FACTORS AFFECTING LIFE STYLE ADAPTATION/CONSISTENCY AMONG CASES OF TYPE 2 DIABETES MELLITUS IN URBAN PAKISTAN

Fahd Akram, Naila Azam, Eisha Mansoor, Asim Minallah, Saira Maroof*, Anam Haider

Armed Forces Post Graduate Medical Institute/National University of Medical Sciences (NUMS) Rawalpindi Pakistan, *Army Medical College/National University of Medical Sciences (NUMS) Rawalpindi Pakistan

ABSTRACT

Objective: To assess the frequency of non-compliance/inconsistency of life style adaptations/consistency among cases of type 2 diabetic patients.

Study Design: Cross sectional study.

Place and Duration of Study: Population of Rawalpindi cantt and nearby localities (Afshan Colony, Shalley Valley Colony, Dheri Hassan Abad) of six months, from Feb 2017 to Jul 2017.

Methodology: Four hundred self declared patients of diabetes who had been diagnosed for >2 years and >40 years of age were approached at their homes using non-probability consecutive sampling method. They were interviewed using structured questionnaire after taking informed consent.

Results: The mean age of the participants was 56.47 ± 9.81 years with predominantly female population of 250 (64.8%). Only 36% of the participants were found to be adherent to life style modification required for diabetic self-management. Socio-demographic factors like gender, age, ethnicity and marital status was not significantly associated with the compliance level of diabetic management, whereas increase in educational status was found to be associated with increase in compliance score (*p*-value=0.016).

Conclusion: The majority of the participants were not following the prescribed lifestyle modification required for the diabetes management and education status has been found to be linked with adherence to life style modification.

Keywords: Adherence, Lifestyle modification, Type 2 diabetes.

INTRODUCTION

The shift from communicable/infectious diseases to non-Communicable diseases like diabetes, cancers and other chronic diseases has become more ubiquitous mostly due to changes in lifestyle and increasing life span, increasing globalization and urbanization[1]. International Diabetes Federation (IDF) has estimated that there are around 425 million people living on earth with diabetes in 2017 and this figure will rise to 629 million in 2045 with this pace[2]. With Pakistan in Middle Eastern North African region, is expected to see a tremendous increase in diabetic population with 110% increase from 2017 to 2045, the second highest rate in the world. Whereas Pakistan, in particular, is estimated to have prevalence of adult diabetic population of 6.9 in 2017. With the ever increasing levels of obesity, sedentary lifestyles and poor diet, type 2 diabetes has been diagnosed in quite younger age groups[2]. Adopting healthy lifestyle like healthy diet, quitting sedentary habits, cessation of smoking and maintain optimum body weight is considered to be the cornerstone of treatment and prevention of complication.

Diabetes has been considered as the most taxing psychologically and behaviourally among all the chronic diseases[3] and almost 95% of the management of diabetes is carried out by the patient himself[4]. The diabetes control and complication trial (DCCT) and different studies[5,6] have emphasized the role of strict adherence to diabetic medication, appropriate diet and physical activity in achieving optimal glycemic control in order to minimize serious long term complications. Adherence has been defined as the

Correspondence: Dr Fahd Akram, Department of Public Health, AFPGMI Rawalpindi Pakistan

Email: fahdakram@ymail.com

"active, voluntary and collaborative involvement of the patients in a mutually acceptable course of behaviour to produce a therapeutic result". 23-77% patient of diabetes are estimated to be non-compliant towards prescribed treatment leading to difficulty in achieving optimal glycemic control. Age, gender, family factors and poor patient provider relationship are some of the factors which are found to be contributing to overall non-adherence[7,8]. Adoption of healthier lifestyles like healthier diet, cessation of smoking, regular exercise and regular blood glucose monitoring are key factors in management and prevention of complication related to type 2 diabetes[9,10].

Most of the studies regarding non-adherence to lifestyle modification were done in developed countries and there are very few studies in our part of the world regarding sociodemographic factors influence on this particular aspect. Better compliance to lifestyle modification will result in better management, less complication and reduction of cost of diabetes treatment. Therefore, this study was carried out on sample of patients of type 2 diabetic in rawalpindi to find out the socio-demographic factors that are associated with non-adherence to lifestyle adaptations.

