

Research on Nurses' Perception Status and Influencing Factors of Oral Health Education Practice, Responsibility and Confidence in Patients with Diabetes Mellitus

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Abstract: Objective: To investigate the perceptions of nurses in the endocrinology department on the practice, responsibility and confidence of oral health education for diabetic patients, and to explore the influencing factors to provide evidence for effective nursing intervention. **Methods:** A questionnaire about oral health education for diabetic patients was prepared by nurses, and 102 endocrinology nurses were investigated and analyzed. **Results:** The total score of the questionnaire survey was (35.18±5.09), which was at a moderate level; 88.2% of the nurses believed that they had the responsibility to discuss oral health issues with diabetic patients, 38.2% of the nurses felt that they lacked sufficient confidence in oral health education, and 52.9% of the nurses reported that they could answer the questions raised by the patients. of oral health-related problems. Once received oral health knowledge training for DM patients and DM specialist nurses were its influencing factors. **Conclusion:** Nurses in endocrinology department feel that they have the responsibility to observe the oral health of diabetic patients, but they rarely do it in practice. Nurses need more knowledge and practical training on the oral health of people with diabetes.

Keywords: Endocrinology; Diabetes; Oral Health Education; Practice; Responsibility; Confidence

Introduction

With the increasing number of patients with diabetes mellitus (DM), oral mucosal lesions, gingival swelling and pain, periodontitis, halitosis and other oral problems caused by oral diseases seriously affect the blood sugar control and general health of patients, and further affect the life of patients with DM. quality^[1]. Given the importance of oral health in people with DM, the provision of appropriate oral health care guidance and healthy lifestyle information is essential^[2]. Although international guidelines recommend that health professionals discuss oral health education with patients with DM, this is difficult to do in clinical practice, and most health professionals cannot regularly assess the oral health status of patients with DM^[3]. The literature shows that the barriers to providing oral health education include lack of time, knowledge, training, conflicting attitudes and beliefs, low sense of responsibility, and even the feeling that patients do not need oral health education at all^[4]. The literature proves that DM patients have a need for oral health information^[5]. To expand this work and improve future education, this study investigated the responsibility, confidence, and practice of endocrinology nurses in delivering oral health education to patients with DM to provide evidence for effective nursing interventions.

1. Objective

Using the convenience sampling method, a questionnaire survey was conducted on 102 nurses in the endocrinology department of 6 general hospitals in a city from June to December 2021. Inclusion criteria: After obtaining the professional qualification of nurses, they have been engaged in clinical work in the hospital for > 1 year, and the age is ≥ 18 years old. Informed consent. Exclusion criteria: patients with a history of mental illness and cognitive impairment. 110 questionnaires were distributed and 102 were recovered, with an effective recovery rate of 92.7%.

2. Method

2.1 Research tools

2.1.1 A questionnaire on the general situation of the research subjects

Prepared by yourself, the content includes: age, gender, marital status, educational level, professional title, current working years, once received oral health education and training, DM specialist nurse.

2.1.2 A questionnaire on nurses' perceptions of oral health education

practice, responsibility and confidence in diabetic patients

It was designed by itself and proved to have good reliability and validity through pre-tests. Including 3 dimensions: Practice (10 items): describe the overall practice status of oral health education, the first 5 items are scored 0-3 points, the last 5 items are scored 0-5 points, the total score range is 0-40 points, the higher the score, the better the nurses' oral health education practice. Responsibility (5 items): It reflects the nurses' perception of the responsibility for providing oral health education. The items are scored from 0 to 3 points, and the total score ranges from 0 to 15 points. The higher the score, the stronger the nurse's sense of responsibility. Confidence (5 items): It reflects the nurses' perceived confidence in providing oral health education. The items are scored from 0 to 3, and the total score ranges from 0 to 15. The higher the score, the greater the confidence of nurses in implementing oral health education.

2.3 Statistical analysis

SPSS 22.0 was used to analyze the data. Descriptive statistical analysis was performed on the study variables, t-test was used for comparison of two variables, ANOVA was used for univariate analysis, and multiple linear regression analysis was used for multivariate analysis. $P < 0.05$ was statistically significant.

3. Result

3.1 General information of research subjects

Among the research subjects, 90 were women and 12 were men; 59 were married, accounting for 57.8%; 82 were college or undergraduate, accounting for 80.4%, and 46 were nurses in charge, accounting for 45.1%, currently working 49 were 6-10 years old, accounting for 48.1%. Nine nurses were diabetes specialist nurses, 25.5% of nurses reported having received continuing education or training on oral health with DM, and most nurses expressed interest in participating in seminars on oral health education for patients with DM.

3.2 Nurses' perception of oral health education practice, responsibility and confidence in DM patients

Based on the questionnaire scores of the research subjects, the total score of the questionnaire and the P25 and P75 of each dimension score were obtained, which were divided into three levels: low, medium and high. See Table 1.

Table 1 Nurses' perception of oral health education

practice, responsibility and confidence in patients with diabetes (n=102)

Items	Scores ($\bar{x} \pm s$)	Level
Practice	15.27±4.23	Low
Responsibility	12.88±3.77	High
Confidence	7.65±1.65	Middle
Total scores	35.18±5.09	Middle

3.3 Univariate analysis of nurses' perceptions of oral health education

practice, responsibility and confidence in patients with DM

Taking nurses' perception of oral health education practice, responsibility and confidence in DM patients as dependent variables, and their general data as independent variables, univariate analysis was conducted, and a total of 4 variables had an impact on it. See Table 2.

