

**RESEARCH ARTICLE**

**EVALUATING THE IMPACT OF COUNSELING  
ON QUALITY OF LIFE IN TYPE-2 DIABETES MELLITUS PATIENTS**

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*(Received on: 03-06-13; Revised & Accepted on: 11-06-13)*

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**ABSTRACT**

**Aims and objective:** This study was undertaken to evaluate the impact of a model program of diabetes education on diabetes control.

**Methodology:** One thousand and fifty patients with diabetes mellitus were evaluated using a standardized questionnaire. Each patient was counseled about nature, course, complications, method of monitoring and precautions to prevent complications. We also provided a booklet to each patient that contains all required information. Five hundred eight patients came for two follow up visits after 1 month and 6 months of counseling over a period of 3 years. Measures of diabetes knowledge, skills, attitude, and their blood glucose level were obtained and evaluated during follow-up.

**Results:** At the end of study knowledge, attitude and practices were found to have markedly improved. The major impact of counseling was seen in diabetic monitoring with blood and urine glucose test and knowledge about hypoglycemia. Both glycosylated hemoglobin and random blood glucose levels decreased ( $P < 0.05$ ).

**Conclusion:** The results of this study suggest that, counseling by physician has great impact in improving knowledge about disease, life style changes, and management practices and in turn on glycemic control in diabetic patients. Patient counseling might be considered as an improvement in implementing the disease management program.

**Key words:** Counseling, Glycemic control, Follow up.

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**INTRODUCTION**

Diabetes mellitus is the most common endocrine disorder which involves multiple organ systems and leads to significant morbidity and mortality due to accompanying complications.<sup>[1]</sup>

Since the early days of insulin therapy, health care providers have discovered that simply prescribing the correct dose of insulin, oral agents or correct meal plans are not enough to achieve adequate metabolic control or to prevent medical crisis resulting from diabetes mellitus<sup>[1,2]</sup> Significant knowledge deficit in self management skills such as medication administration, glucose testing, diet, complications with smoking and alcohol addiction and care about complications have been noticed in diabetic patients<sup>[2]</sup>

Diabetes education can promote long term benefits in self care, metabolic control, prevention of diabetic complications, so this education programme should be designed properly according to knowledge and attitude of patients. In a developing country like India, where literacy rate is low, vulnerable groups are in abundance. Diabetes mellitus can give rise to a disaster, which will affect the population in all dimensions. An Indian study has shown that the prevalence is uniformly high in all its urban regions. In addition, the prevalence of IGT is also high, indicating potential for a further increase in the number of diabetic patients.<sup>[3]</sup> The estimate of actual number of diabetic patients is around 40 million and crude prevalence rate is about 9%.<sup>[8]</sup>

**METHODOLOGY**

This prospective study was carried out over a period of three years. A total of 1050 patients with diabetes mellitus were included. Out of these 508 patients (48.38%) came for follow up. All patients of diabetes mellitus were included without any bias for sex, age, duration, severity and education status. Institutional Research and Ethics Committee approved the study and issued a Letter of permission to conduct the study.

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A suitably designed knowledge, attitude and practices questionnaire was administered at baseline and at the follow up. Patients came for follow up after 6 months over a period of 3 years and all patients to assess disease awareness, its monitoring, complication, bad effects of alcohol and tobacco addiction, diet and pharmacological management. Each patient was counseled about nature, course, complications, method of monitoring and precautions to prevent complications for at least 30 minutes. Booklet (Hindi) containing same information was also given to each patient.

All patients were subjected to routine biochemical tests e.g. blood glucose, ECG etc. The level of HbA1c was also included in this study at minimal cost. At the end of 6 months changes obtained between responses of questionnaire, their mean blood glucose level and level of HbA1c were evaluated.

*We have different experience when we were asking the above questionnaire. Patients replied variety of answers like:*

**What is diabetes?**-Some patients said that it is a disease of heart, or it is due to excessive use of sugar, only one patient is able to answer that it is due to altered secretion of insulin and it is transmitted from one generation to next.

**What kind of food is to be eaten and avoided?** - Most of the patients were able to answer correctly .They know which kind of food they have to avoid.

**What is the importance of quitting addiction?** - A good number of patients were involved in various kind of addiction and they have very limited knowledge about the complication of addiction.

