

ORIGINAL ARTICLE

Role of Structured Counseling and Health Education in Enhancing Awareness and Self-care among Type 2 Diabetes Mellitus Patients in a Tertiary Care Setting of Rajasthan, India

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ABSTRACT

Background: Control of risk factors by lifestyle and dietary modification is an essential part of Diabetes mellitus Type 2 management. The counseling of patients is needed to impart knowledge and to create awareness regarding self-care in diabetes mellitus cases. Health education using awareness material for the diabetes patients enhances self-care and in turn results in glycemic control of diabetes mellitus. **Objectives:** The study was designed to assess pre- and post-effect of counseling and education material distribution in DM Type 2 patients. **Methodology:** The cross-sectional study was conducted on 210 indoor diabetic patients. Pre and post-intervention evaluation was done by a questionnaire. Intervention was done in form of counseling, online and offline education material distribution. **Results:** There was an improvement in retention of knowledge and patient satisfaction on post-intervention evaluation. On pre intervention evaluation only 29% patients were able to remember sufficient amount of information given by the doctor and only 52% patients were either satisfied or strongly satisfied. After intervention 98.5% patients were able to remember sufficient amount of information given by the doctor and 100% patients were either satisfied or strongly satisfied. **Conclusion:** Distribution of online and offline education material with counselling can improve retention of knowledge and patient satisfaction. Education material distribution with counselling should be part of the health care system.

KEYWORDS

Counselling; Health Education Material; Diabetes Mellitus; Risk factor

INTRODUCTION

Diabetes Mellitus Type 2 prevalence is increasing by the years worldwide. The International Diabetes Federation (IDF) forecast 51 % increment in diabetic patients by 2045.(1) Diabetes Mellitus type 2 (DM Type 2) is leading cause of morbidity and mortality. (2-4) It can be controlled by pharmacological and non-pharmacological treatment. Non pharmacological treatment is essential for every patient of diabetes in form of risk factor control, life style and dietary modification, exercise etc. (5) Communication in form of proper counseling is needed for awareness of these modifications.

Communication barriers like linguistic, psychological, emotional, physical, cultural barriers can impact communication. As India has multiple languages, facilitations by understandable language is important for effectiveness of counseling. Even after the best counseling, retention of knowledge can be a barrier for patients to practice imparted knowledge. Retention of knowledge can be improved by providing educational material to the patients. In current advance era online platform can be used for easy access of knowledge and recall memory in regional languages, but standardization of knowledge is needed for these platforms.

Current study highlight all these issues by pre evaluation of DM Type 2 patients, with possible solutions by looking into impact of proper counseling, online and offline education material.

Aims and objective

1. To evaluate baseline awareness among DM type 2 patients about the disease, needed lifestyle & dietary modification and lookout patient satisfaction.
2. To educate DM type 2 patients by one to one counseling and distribution of education material (both online and offline).
3. To evaluate post intervention awareness among DM type 2 patients about the disease, needed lifestyle & dietary modification and lookout patient satisfaction.

MATERIAL & METHODS

Study type and design: This was longitudinal study with One-group Pretest-Post test design (Quasi-experimental).

Study setting: The study led at the indoor General Medicine ward, in a tertiary care health center.

Study participants: The study participants were already diagnosed DM type 2 patients admitted in the indoor wards of the Department of General Medicine.

Study duration: The study duration was six months (April 2024 to October 2024).

Inclusion and Exclusion criteria: DM type 2 patients having altered sensorium were excluded. DM patients of all age groups who consented for the study were included.

Sample size and sampling: A convenience sampling method was applied to select all eligible patients with DM Type 2 admitted to the indoor wards of the medical college over three months, according to pre-defined inclusion and exclusion criteria.

After ethical clearance by Institute Ethics Committee, the study was performed in 3 phases- 1. Pre intervention evaluation, 2. Intervention, 3. Post intervention evaluation. The 3 phases were conducted by 3 different set of doctors to avoid bias.

Pre intervention evaluation: After written consent all indoor DM type 2 patients were subjected to a questionnaire in form of a checklist (Table 1) about counseling they had about awareness of disease, knowledge of risk factor control, dietary and life style modification, exercise, along with retention of memory and patient satisfaction. Data was collected through one to one interview technique at the time of discharge.

Table 1- Questionnaire for pre and post intervention evaluation.

