Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20184574

Impact of health education on attitude regarding oral anti-diabetic drug adherence in type 2 diabetes mellitus, Bengaluru

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Received: 31 July 2018 Accepted: 01 September 2018

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ABSTRACT

Background: Diabetes mellitus, especially type 2 diabetes is an emerging global epidemic and public health problem and associated with high morbidity and mortality among patients. Positive attitude is important for the management of drug adherence in diabetes, hence the present study was taken to assess the effectiveness of health education on oral anti-diabetic drug adherence.

Methods: A descriptive and interventional study was conducted at urban health training centre of a medical college, Bengaluru from November 2015 to March 2016. A total of 70 type 2 diabetes mellitus patients only on oral anti-diabetic drugs willing to give informed consent were included in the study. A pre-tested semi-structured proforma was administered and information about socio-demographic profile, and impact of health education intervention on attitude was obtained.

Results: Most of the subjects were female (80%), in the age group of 35-45 yrs (34%), illiterate (40%), unemployed (67%) with Class IV (78%) socio-economic status according to modified Kuppuswamy Classification 2014. The mean \pm SD age was 52.47 \pm 11.06 years. Significant improvement in attitude regarding adherence to oral anti-diabetic medication was found in study subjects following health education intervention.

Conclusions: The study revealed that health education regarding the importance of drug adherence is needed to build positive attitude in study subjects.

Keywords: Type 2 diabetes mellitus, Oral anti-diabetic drugs, Attitude, Health education

INTRODUCTION

Diabetes is an emerging global epidemic and public health problem. A key dimension of healthcare quality is adherence to prescribed medication. Oral anti-diabetic drugs are the major treatment for type 2 diabetes mellitus patients and these agents are targeted for intensive blood-glucose control which leads to a decrease in microvascular complications, such as nephropathy and retinopathy. However, non-adherence to oral anti-diabetic drugs remains as one of the main reasons for poor glycaemic control.¹

Adherence among patients with type 2 diabetes mellitus is strongly influenced by the level of knowledge of the patient, by misconceptions, beliefs and inaccurate assumptions on the matter. Structured and targeted educational plans play a key role in the adherence level of patients believes that it is vital to educate patients and convince them of the benefits of treatment, as well as maintaining a therapeutic relationship based on communication, trust and motivation. A structured education not only allows significant improvements in metabolic control, but it also increases the adaptation process to the new situation of disease stage and the

development of strategies, so this becomes the main manager of their illness.²

The lack of positive attitude could be an important obstacle for long term management of diabetes. There is a need to increase knowledge and built positive attitude regarding diabetes and its complications as it has significant benefits including increase in adherence to treatment, thereby decreasing the complications associated with diabetes. Education is a keystone for diabetes care and unless adequate education is given self-care essential for diabetes management is not possible. Hence increasing access to diagnosis, self-care, self-management education and affordable and quality treatment are vital components of the response.³

METHODS

A descriptive and educational interventional study was conducted in urban health training centre of the medical college, Bengaluru from November 2015 to March 2016. Type 2 diabetes mellitus patients only on oral anti-diabetic medication ≥6 months and those willing to give informed consent were included in the study. Assuming the prevalence of diabetes 18.6% and a relative precision of 10%, and adding 10% error, a purposive sample size of 67 was calculated and rounded off to 70.⁴

After explaining the purpose of the study, informed consent was obtained. A pre-tested semi structured proforma regarding socio-demographic characteristics such as age, sex, education, occupation, marital status, medical and family history was collected by interviewing the subject with type 2 diabetes mellitus. Families were classified based on socioeconomic status using Modified Kuppuswamy classification 2014.⁵

The proforma included a total of 14 attitude questions on oral anti-diabetic drug adherence. Audio visual aids were used to give health education to study subjects for two weeks with minimum of 5-6 subjects in each session. The contents of the health education were as following: Introduction to diabetes, symptoms, risk factors of diabetes, importance of drug adherence, complications due to non-adherence., diet advice, importance of physical activity, regular monitoring of blood sugar levels and periodic examination. The same proforma was used for post –test. This assessment was carried out after a 3 months following the health education session.

The attitude was assessed using 5 point Likert scale. Current morbidity status among study subjects was assessed by clinical history, general physical, systemic examination, records of investigation done and treatment given. The anthropometric measurements like height and weight, of study subjects were performed using standard procedures. Blood sugar levels estimation was done. Data was entered in Microsoft excel and SPSS 16.0 version was used for analysis.

Paired 't' test was used to assess the improvement mean increase in attitude score before and after health education intervention in study subjects. Normal Q-Q plot of difference between pre-test and post-test attitude score using Shapiro-Wilk test.

RESULTS

The present study included 70 subjects with 56 (80%) female and 14 (20%). The mean age and standard deviation of the study subjects was 52.5±11.0 years. Most of them were married i.e., 51 (72.8%). Majority of study subjects were illiterates 28 (40%), followed by middle school 22 (31.4), primary school 17 (24.3) and 3 (4.3%) high school. Majority of the study subjects were Muslims 64 (91.4%), followed by Hindus 06 (8.6%). Majority of the study subjects 47 (67.1%) were employed in unskilled type of occupation. The socio economic status of most of the subjects was upper lower class according to modified Kuppuswamy classification with updated income ranges for the year 2014.

