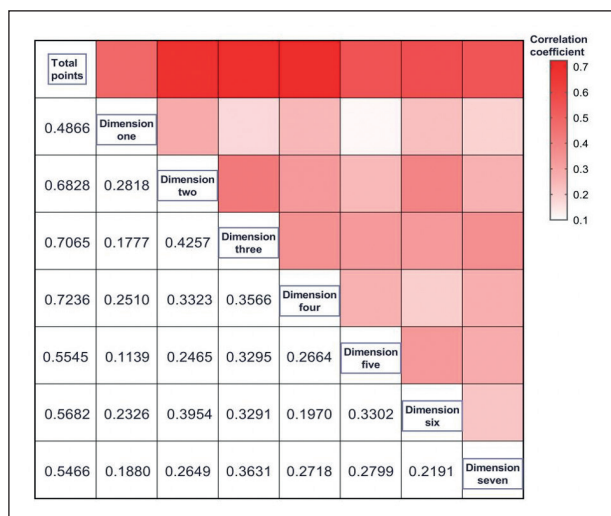


Figure 1: The correlation coefficient matrix of total scores and each dimension scores of diabetes knowledge assessment scale for Obstetrics and Gynecology nurses.

Univariate analysis of mastery of diabetes knowledge among nurses in Obstetrics and Gynecology

The total scores for diabetes knowledge and 6 dimensions of basic knowledge, complications, blood glucose monitoring, drug therapy, diet therapy and injection skills presented statistical significance among nurses from different departments. The total scores for diabetes knowledge and scores of diabetes complications, drug therapy and injection skills presented statistical significance among nurses who participated in the training or not. The scores of blood glucose monitoring and drug therapy presented statistical significance among nurses of different ages and professional titles (Table 2).

Multivariate analysis of influencing factors for clinical nurses' mastery of diabetes knowledge

The nurses' department was the influencing factor of the total scores, basic diabetes knowledge scores, exercise therapy scores and injection skill scores. Whether the nurses participated in training was the influencing factor of the total scores, complication scores and drug therapy scores. The nurses' age was the influencing factor of blood glucose monitoring scores (Table 3).

Discussion

Status and characteristics of Obstetrics and Gynecology nurses' mastery of diabetes knowledge

Herein, the total scores of diabetes knowledge among Obstetrics & Gynecology nurses was (61.89±10.38), with score rate of 61.89%. This suggested that Obstetrics and Gynecology nurses' diabetes cognition is at a moderate-to-low level, showing similarity to the findings of Ding Biao et al.:

Influencing factors	N (%)	Total scores	Basic diabetes knowledge	Diabetes complications	Blood glucose monitoring	Drug therapy	Exercise therapy	Diet therapy	Injection skills
Age (years)									
< 25	61 (18.71)	63.64±10.01	10.75±1.86	12.77±2.56	7.85±2.31	8.16±3.72	10.39±2.19	7.15±2.1	6.56±1.68
25-29	76 (23.31)	60.08±10.60	10.63±2.10	12.29±2.58	6.86±2.62	6.50±3.51	10.70±1.79	6.91±1.66	6.20±1.87
30-34	90 (27.61)	61.30±11.08	10.81±1.88	12.89±2.47	7.69±2.94	5.73±3.99	10.50±2.02	7.27±1.76	6.41±1.68
≥ 35	99 (30.37)	62.72±9.64	10.67±1.94	12.81±2.26	8.56±2.59	6.29±4.03	10.44±1.79	7.28±1.78	6.67±1.49
F		1.67	0.15	0.97	5.97	5.08	0.35	0.75	1.22
P		0.1743	0.9308	0.4073	0.0006	0.0019	0.7888	0.5256	0.3019
Professional titles									
Nurse	82 (25.15)	62.18±10.03	10.82±2.09	12.65±2.44	7.38±2.35	7.62±3.62	10.28±2.03	7.00±2.03	6.44±1.78
Senior nurse	206 (63.19)	61.81±10.73	10.75±1.89	12.67±2.48	7.78±2.85	6.32±3.92	10.67±1.96	7.13±1.75	6.49±1.66
Supervisor nurses and above	38 (11.66)	61.63±9.34	10.29±1.87	13.00±2.35	8.71±2.48	5.37±4.10	10.13±1.40	7.74±1.55	6.39±1.53
F		0.05	1.07	0.32	3.19	5.28	2.04	2.30	0.07
P		0.9511	0.3452	0.7276	0.0426	0.0055	0.1323	0.1017	0.9358
Departments									
Obstetrics	99 (30.37)	64.17±9.08	11.31±2.14	12.98±2.24	7.80±2.29	6.70±3.76	10.75±1.68	7.32±1.66	7.31±1.49
Gynecology	75 (23.01)	62.75±9.80	10.63±1.63	12.72±2.35	8.16±2.89	6.93±3.71	10.76±2.04	6.96±1.94	6.59±1.20
Pediatrics	38 (11.66)	53.74±7.58	9.76±1.78	11.47±2.24	6.03±2.56	3.87±2.97	10.29±1.71	7.26±1.39	5.05±1.74
Outpatient/Emergency	53 (16.26)	65.42±12.06	10.85±1.95	13.49±2.67	9.00±2.4	7.72±4.79	10.49±1.92	7.72±1.88	6.15±1.66
Delivery room/ Operating room	61 (18.71)	59.11±9.93	10.33±1.75	12.31±2.55	7.36±2.86	6.43±3.43	9.97±2.21	6.62±1.92	6.10±1.69
F		11.01	5.66	4.67	8.05	6.23	2.05	3.14	17.30
P		< 0.0001	0.0002	0.0011	< 0.0001	< 0.0001	0.0869	0.0149	< 0.0001
Training									
Yes	232 (71.17)	62.79±10.28	10.78±1.98	12.92±2.52	7.83±2.62	6.88±3.87	10.59±1.8	7.21±1.78	6.59±1.72
No	94 (28.83)	59.64±10.33	10.54±1.84	12.17±2.18	7.69±2.93	5.70±3.93	10.32±2.22	7.06±1.89	6.15±1.53
t		2.51	1.02	2.52	0.41	2.47	1.04	0.65	2.19
P		0.0127	0.3083	0.0123	0.6818	0.0141	0.3008	0.5189	0.0292