**What is the importance of weight management?** - Most of the patients were obese and have shown less interest in reducing weight.

**What are the complications of diabetes?** - Many patients replied that it is very dangerous disease; they did not have exact knowledge about complication.

**How long he has to take medications?** - Most of the patients replied that they have to take medicines till blood sugar comes to normal range. They didn't have any knowledge what they will do after that .When I told that they have to take medicines for life long, most of the patients became very panic and felt bad.

**When I asked about visit to doctor regularly?** - Most of the patients said that they have no acute problem so why they should visit to doctor regularly.

**What are the hypoglycemic symptoms?** - A good number of patients have experienced such symptoms occasionally but they did not have exact knowledge about hypoglycemia.

**When I asked about ECG & HbA1c ?**- Most of the patients have got ECG done in last 1 year but at the time of counseling that ECG has faded completely so I advised that they should get photocopy of the fresh ECG's. No knowledge about HbA1c level.

Lastly I asked **does he/she monitor diabetic status regularly with blood or urine.** Before counseling they were not much aware and interested in monitoring the sugar level but after the counseling they have taken great interest in monitoring and controlling the blood sugar level. Illiterate and villagers have shown good interest in urine sugar monitoring by Benedict's reagent.

## RESULTS

The study included 1050 diabetic patients. Out of which 508 patients came for follow up. The demographic details of both these groups are shown in table-1.

**Table -1:** Demographic detail of cases

Patients	At first visit (n=1050) (%)	At follow up (n=508) (%)
<b>Sex</b>		
Male	671 (63.90%)	312 (61.54%)
Female	379 (36.02%)	195 (38.46%)
<b>Age</b>		
<40years	168 (16.0%)	76 (14.98%)
41-50	190 (18.01%)	87 (17.15%)

51-60	273 (25.99%)	143 (28.21%)
61-70	296 (28.19%)	147 (29.01%)
> 70	123 (11.72%)	54 (10.65%)
<b>Habitat</b>		
Urban	444(42.28%)	263(51.80%)
Rural	606(57.72%)	245(48.2%)

**Table -1:** Demographic detail of cases (P<0.05).

The comparison of patient's response is given in table - 2. It shows marked improvement after patients counseling, in various aspects of patients awareness, knowledge, attitude and practices about diabetes mellitus.

The major impact of counseling was seen in diabetic monitoring with blood and urine glucose test (68.33%) number of patients getting their ECG done and knowledge about hypoglycemia. Before counseling more than 70% patients were aware about natural course of disease, kind of certain foods to be eaten or avoided and importance of quitting addiction, but only 47% patients were doing regular blood glucose and urine glucose tests and 55% got an ECG done both improved to 80% and 88% respectively after counseling. Minimum improvement (7.49%) was seen in patients to make them addiction free

**Table - 2**  
**Comparison of Pre & Post Counseling Data**

Questions	Total patients (n=1050) at first visit (%)	% of patients answered correctly			
		Patients who didn't come for follow - up (543)	Patients who came for follow up (n=507)		
			At first visit	follow up visit after 6 months	Percentage improvement follows up counseling with ranking
What is diabetes mellitus?	77.19	75.15	79.38	93.47	15.32 (10)
What kind of food to be eaten or avoided?	76.03	71.65	80.76	93.13	17.75 (9)
What is the importance of quitting addiction?	69.59	66.56	72.85	92.10	26.42 (8)
What is the importance of weight management?	66.28	64.01	68.73	90.72	31.99 (7)
What are the complications of diabetes?	62.81	59.23	66.67	91.75	37.62 (6)
How long he has to take medications?	61.82	57.96	65.98	91.75	39.05 (5)
No. of patients with no addiction	60.33	56.68	64.26	69.07	7.79 (11)
Does he visit doctor regularly?	57.85	52.54	63.57	89.69	41.08 (4)
What are the hypoglycemic symptoms?	52.89	47.13	59.11	89.00	50.57(3)
Did he get an ECG done	49.42	44.26	54.98	87.97	60.00 (2)
Does he monitor diabetic status regularly with blood or urine sugar?	40.17	33.12	47.77	80.41	68.33 (1)

**Table - 2: Comparison of Pre & Post Counseling Data** Rank is given according to percentage of patient's awareness. (P<0.05).

