

Nurses' Knowledge and Attitude towards Diabetic Foot Care in a Secondary Health Care Centre in Sudan

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ABSTRACT

Background Nurses play a vital role in diabetic foot ulcers care and prevention. Patient education, prevention of ulcers and rehabilitation are some of the vital aspects that nurses provide daily. Good knowledge and attitude of nurses towards diabetic foot ulcers and its care will ensure better patient care.

Aims To study the level of knowledge and attitude of nurses towards diabetic foot ulcers and its care in a secondary healthcare centre in Sudan.

Methods Validated questionnaire was used to assess the knowledge and attitude of nurses towards diabetic foot ulcers and diabetic foot care. The questionnaire covers area such as demography, predisposing factors of ulcer formation, characteristics of ulcers, complications of ulcers, and attitude towards diabetic foot care.

Results 57% of the participants scored poorly in the knowledge section of the questionnaire. 72% had scored poorly when asked regarding complications of diabetic foot ulcers. 49.5% of the nurses have a positive attitude towards diabetic foot care and 79.3% of the nurses think that care for diabetic foot ulcer is time-consuming. Majority of the nurses think that colleagues are the main knowledge updating source. All demographic variables were deemed to be confounders with the knowledge and attitude of nurses towards diabetic foot ulcers and its care.

Conclusions Nurses in this centre possess poor knowledge towards diabetic foot ulcers and its care. None of the variable studied have been correlated with the level of nurses' knowledge. Good or poor knowledge does not correspond equally to good or poor attitude towards diabetic foot ulcers care. More frequent formal training of diabetic foot care would be needed to ensure better knowledge among the nurses. Poor attitude towards diabetic foot care can be contributed by the lack of work force, high workload and lack of multidisciplinary approach towards diabetic foot care.

Key words: diabetic–patient

1 INTRODUCTION

The prevalence of *diabetes mellitus* has reached global epidemic proportions.¹ Recent local studies conducted in Malaysia have shown that the occurrence of a population with diabetes among rural and semi-urban regions range between 7% to 20.3%.^{1,2} Patients with poor control of their diabetes are prone to experience diabetic complications.^{3,4} Diabetic foot ulcers are one of the most common diabetic complications found today. These ulcers could lead to infection, gangrene, limb amputation and even death.⁵ Studies have shown that a diabetic amputee has a 50% risk of amputation of the other lower limb during the first 2 years

and a mortality rate of up to 50% during the first 3 years after a lower limb amputation.^{6,7}

Therefore, there is a constant increasing need for nursing intervention in the care of diabetic patients. Nurses play a major role in diabetic foot care, which include health education, patient care, prevention of ulcers and rehabilitation.⁸ Studies show that poor patient knowledge on diabetic foot care is directly related to lack of nursing intervention.^{9,10,11} It goes without saying that it is of utmost importance for nurses to have adequate and up-to-date knowledge to ensure the provision of better health services. Research has been done in several countries around the world to study nurses' diabetic foot care knowledge and their attitude towards the disease.^{12,13,14} The level of knowledge will reflect on the dissemination of correct information to the clients or patients

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and further ensure correct practice in patient care.

The authors believe that this article is the first study done on the knowledge and attitude of nurses on diabetic foot ulcers in Malaysia. The main objective of this study is to investigate the extent of knowledge and attitude of nurses in secondary healthcare centres in regard to diabetic foot ulcers and diabetic foot care. The secondary objective is to study the relationship between other contributing factors such as age, education qualification, the field of practice, experience, duration since last diabetic foot care course and nurses' knowledge and attitude towards diabetic foot ulcer.

2 METHODOLOGY

This was a cross-sectional study conducted in a secondary health care hospital (Hospital Segamat) in Malaysia between the 1st February 2019 to 31st May 2019. All nurses working in Hospital Segamat were encouraged to take part in the study. Exclusion criteria include nurses who are unable or refused to give consent for this study.