Table 2: Of Mastery of diabetes knowledge among clinical nurses in Obstetrics and Gynecology.

Variables	b	SE	t	P
Total scores				
Constant term	68.00	1.94	35.09	< 0.0001
Departments	-0.85	0.38	-2.25	0.0253
Training	2.97	1.25	2.37	0.0182
Basic diabetes knowledge				
Constant term	11.27	0.22	51.68	< 0.0001
Departments	-0.21	0.07	-2.92	0.0038
Diabetes complications				
Constant term	13.67	0.41	33.67	< 0.0001
Training	0.75	0.30	2.52	0.0123
Blood glucose monitoring				
Constant term	6.86	0.38	18.22	< 0.0001
Age	0.28	0.10	2.67	0.0079
Drug therapy				
Constant term	9.80	0.88	11.2	< 0.0001
Professional titles	-1.07	0.36	-2.94	0.0035
Training	0.99	0.47	2.08	0.0383
Exercise therapy				
Constant term	11.00	0.22	50.59	< 0.0001
Departments	-0.18	0.07	-2.56	0.0108
Injection skills				
Constant term	7.34	0.18	40.21	< 0.0001
Departments	-0.32	0.06	-5.46	< 0.0001

Table 3: Factors affecting clinical nurses' mastery of diabetes knowledge.

The clinical nurses' mastery of diabetes knowledge was at a moderate-to-low level, and the total scores of diabetes knowledge was (62.47±12.484)(12). In the clinical nurses diabetes knowledge assessment scales, the scores in each dimension from high to low were as follows: The diet therapy scores were (7.17±1.81), with score rate of 71.66%, indicating that Obstetrics and Gynecology nurses possess the highest level of diabetes knowledge in diet therapy.

It may be because the diet management of pregnant and lying-in women with pregnancy complicated with diabetes during hospitalization is majorly provided by clinical nurses with corresponding health education and nursing contents according to the dietary doctor's orders, thus Obstetrics and Gynecology nurses have the best mastery of diet therapy knowledge. The basic diabetes knowledge scores were (10.72±1.94), with

score rate of 71.45%, second only to diet therapy scores, indicating that Obstetrics and Gynecology nurses have a good mastery of basic diabetes knowledge. It may be because our hospital is an Obstetrics and Gynecology hospital, and there are many patients with pregnancy complicated with diabetes and gynecological diseases complicated with diabetes that nurses come into contact with in their work, which naturally causes nurses to attach importance to mastering basic diabetes knowledge; it may also be because nursing managers attach importance to health education of clinical nurses and urge nurses to improve their diabetes knowledge, providing more comprehensive and high-quality nursing services for diabetic patients.

The exercise therapy scores were (10.51 ± 1.93) , with score rate of 70.06%, indicating that Obstetrics and Gynecology nurses have a good mastery of exercise therapy knowledge. It may have relation to nurses' work contents and responsibility scope. During the period when pregnant women with pregnancy complicated with diabetes are hospitalized to adjust blood glucose level, clinical nurses are responsible for health education of exercise therapy, guidance and supervision of patients' exercise methods, etc. Thus, Obstetrics and Gynecology nurses have better mastery of exercise therapy knowledge. The injection skill scores were (6.47 ± 1.67) , with score rate of 64.66%, indicating that Obstetrics and Gynecology nurses have a good mastery of injection skills. It may have relation to the fact that nursing managers attach importance to basic nursing operation training and assessment in training; it may also be because injection skills are a vital part of basic nursing and nurses pay attention to learning and accumulation of operation contents, Obstetrics and Gynecology nurses' injection skills are acceptable.