Table 2 Univariate analysis of nurses' perceptions of

oral health education practice, responsibility and confidence in patients with DM (n=102)

Items	n	Scores ($\bar{x} \pm s$)	t/F	P
Current working years (years)			3.142	0.002
0-5	29	27.58±2.99		
6-10	49	32.56±1.23		
> 10	24	44.61±1.39		
Job title			4.033	0.001
Nurse and below	42	26.79±1.90		
Nurse in charge	46	35.26±1.53		
Deputy Chief Nurse and above	14	45.87±1.23		
Have received oral health knowledge training for DM patients			-9.543	0.000
Yes	26	45.56±1.45		
No	76	29.47±1.89		
DM specialist nurse			-16.345	0.000
Yes	9	55.12±1.67		
No	93	23.47±1.89		

3.4 Multivariate analysis of nurses' perceptions of oral health education

practice, responsibility and confidence in patients with DM

Using nurses' perception scores of oral health education practice, responsibility and confidence in DM patients as the dependent variable, the variables with statistical significance in the univariate analysis were used as independent variables for multiple linear regression analysis. The results were as follows: once received oral health knowledge training for patients with DM and whether DM specialist nurses were the influencing factors, see Table 3.

Table3 Multivariate analysis of nurses' perceptions of oral health education practice, responsibility and confidence in patients with DM

Variable	β	SE	β'	t	P
Constant	28.11	1.223	—	21.889	0.000
Have received oral health knowledge training for DM patients	-0.896	0.345	-0.115	-3.028	0.000
DM specialist nurse	-0.629	0.458	-0.228	-4.363	0.000

Note: $R^2=0.617, R^2=0.608, F=29.351, P=0.000$.

4. Discussion

With the acceleration of the aging process of my country's population, the incidence of DM shows a higher development trend. Studies have shown that if the blood sugar level of patients is not well controlled, it is very easy to cause various infections in the oral cavity, which in turn lead to various complications^[6]. Therefore, scientific and correct oral education for DM patients plays a pivotal role in maintaining healthy oral function and good quality of life.

In this study, 88.2% of the nurses believed it was their responsibility to discuss oral health issues with DM patients, 2.0% disagreed, and 9.8% were not sure. 38.2% of the nurses felt that they lacked sufficient confidence in oral health education, 48.1% thought they had some confidence, and 13.7% felt that they had rich knowledge and confidence in oral health education. 52.9% of nurses reported being able to answer oral health-related questions raised by patients. About 21.8% of nurses were able to regularly assess patients' oral health, and most nurses reported that they paid little attention to oral problems and only sometimes provided reference. Indeed, many nurses pay more attention to matters closely related to patients' disease symptoms and drug treatment in their daily practice. When solving oral problems for patients, nearly half of the nurses have a moderate level of confidence, and there is room for further improvement. The acquisition of confidence comes from one's own knowledge and energy reserves, on the other hand, from the individual's successful behavior and practice. Therefore, continuing education on oral health should be provided regularly for endocrinology nurses to continuously improve their knowledge level, increase the experience of successful experience, and enhance their confidence.

The questionnaire scores of nurses who received DM oral health knowledge training were significantly higher than those who did not. Nurses may benefit from specific training courses that go a long way towards increasing oral health knowledge and skills. Nurses with working years and professional titles have significantly different perceptions of oral health education practice, responsibility and confidence. It may be that the longer the nurses have been engaged in the current position, the higher the professional title, the richer the theoretical and practical knowledge, and the confidence in providing health education. The greater the sense of responsibility.

To sum up, endocrinology nurses have a strong sense of responsibility for oral health education of DM patients, but their practice and confidence need to be improved. As the main force of health education, nurses should strengthen their own study of oral health knowledge of DM patients, and at the same time do a good job in patients' health education, so as to improve their oral health awareness and knowledge and behavior level, and reduce the occurrence of DM complications.

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References

- [1] Zhou, S, Du, M, Yang, ZY, et al. Status and influencing factors of oral health of elderly diabetic patients in the community[J]. International Journal of Nursing, 2021, 40(6): 1140-1144.
- [2] Du, XJ, Li, YL, Xie, XJ. A survey report on health education provided by certified diabetes educators[J]. Chinese Journal of Gerontology, 2014, 34 (4): 1025-1027.
- [3] Guo, XH, Ke, MH. Study on the relationship between the cognitive level of periodontal health care and blood glucose

metabolism in patients with diabetes [J]. *China Medicine Guide*, 2016, 18(1): 36-37.

[4] Wang, Y, Li, DX, Wang, YL, et al. Influence of small-group experiential learning of integrated traditional Chinese and Western medicine on the oral health knowledge, beliefs, and behaviors of elderly patients with diabetes[J].*Rev Assoc Med Bras*, 2022, 68(2):217-221.

[5] Xiao, LJ, Chen, PX, Hong, YR, et al. Influence of health education based on behavioral change theory on oral health of elderly diabetic patients [J]. *Qilu Nursing Journal*, 2021, 27(21): 92-95.

[6] Wang, Y, Gao, YP, Wang, T, et al. Investigation on oral health knowledge and behavior of elderly patients with type 2 diabetes [J]. *Journal of Nursing*, 2014, 29(7): 34-36.