Nurses' knowledge of the management of diabetic patients at Juba Teaching Hospital

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Introduction: Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycaemia and is a major health problem. The International Diabetes Federation (IDF) estimated that there were 425 million people with diabetes in the world in 2017 with the number rising most rapidly in middle- and low-income countries. The prevalence of DM in Juba City in 2017 was reported to be 11.8%.

Objective: To assess nurses' knowledge of the management of diabetic patients and factors associated with it in Juba Teaching Hospital - the only referral hospital in South Sudan.

Method: This was descriptive cross-sectional study, carried out in March 2018, in which 40 nurses were randomly selected. Data were collected using a pre-tested questionnaire and analysed using SPSS version 20 for Windows software.

Results: Of the 40 participants 31(77.5%) were females. The mean age was 35.6±10.7 years and median work experience was 9 years and 10 months; overall 57.6% of the participants correctly answered the questions on diabetic care. The factors cited for poor management of diabetic patients included lack of hospital guidelines (47.5%), insufficient salary to motivate staff (77.5%), inadequate nurse to patient ratio for good patient care (60.0%), and no resources for special training (57.5%).

Conclusion: Many nurses in JTH have inadequate knowledge for diabetic management and most are interested in receiving more training.

Key words: Nurse, knowledge, management of diabetes, South Sudan

INTRODUCTION

Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both and is a major health problem. The International Diabetes Federation (IDF) estimated that there were 425 million people with diabetes in the world in 2017 with 431,000 in South Sudan.[1] The number has been rising more rapidly in middle- and low-income countries.[2] In 2016 there were about 1.6 million deaths worldwide where the main contributory cause was diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012.[2]

Diabetes is a major problem in Juba. In 2017 it was reported that the prevalence of DM in Juba City was 11.8% and was more common in males at 7.2% compared to females at 4.6%.[3] According the patients' registration book in 2018 more than 30 patients attended diabetes services and follow-up each week at Malakia Diabetic Control Centre, Juba Teaching Hospital (JTH). Ward reports (2016-2017) show that 16 patients were admitted to the surgical ward due to diabetic foot complications, and 25 males and 10 females were admitted to medical wards due to diabetic conditions. Most hospitals and other health care facilities lack appropriately qualified nurses, equipment and management guidelines.

The aim of this study was to assess nurses' knowledge on management of diabetic patients and the factors associated with it in JTH - the only referral hospital in South Sudan.

METHOD

This cross-sectional study was carried out in March 2018. The proposal was reviewed by the Ethical Review Committee of Juba College of Nursing and Midwifery (JCONAM) and the Helsinki declaration on ethical principles was followed. The study population was staff/senior nurses working in JTH in different departments. Forty nurses - from those who were available and willing - were selected at random.

Data were collected by an interviewer-administered questionnaire and included: participants' socio demographics, knowledge about patients' self-care and monitoring of blood glucose level, and the factors that affect nurses' knowledge. They were analysed using IBM-SPSS version 20 for Windows programme.

RESULTS

Socio-demographic data

The mean age of the 40 nurses was 35.6+10.7 years and mean work experience was 9 years and 10 months.

Table 1. Frequency distribution of the nurses by their demographic characteristics

Nurses' knowledge of the management of diabetic patients

Table 2 gives examples of the multi-choice questions and the nurses' answers. Overall about half the statements were answered correctly and half incorrectly. More specifically, 52.5% of the nurses were able to describe a diabetic diet; 65.0% knew of the effect of exercise on blood glucose level and 70% knew the effect of insulin when taken without breakfast. However only 30% were able to describe a self-glucose monitoring test procedure; 72.5% gave an incorrect definition for hypoglycaemia; and 67.5% were

Table 1. Frequency distribution of the nurses by their demographic characteristics

Variables		n (%)
Sex	Male	9 (22.5)
	Female	31 (77.5)
Religion	Muslim	4 (10.0)
	Christian	36 (90.0)
Position	Nurse officer	2 (5.0)
	Head nurse	9 (22.5)
	Staff nurse	29 (72.5)
Education Leve	Certificated/Enrolled	32 (80)
	Diploma	7 (17.5)
	Baccalaureate	1 (2.5)