This result shows similarity to that of Yu Xiaojuan: The correct rate of clinical nurses' diabetes injection skills was 65.60%(13). The diabetes complication scores were (12.70 ± 2.45) , with score rate of 63.51%, indicating that Obstetrics and first aid and nursing measures in a timely manner. Ensuring patients' safety is the focus of clinical nursing work, prompting nursing managers and nurses to pay enough attention, thus Obstetrics and Gynecology nurses' injection skills are acceptable. This shows similarity to the findings of Ding Biao et al.: The diabetes complication scores were (12.92 ± 2.746) , with score rate of 64.6%(12). The blood glucose monitoring scores were (7.79 ± 2.71) ,

with score rate of 51.92%, indicating that Obstetrics and Gynecology nurses have poor cognition of blood glucose monitoring knowledge. It may have relation to work scope and job responsibilities of Obstetrics and Gynecology clinic.

This dimension involves more blood glucose test indicators and endocrine knowledge. It is difficult for clinical Obstetrics and Gynecology nurses to focus on such knowledge, thus clinical Obstetrics and Gynecology nurses do not have a good mastery of blood glucose monitoring knowledge. The drug therapy scores were (6.54 ± 3.92) , with score rate of 43.58%. This result shows similarity to that of Yu Xiaojuan: The correct rate of clinical nurses' diabetes drug therapy was 40.53%(13). It was suggested that Obstetrics and Gynecology nurses have the lowest level of drug therapy knowledge.

It may be because this dimension majorly involves pharmacological knowledge. In clinical work, the doctor in charge mainly formulates drug therapy plan for pregnant women to modulate blood glucose and prescribes the corresponding doctor's orders. The clinical nurse is majorly responsible for executing doctor's orders, checking doctor's orders, and then distributing drugs. Thus, nurse pays less attention to mastering drug therapy plan, resulting in lower scores of nurses.

To sum up, the overall level of Obstetrics and Gynecology nurses' diabetes cognition needs to be improved, and clinical nurses score more in diabetes diet therapy, exercise therapy and basic diabetes knowledge, whereas nursing managers should further elevate clinical nurses' cognition level, effectively providing comprehensive and scientific nursing for patients; while injection skills and blood glucose monitoring scores are average, suggesting that nursing managers should strengthen operational skill training and provide nurses with more time to learn. The lower scores of diabetes complications and drug therapy suggest that nursing managers should focus on systematic training in areas where diabetes knowledge scores are weak on the basis of skilled operation.

Correlation of total scores and each dimension scores of clinical nurses diabetes knowledge assessment scale

Herein, the drug therapy scores and blood glucose monitoring scores presented the highest correlation with total scores, with correlation coefficients of both greater than 0.7, indicating that the scores of drug therapy and blood glucose

monitoring exert a great impact on total scores of Obstetrics and Gynecology nurses, and nurses scored low on both dimensions. These two parts are the shortcomings of nurses' diabetes cognition, suggesting that nursing managers should strengthen training of nurses on diabetes drug therapy and blood glucose monitoring. The diabetes complication scores presented the highest correlation with blood glucose monitoring scores among all dimensions, with a correlation coefficient of 0.4257, indicating that nurses' mastery of diabetes complications and nurses' mastery of blood glucose monitoring had the greatest mutual influence.

It is suggested that in the process of nursing manager training and nurse learning, attention should be paid to knowledge correlation of these two dimensions, and training and learning can be carried out simultaneously to facilitate the efficacy of training and learning.

To sum up, nursing managers should pay attention to knowledge correlation, or when nurses learn diabetes-related knowledge independently, they should formulate training and teaching contents in a scientific and planned manner according to the correlation of total scores with each dimension scores of diabetes knowledge assessment scale, improving structure, science and purpose of training and effectively elevating mastery level of nurses' diabetes knowledge.

Influencing factors of diabetes knowledge among Obstetrics and Gynecology nurses

Department is a influencing factor for clinical nurses' diabetes cognition (total scores, basic diabetes knowledge scores, exercise therapy scores and injection skill scores): the total scores for diabetes knowledge and each dimension scores of Outpatient/Emergency nurses were higher, which shows similarity to research results of Ding Biao, Xu Yanling et al.⁽¹²⁾. This may be due to massive Obstetrics and Gynecology patients diagnosed and treated every day in Outpatient/Emergency departments, especially pregnant women. Because pregnant women in the second and third trimesters are prone to concomitant diabetes, the opportunity for Outpatient/Emergency nurses to contact diabetic patients presents great elevation.