S. N.	Questions	Yes	No
1.	Did Doctor counsel you, about your diagnosis of diabetes mellitus and nature of this disease?		
2.	Did Doctor counsel you about the risk factors and necessary modifications needed like cessation of smoking, alcohol, regular exercise, stress management as a part of the treatment?		
3.	Did Doctor counsel you about dietary modification in order to restrict calories in your diet (as per your dietary habit- vegetarian or non-vegetarian)?		
4.	Did Doctor counsel you about dietary modification in order to get adequate amount of fibers, vitamins and protein (as per your dietary habit- vegetarian or non-vegetarian)?		
5.	Did Doctor counsel you about importance of sun exposure?		
6.	Did Doctor counsel you about adequate exercise?		
7.	Did Doctor counsel you about importance of small and frequent diets?		
8.	Will you able to remember sufficient amount of information given by the doctor about the disease, risk factor control, exercise, dietary and lifestyle modification at home?		
9.	Did you get any written or printed, online education material or chart for necessary information about the disease, risk factor control, exercise, dietary and lifestyle modification?		
10.	Are you satisfied with the counseling in view of understandable language, clarification of doubts?		
11.	How would you rate your overall experience about counselling of Diabetes Mellitus?		
	1. Strongly dis satisfied		
	2. Dissatisfied		
	3. Neither dissatisfied, nor satisfied		
	4. Satisfied		
	5. Strongly satisfied		

Intervention

After baseline evaluation of diabetic patients by questionnaire, intervention was implemented. In initial phase resident doctors were sensitized and educated for counseling of diabetic patients about diabetes, risk factor control, exercise, dietary and lifestyle modification. Subsequently all the indoor diabetes mellitus patients were counseled for the same. Education material was distributed for better understanding and memorization of given knowledge. (Supplementary file)

Patients were also educated about a WhatsApp chatbot service 'Mishti', which is an online platform for getting knowledge about diabetes mellitus and its management including dietary and lifestyle modification in 12 different languages. 'Mishti' can be easily assessed by scanning a QR code. Stickers of QR code to assess 'Mishti' were also pasted on discharge cards of diabetic patients. (Image 1, 2)

Image 1- Information and QR code of the WhatsApp chatbot service 'Mishti'.



Table 2- Comparison between pre and post intervention responses of DM Type 2 patients

S. No.	Questions	Pre intervention	Post intervention
		Yes	No
1.	Did Doctor counsel you, about your diagnosis of diabetes mellitus and nature of this disease?	100% N=210	0% N=0
2.	Did Doctor counsel you about the risk factors and necessary modifications needed like cessation of smoking, alcohol, regular exercise, stress management as a part of the treatment?	80% N=160	20% N=40
3.	Did Doctor counsel you about dietary modification in order to restrict calories in your diet (as per your dietary habit- vegetarian or non-vegetarian)?	86% N=172	14% N=28
4.	Did Doctor counsel you about dietary modification in order to get adequate amount of fibers, vitamins and protein (as per your dietary habit- vegetarian or non-vegetarian)?	77% N=154	23% N=46

Image 2- Stickers having QR code of 'Mishti' (applied over discharge tickets of diabetic patients.)

Post intervention evaluation



Post intervention data collection was done through same checklist Performa (Table 1). Post intervention data was collected after one month of pre intervention session.

Statistical analysis

Gathered data was analyzed for frequency, percentages and mean. Data was represented in tabulated form.

RESULTS

Total 210 indoor diabetes mellitus patients were evaluated through a questionnaire about counseling they had about awareness of disease, knowledge of risk factor control, dietary and life style modification, exercise, along with retention of memory and patient satisfaction. Mean age of audited patients was 61.4 years with male female ratio 19: 16. Pre and Post interventional response was observed and tabulated for comparison. (Table 2)

5.	Did Doctor counsel you about importance of sun exposure?	69% N=138	31% N=62	100% N=210	0% N=0
6.	Did Doctor counsel you about adequate exercise?	77% N=154	23% N=46	100% N=210	0% N=0
7.	Did Doctor counsel you about importance of small and frequent diets?	83% N=166	17% N=34	100% N=210	0% N=0
8.	Will you able to remember sufficient amount of information given by the doctor about the disease, risk factor control, exercise, dietary and lifestyle modification at home?	29% N=58	71% N=142	98.5% N=197	1.5% N=3
9.	Did you get any written or printed, online education material or chart for necessary information about the disease, risk factor control, exercise, dietary and lifestyle modification?	0% N=0	100% N=210	100% N=210	0% N=0
10.	Are you satisfied with the counselling in view of understandable language, clarification of doubts?	54% N=108	46% N=92	96% N=192	04% N=8
11.	How would you rate your overall experience about counselling of Diabetes Mellitus?		Pre intervention	Post intervention	
	Strongly satisfied	3%; N=6		61%; N=122	
	Satisfied	49%; N=98		39%; N=78	
	Neither satisfied nor dissatisfied	29%; N=58		0%; N=0	
	Dis satisfied	19%; N=38		0%; N=0	
	Strongly dissatisfied	0%; N=0		0%; N=0	

There was post intervention improvement in imparted knowledge, patient satisfaction and knowledge retention.

