



Original Research Article

Status of Care and Control among diabetic patients in Central Kashmir: A Cross-sectional Study

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Abstract

Background: *Diabetes mellitus is one of those non-communicable diseases which has both immediate and delayed complications resulting in morbidity, high out of pocket costs, and high mortality rates. The objectives of our study was to assess the status of care and blood glucose control among patients with type 2 diabetic patients' in central Kashmir division.*

Materials and Methods: *This was a cross-sectional study done among 53 diagnosed cases of type 2 diabetes, mellitus. The sample was selected through multi-stage cluster random sampling and data was collected through a questionnaire by interviewing patients and reviewing their files, and 3 categories of demographic, clinical and socio-economic factors were studied. The data was analyzed by Chi-Square test using SPSS software version 20.*

Results: *The results of Chi-square test indicated that there is significant relationship between gender of the patients, increasing age among them, their marital status and level of education among them, while insignificant relationship was found for the occupation and family size of the diabetic patients. The results also showed significant relationship between body mass index, family history of diabetes, ordered drug use and nutritional education on diabetes. Socioeconomic characteristics of the studied samples regarding care and control showed significant relationship of smoking behavior and exercise with diabetes while insignificant results were concluded for vegetable consumption and income level.*

Conclusion: *We concluded that life style modifications, dietary modifications, control of weight gain and self-care programs are an effective medium for prevention of complication of diabetes mellitus.*

Keywords: *Diabetes Mellitus, Central Kashmir, Diabetes Care.*

Introduction

Diabetes mellitus (DM) includes a group of metabolic disorders having the symptoms of polyuria, polydipsia, polyphagia and uncontrolled weight loss. Diabetes mellitus is usually diagnosed by increased serum blood glucose levels. DM is one of those non-communicable diseases which has both immediate and delayed

complications resulting in morbidity, high out of pocket costs, and high mortality rates⁽¹⁾. DM typically demonstrated the ice-berg phenomenon of a disease where only a bunch of clinical cases are detected while the sub-clinical and undiagnosed cases remain undetected within the community. The prevalence of diabetes in different parts of world ranges from 2%-25%⁽²⁾.

Due to statistics and global increasing trend, the World Health Organization (WHO) has reported diabetes as a latent epidemic, and since 1993, called all countries in the world to cope with this epidemic. The prevalence of diabetes, especially type 2, has increased significantly in recent decades⁽³⁾. Recent studies in Kashmir reported prevalence of 9.8 % of diabetes among adult population⁽⁴⁻⁵⁾. Along with diabetes, the rate of complication such as atherosclerosis, retinopathy, nephropathy, peripheral neuropathy with the risk diabetic foot are also increasing⁽⁶⁾. The increasing rate of complications among the patients and high out of pocket expenditure among them is mostly due to uncontrolled blood glucose levels⁽⁷⁾. The burden of diabetes is not only on the patients but also on the health care system where these patients are treated. As per many studies, a diabetic patient costs 2-4 times more than a non-diabetic patient. Further direct and indirect costs of diabetic patients pose many fold threats to the health budget every year. Huge costs and mortality due to diabetes can be reduced by proper care and implementing preventive measures regarding complications of the disease, such as proper control of blood glucose, proper nutrition and exercise among diabetic patients⁽⁸⁾.

Among the factors influencing blood glucose control, the role of other variables such as age, sex, economic status, educational level and family factors in controlling blood glucose cannot be ignored. Identification of these factors can be effective in designing necessary interventions to control blood glucose⁽⁹⁾. Among the factors influencing on the control of diabetes, there are patient related factors, such as the socio-economic class and the patient's lifestyle, and the duration of engagement and awareness and attitude toward diabetes and physician related factors such as knowledge, personality and counseling style and facilities of the health center are mentioned. The evidence suggests that controlling blood glucose can reduce the risk of debilitating and even lethal complications of diabetes⁽¹⁰⁾. One of the most important goals in treatment of diabetic patients is

to achieve proper blood glucose control. With these objectives, we conducted this study to assess the status of care and blood glucose control among patients with type 2 diabetic patients' in central Kashmir division.

Material and Method

Study Design: Cross-sectional study consisting of 53 individuals living with diabetes (Type 2 diabetes mellitus).

Study Setting: Community based out-reach study in central Kashmir division

Study Unit: Individuals living with diabetes who were diagnosed cases of Type 2 diabetes mellitus.

Study Period: 18 Months (April 2018-October 2019).

Sampling Method: Non-probability sampling (purposive sampling).

Inclusion Criteria: All the diabetic patients aged above 20 years with known status of disease and on treatment. Both genders, age > 20 years old.

Exclusion Criteria: Cases of Type 1 diabetes mellitus, gestational diabetes mellitus patients and pregnant women.

Method of Data Collection: The study was cross-sectional study conducted among individuals living with Type 2 diabetes mellitus who were already diagnosed cases of the disease and were on the treatment by consulting endocrinologist. Written informed consent was obtained from each individual who satisfied the inclusion criteria. The participants were explained the objectives of the study. Socio-demographic data, clinical data pertaining to diabetes symptoms, duration of disease, presenting illness and other co-morbid conditions was collected using a pre-designed, pre-tested structured questionnaire.

Statistical Analysis: Descriptive and inferential statistical analysis has been carried out in this study. The significance is assessed at 5% level of significance. Appropriate statistical tests have been used as and when required.

