

## Dietary misconceptions in Pakistani Diabetic Patients

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### ABSTRACT

**Objective:** To find out prevalence of various myths regarding diet of diabetics in local population.

**Methodology:** This was a cross sectional study conducted at diabetic clinic and medical OPD in Civil Hospital Karachi from January 2008 to December 2008. A total of 409 diabetic patients of either gender, age 18 or above who had given the consent were randomly selected. A pretested semi structured questionnaire regarding sociodemographic profile and various dietary myths regarding diabetes were used to get information from the study group.

**Result:** Out of 409 diabetic subjects 207(50.6%) were male. Average age was  $51.6 \pm 10.4$  years. Most of the participant 397(97.1%) were type 2 diabetics. Large number of subjects 83(20.3%) were either illiterate or had had primary schooling 112 (27.4%). Most of the participants 256 (62.6%) never received any diabetic education. Majority of study subjects 348(85%) believed in special diet for control of blood sugar level while large proportion of study population 335 (81.9%) did not use underground vegetables and same number of participants had strong belief in bitter vegetables as natural remedy. Forty one percent study subjects had myths regarding fruits while 301(73.5 %) said that rice is prohibited. Study population who believed in special diet showed significant p-value ( $<0.005$ ) when compared with those who did not. Similarly the group that had received diabetic education showed significant p-value when compared with those who did not.

**Conclusions:** A large number of diabetic patients especially those who never received any diabetic education have strong dietary misconceptions.

**KEY WORDS:** Diabetes Mellitus, Special diabetic diet, Dietary myths, Diabetic education.

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### INTRODUCTION

There are different barriers and hurdles in the management of diabetes. Effective management of diabetes not only requires comprehensive medical care and diabetes education but also the self care by the patients. A person's self care practices are influenced by their knowledge of diabetes.

Diabetes mellitus is one of the world's greatest health problems and its prevalence is increasing at an alarming rate. Diabetic patients need to know a lot about their illness<sup>1</sup> for self management skills.<sup>2</sup>

Diet has been the mainstay of therapy in diabetes for centuries. A number of factors influence glyce-mic response to food, including the amount of car-bohydrate<sup>3</sup>, type of sugar (glucose, fructose, sucrose

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and lactose)<sup>4</sup>, nature of the starch (amylose, a mylopectin and resistant starch)<sup>5</sup>, cooking and food processing (degree of starch gelatinization, particle size, cellular form)<sup>6</sup>, and food structure<sup>7</sup>, as well as other food components (fat and natural substances that slow digestion – lectins, phytates, tannins, starch-protein and starch-lipid combinations).<sup>8</sup>

It is widely believed that people with diabetes should eat special diabetic foods.<sup>9,10</sup> In fact the recommended healthy diet for people with diabetes is the same as that recommended for people without the condition. Recently, Diabetes UK have warned against purchase of products that are specially made for people with diabetes, on the grounds that,<sup>11</sup> they may be expensive, contain high levels of fat and confer no special benefits to people who suffer from diabetes.

Many myths and misconcepts regarding diet of diabetic patients are deeply rooted in this part of the world. Pakistani population consists of people from different cultural background and there is very strong influence of various myths, especially about the diet on health seeking behavior.

It is widely believed in this part of the world that underground vegetables are dangerous for diabetics while bitter vegetables are good for health and reduce blood sugar level. Similarly they strongly believe that fruits and rice are prohibited whereas honey is good for diabetic patients. These myths in the society have become a major hurdle towards the effective management of diabetes. Understanding the myths and misconceptions are important in providing excellent care to the patients and healthy individuals as well.<sup>12</sup>

There has been little research to understand these myths, and there is scarce data related to this subject. The purpose of this study was to find out various myths regarding diet of diabetics so that we would be able to combat the major hurdle for proper treatment and effective control of diabetes.

## METHODOLOGY

This was a cross sectional study based on myths and misconcepts regarding diet in diabetes based on interview with diabetic patients conducted in Diabetic Clinic and Medical OPD of Civil Hospital Karachi from January 2008 to December 2008. We randomly selected 409 diabetic patients of either gender, age 18 or above who had given the consent. A pretested semi structured questionnaire regarding sociodemographic profile and various dietary myths regarding diabetes were used to get information from the study group. The questionnaire was prepared in

Urdu language with the help of medical experts. All the study subjects were new patients and interviewed by the physicians. The data was collected over a period of 12 months, from January to December 2008, and analyzed with the help of SPSS Version 15. Quantitative variables were expressed as mean  $\pm$  SD while qualitative variables were expressed as percentage. We compared the variables and applied the chi-square test. P-value less than 0.05 were considered statistically significant.