METHODOLOGY

It was a cross sectional study conducted at population of Rawalpindi cantt and nearby localities (Afshan colony, shalley valley colony, Dheri Hassan abad over period of six months from February 2017 to July 2017. Using WHO sample size calculator with 50% prevalence, sample size was computed to be 386 at 95% confidence interval and 5% permissible margin of error. Using non-probability consecutive sampling, door to door search for self-declared was conducted. Patients of diabetes mellitus who were diagnosed for more than 2 years and above 40 years of age (inclusion criteria) were interviewed using semi-structured questionnaire based on likert-scale. Initially the questionnaire was pilot tested on 20 participants to look for conceptual difficulties, obscurities and social acceptability. The questionnaire was divided into three parts, demographic part ,participant's profile in aspects of education, ethnicity, age and family size was taken. Second part was related to participant's disease profile and third part consisted of questions relating to their overall compliance of the standard diabetic care.

Interviews were conducted on 386 patients of type 2 diabetes mellitus who were chosen consecutively and fulfilling the inclusion criteria. All those patients who were known to be type 1 diabetes and who were less than age 40 were excluded. The purpose and goals of the study were clearly communicated to the participants and a written consent was taken before administering questionnaire. SPSS version 20.0 was used to test for association between consistency in life style adaptations and other explanatory variables of this study. Descriptive statistics in terms of frequency and percentage were used to describe qualitative variables like educational status, ethnicity and marital status. Mean along with standard deviation was calculated for quantitative variables.

The association of age, gender, ethnicity, educational status and marital status with total compliance score based on answer related to change in dietary habits, glycemic control, regular blood glucose monitoring, physical exercise and smoking was determined by using chi-square test of significance. The p-value of <0.05 was considered significant.

RESULTS

Of the 400 sampled for the study, 386 questionnaires were completed, giving a response rate of 96.5%. The mean age of the participants was 56.47 ± 9.81 with predominantly female population of 250 (64.8%) and 136 (135.2%) males (table-I). All the participants were more than 40 years of age as decided in inclusion and exclusion criteria and from Rawalpindi Cantt and surrounding localities. Table-I shows the Socio-demographic characteristics of the participants. Total of 173 (44.8) participants declared that one or both of their parents were diabetic. Most of the participants 313 (81.1%) were diagnosed by their

physician and rest were told about their disease by homeopathic doctors and hakeems. On inquiring about the compliance of taking anti-diabetic medication regularly at appropriate time, it was found out that out of 386 only 110 (28.5%) were prompt, 184 (47.7%) were taking medications

Table-I: Socio-demographic characteristics of the respondent.

Variable	Frequency	Perecentage
Age (Years)		
41-50	122	31.6
51-60	129	33.4
61-70	85	22
>71	49	12.7
Ethnicity		
Pashtun	37	9.6
Punjabi	309	80.1
Urdu Speaking	12	3.1
Other	28	7.3
Marital Status		
Un-Married	3	0.8
Married	366	94.8
Divorced/separated /widowed	17	4.40
Education		
No formal education	160	41.5
Matriculate level	92	23.8
Graduation	58	15
Masters	43	11.1
Others	33	8.5
Gender		
Female	250	64.8
Male	136	35.2

irregularly while 92 (23.8%) never took their medication at the prescribed time. When participants were asked about their routine of exercise, only 122 (31.6%) were engaged in regular physical activity and 194 (50.3%) were irregular, while 70 (18,1%) were not doing any kind of routine physical activity at all.

Regular blood sugar monitoring was found out in only 129 (33.4%) of participants and rest of 257 (66.6%) the participants were either irregular or occasionally checking their blood glucose levels. Surprisingly, 205 (53.1%) respondents were taking care of their feet as advised by

physician regularly while 181 (46.9%) were either irregular or not taking care of their feet.

Total compliance score was counted based on the answers related to core diabetic self management activities to be followed by every diabetic patient. Table-II showed the results of association of socio-demographic status with

Table-II: Association between demographic characteristics & compliance of respondent.