DISCUSSION

In current study on pre intervention evaluation, all patients agreed that they had counseling about their diagnosis and nature of disease. Eighty percent patients agreed that they had counseling about the risk factors and necessary modifications needed like cessation of smoking, alcohol, regular exercise, stress management as a part of the treatment. Despite counseling of good number of patients, 71% patients admitted that they will not able to remember sufficient amount of information given by the doctor. None of the patient got any written or online education material. The result showed that retention of memory is significant barrier of getting desired impact of counseling. On pre intervention evaluation 3% patients were strongly satisfied and 49% were satisfied. Rests were neither satisfied nor dissatisfied (29%) and dissatisfied (20%).

After intervention in form of counseling and online-offline education material distribution to all patients (100%), on post intervention evaluation 98.5 % patients admitted that they can remember sufficient amount of information given by the doctor. All patients (100%) were either strongly satisfied (61%) or satisfied (39%) with the counseling. The results of current study showed need of online and offline education material distribution with counselling to improve retention of knowledge and patient's satisfaction.

R Malathy et al evaluated 207 DM Type 2 patients and were randomized in test and control group. Test group were counseled at each visit with distribution of information leaflets and control

group were counseled only at the end of the study with distribution of information leaflets. Both group were evaluated by validated knowledge, attitude, and practice (KAP) questionnaire, blood glucose and lipid profile at baseline and at final follow-up. The study results showed that the KAP score, blood glucose and lipid profile improved significantly in test than control. The study reveals that counseling is an important part of diabetes management.(2) Similar results were found by Hening WN et al. The study concluded that pharmacist counseling is one of the important factor in getting better control of FBG and HbA1c levels of DM Type2 patients.(6) Babu MS et al evaluated 900 diabetic patients to evaluate the knowledge, attitude and practices of DM type 2 patients. Among them unawareness about diagnostic criteria of DM, cause of DM, common symptoms of DM, symptoms of hypoglycemia was present in 62.5%, 73.4%, 29.3%, 28.4% patients respectively. Among diabetic patients unawareness about diabetic complications to heart, eyes, kidneys and nerves was present in 29%, 30.7%, 31.2% and 35.7% respectively and 90.8% DM type 2 patients were not exposed to any formal diabetes educational session. This was the major reason for poor awareness of different aspects of diabetes.(7)

Saengtipbovorn S et al studied impact of a 'lifestyle change and dental care program' among diabetic patients. After 6 months, there was significantly higher knowledge, attitude and practice regarding oral health and diabetes mellitus among intervention group than the control group.(8)

Gautam SK et al also highlighted the role of patient knowledge and counseling to improve knowledge, attitude and practice of DM type 2.(9)

The study by Badi S et al was conducted among 182 DM Type 2 patients. The knowledge and attitude of the DM type 2 patients was measured at the onset of the study and after 12 months. The study participants were educated through educational materials about DM type 2 and medication. The mean age of patients was 54.5 ± 10 years. At onset of the study, 14.8% subjects were having high level of knowledge, while 18.7% were having negative attitude. After intervention for 12 months, 28.5% subjects were having high level of knowledge and 16.8% were having negative attitude which was statistically significant.(10)

The results of current and previous studies highlight the importance of counselling and education material to impart knowledge. The current study additionally highlighted the importance of education material to improve retention of memory and patient satisfaction.

CONCLUSION

In current study it was evident that most patients (71%) were not able to remember sufficient amount of information given by the doctors. It was also one of the causes of lower satisfaction level of patients. Intervention in form of doctors sensitization and patients education by regular counseling, distribution of education material using both offline-online platform can effectively overcome this problem and can improve patient satisfaction.

RECOMMENDATION

The study highlights the need of development of standard counseling protocol and education material. It should apply to each patient.

LIMITATION OF THE STUDY

1. Follow up of patients was not taken after discharge.
2. Sample size could be increased.

RELEVANCE OF THE STUDY

The study imparts insight towards needed improvement in diabetic patient's knowledge and its retention by counseling and education material distribution.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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CONFLICT OF INTEREST

There are no conflicts of interest.

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DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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