Glycosylated hemoglobin is the internationally accepted test to assess the glycemic control. We are using both glycosylated hemoglobin and random blood glucose method in this study to assess the glycemic control. The average initial HbA1c level and random blood glucose were 9.7 and 195.19mg% respectively which improved to 7.4 and 156.69mg% the time of follow up. Fig.-1

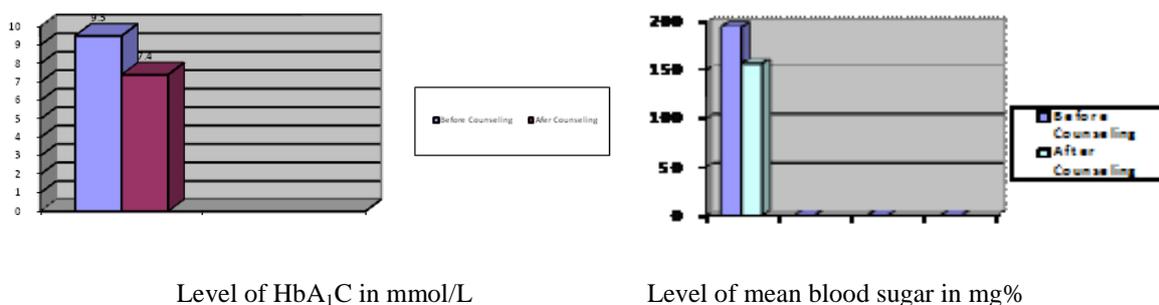


Fig -1: Shows glycaemic status before and after counseling

## DISCUSSION

The management of diabetes mellitus not only requires the prescription of the appropriate nutritional and pharmacological regimen by the physician but also intensive education and counseling of the patient<sup>[2]</sup>

The present study showed marked improvement in patient's knowledge, attitude and practices about diabetes mellitus after their proper counseling. The major impact of counseling was seen in diabetic monitoring with blood and urine glucose test (68.33%) number of patients getting their ECG done and knowledge about hypoglycemia. Before counseling more than 70% patients were aware about natural course of disease, kind of certain foods to be eaten or avoided and importance of quitting addiction, but only 47% patients were doing regular blood glucose and urine glucose tests and 55% got an ECG done both improved to 80% and 88% respectively after counseling. Minimum improvement (7.49%) was seen in patients to make them addiction free. Diabetes education can promote long term benefit in self care metabolic control, and emotional status. If the program is specifically designed to provide these benefits<sup>[7]</sup>

Improving the dietary pattern of the diabetics in our society will not be an easy task. Great efforts would be needed by health teams to enhance education of the diabetic patients in order to promote compliance with recommendations regarding diet and exercise.<sup>[4]</sup> This also highlights the need of having dieticians and educators alongside consultant diabetologists in our diabetes care centers to educate the patients about diet and exercise. Pharmacist provided patient counseling also has an impact in improving the perception about diabetes, diet and life style changes and in turn on glycaemic control and overall quality of life in diabetic patients<sup>[5]</sup>.

Self monitoring of blood glucose is a simple and practical procedure acceptable for those patients who can afford it and facilitates the attainment of good glycaemic control but unfortunately in local population, where the study was conducted (Pakistan), this could be due to the financial constraint of the patients as they have to purchase the costly strips. This problem can somewhat be resolved by using urine strips for glucose checking<sup>[6]</sup>

The knowledge of the subjects visiting the centre for the first time was found to be inadequate. This probably is due to non-availability of educational materials and improper guidance by health care person. The reasons of poor knowledge need to be further studied in detail in our population. Thus there is need for arranging large scale awareness programs for the general public and also to identify and use media to spread the message which could change the attitude of our public in the future.<sup>[7]</sup>

## CONCLUSION

This study shows that persistent lifestyle counseling can and should be a critical piece of any routine diabetes treatment plan. It gets people to goal faster than when they are not given continued encouragement and information on how to increase physical activity levels, eat properly, and reduce lipids and complications with smoking and alcohol addiction. The program was successful in producing improvements in both knowledge and compliance but this program should be according to patient's education status, life style and language.

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**Source of support: Nil, Conflict of interest: None Declared**