RESEARCH ARTICLE

Needs assessment survey regarding effectiveness of chronic care in diabetes in a hospital setting

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Abstract

Objectives: To assess the current knowledge level about diabetes and acceptance of nurse-led educational programmes among diabetic patients.

Method: The cross-sectional study was conducted at a community health centre in Karachi from August, 2018 to December, 2019 and comprised adult patients of either gender with diabetes. Data was collected using a predesigned questionnaire to record demographic information, participants' DM knowledge, self-management aspects and their opinions along with preferences for a DM educational support group. Data was analysed using STATA/SE 15.1.

Results: Of the 215 participants, 80(37%) were males and 135(63%) were females. The overall mean age was 55.8±14.5 yrs. Most participants had diabetes for ≥5 years 127(59%) and 141(66%) did not know their type of diabetes. Most participants were prescribed anti-diabetic medications 201(94%), and 45(2%) had forgotten to take their medication recently. Insulin was being used by 65(30%) participants, and, among them, 27(42%) reused syringes. Most patients struggled to make lifestyle modifications 133(62%), and 144 (67%) were willing to attend nurse-led diabetic education sessions.

Conclusion: There was found to be a need of diabetes education support programme to address knowledge deficiencies, and a nurse-led programme was found to be acceptable to the majority of study subjects.

Keywords: Diabetes mellitus, Diabetes complications, Tertiary prevention, Health educators. (JPMA 72: 850; 2022)

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Introduction

Diabetes mellitus (DM), a chronic and potentially debilitating disease, affects an estimated 463 million people worldwide.[1] With unhealthy lifestyle practices and the rising trends of obesity, the numbers are expected to increase to 578 million by 2030 and a staggering 700 million by 2045.[1] South Asian populations are at a high risk for diabetes due to a combination of genetic, socioeconomic and cultural risk factors.[2] Pakistan has the fourth highest prevalence of diabetes globally, with approximately 19.4 million people affected.[1] Delay in diagnosis, patients' lack of awareness about the disease, poor adherence to medication and lifestyle modifications, reliance on a physician-only model, sub-par patient-physician communication, and an inadequate public-sector health system to support chronic disease management are the main barriers to optimal DM management.[3]

The chronic care model (CCM), an organisational, team-based approach for caring for people with chronic conditions in primary care settings, is known to improve the quality of patient care as well as patient outcome.[4] CCM has shown promising results in DM management with improved glycated haemoglobin (HbA1c) control and lower rates of complications.[5] In low- and middle-income countries (LMICs), CCM allows better utilisation of existing resources by empowering patients to practise reliable self-management strategies, and decreases the burden of DM care on healthcare systems.[6] In addition, nurse-led diabetes care models are equally effective as physician-led models internationally.[7,8] There is limited data from Pakistan on patients' acceptance of DM self-management education.[9] In addition, studies report that physicians remain the primary educators and often the only source of information for the diabetics.[10,11] Very few studies have examined patients' acceptance of an approach involving healthcare personnel beyond the physician to provide education and support regarding the patients' health goals.[9,12] The current study was planned to assess the level of DM knowledge and acceptance of nurse-led educational programmes among diabetics.

Subjects and Methods

The cross-sectional descriptive study was conducted at the Community Health Centre (CHC) of the Aga Khan University Hospital (AKUH), Karachi, from August, 2018 to December, 2019. The CHC offers comprehensive primary care clinics, including health promotion and screening,

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care for acute and chronic conditions and help with lifestyle modification for patients of all age groups. The centre operates six days a week, with clinical operations being conducted in morning, afternoon and evening shifts. With an average of 5,500 patient-visits per month, the CHC provides accessible and cost-effective care for many patients and families.

After approval from the ethics review committee of the Aga Khan University, Karachi, the sample was raised using consecutive, non-purposive sampling technique which allowed enrolment of participants at different times of the day. Based on a daily patient volume of approximately 220 patients per day at the CHC, and the regional prevalence of DM in adult population (16.8%),[13] it was assumed that every 6th patient coming to the CHC would have diabetes. The data-collection process continued for three months. Those included were patients of either gender aged >18 years with a diagnosis of diabetes. Patients who were unable to understand the purpose of the study or were unwilling to participate were excluded.

After taking written informed consent from all the subjects, data was collected using a predesigned questionnaire to record demographic information, participants' DM knowledge, self-management aspects and their opinions along with preferences for a DM educational support group. Most questions were close-ended, with the participants selecting the desired response(s) from exclusive options. However, the option to document additional information was also provided to capture all responses.

The questionnaire was initially developed in English and was then translated into Urdu by a content expert. Face validity of the questionnaire was tested on a sample of the target population to ensure comprehension from participants' perspective, and to prevent any misinterpretation of the questions. Necessary changes were made in the questionnaire after the pre-testing phase.

