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Impact of Education on Knowledge, Attitude, Belief and Practice (KABP) of Diabetic Patients

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ABSTRACT: A proper understanding of the knowledge, attitude, belief and practice (KABP) of diabetic patients is considered vital in accomplishing the goal of management. The aim of the study was to assess the KABP of diabetic patients towards their disease, treatment, life style and diet and to evaluate the impact of clinical pharmacist provided education on diabetic patient's KABP.This study describes the KABP among 78 patients attending the Jalaram hospital at Surat. A face-to-face interview using a structured questionnaire was carried out for data collection. A 31-items questionnaire was designed to assess the KABP and administered at the start of the study. A clinical pharmacist educated the patient regarding their disease, life style, diet and medications. The KABP questionnaire was re-administered after 30 to 40 days to assess the impact of patient education. The results revealed that 20 (25.7%) of the respondents were able to answer 50% or more questions correctly. After education, 64 (82%) of them had 50% or more score indicating an improvement by 56.4%. At baseline, majority of the study patients 58 (74.4%) and 65 (83.3%) were not aware of what diabetes is and its types, respectively. After pharmacist provided education there was a significant ($p<0.001$) increase in the awareness. In our study, patients with higher education exhibited more improvement in KABP than patients of lower education group after counseling session. At baseline assessment we observed that knowledge of patients towards diet was good which is followed by medication, life style and disease respectively. After pharmacist provided counseling this knowledge improved and maximum improvement was found in area towards disease.The result of the study point out that patient education improved the knowledge of patients regarding their disease, treatment, life style and diet and hence would be a useful tool in achieving good management and quality of life (QOL) in diabetic patients.

Key words: KABP, Pharmacist, Questionnaire, Counseling and Quality of life

INTRODUCTION

In both developed and developing countries, health care professionals are making constant efforts to understand the nature of individual behaviors [1]. Changing the unhealthy behaviors of the individuals into a healthier behavior is the major concern, because the success of any medical interventions is based on the individual behaviors [2]. Several hypothetical health behavior theories and conceptual models developed by social and behavioral scientists facilitate in better understanding of individual health related behavior [3,4,5]. These models assist in identifying barriers and patient's readiness to make change in behavior as well as sociopsychological and demographic variables influencing individual behaviors. Furthermore health behavior model recommend more and useful strategies for achieving patient adherence related to medical interventions. Knowledge,

attitude, belief and practices (KABP) assessments are the most frequently used models in health related behavioral research [6]. Lack of knowledge, understanding, negative attitude and belief about the disease process and its treatment is reported to result in non-adherence to therapy. Understanding knowledge, attitude, belief and practices of patients and providing health education at the individual level is a primary intervention strategy that effectively motivates the individual in altering their behavior.The prevalence of diabetes mellitus (predominantly type 2 diabetes) is increasing worldwide. Globally, the prevalence of diabetes in adults aged 20 years and over was estimated to be 4% in 1995 and is projected to rise to 5.5% by 2005 [7]. Prevention is important because diabetes is costly both in human and monetary matters. At present, diabetes prevention is centered on preventing the development of diabetes complications. There is evidence to support that type 2 diabetes plays an important causal role in Hypertension, dyslipidemia, upper-body obesity, and through these risk factors, coronary artery disease [8]. Exercise and diet interventions reduce the rate of progression from impaired glucose tolerance to type 2 diabetes. Worldwide surveillance of diabetes is a necessary first step toward its prevention and control, which is now recognized as an urgent priority [9].There is an increasing amount of evidence to suggest that patient education for people with a chronic disease such as diabetes is an essential component of effective disease management. The comprehensive reviews of the patient education literature converge on 2 general findings. First, any education is better than none i.e., education in any form (pamphlets, films, lectures, behavioral modification techniques) is more likely to produce improved regimen compliance and physiologic outcomes than is routine chronic care without formal patient education. The second general finding is that all types of patient education programmes are not equal [10]. As such, there is a need to investigate the knowledge, attitude, Belief and practice (KABP) among diabetic patients to aid in future development of programmes and techniques for effective health education. KABP surveys are effective in providing baseline for evaluating intervention programmes [11]. It has also been demonstrated to reveal aspects of education that need to be reinforced [12].