## RESULTS

A total of 409 diabetic subjects were interviewed. Of these 207(50.6%) were male. Average age of the participants was  $51.6 \pm 10.4$  years. Table-I gives details about gender, education level, type of diabetes and study subjects misconceptions about various diets.

The study population was divided in two groups, one who believed in special diet and others who did not and applied the chi-square test to see the significance. Most of the study group who believed in special diet for diabetics gave response in affirmative about the dietary myths with significant p-value ( $<0.001$ ) (Table-II).

We further divided the study population into two groups, one who got the diabetic education/counseling and others who did not and compared the result that showed all dietary myths were more prevalent among those who never received diabetic education p-value  $<0.001$ ) (Table-III).

## DISCUSSION

Myths and misconception in population prevail due to different reasons. These myths are so deeply rooted in the society that education and knowledge alone is not sufficient to bring about behavioral changes in population.<sup>13</sup> Attitude towards the health and personal care is influenced by various social, cultural, socioeconomic and health factors.<sup>14,15</sup>

Diet has been mainstay of therapy in diabetes for centuries. Dietary recommendations for diabetes have changed over the past 15 years and it should be based on a high intake of complex carbohydrate and fiber, with a restriction of fat intake.<sup>16</sup> In this study large number of study population (85%) believed in special diet for control of blood sugar level as widely believed in other parts of the world<sup>9</sup> while in Pakistan Nighat Nisar et al<sup>10</sup> showed that 55% of non diabetic population had such belief. This shows that diabetic persons had high prevalence of dietary misconceptions as compared to non-diabetics. A healthy

diet for someone with diabetes is the same as a healthy diet for anyone else, low in fat particularly saturated and transfat, moderate in salt and simple sugar with meal based on whole grain foods, vegetables and fruits. The optimal macronutrient composition of the diet for patients with diabetes is controversial.<sup>17-19</sup> American Diabetic Association recommends a diet that includes carbohydrates from

Table-I: Basic characteristic of study subjects (n = 409 (%)).

Variables	Mean $\pm$ SD
Age (years)	51.6( $\pm$ 10.4)
Gender	
Male	207(50.6)
Female	202(49.4)
Diabetic counseling	
Yes	153(37.4)
No	256(62.6)
Literacy	
Illiterate	83(20.3)
Primary	112(27.4)
Secondary	151(36.9)
Graduate	58(14.2)
Postgraduate	5(1.2)
Type of Diabetes	
Type 1 DM	12(2.9)
Type 2 DM	397(97.1)
Duration of diabetes	6.9 $\pm$ 3.6
Diabetics needed special diets	
Yes	348(85%)
No	12(3%)
Not known	49(12%)
Rice is prohibited	
Yes	301(73.6%)
No	58(14.2%)
Not known	50(12.2%)
Underground Vegetables are prohibited	
Yes	335 (81.9%)
No	59(14.4%)
Not known	15(3.7%)
Bitter vegetables decrease blood sugar level	
Yes	332 (81.1 %)
No	59(14.4%)
Not known	18(4.5%)
Fruits are prohibited	
Yes	170(41.3%)
No	157(38.4%)
Not known	82(20%)
Honey is good for diabetics	
Yes	97(23.7%)
No	51(12.5%)
Not known	259(63.3%)

fruits, vegetables, whole grains, legumes and low-fat milk.<sup>20</sup> The so-called diabetic foods offer no special benefits and they still raise the blood sugar levels, are usually more expensive and can have also laxative effect if they contain sugar alcohols.

In this part of the world diabetic patients also have fallacies regarding vegetables and 81.9% participants did not use roots and tubers and same percent of diabetics believed that bitter vegetables reduce blood sugar level which is not true. Roots and tubers can be consumed by diabetic persons in moderation while bitter vegetables are not helpful in reducing blood glucose level. On the other hand these myths make the diet unpleasant, fiber free and difficult to adhere to, and finally results in poor control of diabetes.

Forty-one percent participants in this study said that fruits are prohibited which is again not true. In a study by Nisar N et al<sup>10</sup> 42% non diabetic healthy persons believed that fruits can be taken in excess by diabetic patients. This shows that both diabetics and non diabetic person have different misconception regarding fruits. Fruits are nature's gift to mankind,

Table-II: Knowledge about different diets among study participant (n = 409).