Demographics Characteristics	Frequency (%) n=386		p–value
	Non-Compliant	Compliant	
Age			
41-50	81 (66.4)	41 (33.6)	
51-60	80 (61.5)	50 (36)	0.511
61-70	58 (68.2)	27 (31.8)	
>71	28 (57.1)	21 (42.9)	
Gender			
Female	155 (62)	95 (38)	0.318
Male	92 (67.6)	44 (32.4)	
Ethnicity			
Pashtun	19 (51.4)	18 (48.6)	0.198
Punjabi	198 (64.1)	111 (35.9)	
Urdu Speaking	9 (75)	3 (25)	
Other	21 (75)	7 (25)	
Education			
No formal education	111 (69.3)	49 (30.6)	
Matriculate level	73 (79.3)	19 (20.7)	
Graduation	49 (84.4)	9 (15.6)	0.016
Masters	25 (58.1)	18 (41.9)	
Others	22(66.6)	11(33.3)	
Marital Status			
Un-Married	3 (100)	-	
Married	229 (62.6)	137 (37.4)	0.127
Divorced/ separated/ widowed	15 (88.2)	2 (11.7)	

compliance of respondents towards the self management activities. Age, gender, ethnicity and marital status showed no significant association to positive or negative attitudes as p-values are 0.5, 0.3, 0.1 and 0.12, while educational status is significantly associated with compliance levels with p-value of 0.016.

DISCUSSION

This study was about finding the frequency of non-adherence to lifestyle modification required for management of type-2 diabetes in Rawalpindi, which is one of the two twin city catering for multi linguistic and multi ethnic backgrounds, and also finding out the factors like gender, age, educational status, ethnicity and marital status affecting the adherence or compliance of the participants of the study towards self-management goals. In our study, rate of adherence to lifestyle modification was found to be 36% which was almost similar to other international studies on adherence or compliance to lifestyle advices or self management actions with 42%, 42.3% and 35.5% respectively[11-13]. Except for one study[14], most of the international studies reported predominantly female population of diabetics[15-20] similar to our study. We approached the household population in the day time that might be the reason of getting more female participants as compared to males who are mostly away for jobs or businesses during that time of day. The association of higher education level to increased adherence to life style adaptation is in agreement with the study done in Jordan on patients with metabolic syndrome. Non-compliance to dietary recommendation 71.5% in our study was much higher as compared to other international study which showed non-compliance level of 41%, 58.5% and 44.8% respectively[16,17,21]. This obvious variation of dietary non-compliance was most probably due to our joint family system where whole family eats from one kitchen jointly and most of the time they have to eat the same food which everyone in the family is eating. With increasing urbanization, desk jobs, limited space inside houses and less opportunity in congested cities, non-adherence to physical exercise is evident with 68.4% in our study as compared to 33.2% in Bangladesh[21]. And surprisingly 85% non compliance reported in Mexico[14]. 46.9% in our study Diabetic foot care is so vital that it is estimated that about 50% admissions of diabetic patients in hospitals are due to foot related problems[22].

Almost half of the participants in our study (46.9%) were non-compliant towards diabetic foot care advice which was exactly in agreement with the other international and national studies with 45.9% and 46% respectively[18,23]. When socio-demographic characteristics like gender, marital status, ethnicity, age and educational status were computed by chi square for association with compliance status, no association was present in the study sample with adherence or non-adherence to lifestyle measures except for educational status with p-value of 0.016 in agreement with the study in neighbouring country[23] with p-value of <0.05 whereas similar studies in Mexico[14] and in Nepal[17] could not find such statistical association.

Age is one of the important variables in studying the relation with diabetic practices. In Oman, age was found to be significantly associated with the common diabetic self-practices contrary to our results.

CONCLUSION

The majority of the participants were not following the prescribed lifestyle modification required for the diabetes management to ensure longevity and less complication. Education status has been found to be significantly associated statistically with overall adherence to life style modification.

RECCOMENDATION

Lifestyle modification for diabetes management is considered to be the 95% part of its treatment which has to be carried out by the patient him/herself. Achievement of high literacy status has paramount importance in carrying out such self management activities.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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