Two undergraduate medical students fluent in both English and Urdu were trained to collect data. At the initial assessment, CHC nurses identified patients with DM diagnosis. Most participants completed the survey by themselves. For patients who could not read or write, verbal consent was taken from the patient along with the signature of the attendant. The data-collectors filled up the survey by putting questions to such participants. All the completed survey forms were transferred to the designated research space at the end of each day where they were kept under lock and key.

Data was entered into Microsoft Excel and then transferred to STATA/SE 15.1 for statistical analysis. Descriptive analyses included means ± standard deviation (SD) for continuous variables and frequencies with percentages for categorical variables. To examine differences between genders, chi-square test was used for categorical variables and t-test for continuous variables after checking for data normalcy. Logistic regression was used to examine the acceptability of nurse-led education support groups. $p<0.05$ was considered statistically significant.

Results

Of the 215 participants, 80 (37%) were males and 135 (63%) were females. The overall mean age was 55.8±14.5

Table-1: Sociodemographic characteristics.

Variable	Total n (%)	Male n (%)	Female n (%)	p-value
Participants	215	80 (37)	135 (73)	
Mean age, years (± SD)	55.8(±14.5)	55.8(±15.1)	55.8(±14.3)	0.812
City of Residence:				
Karachi	171(80)	54 (68)	117 (87)	0.001
Outside Karachi	44 (20)	26 (32)	18 (13)	
Marital Status:				
Married	190 (88)	78 (98)	112 (83)	0.001
Unmarried	25 (12)	2 (3)	23 (17)	
Occupational Status:				
Unemployed*	156(73)	33 (42)	123 (91)	0
Employed	58 (27)	46 (58)	12 (9)	
Education				
Unable to read or write	34 (16)	8 (10)	26 (19)	0.001
Up to matriculation	85 (40)	26 (33)	59 (44)	
Beyond matriculation	96 (45)	46 (58)	50 (37)	
Speak and understand Urdu fluently	206 (96)	78 (98)	128 (95)	0.33
Speak and understand English fluently	123 (57)	57 (71)	66 (49)	0.002
Duration of Diabetes				
< 1 year	23 (11)	8 (10)	15 (11)	0.91
1 to 5 years	63 (29)	23 (29)	40 (30)	
5.1 to 10 years	49 (23)	20 (26)	29 (21)	
≥ 10 years	78 (36)	27 (35)	51 (38)	
Comorbid Conditions				
Eye disease	90 (42)	34 (43)	56 (41)	0.884
Hypertension	35 (16)	16 (20)	19 (14)	0.255
Heart disease	125 (58)	38 (48)	87 (64)	0.015
Dyslipidaemia	91 (42)	38 (48)	53 (39)	0.237
Kidney disease	14 (7)	6 (7)	8 (6)	0.651
Receiving Regular Care				
Yes	176 (82)	63 (79)	113(84)	0.3
No	38 (18)	17 (21)	21 (15)	
Time Spent with Doctor				
Less than 15 minutes	72 (34)	33 (43)	39 (30)	0.035
15 – 30 minutes	116 (54)	41 (53)	75 (57)	
More than 30 minutes	20 (9)	3 (4)	17 (13)	

*: dependents, students, housewives and retirees. SD: Standard deviation.

Table-2: Knowledge and practices related to diabetes.

Variable	n (%)
KNOWLEDGE	
Type of Diabetes	
Type 1	13 (6)
Type 2	53 (25)
Pre-diabetes	6 (3)
Don't Know	141 (66)
Diabetes medications	
Insulin	27 (13)
Oral medications	153 (75)
Both	23 (11)
PRACTICES	
Taking diabetes medications regularly	
Yes	201 (94)
No	12 (6)
Forgotten to take medicine in the last 2 weeks	
Yes	45 (21)
No	154 (75)
Frequency of forgetting to take diabetes medication	
Usually	8 (4)
Sometimes	23 (11)
Rarely	15 (7)
Insulin administration (n=65)	
Self-administration	44 (68)
Family member	7 (11)
Reuse insulin syringe (n=65)	27 (42)
Checks blood glucose at home	
Yes	169 (79)
No	41 (19)
Keeps a record of blood glucose (n=169)	
Yes	82 (49)
No	86 (51)
Smoker	
Yes	9 (4)
No	206 (96)
Exercises regularly in a week	
Yes	58 (27)
No	157 (73)
Exercise duration (n=58)	
Up to 30 minutes/day	40 (69)
More than 30 minutes/day	18 (31)

years. Compared to female, a significantly larger number of male participants were fluent in English (female: 49% vs. males: 71%; p<0.05), and there were more unemployed females than males (females: 91% vs. males: 42%; p <0.01).