Variables	Diabetics needed special diets		P-value
	Yes	No	
<i>Rice is prohibited n (%)</i>			
Yes	270(77.6%)	31(50.8%)	<0.001
No	33(9.5%)	25(41%)	
Not known	45(12.9%)	5(8.2%)	
<i>Underground Vegetables are prohibited n (%)</i>			
Yes	308(88.5%)	27(44.3%)	<0.001
No	31(8.9%)	28(45.9%)	
Not known	9(2.6%)	6(9.8%)	
<i>Bitter vegetables decrease blood sugar level n (%)</i>			
Yes	303(87.1%)	29(47.5%)	<0.001
No	32(9.2%)	27(44.3%)	
Not known	13(3.7%)	5(8.2%)	
<i>Fruits are prohibited n (%)</i>			
Yes	161(46.3%)	9(14.8%)	<0.001
No	123(35.3%)	34(55.7%)	
Not known	64(18.4%)	18(29.5%)	
<i>Honey is good for diabetics n (%)</i>			
Yes	93(26.9%)	6(9.5%)	<0.001
No	42(12.1%)	9(14.2%)	
Not known	211(61%)	48(76.3%)	

they contain substantial quantities of essential nutrients and are source of fibers and they should be consumed daily in moderation by diabetics to improve overall balance of the diet.

Rice is prohibited in diabetes was the another misconception found in the study population (73%) while the fact is that there is little difference in carbohydrate contents of rice and wheat.

As for the general population, people with diabetes are encouraged to choose a variety of fiber-containing foods such as legumes, fiber-rich cereals (>5g fiber/serving), fruits, vegetables, and whole grain products because they provide vitamins, minerals, and other substances important for good health. Moreover, there are data suggesting that consuming a high-fiber diet (50g fiber/day) reduces glycemia

in subjects with type 1 diabetes and glycemia, hyperinsulinemia, and lipemia in subjects with type 2 diabetes.<sup>21</sup>

This study shows that the prevalence of myths was higher among those diabetics who never received diabetic education. Vast majority of Pakistani diabetic patients, from outpatient clinics in Karachi, found significant knowledge gaps in key areas, including insulin administration.<sup>22</sup> Similar results were reported in a study from an outpatient clinic in Quetta where 77.11% of diabetic patients had no knowledge of diabetes and its complications.<sup>23</sup> In a review article by Asha et al<sup>24</sup> it was observed that the patients' nutritional knowledge and the control of diabetes improved significantly after counseling in those patients in whom control had been inadequate. The educational programs had a long term effect on the patients which is reflected in their overall disease management. These education programs should be in a group setting as it has been found to be more effective than individual education and should be culture specific rather than knowledge-based program.<sup>25,26</sup>

## CONCLUSIONS

A large number of diabetic patients in local population especially those who never received diabetic education have strong dietary misconceptions which is a main hurdle in the management of diabetes. Regular education programs regarding all aspects of diabetes including diets will change the attitude of diabetic patients towards the self management and hence improve their quality of life.

## REFERENCES

1. Stam DM, Graham JP. Important aspects of self management education in patients with diabetes. *Pharmacy practice management quarterly*. 1997;17:12-25.
2. Via P, Salyer J. Psychosocial self efficacy and personal characteristics of veterans attending a diabetes education program. *Diabetes Educ* 1999;25:727-737.
3. Gannon MC, Nuttall FQ, Westphal SA, Fang S, Ercan-Fang N. Acute metabolic response to high-carbohydrate, high-starch meals compared with moderate-carbohydrate, low-starch meals in subjects with type 2 diabetes. *Diabetes Care* 1998;21:1619-1626.
4. Wolever TMS, Nguyen PM, Chiasson JL, JA Hunt, RG Josse, C Palmason, et al. Determinants of diet glycemic index calculated retrospectively from diet records of 342 individuals with non-insulin-dependent diabetes mellitus. *Am J Clin Nutr* 1994;59:1265-1269.
5. O'Dea K, Snow P, Nestel P. Rate of starch hydrolysis in vitro as a predictor of metabolic responses to complex carbohydrate in vivo. *Am J Clin Nutr* 1981;34:1991-1993.
6. Snow P, O'Dea K. Factors affecting the rate of hydrolysis of starch in food. *Am J Clin Nutr* 1981;34:2721-2727.

Table-III: Comparison of dietary myths and diabetic education (n = 409).

