



A Study of Impact of Patient Education of Diabetes on His Knowledge, Attitude and Practices

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Abstract

Poor awareness among diabetic patients are some of the important variables influencing the progression of diabetes and its complications, which are largely preventable through education and involvement of the patient.

Objective: We evaluated the knowledge, attitude and practices in diabetic patients for diabetes mellitus and impact of the diabetic education on knowledge, attitude and practice(KAP) score.

Methods: The study was conducted among type 2 diabetic patients taken from O.P.D and indoor wards of M.M Institute of Medical Sciences and Research, Mullana, Ambala. A total of hundred diabetic patients were enrolled in the study and randomized into the test and control groups. Each group consisted of 50 patients. The patients in the test group received diabetic education and patient education leaflet at baseline and same was given to the control group at the end of the study. Knowledge, attitude and practices were evaluated using a KAP questionnaire with maximum score of 25(knowledge-14,attitude-5 and practices-6)

Results: In our study population, 59(59%) were males and 41(41%) were females. Majority of patients (62%) were between the ages 40-59 years and maximum number of patients (53%) had diabetes less than 5years. Most of the patients (63%)were overweight. The mean knowledge, attitude and practices score at baseline was 6.52(46.57%), 2.26(45.2%) and 2.42(40.33%) respectively and mean KAP score was 11.21(44.84%). At baseline, mean knowledge, mean attitude and mean practice score was 6.56 ± 4.06 , 2.24 ± 1.65 and 1.74 ± 1.26 in the control group respectively and 6.48 ± 4.49 , 2.18 ± 1.36 and 3.1 ± 1.5 in the test group respectively. Mean KAP score at baseline was 10.46 ± 6.19 in the control group and 11.96 ± 6.84 in the test group. At final follow-up, mean knowledge, mean attitude and mean practice score was 7.12 ± 3.98 , 2.24 ± 1.33 and 1.92 ± 1.34 in the control group respectively and 12.12 ± 2.12 , 4.12 ± 0.87 and 4.46 ± 1.01 in the test group respectively. Mean KAP score at final follow up was 11.36 ± 6.12 in the control group and 20.78 ± 3.13 in the test group. At baseline, mean RBS was 228.58 ± 83.58 mg/dl in the control group and 265.79 ± 130.76 mg/dl in the test group, whereas at final follow-up mean RBS was 175.56 ± 48.12 mg/dl and in the control group and 152.06 ± 36.42 mg/dl in the test group. We observed significant increase in knowledge, attitude and practice score ($p < 0.0001$) and significant reduction in RBS ($p < 0.0007$) after education in the test group as compared to the control group.

Conclusion: The results of this study suggested that diabetic patients had low levels of knowledge, attitude and practice for diabetes mellitus. The health education is vital in improving patient's knowledge, attitude and practices regarding diabetes mellitus and attaining better glycemic control.

Introduction

Patient education plays an important role in effective management of chronic diseases such as Diabetes Mellitus.¹ Patients if given proper education and guidance towards diabetes care would be able to make a significant improvement in life style which is helpful for good glycemic control. Education to diabetic patients would be more effective if we know the level of knowledge, attitude and practice of our patients.² Education on disease, drugs, diet and life style modification can improve patient compliance to treatment recommendations and improves knowledge, attitudes and practices to enable patients to self-manage the disease.¹ Diabetes care includes knowledge in symptom recognition, diet and lifestyle modifications like routine exercise, adherence to medications, which includes dosage adjustment and timing, and detection and management of signs and symptoms of hyperglycemia and hypoglycaemia.^{3,4} Patients with diabetes mellitus often lack sufficient knowledge about their disease and thus frequently have poor self-management skills.⁵ So the present study is planned to evaluate the effect of diabetes education on glycemic control and improvement in knowledge, attitudes and practices regarding diabetes mellitus

Materials and Methods

The study was conducted at M.M. Institute Of Medical Sciences and Research, Mullana, Ambala. Total 100 adult target subjects of either sex were included in the study taken from OPD and Indoor Wards of Department of Medicine. Diagnosis of Diabetes was made as per American Diabetic Association (ADA) guidelines.⁶

Patient not fulfilling the definition of Diabetes Mellitus as per American Diabetic Association were excluded. Each subject underwent a detailed history elicitation including physical examination. A total of hundred diabetic patients were enrolled and randomized into the test and control groups. The patients in the test group received the education on their disease, drugs, diet and life

style modifications and also Patient Education Leaflet^{6,7} in Hindi to compliment the verbal counseling highlighting the disease, diet and life style modifications at the baseline and reinforcement of the same was done at the first follow-up. The control group patients had received education at the end of the study. After the baseline, two follow-ups were made at two months interval between the follow-ups. During each visit patient's plasma random blood glucose was measured by using a GOD-POD method. In case, the patient included in the study did not come for the first follow-up, then patient was approached for the same. A suitably designed and validated Knowledge, Attitude and Practice questionnaire (KAP Questionnaire)^{8,9,10} had been administered at baseline and final follow up for both test and control group patients to assess the disease management awareness. The KAP questionnaire had a total of 25 questions (Knowledge-14, Attitude-5 and Practice-6). Each 'Yes' answer was given a score of 'one' and 'No' answer was given a score of 'zero'. The questionnaire had been translated into Hindi. Patients taken for the study had been treated as per standard treatment schedule.