This requires Outpatient/Emergency nurses to have a strong diabetes knowledge as a basis to meet different needs of patients and pregnant and lying-in women. Outpatient/Emergency nurses are in contact with massive patients complicated with diabetes and

have more opportunities to deal with vascular lesions, acute complications and hypoglycemia of diabetic patients. This requires Outpatient/Emergency nurses to have certain knowledge of diabetes complications as support. Pediatric nurses scored the lowest in total scores, basic diabetes knowledge, diabetes complications, blood glucose monitoring, drug therapy and injection skills, and Pediatrics nurses had the lowest scores in basic diabetes knowledge.

It may be because Pediatric nurses have the least chance of contacting diabetic patients, less opportunities for nursing operations about diabetes, and less basic diabetes knowledge. Obstetric nurses scored higher in basic diabetes knowledge and injection skills because of the particularity of physiology of obstetric pregnant women during pregnancy. After being diagnosed with pregnancy complicated with diabetes during pregnancy, some pregnant women need hospitalization to modulate blood glucose. On the basis of treating pregnant women in labor, the opportunity for Obstetric nurses to contact diabetic patients presents elevation. Nurses pay attention to self-learning of basic of diabetes knowledge to meet the needs of clinical nursing work. To sum up, nursing managers should carry out training and strengthening according to diabetes cognition level in different departments, purposefully elevating comprehensive clinical quality of nurses.

Whether participating in training is a influencing factor for clinical nurses' diabetes cognition (total scores, diabetes complication scores and drug therapy scores): Herein, in terms of total scores for diabetes knowledge, diabetes complications, drug therapy and injection skills, the scores of nurses who had participated in diabetes training presented elevation relative to those of nurses who had not participated in training. It was suggested that nurses need to participate in various forms of learning, training, advanced studies, etc., to elevate nurses' diabetes knowledge, meeting nursing needs of Obstetrics and Gynecology patients and elevating the quality of nursing services in Obstetrics and Gynecology. Moreover, it was suggested that nursing managers should pay attention to clinical nurses' diabetes knowledge cognition, realize the importance of diabetes knowledge training and strengthen nursing teaching management of theoretical knowledge, facilitating clinical nurses' nursing level.

Clinical nurses receiving diabetes-related knowledge training can exert a role in elevating basic diabetes knowledge to a certain extent⁽¹⁴⁾.

Diabetes specialist nurse training bases distribute in most provinces/autonomous regions/municipalities across China, and most of them take the form of a combination of face-to-face courses and practical training. The face-to-face courses are mostly 2 months and the practical training is mostly 1 month, which is the same as training duration of other specialist nurses (mainly 3 months) in China^(15, 16). There are three types of training models for diabetes specialist nurses: The provincial health committee commissioned the hospital to undertake the training, and the colleges and universities jointly trained⁽¹⁷⁾. Nursing managers should consider providing clinical nurses with multiple forms and approaches of learning.

Nurses' nursing age and professional titles are influencing factors of clinical nurses' mastery of blood glucose monitoring: Herein, in terms of diabetes blood glucose monitoring, those aged ≥ 35 years, with the title of supervisor nurse and above, scored higher. Nurses aged > 35 years, including most of supervisor nurses and Outpatient nurses, most of them possess at least ten years work experience and rich life experience. The doctor in charge in our hospital is responsible for monitoring blood glucose. But in clinical nursing practice, the results of blood glucose monitoring have close relation to clinical nursing work, thus nurses pay more attention to blood glucose monitoring of patients.

Herein, in terms of diabetes drug therapy scores, the scores of those aged < 25 years, with professional title of nurse and nursing age < 1 year were higher. Nurses younger than 25 years old and nurses with nursing experience less than 1 year are mostly young nurses with professional titles and newly joined work. The knowledge reserve of such nurses mainly comes from the systematic study during school, knowledge structure is relatively complete, and theoretical knowledge is relatively solid and comprehensive. Nurses with nursing age > 20 years scored the lowest in this dimension.

The longer the time from graduation and the longer the working years, the more theoretical knowledge is forgotten, and there is no process of learning theoretical knowledge after work, leading to a gradual decrease in knowledge reserve as time goes by. Similarly, in the work of Outpatient/Emergency nurses and trained nurses, their theoretical knowledge had undergone repeated learning processes, thus they scored higher. In conclusion, the scope of nurses' job responsibilities affects nurses' knowledge learning and accumulation.

Nursing managers should carry out targeted training and operation training according to characteristics of nurses. Intensive learning shall be carried out on weak points of different departments and nurses to elevate the efficacy of nurses mastering theoretical knowledge.

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