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Original Research Article

A Need of Saudi Health Promotion Staff for Training on Diabetes Mellitus Health Care Literacy

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ABSTRACT

Background: Diabetes mellitus is a burdening public illness in Saudi Arabia. Controlling diabetes needs multiple inter-professional actions. One of the important professional is health educator. Insufficient knowledge of health educators toward diabetes contributes to poor control of diabetes mellitus impact on patient outcomes.

Aim and Objectives: To evaluate the knowledge of diabetes mellitus, risk factors and management of health promotion coordinators in Aseer Province.

Methodology: A cross-sectional design conducted on 52 health promotion coordinators in 21 hospitals and 17 primary health care sectors. Self-administered questionnaire consisting of three sections, socio-demographic data, diabetes mellitus risk factors and the validated 24-item Diabetes Knowledge Questionnaire (DKQ-24).

Results: The response rate of the survey was 86.5%. The participants were 71% male participant and 30% female participant and most of them employed as nursing job 53% and diploma qualified 73%. In general, 35% of the participant had good knowledge (≥ 80% correct answers), 42% had borderline knowledge (≥60 & ≤ 80% correct answers) and 23 % had poor knowledge (<59% correct answers). Seven of the nine diabetes mellitus risk factors answered correctly by 76% of the participants. The only lowest correct answered risk factors for diabetes were the high cholesterol level (57%) and smoking (51%).

Conclusion: The health literacy of diabetes among the health educators found in the study ensure the need for continuous medical education for any health provider in contact with diabetic patients, which can impact the quality of patients' literacy positively and the control of diabetes and its complications.

Key words: Diabetes Mellitus, Health Promotion, Health Education, Risk Factors, Counseling, Screening, Aseer Region, Saudi Arabia.

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INTRODUCTION

Diabetes mellitus is a chronic illness with higher public health concern worldwide and its prevalence is escalating exponentially, with a high frequency of morbidity, premature mortality.[1-3] Nationally, the prevalence of diabetes mellitus is estimated at approximately 24 per cent among Saudi adults. Patients with diabetes as chronic disease should be involved in care program to control their diabetes and improve quality of life. The management of diabetes mellitus (DM) largely depends on patients' ability to self-care in their daily lives, and therefore, patient education is always considered an essential element of DM management. However, many diabetics are lack sufficient knowledge about their disease due to illiteracy.5-7 Health care providers play a very important role in improving the literacy of the diabetics, and increase their awareness toward complications' prevention and health promotion.[8-10] Because the Health Promotion and Education staff working as health promoters in the different healthcare setting (primary or secondary), are in the important part of Diabetes Mellitus management (health education) in chronic diseases care, their knowledge is affecting the dimension for controlling the diabetes.[11-12] Thus, before considering any possible intervention it was imperative to assess present knowledge, attitudes, and practices of patients towards the management of diabetes. Several studies showed the effects and impacts of health education programs on controlling the diabetes mellitus and its complications. Implementation of education programs on diabetes among type 2 diabetic patients is associated with better

outcomes such as their dietary plan, physical exercise, SMBG, adherence to medication, HbA1c and depression.[13] Poor knowledge and misconception of health educators regarding diabetes management can lead to dissatisfaction and poor control of diabetes mellitus.[14-17] The present study aimed to assess the knowledge toward diabetes mellitus (risk factors, clinical presentations of DM and its complications, treatment, controlling and prevention) among the health promotion staff in Ministry of Health Sectors in Aseer Region.