Results

We studied a total number of 100 patients of diabetes mellitus type2 at M.M. Institute of Medical Sciences and Research, Mullana, Ambala. Out of 100, they were randomly assigned to either test or control group. Each group consisted of 50 patients. The mean age was 48.96 years and standard deviation (SD) was 11.18 years. Out of 100 patients studied, 59 were males and 41 were females. In the study subjects more number of patients (53 i.e. 53%) were having diabetes equal to or less than 5 years, followed by 28 patients (28%) with the duration of 6-10 years, 8 patients (8%) with duration of 11-15 years, 9 patients (9%) with duration between 16-20 years and only 2 patients (2%) had diabetes for about 21-25 years. In this study 64 patients (64%) were educated: 46 patients (46%) up to school and

18patients (18%) were graduated and 36 patients (36%) were illiterate.

Table 1: Comparison of Knowledge, Attitude, Practice, KAP Score and RBS between Control and Test Group

Group		Control	Test
1	BASELINE KNOWLEDGE SCORE (Mean ± SD)	6.56± 4.06	6.48± 4.49
	FINAL FOLLOW UP KNOWLEDGE SCORE (Mean ± SD)	7.12± 3.98	12.12± 2.12
2	BASELINE ATTITUDE SCORE (Mean ± SD)	2.24± 1.65	2.18± 1.36
	FINAL FOLLOW UP ATTITUDE SCORE (Mean ± SD)	2.24± 1.33	4.12± 0.87
3	BASELINE PRACTICE SCORE (Mean ± SD)	1.74± 1.26	3.1± 1.5
	FINAL FOLLOW UP PRACTICE SCORE(Mean ± SD)	1.92± 1.34	4.46± 1.01
4	BASELINE KAP SCORE (Mean ± SD)	10.46± 6.19	11.96± 6.84
	FINAL FOLLOW UP KAP SCORE (Mean ± SD)	11.36± 6.12	20.78± 3.13
5	BASELINE RBS (Mean ± SD)	228.58± 83.58	265.79± 130.76
	FINAL FOLLOW UP RBS (Mean ± SD)	175.56± 48.12	152.06± 36.42

p<0.0001

The table 1 shows that at baseline, the mean knowledge score was 6.56±4.06 in the control group and 6.48 ± 4.49 in the test group, the mean attitude score was 2.24 ± 1.65 in the control group and 2.18 ± 1.36 in the test group, the mean practice score in the control group was 1.74 ± 1.26 and 3.1 ± 1.5 in the test group, the mean total KAP score was 10.46 ± 6.19 in the control group and 11.96 ± 6.84 in the test group. At final follow up, the mean knowledge score was 7.12 ± 3.98 in the control group and 12.12± 2.12 in the test group, the mean attitude score was 2.24 ± 1.33 in the control group and 4.12 ± 0.87 in the test group, the mean practice score was 1.92 ± 1.34 in the control group and 4.46 ± 1.01 in the test group, the mean total KAP score was 11.36 ± 6.12 in the control group and 20.78 ± 3.13 in the test group. Statistically, there was significant difference in knowledge, attitude, practices and total kAP score between the test and control group at final follow up with p value less than 0.0001.

The mean RBS was 228.58 ± 83.58 mg/dl in the control group and 265.79 ± 130.76 mg/dl in the test group but at final follow-up the mean RBS

was 175.56 ± 48.12 mg/dl in the control group and 152.06 ± 36.42 mg/dl in the test group. Statistically, there was significant difference in RBS between the test and control group at final follow up with p value equals to 0.0070.

Discussion

The present study was aimed at evaluating knowledge, attitude and practices in diabetic patients for diabetes mellitus and to assess the benefitting effect of diabetic education on KAP score.

This study consisted of 100 type 2 diabetic patients which were randomly assigned into the test and control group. The test group patients were given education regarding disease, drugs, diet, exercise and the patient education leaflet at baseline and same was given to control group at the end of the study. In both the groups, at each visit (two follow up visits with two month intervals), random blood glucose was measured and a KAP questionnaire was administered at baseline and the final follow up with a maximum possible score of 25 (knowledge – 14, attitude – 5 and practices -6) The mean age was 48.96 years.

This signifies that diabetes mellitus is more common after 45 years of age. In the study subjects 59 (59%) were males and 41 (41%) were females. In our study, 54% patients were overweight, 9% patients were obese, 2% were underweight and remaining had normal BMI. The mean BMI was 26.5kg/m². It shows that overweight patients are more prone to diabetes. Our findings were similar to previous studies. Kamal M Modhet al¹ and Odenigbo Marian A et al¹¹ found 53.33% and 57.5% overweight patients in their studies respectively. In the studied subjects 65% of the patients were having sedentary lifestyle (housewives- 35% and service- 30%). It shows DM is more common in sedentary lifestyle population. Our findings were similar to the study done by Viral N Shah et al¹² who found that maximum number of patients was housewives (43.90%).

