ORIGINAL ARTICLE

ASSESSMENT OF NURSES' KNOWLEDGE REGARDING NUTRITIONAL MANAGEMENT OF DIABETIC PATIENTS IN PUBLIC AND PRIVATE SECTOR TERTIARY CARE HOSPITAL, PESHAWAR

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ABSTRACT

Introduction: Numerous diagnostic and treatment standards guide are available for diabetic care. Health care providers must be fully aware of these guidelines to provide better care. In order to highlight area of deficiency and to enhance educational program on diabetes, this study was design to assess nurses' knowledge in this regard.

Material & Methods: A cross-sectional study design was carried out to assess nurses' knowledge regarding nutritional management of diabetes mellitus in a public and a private tertiary care hospitals of Peshawar from August to December 2019. By using convenient sampling technique, 100 nurses were selected for this study. Informed consent was signed from the participants and permission was taken from both hospitals' administration. Data were collected by using nutritional Management of Diabetes Knowledge Test (NMDKT) questionnaire and analysed through SPSS version 22.0

Results: In a sample of (n=100), 76% of the included population was less than 30 years of age, 61% were female participants. Work experience of the 59% was less than 5 years and 60% of the participants had an appropriate knowledge regarding nutritional management of patients with diabetes mellitus.

Conclusion: Nurses working on bedside especially, in medicine and endocrinology units should be offered refresher courses and workshops on diabetes nutritional management to keep the nurses' knowledge updated and to make nurses' efficiently deal with this globally growing issue.

Key Words: assessment, diabetes mellitus, knowledge, nurses, nutritional management

Authors' Declaration: The authors declared no conflict of interest and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors contributed substantially to the planning of research, question designing, data collection, data analysis and write-up of the article.

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This article may be cited as: Naz S, Jan A, Muhammad D, Shabnam. Assessment of nurses' knowledge regarding nutritional management of diabetic patients in public and private sector tertiary care hospital, Peshawar. Rehman J Health Sci. 2021; 3(2). 68-70

Submitted: November 15, 2020 Revisions Submitted: April 28, 2021 Accepted: June 03, 2021

INTRODUCTION

Diabetes mellitus (DM) is a lifelong metabolic disease and still remains one of the most frequent causes of death from the past few decades. Statistical estimations reveal that the total number of diabetic individuals would be 65% in the world (380 million) by 2025.[1] DM has an international health load, affecting 285 million grown-ups around the world and costing the international health care framework of USD 367 billion. Numerous diagnostic and treatment standards guide diabetic care. To provide sufficient care, health care provider must be fully aware of these guidelines. In order, to highlight area of deficiency and to enhance educational program on diabetes, measurement of such knowledge is mandatory.[2-4] A study from Egypt revealed that nurses had inadequate knowledge regarding nutrition management for diabetic patients and health care providers do not give health education which is important for diabetic patients.[5] An integrative review of the different countries studies showed that in UK, 63% psychiatric nurses need further training in providing dietary teaching and monitoring glucose intake, in US, 49% of nurses have poor knowledge regarding meal planning of diabetic patients, in Australia and Korea 58% and 80%, respectively, of practice nurses have poor knowledge regarding source of carbohydrates.[6] In Jordan, 22.4% nurses have less knowledge about meal planning for patients with diabetes.[7] The same study replicated in 2017 in Jordan, showed that 71.6% nurses have poor nutritional knowledge regarding diabetes compared to obesity 59.0% and cardiac diseases 54.9%.[8] A study from Nigeria showed that 49% of the nurses knew about fasting plasma glucose diagnostic criterion for diabetes, 46% knew the peak time of action of insulin, and 31% knew the blood pressure goal of a patient with diabetes.[9,10] Similar studies from Iraq and Africa showed that nurses did not know the importance of balanced diet for diabetic patients' and indicated that diabetic patients should exclude carbohydrates, protein and fats from their diet.[11-13] Anwer et al. from Pakistan reported in their studies that 44% of nurse's had poor knowledge on nutritional management.[14] There are differences among the results of similar studies carried out in different region. To the authors' knowledge, such has not been carried out in the mentioned clinical settings. Therefore, the aim of this study is to replicate the findings of previous studies to validate them and to assess the unexplored aspects of the nurse's knowledge regarding nutritional management of diabetes mellitus in public and private sector tertiary care hospitals, Peshawar, Pakistan. This study may be helpful in filling the gap in

literature with reference to Pakistan; highlighting area of concern for further research and will provide information for further study.