METHODOLOGY

The study was a Cross-sectional designed. The targeted population included health education and promotion coordinators in the Ministry of Health in Aseer Province. They are around 49 working in 17 primary health care sectors, 21 hospitals and 11 in the central administration of health education and promotion. The tool of self-administered questionnaire assessing the socio-demographic data and knowledge determining factors was utilized. The self-constructed section consisted of true or false responses to nine (9) diabetes mellitus risk factors and part consisted of the 24-item Diabetes Knowledge Questionnaire (DKQ-24), developed and validated by Garcia et al.[18] It has twenty-four (24) true and false statements relating to diabetes mellitus knowledge and has been used in several international studies (Chilton, Hu & Wallace 2006; Mauldon, Melkus & Cagganello 2006).[19,20] The DKQ-24 has demonstrated internal consistency with reliability coefficient of 0.78. The following criteria for knowledge categories were used: poor for ≤ 59%, borderline ≥ 60-79% was and good for ≥80% correct answers (Williams et al 1998). The setting and place of study were in primary health care sectors and hospital of Ministry of Health in Asser Region. They are 17 sectors and 21 hospitals according to Administrative Governmental dividing of Asser Province.[25] This study was conducted from 1st to 31st of January to 2016. Data were collected after getting approval from the research ethical committee in Aseer Region. Data were collected in the following steps. First, official letter describing aims, objectives and processes of the study was send to Asser General Directorate of Health Affairs directed to Administration of Health Promotion and Education to request permission to assess all health educators in primary health care sectors and hospitals for recruitment to this study. After obtaining the permission, the questionnaires were sent to them by the linked messages through SMS, emails and watts up through their references sectors. Starting letters informing the participants about the aims of the study and asking them their permission to participate before the survey. The participants were informed that confidentiality and anonymity would be respected.

The Statistical Package for Social Sciences (SPSS version 22) was used for data entry and analysis. Descriptive statistics were computed in the form of frequency and percentage for categorical data and in the form of measures of central tendency (arithmetic mean and median) and measures of dispersion (standard deviation and range) for continuous variables. Differences were considered as statistically significant when the p-value is less than 0.05.

Table 1: Personal Characteristics of Health Promotion Staff, 2016

Personal characteristics	(n=)	
	No.	%
Age		
Mean, ± SD	35.57 ± 7.69	
Gender:		
Male	32	71.1
Female	13	28.9
Specialty:		
Nurse	24	53.3
Physician	5	11.1
Public health	8	17.8
Medical assistant	3	6.7
Administrative	4	8.9
Dentist	1	2.2
Qualification:		
Diploma	33	73.3
Bachelor	9	20
Post-graduate education	3	6.7
Place of Work:		
City	16	35.6
Village	29	64.4
Setting of Practice		
Hospital	9	20
Primary Health Care Center	36	80
Years of Experiencein Health Promotion		
Mean ±SD	5.6 ± 1.4	
Category of Year of Experience in Health Promotion		
Less than 3 years	5	11.1
3 – 6 years	10	22.2
More than 6 years	30	66.7

Figure 1: Overall Asessment of The Health Educators for the 24 item Diabetes Knowledge Questionnaire in Aseer Rgion, 2016

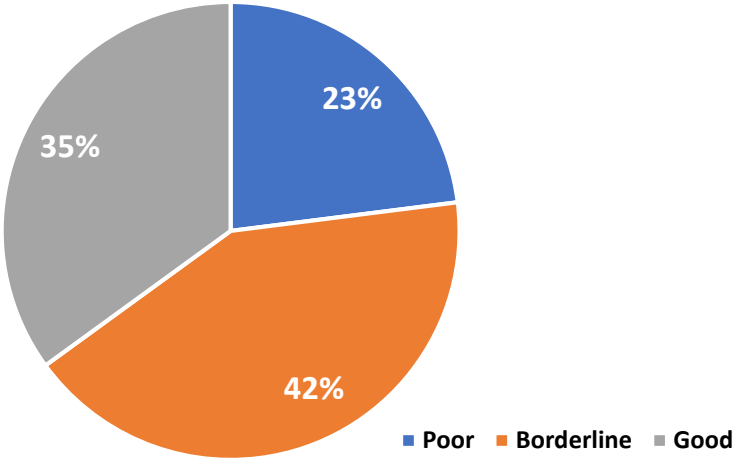


Table 2: Answers of Health Educators for the 24 item Diabetes knowledge questionnaire