In the studied subjects, the mean knowledge, attitude and practice score at the baseline was 6.52 (46.57%), 2.21 (45.2%) and 2.42 (40.33%) respectively. The mean KAP score at the baseline was 11.21 (44.84%). The study observed poor knowledge score, attitude score and practice score of the patients. The same results were observed in the previous studies. Odenigbo Marian A et al¹¹ found poor knowledge (57%), attitude (56.6%) and practices (51%) towards diabetes mellitus in the diabetic patients in Nigeria. Bhuwan Sharma et al¹³, Dinesh K Upadhyay et al¹⁴, Viral N. Shah et al¹² and F H Puepet et al¹⁵ observed poor levels of knowledge, attitude and practice in the studied subjects before education. Mumtaz Ali Chhuttoet al¹⁶ observed poor awareness in the diabetic patients for diabetes mellitus.

In our study, the mean knowledge score at baseline was 6.56 in the control group and 6.48 in the test group. At the end of the study, the mean knowledge score was 7.12 in the control group and 12.12 in the test group. There was significant improvement in the knowledge score in test group ($p < 0.0001$) at the end of the study as compared to the control group. This demonstrates that diabetes education plays a vital role in improving

knowledge level of the patients. Our findings were similar to previous studies done by Bhuwan Sharma et al¹³, Titien Siwi Hartayu et al¹⁷, Subish Palaian et al⁹, R Adepu et al¹⁸, F H Puepet et al¹⁵ and Prianka Mukhopadhyay et al¹⁹ who found a significant increase in the knowledge level of the patients who were provided diabetic education..

The mean attitude score in the control group was 2.24 both at the baseline and final follow up. In the test group, the mean attitude score was 2.28 and 4.12 before and after education respectively. Thus, there was significant improvement in the attitude score in the test group ($p < 0.0001$) while in the control group no improvement was observed. This signifies that diabetes education can improve patient's attitude towards diabetes mellitus. Our findings were similar to previous studies done by Bhuwan Sharma et al¹³, Titien Siwi Hartayu et al¹⁷, R Adepu et al¹⁸, F H Puepet et al¹⁵ and Prianka Mukhopadhyay et al¹⁹ who observed that diabetic education can improve patient's attitude towards diabetes mellitus.

In our study the mean practice score at baseline was 1.74 in the control group and 3.1 in the test group. At the end of the study, the mean practice score in the control group was 1.92 and in the test group was 4.46. This shows the significant improvement in the practice score in the test group ($p < 0.0001$) as compared to the control group. This demonstrates that diabetes education can improve practices of the patients towards diabetes mellitus. Our findings were similar to previous studies. Bhuwan Sharma et al¹³, Titien Siwi Hartayu et al¹⁷, R Adepu et al¹⁸, F H Puepet et al¹⁵ and Prianka Mukhopadhyay et al¹⁹ found that health education plays a significant role in improving patient's practices towards diabetes mellitus.

The total KAP score observed in the control group was 10.46 at the baseline and 11.36 at the end of the study. In the test group, the total KAP score was 11.96 at the baseline and 20.78 at the end of the study. There was significant improvement in the total KAP score in the test group ($p < 0.0001$) as compared to the control group. This signifies

that diabetes education plays a significant role in improving patient's knowledge, changing their attitude towards diabetes mellitus and self-care practices. Our findings were similar to previous studies. Bhuwan Sharma et al¹³ Titien Siwi Hartayu et al¹⁷ by R Adepuet al¹⁸ by F H Puepetet al¹⁵ Mukhopadhyay et al¹⁹ by Subish Palaian et al⁹ concluded that health education plays a significant role in increasing KAP of the diabetic patients. In the studied subjects, mean RBS at the baseline was 228.58 mg/dl in the control group and 265.79 mg/dl in the test group. At the end of the study, the mean RBS was 175.56 in the control group and 152.06 in the test group. There was significant improvement in the RBS in the test group ($p=0.0070$) at the end of the study as compared to the control group. This demonstrates that diabetes education is important in reducing glucose levels and attaining better glycemic control. Our findings were similar to previous studies done by Mazzuca SA et al²⁰, by Jaber LA et al²¹, by F H Puepetet al¹⁵ and Mehuys al²² reported significant reduction in fasting plasma glucose and glycosylated hemoglobin in the patients who received diabetic education. Karter AJ et al²³ found that self-monitoring of blood glucose was associated with better glycemic control. So we concluded that the diabetic patients had low levels of knowledge, attitude and practices for diabetes mellitus. So, there is an urgent need for large scale health education programs to increase the awareness of diabetes mellitus in our population. The health education can improve patient's knowledge, attitude and practices in the diabetic patients for diabetes mellitus as there was significant improvement in the KAP score in the patients who were provided information leaflet. There was significant reduction in the RBS levels of the patients who were provided information leaflet. Thus, the health education is much effective in attaining better glycemic control and to adopt a healthy lifestyle. So, the physicians should also emphasize on patient's education along with management to attain good glycemic control.

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