MATERIAL AND METHODS

The study was carried out in the Jalaram Hospital, Surat. Before recruitment, each patient was informed about the purpose of the study and consent to participate was obtained.

Recruitment

This was a prospective study. A total of 78 patients, who satisfy the inclusion criteria, were enrolled for the study from the Jalaram Hospital, Surat. Criteria for recruitment to the study include diabetic patient who visit Jalaram Hospital once or twice in a month and who can speak local language Gujarati, Hindi or English.

Assessment

Designing of questionnaire

A 31-item interviewer-administered KABP questionnaire, using a combination of closed and open ended questions, was developed for the study purpose. Prior to the study, the questionnaire was evaluated for its content validity with the help of a pilot

study. The questionnaire has two sections. The first section consists of patient demographics. The second section comprised of 31 questions related to the patient's knowledge, attitude, belief and practice with respect to the disease and treatment.

Administration of questionnaire

The questionnaire was administered at the beginning of the study, in order to identify the patient's knowledge, attitudes, belief and their practice of living with the diabetes disease. 30 to 40 days after counseling, the questionnaire was re-administered to the patient to assess the impact of the patient education on KABP of diabetic patient. The post KABP data was compared with pre-KABP data to evaluate for any change in patients perception about their disease, treatment, life style and diet, after the education.

Counselling

Patients were educated by clinical pharmacist about their disease, life style, diet and drugs on each follow-up i.e. at base line and 30 to 40 days after the study entry. Patient education time was restricted to 25 to 30 minutes for each patient. Only verbal counseling was provided to the patients.

Composite score for knowledge of diabetes

The answers to the questions were analyzed and a scoring system was used as follows:

a) For closed questions, 1,2,6,7,8 (for diabetes disease related), 9,10,11,12,13,14,15,19 (for medication related), 20,23,24 (for life style related), 26,28,29,31 (for diet related) correct answers were graded as 1 and incorrect answers (inclusive of "Don't know") as 0.

b) For 3rd question, which was on sign and symptoms of diabetes and total score of 1.25 for this question, it consists of 5 options and for each option graded as 0.25 score.

c) for 4th and 5th question, which was on causes and complication of diabetes respectively and total score given for each question is 1, it consist of 4 option and for each option graded as 0.25 score.

Statistical analysis

The chi square test was used to compare the differences in correct response for each question at the baseline and 30 to 40 days after the education. P value was considered significant at the level of 0.01.

RESULTS AND DISCUSSION

Of the 80 diabetic patients enrolled, 78 patients completed the study. During the study period 02 patients lost to follow-up, only the data of patients who completed follow-up were included for analysis.

Demographic characteristics

The sample consisted of 49 (62.8%) males and 29 (37.2%) females, with a mean age of 52.73±1.25 years and BMI 25.51±0.51. A total of 78 were undergoing visit in Jalaram hospital, Surat. The details of the participants are presented in Table 1.

Knowledge and belief of the patients towards their diabetes disease

At baseline, majority of the study patients 58 (74.4%) and 65 (83.3%) were not aware of what diabetes is and its types respectively. After pharmacist provided education there was a significant ($p<0.001$) increase in the awareness.

At baseline, most of the respondents 50 (64%) knew that diabetes could leads to other medical problems and affect other organ of the body. After the education, there was a clinically significant increase in the response.

The details of the results are shown in Table 2.

Knowledge, belief and practice of patients towards medication

Before education, it was found that only few 20 (25.64%) diabetic patients recalled the appropriate name and 24 (30.7%) patients know the indications of all the medications they received.

When we asked the patients regarding the action taken for missed dose, only few 9 (11.6%) patients had an appropriate practice of medication taking such as taking the medications soon as they remember, 63 (80.8%) patients skipping their medication and 6 (7.7%) patients skipping the medication if it is almost time for the next dose.