MATERIAL AND METHODS

A cross-sectional descriptive study was carried out in a public sector tertiary care hospitals, Hayatabad Medical Complex (HMC) and a private sector tertiary care hospital, Kuwait Teaching Hospital (KTH) Peshawar, Pakistan from August to December, 2019 with the aim to assess nurses' knowledge on nutritional management for diabetes mellitus. A total of 134 nurses who were registered with Pakistan Nursing Council and working in medicine and endocrinology units of the said hospitals were taken as population of the study. By using raosoft sample size calculator http://www.raosoft.com/ and by keeping confidence interval 95% and margin of error 5% a sample of 100 nurses was calculated which was later on taken conveniently. A previously validated and reliable Nutritional Management of Diabetes Knowledge Test (NMDKT) questionnaire of WHO with a Cronbach Alpha value of 0.7 was utilized which was consisted of three parts; socio-demographic information; basic knowledge about diabetes and nutritional management of diabetes. The participants were approached by the researchers individually to disclose the researcher's information and research purpose. Informed consent was taken from all the participants after assurance that their information would be kept confidential. The study was ethically approved by the administration of tertiary care hospitals. Data were analysed through SPSS version 22.0. Descriptive statistics including frequencies and percentages were measured for the data.

RESULTS

A total of 100 participants were invited for this survey. All of them agreed and participated in this survey. Out of the total, 76% of the participants were less than thirty years of age and 61% were female, 59% have spent less than 5 years and 41% spent more than 5 years in Nursing. The study participants were assessed for course they took in their (Academic, Professional) Career. In a Sample of (n =100), 59% of the participants had attended no or only one course on nutritional management of diabetes, 57% had refresher courses on diabetes management and 83% were found who had counselling experience with diabetic patients.

Out of the total respondents 93% were aware about the diagnostic standard of HbA1C, normal, pre-diabetes and diabetes value of HbA1C.Furthermore, 73% of the nurses had knowledge that diabetes is indicated by fasting plasma glucose of 6.1 to 6.9 mmol/dl, 85% had knowledge that exercise play a vital role in the prevention and management of diabetes, 66% knew that obesity and diabetes are closely related, 68% knew that diabetes is related to hypertension and 82% nurses knew that diabetes is caused by high sugar intake.

In the sample (n=100), 54% of the nurses' knew that "diabetes patients should not exclude any nutrient from their diet". Eighty six percent (86%) of the nurses knew that labels should be used on food items to determine the amount of carbohydrates per serving. Seventy nine (79%) nurses' knew that that 50–60% of the daily caloric intake of diabetics should come from carbohydrates. Sixty-eight (68%) knew that diabetic patients should consume fruits, and only 16% responded that diabetic patients should consume alcohol. Eighty three (83%) nurses' knew that non-fat or low fat milk contains less fat and low calories than whole milk and 73% nurses' knew that trans-fats increase low-density lipoprotein (LDL) cholesterol levels. Seventy seven (77%) knew that 10–15% of the daily caloric intake of diabetic patients should come from protein. Seventy-nine (79%) nurses knew that cholesterol should be restricted to 300 mg daily for diabetic patients and 89% nurses had the knowledge that diabetes patients should eat balanced diet.