The most common comorbid condition was heart disease 125 (58%), and compared to males, it was significantly more prevalent among females (females: 64% vs. males: 48%; p=0.015). Most participants reported receiving regular care for DM management (Table-1).

Most participants had diabetes for ≥5 years 127 (59%); and 141 (66%) did not know their type of diabetes. Most participants were prescribed anti-diabetic medications 201 (94%), and 45 (2%) had forgotten to take their medication recently. Insulin was being used by 65(30%) participants, and, among them, 27 (42%) reused syringes. Regarding lifestyle behaviours, 157 (73%) participants reported not exercising daily. Of the 58 people who specified their exercise duration, 18 (31%) reported exercising more than 30 minutes per day (Table-2). Most patients struggled to make lifestyle modifications 133(62%) (Table-3).

Table-3: Participants' perceptions regarding the impact of diabetes on their health.

Statement	Agree n (%)
I feel good about my general health.	117 (54)
My diabetes interferes with other aspects of my life.	119 (55)
My level of stress is high due to diabetes.	116 (54)
I have some control over getting diabetic complications.	140 (65)
I struggle with making changes in my life to care for my diabetes.	133 (62)

The prospect of a diabetes education and support group was generally well received, with 198 (92%) of the participants expressing interest in attendance, and 123 (57%) willing to attend regular sessions. The three most common topics to cover in education support groups included education regarding diabetes and its complications 168 (78%); how to achieve better control of DM 192 (89%); and support with making lifestyle changes to improve diabetes control 189 (88%). The majority 144 (67%) of participants were willing to attend nurse-led education and support sessions for DM management. Controlling for gender, age and level of education, participants from outside Karachi were less likely to accept nurse-led models compared to those who resided in Karachi (odds ratio [OR]: 0.36; 95% confidence interval [CI]: 0.16-0.79; p=0.01).

Discussion

Using a patient-centred approach to provide support, with emphasis on education and self-management, can improve DM control, with fewer complications and lower cost of care.[14,15] Understanding patients' baseline knowledge about DM and their identified needs from educational and support programmes is an important first step to assess the feasibility of implementing a CCM in Pakistan.

The participants in the current study were from both within and outside the city, had varying educational levels and occupations, and were similar to Pakistani cohorts[16] with a large percentage 172 (80%) having at least one other chronic condition. As studies have reported an association between poor knowledge and poor glycaemic

control,[17] it is concerning that many of the participants in the current study had significant knowledge gaps about the disease and the ways to prevent long-term consequences.

More than half of the participants claimed that DM interfered with other aspects of their lives and caused significant stress, while 65% felt that they were personally responsible for playing a major role in DM control, and 62% also admitted to struggling with lifestyle changes. Studies have shown that patients with chronic conditions who have difficulty in self-management rely on healthcare providers and other individuals with similar diseases and community groups for additional help and support.[18] Thus, educational support groups would be an important resource for patients trying to manage a chronic disease.

Encouragingly, majority of the participants expressed an avid interest in being educated about good DM control, complications of the disease and prevention. Despite the variation in education levels, the participants identified similar needs to help with disease management. A large proportion (75%) identified a need to enhance their knowledge about DM and its complications. Similarly, most (89%) considered medication adherence an important aspect to cover in education and support groups. Studies have shown educational programmes to have a dose-dependent improvement in HbA1c reduction,[19] with better self-care behaviours and disease control in the attendees.[20,21]

Literacy-appropriate education and support improve participants' knowledge and self-efficacy, and self-reported healthy behaviours.[15] While there was a wide variation in the educational level of the participants in the current study, nearly all (95.8%) were fluent in spoken Urdu. Thus, Urdu would be the best medium of instruction in designing support groups for similar populations in Pakistan.

Interestingly, we found that the acceptance of nurse-led educational and support groups was high regardless of participants' gender, educational level or time spent with physician. However, compared to participants residing in Karachi, those from outside the city were less likely to accept a nurse-led model for DM education and support. It is possible that the reason for non-acceptance was because they would be unable to return on a regular basis to attend such sessions. Nurse-led education and support groups can help fill an important gap in systems with limited resources where physicians cannot always give adequate time to patients.[22] In Pakistan, where the nursing profession does not get its due recognition in relevant circles, elevating nurses' role in terms of care of chronic diseases can play a pivotal role in improving the quality of healthcare delivered to the public.[23]

Conclusion

There were significant knowledge gaps pertaining to DM, but there was an understanding of the difficulty in changing lifestyle behaviours, and acceptance of education support groups as a means of improving self-management of DM and its complications. Most encouragingly, there was openness to a nurse-led model to provide this support which can help decreasing the burden on the over-burdened healthcare system in Pakistan.

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