17 (21.8%) patients had a negative attitude towards the treatment and they believed that, medication treatment could be discontinuing once their glucose level comes at normal, but this response decrease to 5 (6.4%) after education as shown in Table 3.

Knowledge, attitude, belief and practice of patients towards life style

A few patients (n=4) had misconceptions regarding their life style such as exercise is not beneficial to decline blood glucose level and 27 patients did not know whether exercise is beneficial to decline blood glucose level or not. This lack of knowledge or negative belief may worsen their quality of life.

Self monitoring of blood glucose is a simple and practical procedure acceptable for those patients who can afford it and facilities the attainment of good glycemic control, but unfortunately in our study patients, the practice of using glucometer was not good as only 11(14.1%) patients in pre KABP and 15 (19.2%) patients in post KABP were regularly monitoring their blood glucose at home. The detail of the results is shown in Table 4.

Belief of patients towards diet

Before the education, we found that most of our study patient 76 (97.4%) believe in the necessity of dietary restriction, a 71 (91%) patients believed in the necessity of restriction in sugar and fat, a 30 (38.4%) in salt restriction in their daily life, a 41 (52.6%) patients believed that dietary fiber intake is necessary to reduce blood glucose level. Amongst 78 patients, 64 (82%) patients prefer vegetarian and 14 (17.9%) patient prefer non vegetarian diet.

After the education, only clinically significant increase in the response but does not show any statistical significance for all the questions related to diet as shown in Table 5.

Education level of patients and KABP

The associated between education level and the number of correct answers given by patients at baseline and after the education session was analyzed by using ANOVA.

In our study, patients with higher education exhibited more improvement in KABP than patients of lower education groups, after counseling session. Education had a great association with the KABP of patients. Higher the education level, higher the correct number of the answer given by the patients as shown in Figure 1.

At baseline assessment we observed that knowledge of patients towards diet was good which is followed by medication, lifestyle and disease. After pharmacist provided counseling this knowledge improve-maximum improvement was found in area of knowledge towards disease as shown in Figure 2.

CONCLUSION

Pharmacist provided patient education sessions improved the KABP for the majority of diabetic patients with respect to their disease, management, lifestyle and diet.

It is a major challenge for health care providers to improve the knowledge of the patients with respect to their disease and treatment in total. Therefore different interventional strategies need to be developed and tested, which not only facilitates in identifying misconceptions and information gaps related to disease and its treatment, but also assist in changing beliefs. The study also demonstrates the vital role of clinical pharmacists in educating the diabetic patients. The study may be useful in developing more effective education strategies for diabetic patients. This is all the more important in the light of the possity of time available to physician to address this issue in an out-patient setting.

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Table: 1 Summary on distribution of characteristics among diabetic patients

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Table: 2 Knowledge and Belief of Patients towards their Diabetes disease

Characteristics	No. of patients	Percentage
Age distribution		
30-39	09	11.5%
40-49	20	25.7%
50-59	27	34.6%
60-69	18	23%
70-79	04	5.1%
Education level		
Illiterates	11	14.1%
Up to secondary	51	65.3%
Up to higher secondary	08	10.2%
Graduate	08	10.2%
BMI(kg/m^2)		
<18.5 (under wt.)	08	10.2%
18.5-25 (normal wt.)	30	38.6%
25-30 (over wt.)	29	37.1%
>30 (obese)	11	14.1%