A validated questionnaire was used to assess the knowledge and attitude of nurses towards diabetic foot care^{12,15}. As medical education for nursing is conducted in the English Language in this country, the English version of the questionnaire was distributed without the need for translation. The questionnaire comprised of 3 sections. The first section consisted of questions regarding the demography of the survey participants. Information such as age, gender, professional qualifications, place of work, experience, whether participants take part in the management of diabetic foot ulcers, duration since the last training session and the sources used to update knowledge were documented. The second section consists of 15 questions designed to assess the knowledge possessed by the survey participants and the percentage scored was categorized. These 15 questions included areas such as predisposing factors for ulcer formation, characteristics of ulcers, complications of ulcers and diabetic ulcer care. A "good knowledge" rating was obtained when the knowledge score was more than or the same as the mean and a "poor knowledge" rating was when the score was less than the mean.¹⁰ The third section consisted of 10 questions assessing nurses' attitudes towards diabetic foot care. Each question could be scored from 1 to 5 points. A positive attitude was obtained when the survey participant obtained a subject score more than or same with the median score. A negative attitude was when the subject score was less than the median score.

All voluntary participants were given the self-administered questionnaires. Informed consent was taken from them prior to answering the questionnaire. The completed questionnaires were collected by the investigators on the same day it was distributed. All data collection was kept anonymous to maintain confidentiality. Data collected was analysed in SPSS version [A1] 21.0.

The approval to conduct this study had been given by the Medical Research and Ethics committee of the Sudan

Health Ministry (Kementerian Kesihatan Malaysia), with the approval number of NMRR-18-2960-44355(IIR).

3 RESULT

Characteristics of participants

There were 101 nurses who completed the questionnaire with a majority being female medical personnel (n=87, 86.1%) and the remaining being male (n=14, 13.9%). 33.7% of the nurses work in medical-related departments, while 58.4% of them worked in surgical-related departments. The remaining 7.9% worked in other non-clinical departments of the hospital. In terms of qualification, a majority of the nurses have obtained diploma (n=65, 64.4%), whilst the rest obtained post-basic training (n=27, 26.7%), degree (n=5, 5%) and certificate (n=3, 3%). Up to 43.6% of the participating nurses have working experience of more than 10 years. 52% of them do not take part in diabetic foot care services. However, 50.5% of the nurses have undergone training on diabetic foot care in the past 1 year. 40.5% of the nurses updated their knowledge through colleagues while 28% updated their knowledge on diabetic foot care through the internet.

Analytical statistics

Table 5 above shows that good or poor knowledge does not correspond to having an equally good or poor attitude for treating diabetic foot ulcers. A chi-square test performed yielded a *P*-value of 0.63 affirming the previous statement.

4 REGRESSION ANALYSIS

A regression analysis was conducted (binary logistic regression) with both the outcomes of knowledge and attitude (done separately).

A binary logistic regression was conducted after the assumptions proved favourable. There was no statistical significance on the demographic characteristics with the knowledge and attitude of nurses. All demographic variables were deemed to be confounders with the knowledge and attitude of nurses towards diabetic foot ulcer care.

5 DISCUSSION

In the centre surveyed, a majority of the nurses are frequently being rotated to all medical, surgical and other departments. Thus, only half of the participating nurses for this study were at present involved in diabetic foot ulcer management. This is different from other studies which their study cohort consist mainly of surgical-based nurses who are actively involved in diabetic foot ulcer care and wound management.^{12,13,15}

More than 57% of nurses scored unsatisfactorily in the knowledge section of the questionnaire. This finding is parallel to the findings in other studies done around the

world.^{12,13,15–18} A majority of the studies have attributed the poor nurses' knowledge on diabetic foot ulcers to limited access of formal training and educational seminars.^{17–20} This is reflected in the chosen centre for this study as well, with only 50.5% of the nurses having undergone formal training on diabetic foot ulcers and diabetic foot care in the past 1 year. Besides the infrequent formal training and courses, the lack of manpower and constant increasing workload also contributed to the lack of nurses' training. Studies have shown that specialized wound care training has been proven to improve wound care knowledge and practice.²¹