DISCUSSION

The study results showed that half of the participants didn't have enough knowledge regarding some aspects of nutritional management of diabetic patients. These results are better than previous studies conducted in Pakistan and some other countries. According to the findings of the current study, 54% nurses said that diabetic patients should not exclude any nutrient from their diet. The knowledge level of the nurses in this study was quite higher than a study conducted in Basra (Iraq) where just 19% nurses agreed with this statement.[13] in addition, in this study, 86% nurses said that they took help from labels, mentioned on food items to determine the amount of carbohydrates per serving which are better than a study conducted in Basra (Iraq) where 75% of the similar population agreed statement. In our study, 73% of nurses were aware about the fasting plasma glucose criterion for the diagnosis of diabetes mellitus. These findings are superior to trial conducted in Japan where 59% of the participants were aware about the said criterion and management of blood glucose levels. The same study was conducted to see the knowledge of faculty members of St. Joseph Medical Centre where 81% were having knowledge regarding diabetes mellitus diagnosis.[15,16] In addition, 68% nurses in the current study had the knowledge that the total amount of carbohydrate is more important than the type of carbohydrate, these results are superior than a study conducted in Ghana where only 42% of the participants had knowledge for the same question.[11] Furthermore, in this study, 68% nurses had the knowledge that diabetic patients should consume fruits results whereas in the study conducted in Ghana the reported value for this question was 80% which is better than the reported value in our study. Moreover, in this study 85% nurses had the knowledge that exercise plays a vital role in prevention and management of diabetes. These results are better than a study conducted in Pakistan where only 50.9% of the nurses had the same knowledge.[14] Another similar study reveals poor level of knowledge regarding nutrition among clinical staff.[15] Likewise, 73% nurses knew that trans-fats increase low-density lipoprotein cholesterol level. A study conducted in Turkey for the same information reported correct answer by 34% nurses.[17] When asked whether animal fats should be restricted for diabetic patients or not, 67% of the nurses replied 'yes' which was a correct response and the results are similar to a study conducted on Jordanian nurses where 68.5% of the nurses had responded correctly.[7]

CONCLUSION

It may be concluded that nurses have reasonable knowledge about the nutritional elements needed for diabetic population, however, some of the aspects are deficient. The reason may be unavailability of traning on

the specific area for the nurses. Therefore, nurses working on bedside especially, in medicine and endocrinology units should be offered refresher courses on diabetes nutritional management to keep the nurses' knowledge updated and to make the nurses' efficiently deal with this globally growing issue.

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Table 1: Socio-demographic and professional characteristic of Nurses(n=100)

Socio-demographic characteristics		Frequency
age	Less than 30 years	76
	More than 30 years	24
Gender	Male	39
	Female	61
Work experience	Less than 5 years	59
	More than 5 years	41
Nutritional courses attended	0-1	59
	2-3	41
Refresher course attended regarding diabetes mellitus	Yes	57
	No	43
Have you ever counselled a diabetic patient?	Yes	83
	No	17

Table 2: Basic knowledge of participants about diabetes (n=100)

Questionnaire Items	Correct response	Incorrect response
Diagnostic standard for HbA1C in Diabetes is normal when less than 5.7%, Pre-Diabetes 5.7-6.4% and Diabetes when greater than 6.5%	93	7
Diabetes is indicated by Fasting Plasma Glucose (FPG) of 6.1–6.9 mmol/dl	73	27
Exercise plays an important role in the prevention and management of diabetes	85	15
Symptomatic hypoglycaemia could be treated using 3–4 cubes of sugar	83	17
Obesity and diabetes are closely related	66	34
Diabetes is closely related with hypertension	68	32
Diabetes is caused by higher sugar intake	82	18

Table 3: Nurses Knowledge about meal planning for diabetes management (n=100)

Questionnaire items	correct responses	incorrect responses
Diabetes patients should not exclude any nutrient from their diet	54(54%)	46(46%)
Use labels on food items to determine the amount of carbohydrates per serving	86(86%)	14(14%)
The total amount of carbohydrates is more important than the type of carbohydrate	68(68%)	32(32%)
50-60% of the daily caloric intake of diabetics should come from carbohydrates	79(79%)	21(21%)
Diabetes patient should consume fruits	68(68%)	32(32%)
Diabetes patients should consume alcohol with meals	16(16%)	84(84%)
Non-fat or low-fat milk contains less fat and low calories than whole milk	83(83%)	17(17%)
Trans-fats increase low-density lipoprotein (LDL) cholesterol levels	73(73%)	27(27%)
Animal fat should be restricted for diabetes patients	67(67%)	33(33%)
10–15% of the daily caloric intake of diabetics should come from protein	77(77%)	23(23%)
Cholesterol should be restricted to 300 mg daily for diabetes patients	79(79%)	21(21%)
Diabetes patients should eat balanced diet	89(89%)	11(11%)