Table 2. Nurses' knowledge related to patient self-care /diabetic management

Examples of multi-choice questions	Correct answer n (%)	Incorrect answer n (%)
A diabetic diet is (a) a healthy diet of most people (b) high in both carbohydrate and proteins (c) the way most South Sudanese eat	21 (52.5)	19 (47.5)
The best method for home glucose testing is (a) blood testing (b) urine testing	12 (30.0)	28 (70.0)
The effect a mango or banana has on blood glucose level is (a) raises it (b) lowers it (c) none of the above	29 (72.5)	11 (27.5)
Hypoglycaemia is a blood glucose of less than (a) 2.9mmol/L (b) 3.9mmol/L (c) 5.6mmol/L	11 (27.5)	29 (72.5)
The effect of exercise on blood glucose is to (a) raises it (b) lowers it (c) has no effect	26 (65.0)	14 (35.0)
The best advice to patients on foot care is (a) put on big size shoes (b) look at and wash them each day (c) soak for one hour everyday	18 (45.0)	22 (55.0)
Numbness and tingling may be symptoms of (a) eye diseases (b) nerve disease (c) heart disease	33 (82.0)	7 (17.5)
Action to be taken before lunch after you realise the patient has forgotten breakfast is (a) check blood glucose (b) give insulin	30 (75.0)	10 (25.0)
A low blood sugar reaction may be caused by (a) too much food (b) too much insulin	21 (52.5)	19 (47.5)
A high blood glucose level may be caused by (a) not enough insulin (b) skipping meal (c) delayed snack	20 (50.0)	20 (50.0)
The most serious complication of diabetes is (a) delayed wound healing (b) kidney failure (c) weight gain	13 (32.5)	27 (67.5)

Table 3. Factors that nurses believe affect their care of diabetic patients

Variable	Yes n (%)	No n (%)	Don't know n (%)
Does the hospital administration policy support nurses in management of diabetes patient in the hospital?	19 (47.5)	14 (35)	7 (17.5)
Are there any allocated resources for special training for nurses in managing diabetes patients?	12 (30.0)	23 (57.5)	5 (12.5)
Is the allocated time sufficient to give good care to patients?	19 (47.5)	19 (47.5)	2 (5.0)
Is the nurse to patient ratio sufficient to give special care	14 (35.0)	24 (60.0)	2 (5.0)
Do salary levels motivate nurses to give the best care?	6 (15.0)	31 (77.5)	3 (7.5)
Is there a guide on DM management in JTH?	13 (32.5)	18 (45.0)	9 (22.5)
Have you seen other nurses given training on DM patients' care?	13 (32.5)	25 (62.5)	2 (5.0)
Do you feel that you have the skills and training for the management of diabetic patients?	21 (52.5)	17 (42.5)	2 (5.0)

unable to list the serious complications of DM; 50.0% were able to identify causes of hyperglycaemia.

Factors that affect nurses' knowledge about the management of diabetic patients

Table 3 shows factors that nurses reported affected their care of diabetic patients. The allocation of resources for special training was considered inadequate by 23(57.5%), 18(45%) stated there were no hospital guidelines for the management of diabetes, 19(47.5%), said that time was not sufficient for nurses to give special care citing too few nurses in relation to the number of patients. Three quarters (77.5%) felt that low salaries were demotivating; 21 nurses (52.5%) said that they have skills and knowledge for managing diabetic patients.

DISCUSSION

Since nurses are involved in providing primary medical care it is essential that they be well equipped in terms of knowledge and skills to deal with DM. [4,5] Their role in caring for diabetic patients needs to be strengthened from just giving simple advice to a more counselling approach about DM complications and their relationship to diet, and the importance of good diabetic control.[6]

Our findings show that lack of knowledge was a factor in management of diabetic patients as indicated by the average score of only 57.6% for correctly answered questions. This exposes diabetic patients to suboptimal management. [7] Contributory factors included shortage of resources, high work load, low salary, lack of hospital guidelines, lack of training and lack of special facilities.

Patients and their families provide 95% of the overall care. Hence education of both nurses and their patients is an integral part of diabetes management. [8,9]

CONCLUSION AND RECOMMENDATIONS

The study showed that many of the nurses had, and felt they had, inadequate knowledge about the management of diabetic patients. Almost all the nurses wanted more training on diabetic management.

Recommendations to improve nurses' management of diabetic patients

The Ministry of Health should ensure that there are health facilities for DM management at State level, and regular seminars and workshops on DM; nurses' education should give more priority to the management of chronic conditions like DM; there should be adequate resources such as equipment for glucose monitoring, and adequate salaries for the professionals so that they can be motivated to provide adequate care.

Health facilities should encourage regular check-up of glucose levels especially among the elderly as well as health education, and workshops on DM for nurses.

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