Family history of diabetes was found in 32 (45.7%) of study subjects, of which 2 (14.9%) were males and 30 (53.6%) were females.

Impact of health education on attitude

The positive attitude was coded from 1 to 5, for the responses, strongly disagree, disagree, undecided or can't say or do not know, agree, strongly agree respectively. For negative attitude the scores were in the reverse order 5 to 1 i.e., strongly disagree, disagree, undecided or can't say or do not know, agree, strongly agree respectively.

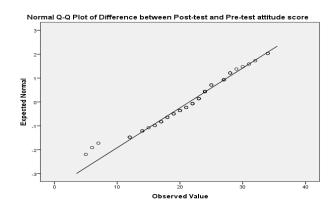


Figure 1: Normal Q-Q plot of difference between posttest and pre-test attitude score.

The data obtained was subjected for normality test. Even though there are few observation slightly away from the line, from Shapiro-Wilk test (p=0.122), it was found that the difference between pre-test and post- test data was normal (normal Q-Q plot). Therefore Student's paired t-test was applied to test the improvement in the attitude of study subjects towards drug adherence (Figure 1).

Table 1: Comparison of pre and post-test attitude score among the study subjects about oral antidiabetic drugs.

Attitude score	Mean	SD	t-value	P value
Pre-test	46.33	5.39	29.939	0.001
Post-test	67.81	2.66		

The mean±SD of pre-test attitude score was 46.33±5.39 and for post-test attitude score was 67.81±2.66. The difference in mean pre-test and post-test was 21.486 with 95% confidence interval was (20.054, 22.917). It was found that there is a significant improvement in the post-test attitude score which is statistically highly significant (t=29.939, p<0.001) (Table 1). This implies that there was significant improvement in attitude following health education in study subjects

DISCUSSION

The diabetes epidemic is rapidly increasing in many countries, with the documented increase most dramatic in low- and middle-income countries.

Diabetes is treatable. Diabetes can be controlled and managed to prevent complications. Increasing access to diagnosis, self-management education and affordable treatment are vital components of the response.

Efforts to prevent and treat diabetes will be important to achieve the global Sustainable Development Goal 3 target of reducing premature mortality from non-communicable diseases by one-third by 2030. Many sectors of society have a role to play, including governments, employers, educators, manufacturers, civil society, private sector, the media and individuals themselves.

Mean age group of the study subjects was 52.47 ± 11.06 years, comparable to the study done by Arulmozhi et al which was 54 ± 12 years.⁷ The study included 20% male subjects and 80% female subjects. Comparable to Kasznicki et al study where females constituted 62% and males 38% of type 2 diabetic patients.⁸

In the present study currently married were 72.8%., similar to the study by Albuquerque et al. In the present study most of the subjects were illiterates 40%, followed by middle school 31.4%. In a study by Arulmozhi et al 39.3% had studied up to primary education level.

Study by Pal et al majority of them belonged to middle/high socio-economic status. ¹⁰ This is in contrary to the present study where 75.7% belonged to upper lower class followed by lower middle 17.1% according to modified Kuppuswamy classification. In a study by Kalyango et al 27.1% were Muslims, contrary to the present study Muslims constituted 91.4%. ¹¹

Regarding family history of diabetes, 45.7% of study subjects reported positive family history. In Pal et al 23.3% reported family history of diabetes.¹⁰

Study by Mukhoupadhahy et al revealed attitude towards dietary modification and exercise was favourable 82.8% and 60.9% respectively. The post-test attitude score was 67.81±2.66. The difference in mean pre-test and post-test was 21.486 with 95% confidence interval was (20.054, 22.917). It was found that there is a significant improvement in the post-test attitude score which is statistically highly significant (t=29.939, p<0.001).

Similarly in a study by Abdo et al after implementation of the educational message, a significant improvement was revealed in patients' knowledge and attitude with lowering of their mean levels of blood sugar and HbA1c. 13

Study by Palaian et al observed after counselling, although knowledge scores in the test group of patients improved, compared with those of the control group, as determined by the Mann–Whitney test (p<0.05), and there was no significant improvement in attitude. This may be due to different intervention method followed i.e., counselling. ¹⁴

ACKNOWLEDGEMENTS

The authors express many thanks and sincere gratitude to the staffs of Department of Community Medicine, Kempegowda Institute of Medical Sciences, Bengaluru. I would also extend my wholehearted thanks to my fellow postgraduates for their immense support, help and encouragement during the study. We also thank all the study participants for their co-operation during the study...

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee by the KIMS Institutional Ethics Committee, Bengaluru

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Cite this article as: Hulugappa L, Ramegowda C. Impact of health education on attitude regarding oral anti-diabetic drug adherence in type 2 diabetes mellitus, Bengaluru. Int J Community Med Public Health 2018;5:4809-12.