KABP items	Pre- KABP Response (%) N=78	Post-KABP Response (%) N=78	P-Value
01) Do you know what Diabetes is?			
Yes*	20 (25.7%)	61 (72.8%)	<0.001
No	58 (74.3%)	17 (21.8%)	
02) Do you know what are the types of Diabetes?			
Yes*	13 (16.7%)	42 (53.9%)	<0.001
No	65 (83.3%)	36 (46.1%)	
03) The common sign and symptoms of Diabetes is			
Polyphagia	54 (69.2%)	67 (85.9%)	<0.50
Polydipsia	51 (65.3%)	65 (83.3%)	<0.10
Polyuria	50 (64.1%)	57 (73%)	<0.50
Weakness	12 (15.3%)	17 (21.8%)	<0.50
Weight loss	17 (21.8%)	33 (42.3%)	<0.50
Don't know	11 (14.1%)	02 (2.6%)	
04) The major cause of Diabetes is:			
Destruction of β cell.	17 (21.8%)	24 (30.8%)	<0.50
Emotional stress	38 (48.8%)	45 (57.7%)	<0.50
Obesity	56 (71.8%)	68 (87.1%)	<0.50
Hereditary	47 (60.2%)	48 (61.6%)	<0.50
Don't know	14 (18%)	04 (5.1%)	
05) Diabetes, if not treated:			
Can lead to Kidney problems.	30 (37.1%)	52 (66.7%)	<0.01
Can lead to Eye problems.	30 (37.1%)	44 (54.4%)	<0.05
Can lead to Heart problems.	10 (12.9%)	34 (43.6%)	<0.001
Can lead to Foot ulcers.	15 (19.2%)	26 (33.3%)	<0.01
Don't know	28 (35.9%)	06 (7.7%)	
06) Do you know what is the normal range of FBS?			
Yes*	23 (29.4%)	46 (59%)	<0.01
No	55 (70%)	32 (41%)	
07) Do you know what is the normal range of PPBS?			
Yes*	19 (24.3%)	25 (32%)	<0.50
No	59 (75.7%)	53 (68%)	
08) Are you aware about Diabetic foot?			
Yes*	29 (37.1%)	56 (71.8%)	<0.01
No	49 (62.9%)	22 (28.2%)	

Table: 3 Knowledge, Belief and Practice of Patients towards their Medication

KABP items	Pre- KABP R (%) N=78
09) Do you know how many different medication (With name) you are currently taking?	
Yes*	20 (25.7%)
Don't know	58 (74.3%)
10) Do you think these medications have to be taken regularly?	
Yes*	69 (88.4%)
No	04 (5.1%)
Don't know	05 (6.4%)
11) Do you know the indication for each of the medicine you take?	
Yes*	24 (30.7%)
Not for all the medications	05 (6.4%)
Don't know	49 (62.8%)
12) Do you skip your medication?	
Yes, very often	08 (10.2%)
No*	44 (56.4%)
Sometimes, specify,	
Once in a week	16 (20.5%)
Once in a month	10 (12.9%)
13) Does anyone help you in taking your medication regularly?	
Yes	21 (26.9%)
No*	57 (73%)
14) What do you do if you miss your medication?	
Skip	63 (80.8%)
Take when remember*	09 (11.6%)
Double the dose	00
Skip if it's time for next dose*	06 (7.7%)
16) Which route you prefer for drug administration?	
Oral	75 (96.1%)
Parenteral	03 (3.9%)
17) At what time you administered your medication?	
Before meal	69 (88.4%)
After meal	09 (11.5%)
18) How many times you administered your medication per day?	
One times	28 (35.9%)
Two times	47 (60.2%)
Three times	03 (3.9%)
19) Once you get normal blood glucose level, can you stop the medications?	
Yes it can be stopped	17 (21.8%)
No it should be continued*	55 (70.5%)
Don't know	06 (7.7%)
20) Do you exercise regularly?	
Yes*	46 (59%)
No	32 (4%)
If yes, then what type?	
Aerobic exercise	46 (59%)
Walking	00
Running	

*indicate correct response

Table: 4 Knowledge, Attitude, Belief and Practice of Patients towards their life style

KABP items	Pre- KABP Response (%)