Ethical Issues: The study did not involve any issues pertaining to animal or human experimentation and had no ethical issues. The

confidentiality of the participants was maintained and the data collect for the study was used only for research process.

Results

Demographic characteristics of the studied samples regarding care and control among diabetic patients have been described in Table 1. The results of Chi-square test indicated that there is significant relationship between gender of the patients, increasing age among them, their marital status and level of education among them, while insignificant relationship was found for the occupation and family size of the diabetic patients. Clinical characteristics of the studied samples regarding care and control is described in Table 2 where the results showed significant relationship between body mass index, family history of diabetes, ordered drug use and nutritional education on diabetes. Socioeconomic characteristics of the studied samples regarding care and control is described in Table 3 where the results show significant relationship of smoking behavior and exercise with diabetes while insignificant results were concluded for vegetable consumption and income level.

Table 1. Demographic characteristics of the studied samples regarding care and control

Variables	Care	p-value	Control	p-value
Sex				
Male	32		11	
Female	21	0.001	5	ns
Age				
<40	8		4	
>40	45	0.001	16	ns
Marital status				
Married	43		12	
Unmarried	10	0.001	20	0.03
Education				
Illiterate	18		5	
Educated	35	0.03	12	ns
Occupation				
Homemaker	15		7	
Farmer	3		5	
Employed	30	ns	8	
Unemployed	5		5	ns
Family size				
2	12		4	
2-4	10		3	
>4	31	ns	2	ns

Table 2. Clinical characteristics of the studied samples regarding care and control

Variables	Care	p-value	Control	p-value
Body Mass Index				
Thin	4		2	
Normal Weight	21		6	
Overweight	16	0.001	11	ns
Obesity	12		15	
Presence of Diabetes in Family				
Yes	17		12	
No	36	0.001	9	ns
Hypertension				
Yes	21		9	
No	32	ns	12	ns
Ordered Drug Use				
Yes	15		12	
No	38	0.001	19	ns
Nutrition Education				
Yes	12		7	
No	41	0.05	5	
			8	
			5	ns

Table 3. Socioeconomic characteristics of the studied samples regarding care and control

Variables	Care	p-value	Control	p-value
Income				
Low	8		11	
Medium	24		5	
High	21	ns	13	ns
Smoking				
Yes	11		4	
No	42	0.001	16	ns
Vegetable Consumption				
<100gm	12		8	
100-200gm	17	ns	20	ns
>200gm	24		11	
Exercise				
No	10		6	
Yes	43	0.001	9	ns

Discussion

This was a cross-sectional study carried out on 53 individuals living with Type 2 diabetes mellitus. The results of our study showed that there is significant relationship between gender of the patients, increasing age among them, their marital status and level of education. The similar results were found by S. Heidari et al⁽⁹⁾ in their study where they found a significant relationship between blood glucose control and the marital status (P <.0001), economic status (P = .003), duration of diabetes (P = .03), home glucose test (P = .01), family structure (P = .01) and family support (P <.0001). Our study also showed

significant relationship between body mass index, family history of diabetes, ordered drug use and nutritional education on diabetes. Further, socioeconomic characteristics of the studied samples regarding care and control showed significant relationship of smoking behavior and exercise with diabetes while insignificant results were concluded for vegetable consumption and income level. A study by G. Sharifirad et al⁽¹¹⁾ in a descriptive-analytic study showed that most subjects had one outcome, cardiac complications (22.2%), two outcomes, cardiovascular and ophthalmic complications (12.7%) and three outcomes, cardiac and ophthalmic complications, and feet wound (14%). The majority of subjects (50%) experienced one outcome of diabetes, while 33.6% had two outcomes and 16.4% had three or more. In the present study, there was at least one complication in most patients.

Another study by Esmaeilnasab et al.,⁽¹⁰⁾ Showed that patients had proper control (hemoglobin glycosylated less than 6) and 73.2% of moderate control (hemoglobin glycosylated 6 to 8) or weak (Glycosylated hemoglobin above 8). There was no significant relationship between fasting blood glucose and gender, age, body mass index, duration of onset and duration of referral and insulin injection, but there was a significant relationship between fasting blood glucose and patients' education and occupation of and their visits. However, in the results of the present study, in most patients. Esmaeilnasab et al.,⁽¹⁰⁾ also found a significant relationship between body mass index and control of disease .

Another study by F. Etorh et al ⁽¹²⁾ among women diabetic patients showed significant relationship with age, body mass index and occupation but was not significantly associated with level of education. Similarly, among men, type 2 diabetes was not associated with the birth place.

The study by Kumar and Sandhya⁽¹³⁾, in 2018, about blood glucose control, lipid profile and blood pressure among type 2 diabetic patients in northern Kerala, India, showed that the high average of blood sugar levels, resulted in a

predictable increase of vascular disease, which in turn, affects the quality of health and efficiency. Generally, this study suggests that individual and community economic growth for therapeutic interventions to improve glycemic control can reduce the risk of cardiovascular and fungal diseases. The study showed that there is a need for more drugs, better strategies and more emphasis on glycemic control, to increase the level of control on diabetes which was undesirable in Kerala.

Conclusion

The results of our study indicated that factors such as gender, age, education, marital status, body mass index, family history of diabetes, ordered drug use, nutrition education, smoking and exercise affects the control of the disease.

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