Variables	Ever got diabetic education (No. of patients)		P-value
	Yes	No	
<i>Diabetics needed special diet</i>			
Yes	121(29.5%)	227(55.5%)	<0.001
No	11(2.7%)	1(0.2%)	
Not known	21(5.1%)	28(6.8%)	
<i>Rice is prohibited</i>			
Yes	82(20%)	219(53.5%)	<0.001
No	58(14.2%)	0	
Not known	13(3.2%)	37(9%)	
<i>Fruits is prohibited</i>			
Yes	53(13%)	117(28.6%)	<0.001
No	78(19%)	79(19.3%)	
Not known	22(5.4%)	60(14.6%)	
<i>Underground Vegetable is prohibited</i>			
Yes	92(22.4%)	243(59.4%)	<0.001
No	59(14.4%)	0	
Not known	2(0.5%)	13(3.1%)	
<i>Bitter vegetable reduce the blood sugar level</i>			
Yes	87(21.3%)	238(58.2%)	<0.001
No	62(15.2%)	4(0.4%)	
Not known	4(0.9%)	14(3.4%)	
<i>Honey is good for diabetes</i>			
Yes	26(6.3%)	73(17.8%)	<0.001
No	34(8.3%)	17(4.2%)	
Not known	93(22.7%)	166(40.5%)	

7. Jarvi A, Karlstrom B, Granfeldt Y, Bjorck I, Vessby B. The influence of food structure on postprandial metabolism in patients with NIDDM. *Am J Clin Nutr* 1995;61:837-842.
8. Hughes TA, Atchison J, Hazelrig JB, Boshell BR. Glycemic responses in insulin-dependent patients with diabetes: Effect of food composition. *Am J Clin Nutr* 1989;49:658-666.
9. American Diabetic Education. Medical experts dispel myths about diabetes. JET, 2005. [http://findarticles.com/p/articles/mi\\_m1355/is\\_1\\_108/ai\\_n15681366](http://findarticles.com/p/articles/mi_m1355/is_1_108/ai_n15681366).
10. Nisar N, Khan IA, Qadri MH, Sher SA. Myths about diabetes mellitus among non diabetic individuals attending primary healthcare centers of Karachi suburbs. *J Coll Physicians Surg Pak* 2007;17(7):398-401.
11. Diabetic foods. Joint statement on 'diabetic foods' from the Food Standards Agency and Diabetes UK". Positional statements. Diabetes UK. July 2002. Retrieved 2006-10-22.
12. Adler E, Paauw D. Medical myths involving diabetes. *Prim Care* 2003;30:607-618.
13. American Diabetic Association. Screening for type 2 diabetes: *Diabetes Care* 2000;23:20-23.
14. Simmons D. Personal barriers to diabetes care: Is it me, them or us. *Diabetes Spectr* 2001;14:10-12.
15. Brown JB, Harris SB, Bogaert SW, Wetmore S, Faulds C, Stewart M. The role of patient, physician and the management of type 2 diabetes mellitus. *Fam Pract* 2002;19:344-349.
16. Pennock T. Diabetes and nutrition: The latest thinking on dietary management. *Prof Nurse* 2005;20:27-30.
17. Franz MJ. Carbohydrate and diabetes: Is the source or the amount of more importance. *Curr Diab Rep* 2001;1:177-186.
18. Wolever TM, Mehling C. Long term effect of varying the source or amount of dietary carbohydrate on postprandial plasma glucose, insulin, triacylglycerol, and free fatty acid concentrations in subjects with impaired glucose tolerance. *Am J Clin Nutr* 2003;77:612-621.
19. Shah M, Adams-Huet B, Bantle JP. Effect of a high - carbohydrate versus a high monounsaturated fat diet on blood pressure in patients with type 2 diabetes. *Diabetes Care* 2005;28:2607-2612.
20. Bantle JP, Wylie-Rosett J, Albright AL, Apovian CM, Clark NG. Nutrition recommendations and interventions for diabetes: A position statement of the American Diabetes Association. *Diabetes Care* 2008;31(suppl 1):S61-S78.
21. Franz MJ, Bantle JP, Beebe CA, Brunzell JD, Chiasson JL, Garg A, et al. Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Diabetes Care* 2002;25:148-198.
22. Jabbar A, Contractor Z, Ebrahim MA, Mahmood K. Standard of knowledge among patients with diabetes in Karachi, Pakistan. *J Pak Med Assoc* 2001;51:216-218.
23. Ali M, Khalid GH, Pirkani GS. Level of health education in patients with type II diabetes mellitus in Quetta. *J Pak Med Assoc* 1998;48:334-336.
24. Asha A, Pradeepa R, Mohan V. Evidence for Benefits from Diabetes Education Program. *Int J Diab Dev Ctries* 2004;4:96-102.
25. Barlow J, Wright C, Sheasby J, Turner A, Hainsworth J. Self-management approaches for people with chronic conditions: A review. *Patient Educ Couns* 2002;48:177-187.
26. Sarkisian CA, Brown AF, Norris KC, Wintz RL, Mangione CM. A systematic review of diabetes self-care interventions for older, African American, or Latino adults. *Diabetes Educ* 2003;29:467-479.