	Questions	Incorrect	Correct
1	Eating too much sugar and other sweet foods is a cause of diabetes. (False)	(n=33) 73%	(n=12) 27%
2	The usual cause of diabetes is lack of effective insulin in the body. (True)	(n=17) 38%	(n=28) 62%
3	Diabetes is caused by failure of the kidneys to keep sugar out of the urine. (False)	(n=6) 14%	(n=39) 86%
4	Kidneys produce insulin. (False)	(n=0) 0%	(n=45) 100%
5	In untreated diabetes, the amount of sugar in the blood usually increases. (True)	(n=8) 18%	(n=37) 82%
6	If I am diabetic, my children have a higher chance of being diabetic. (True)	(n=15) 33%	(n=30) 67%
7	Diabetes can be cured. (False)	(n=3) 7%	(n=42) 93%
8	A fasting blood sugar level of 135 mg/dl is high. (True)	(n=21) 47%	(n=24) 53%
9	The best way to check my diabetes is by testing my urine. (False)	(n=33) 73%	(n=12) 27%
10	Regular exercise will increase the need for insulin or other diabetic medication. (False)	(n=6) 14%	(n=39) 86%
11	There are two main types of diabetes: Type 1 (insulin-dependent) and Type 2 (non-insulin-dependent). (True)	(n=0) 0%	(n=45) 100%
12	An insulin reaction is caused by too much food. (False)	(n=21) 47%	(n=24) 53%
13	Medication is more important than diet and exercise to control diabetes. (False)	(n=13) 29%	(n=32) 71%
14	Diabetes often causes poor circulation. (True)	(n=6) 14%	(n=39) 86%
15	Cuts and abrasions on diabetics heal more slowly. (True)	(n=9) 20%	(n=33) 80%
16	Diabetics should take extra care when cutting their toenails. (True)	(n=3) 7%	(n=42) 93%
17	A person with diabetes should cleanse a cut with iodine and alcohol. (False)	(n=28) 63%	(n=17) 37%
18	Advice the diabetics that the way I prepare my food is as important as the foods I eat. (True)	(n=13) 29%	(n=32) 71%
19	Diabetes can damage my kidneys. (True)	(n=3) 7%	(n=42) 93%
20	Diabetes can cause loss of feeling in my hands, fingers, and feet. (True)	(n=8) 18%	(n=37) 82%
21	Shaking and sweating are signs of high blood sugar. (True)	(n=21) 47%	(n=24) 53%
22	Frequent urination and thirst are signs of low blood sugar. (False)	(n=6) 14%	(n=39) 86%
23	Tight elastic shoes or socks are not bad for diabetics. (False)	(n=21) 47%	(n=24) 53%
24	A diabetic diet consists mostly of special foods. (False)	(n=21) 47%	(n=24) 53%

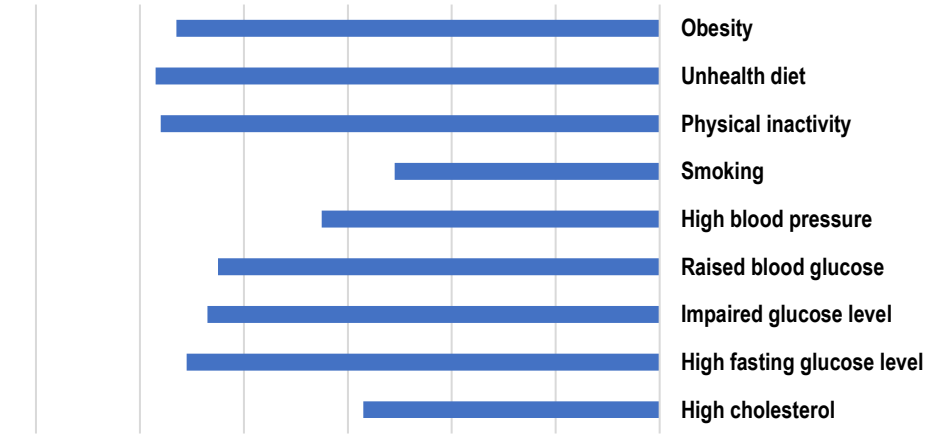
RESULTS

Out of 52 health promotion providers, 45 (86.5 %) responded to the study survey.