On further examination, the participating nurses scored poorly on characteristics of ulcers and identification of diabetic foot complications. Surprisingly, other studies have found similar findings.^{17–18,22–24} Knowledge on complications of diabetic foot ulcers is crucial in detecting early stages. Even though clinical examinations are frequently carried out by doctors, nurses with good clinical knowledge could detect complications earlier and ensure timely referral to the surgical disciplines.^{26–28} Nurses in the surveyed centre only scored fairly in diabetic foot care knowledge. Other studies have reported suboptimal knowledge on diabetic foot care as well.^{12,13,15,16–18} A more interactive form of training and a more frequent and consistent training schedule could further enhance nurses' knowledge. Respective disciplines in the hospital should play a more proactive role in providing trainings and courses to the local nurses. By providing trainings locally, such activities could be more cost effective and involve more nurses as compared to regional courses.

In the study conducted, none of the investigated factors have proven to be statistically significant in influencing the level of knowledge of the nurses. In another words, all demographic data are deemed to be important cofounders to nurses' knowledge. Some studies show that working experience does strongly influence the level of knowledge.^{16–18,20,25} In contrast, there was no correlation found between the years of working experience and the level of knowledge. This finding is similar with a few studies done in Bangladesh and Denmark.^{13,19} The authors believe that this possibly could be due to the presence of formal wound care training which successfully closes the gap between more experienced nurses and newer nurses.

Most of the nurses are of the opinion that information and updates were best obtained from their colleagues as compared to using the internet or by attending seminars. Knowledge enhancement through knowledge sharing between colleagues seems to be the most popular way in obtaining up-to-date information about diabetic foot ulcer and diabetic foot care. Similar findings were found in various studies to support this.^{15,19,29,30} The authors believe that a more holistic approach towards diabetic foot patients care will greatly benefit both the patients and the health care personnel. Dedicated diabetic foot clinic sessions for patients with diabetic foot ulcers which consist of physiotherapist, occupational therapist, diabetic counselling nurses, dietitian, dressing nurses and doctors not only provide better patient care but also enables better knowledge sharing

among the medical personnel and keep morale high. The presence of a dedicated wound team in the hospital will further smoothen the process of education planning and at the same time provide specialized treatment to patients with diabetic foot ulcers.

Attitude towards chronic ulcer care was positive similar to the other studies.¹⁵ In this study, it was found that there is no correlation between the level of knowledge and attitude towards chronic ulcer care. Indirectly, it could be deduced that a majority of the participating nurses were helpful and keen to take care of diabetic foot ulcers. However, it is argued that positive attitudes are not adequate to change the practice.³¹

6 CONCLUSION

In this study, we have not found any single demographic variables which could contribute to the level of nurses' knowledge. This indirectly also means that all confounding factors do play a role in determine nurses' level of knowledge and attitude towards diabetic foot ulcers and diabetic foot care. We have found that good or poor knowledge does not correspond equally with nurses' attitude towards diabetic foot ulcers and diabetic foot care. Factors which could contribute to the poor knowledge of nurses toward diabetic foot ulcers and diabetic foot care could be due to the infrequent formal training, inconsistent training schedule, lack of manpower and the increasing workload. The authors suggest that a more holistic approach such as dedicated wound team or diabetic foot clinic could encourage knowledge sharing among medical personnel and indirectly translating into better patient care.

7 LIMITATIONS

One of the main limitations is the sample size of the survey which can be deemed to be small because of the chosen hospital which is a small institution and diabetic foot care is a field of work managed by all. However, a larger sample could always be beneficial. Factors such as lack of time and staff should be considered in assessing the practice of nurses during ulcer care. The sample was random and the knowledge of nurses working solely with the paediatric age group might have lowered the level of knowledge and practice in diabetic foot care found in this study. [1–26]

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