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Swimming	00
Anaerobic exercise	
Weight lifting	00
21) How is your life style?	
Sedentary	24 (30
Stressful	14 (17
Enjoyable	40 (51
22) How many hours you work per day?	
Less than 5 hrs.	
5 hrs. or more	41 (52
	37 (47
23) How do you monitor your blood glucose level?	
Self	
Laboratory	11 (14
	67 (85
24) Do you think exercise is beneficial to decline blood glucose level?	
Yes*	47 (60.2%)
No	04 (5.1%)
Don't know	27 (34
25) Do you have any habits?	
Smoking	14 (17
Chewing tobacco	22 (28
Alcoholic	04 (5.
Not any above*	53 (67

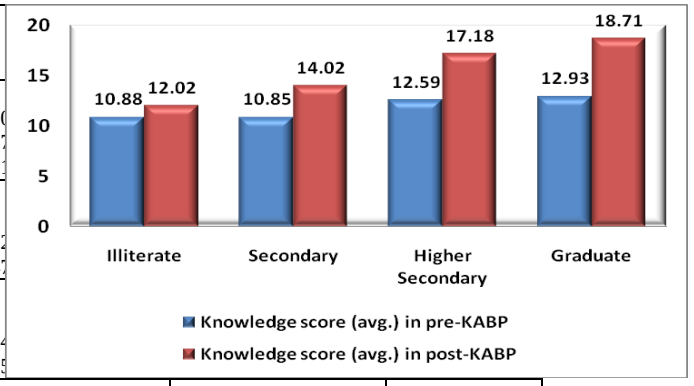
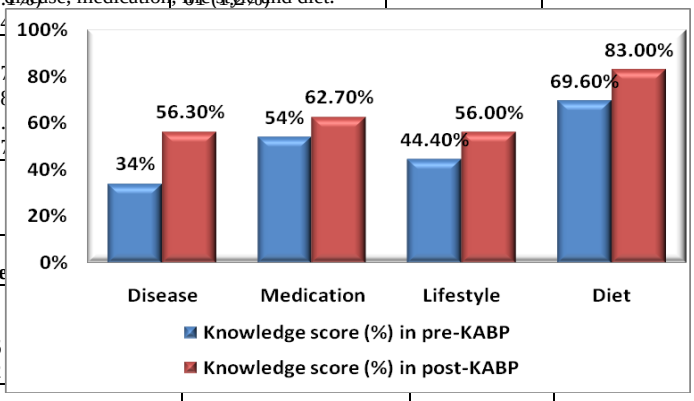


Figure:2 Comparison of Correct response (%) by respondents in Pre-KABP and Post-KABP towards disease, medication, life style and diet.

*indicate correct response

Table: 5 Knowledge, Attitude, and Belief of the Patients towards Diet



KABP items	Re		
26) Do you think dietary restriction is necessary for you?			
Yes*			
No	76		
	02		
27) Which type of diet you prefer?			
Vegetarian	64 (82%)	64 (82%)	
Non vegetarian	14 (17.9%)	14 (17.9%)	
28) Do you think dietary control of sugar and animal fat is necessary for you?			
Yes*			
No	71 (91%)	77 (98.8%)	>0.50
Don't know	01 (1.2%)	00	
	06 (7.7%)	01 (1.2%)	
29) Do you think fiber rich diet (green leafy vegetables, pulses) is beneficial to decline blood glucose level?			
Yes*			
No			
Don't know	41 (52.6%)	50 (64.1%)	>0.50
	01 (1.2%)	01 (1.2%)	
	36 (46.1%)	27 (34.6%)	
30) How many times you take meals?			
Less than 3 times			
3 to 4 times	37 (47.4%)	37 (47.4%)	
more than 4 times	36 (46.1%)	36 (46.1%)	
	05 (6.4%)	05 (6.4%)	
31) Do you think restriction in salt intake is necessary to prevent hypertension in diabetic patients?			
Yes*			
No	30 (38.4%)	54 (70.50%)	<0.05
Don't know	16 (20.5%)	09 (11.5%)	
	32 (41%)	15 (19.2%)	

*indicate correct response

Figure:1 Comparison of average score by respondents in Pre-KABP and Post-KABP based on education level.