Table 1 summarizes the personal characteristics of the participants; mean age was 35.57 ± 7.69. Male physicians were more in the study 71.1% (n=32) than female physicians 28.9% (n=13). Regarding specialty, most of our responders were Nurses 53.3% (n=24), physicians were 11.1% (n=5), Public health were 17.8% (n=8), medical assistants were 6.7% (n=30), administrative were 8.9% (n=4) and dentist was 2.2% (n=1). Regarding qualification, most of them have Diploma degree 73.3% (n=33) while 20% (n=9) of them have Bachelor degree and Post-graduate education were 6.7% (n=3). Less than half 35.6% (n=16) are working inside the city while the majority 64.4% (n=29) are working in the villages. Regarding the setting of practice, 80% (n=36) are practicing in PHCC while 20% (n=9) are practicing in hospitals. The mean years of experience were 5.6 ± 1.4. Regarding the category of years of experience, those with experience less than 3 years were 11.1% (n=5), between 3-6 years were 22.2% (n=10) and those with experience more than 6 years were 66.7% (n=30). Figure 1: shows the response to the 24 item Diabetes knowledge questionnaire. the general result showed that ,62% of the participant had good knowledge (≥ 75% correct answers), 26% had borderline knowledge (≥60 ≤ 74% correct answers) and 12 % had poor knowledge (<59% correct answers).

Table 2: shows the answered 24 item diabetes knowledge (correct and incorrect) for each item. Figure 2 shows the knowledge of DM risk factor. Seven of the nine diabetes mellitus risk factors could be answered well by 76% of the health educators. The majority of the health educators answered the theses risk factors correctly as diabetes risk factors: obesity (93%), unhealthy diet (97%), impaired glucose levels (87%), raised fasting blood glucose levels (85%), high blood pressure (69.0%) and physical inactivity (96%) while the got low correct answers to high cholesterols (57%) smoking (51%) as diabetes risk factors.

Figure 2: The Knowledge of Health Educators Regarding DM Risk Factors in Aseer Regions,2016



DISCUSSION

Controlling diabetes is mainstay for preventing the complications and decreasing its burdens.[21] It is estimated that 70% of patients with diabetes are living in developing countries.[22] Diabetes mellitus is currently classified as one of the big burdening disease in Saudi Arabia.[23] Increased awareness and knowledge of modifiable diabetes risk factors could be used to stem the present diabetic epidemic globally.[24] Health educators in both primary and secondary health care institutes play a vital role in health care literacy and considered a key source of information for patients suffering from diabetes mellitus.[25-27] They had graduated from different institutes and graduated from with different professionals. It was found that these health educators, who educated and act on health education programs for diabetes and other chronic disease for mostly diabetic and chronic disease patients, have good, and insufficient knowledge (borderline and poor). This area of knowledge leads to better level of education for the patients for the prevention of diabetic complications by modification of risk factors such as obesity and physical inactivity**,** education on wound care.[28]

This study highlights that health educators in Aseer Region, demonstrate accepted to need to be improved knowledge of diabetes mellitus and its risk factors with almost 65% of the participants having poor to borderline knowledge of diabetes mellitus**.** This could have a negative impact on the knowledge the health educators convey to their patients. Acknowledgement of the risk factors of diabetes mellitus plays a pivotal role in its prevention**.** It is importance that health promotion staff especially health educators should be able to identify well-known risk factors for diabetes mellitus in order to correctly inform their patients regarding the modifiable risk factors. The levels of knowledge of diabetes risk factors of them are promising as seven of the nine risk factors were readily identified by 75% of the health educators.

These results coincide with a study among different professionals with variety of training and coaching backgrounds**.** The benefits of exercise in diabetes prevention and management has been proven in several studies.[29] The results of this study is promising as 96% of the health educators know about the key role physical activity plays in the prevention of diabetes and its complications**.**

LIMITATIONS

The findings are relevant to health education coordinators of the health care sectors and hospitals in Ministry of Health in Aseer Region. However, the present findings lay the groundwork for similar studies amongst health educators in all primary health care centers in Aseer Region. Lastly, casual deductions cannot be made about the results gained as the study utilized a cross-sectional study design**.**

CONCLUSION AND RECOMMENDATIONS

Knowledge of diabetes mellitus and its risk factors are essential for primary and secondary healthcare in order to prevent co-morbidities that can increase the burden of the disease. Although the results of the study revealed that almost 35 -58% of the health educators in the Ministry of Health in Aseer region have adequate knowledge of diabetes mellitus, some areas are still lacking. The lack of basic knowledge could influence the effectiveness of patient education and therefore have dangerous consequences for the patient diagnosed with diabetes mellitus who are involved in the health promotion programs. The health education and promotion administration should put a training programs for improving the knowledge and skills about diabetes mellitus health education and promotion, as well as population-based health promotion programs for patients with diabetes and health promotion activities to raise awareness among healthy people for prevention of the diabetes.

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