

PERCEPTION AND BEHAVIOUR OF DIABETIC PATIENTS ON BLOOD GLUCOSE MAINTENANCE

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ABSTRACT

Diabetes mellitus is the leading cause of mortality and morbidity in Malaysia and most of developing countries. Changes of lifestyles have been implicated as the cause of this disease. A study has been conducted in Kuantan Hospital and six health clinics in 1997 to identify the perception and behaviour of diabetic patients on blood glucose control. A total of 300 hundred respondents were recruited in the study. The results showed that blood glucose control was significantly associated with marital status ($p < 0.05$). However, none of behaviour and personality factors were associated with blood glucose control.

INTRODUCTION

Changes in lifestyle are associated with changes in disease pattern. The pattern of diseases shifted from being predominantly communicable diseases such as cholera and poliomyelitis to chronic diseases such as diabetes and cardiovascular diseases. An effective health care system was responsible in controlling the diseases [1].

Diabetes mellitus is a chronic disease of unknown a etiology. It is estimated that about 300,00 people will die every year from the complication of diabetes. It ranks as the third killer disease in USA [2]. Studies around the world have shown that the prevalence and incidence of diabetes are increasing. For example in Taiwan, prevalence increased from 2.0% in 1992 to 6.2% in 1994 [3]. In Malaysia, it was shown that the prevalence increased from 2.1% in 1982 to 3.9% in 1984 [4,5]

The aim of treatment in diabetes is to maintain the blood glucose level within a normal acceptable level that can reduce diabetic complications in the long run [6,7]. Intensive therapy will reduce retinopathy by about 76%, albuminuria by 54% and neuropathy by 60% [8]. Good blood glucose control will reduce ketoacidosis, linear growth faltering and infant mortality rate [9]. It was estimated that about 25,000 people in Malaysia lose their eye - sight every year or there are 150 amputations per day due to poor blood glucose control. If detected early, about 90% of blindness could have been prevented [8].

Diabetes mellitus requires high maintenance and care cost [10-12]. To prevent complications, patients blood glucose should be controlled or maintained at acceptable level. This study was conducted to identify factors that influence blood glucose level especially behaviour and perception of the patients.

METHODOLOGY

A cross-sectional study was conducted in Kuantan, Pahang Malaysia. All diabetic patients getting treatment from the hospital and nearby health centers were eligible for the study. Only patients meeting selection criteria were chosen as samples. Data was collected by subjects being interviewed by trained interviewers using a questionnaire.

The respondents are said to have a good blood glucose control if they did not have history of ketoacidosis, have not missed any appointment 5 times in a row and have normal urine glucose for 5 subsequent visits. The opposite is true for the poor blood glucose controls.

The perception and attitude of the patients were evaluated using standard questionnaires, whilst the personality was measured using Eysenck Personality scales [13]. The data was analysed using SPSS software packages. Chi square and t test were used where appropriate. P is significant at 0.05.

RESULTS

Profile of samples

A total 400 patients were eligible for the study, however only 300 (75%) met the criteria and were selected for the study. Out of this, 300 subjects 89 (29.7%) had a good blood glucose control. Malays comprised of 80.7% (242) of the samples while 12.3% (37) were Chinese and 7% (21) of Indian origin. The comparison between the two groups is shown in table 1 and table 2. There was a significant association between blood glucose control and marital status ($p < 0.05$). Odd ratio was 3.51 (0.97-15.1).

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Table 1 : The sociodemographic comparison between good glucose control group and poorly controlled group

Sociodemographic factors		Good Control n(%)	Poor Control n(%)	X ²	P	OR
1. Ethnic	Malay Chinese Indian	164 (67.8) 31 (83.8) 16 (76.2)	78 (32.2) 6 (16.2) 5 (23.8)	4.316	0.1150	
2. Gender	Male Female	129 (72.9) 82 (66.7)	48 (27.1) 41 (33.3)	1.343	0.2465	
3. Education status	Yes No	122 (72.6) 89 (67.4)	46 (27.4) 43 (32.6)	0.9560	0.3283	
4. Occupation	Sedentary Non Sedentary	(72) 157 (69.8)	21 (28) 62 (32)	0.1331	0.7152	
5. Marital status	Not married Married	23 (88) 188 (68.6)	3 (11.5) 86 (31.4)	4.4836	0.0342	OR=3.51 (0.97-15.1)

Table 2 : Sociodemographic and personality score between good and poorly blood glucose control groups.

Factors	Good control Mean ± SD	Poor control Mean ± SD	P
1. Age (years)	52.4 ± 9.5	50.8 ± 10	0.224
2. Income (RM)	570.0 ± 475	702 ± 581	0.059
3. Duration of illness (years)	5.2 ± 5.1	5.3 ± 4.9	0.919
4. Personality score - Lie	4.8 ± 1.4	4.7 ± 1.4	0.540
- Extroverted	5.6 ± 1.5	5.6 ± 1.5	0.703
- Neurotism	5.9 ± 1.7	5.9 ± 1.8	0.721
- Psychotism	5.1 ± 1.3	5.4 ± 1.6	0.147

P<0.05 is significant

Perception and behaviour towards diabetes mellitus

Respondents were asked about their mellitus. Table 3 and 4 shows the relationship between patients perception and attitude, respectively with blood glucose control. Perception and attitude was not different between the two groups. Even patient's personality did not seem to influence blood glucose control (table 2).

Table 3 : Relationship between patient perception toward control of diabetes and blood glucose control

Perception	Good diabetic control No. %	Poor diabetic control No. %	X ²	P
1. It is possible that anybody can acquire diabetes - agree - disagree	53 27.0 36 34.6	143 73.0 68 65.4	1.8683	0.1717
2. Diabetes mellitus cannot be prevented - agree - disagree	71 30.0 18 28.6	166 68.9 45 76.3	1.2410	0.2652
3. Diabetes mellitus cannot be treated even though it is detected early - agree - disagree	71 30.0 18 28.6	166 70.0 45 71.4	0.0458	0.0805
4. Diabetic Patients should not do exercise - agree - disagree	78 29.2 11 33.3	189 70.8 22 66.7	0.2389	0.6250
5. Obesity can lead to Diabetes - agree - disagree	78 28.6 19 34.5	175 71.4 36 65.5	0.7682	0.3802
6. Diabetes cannot cause Disability or other Impairment - agree - disagree	69 28.4 20 35.1	174 71.6 36 65.5		
7. Exercise does not help the blood sugar control - agree - disagree	68 28.5 21 34.4	171 71.5 40 65.5	0.8313	0.3619
8. Exercise will maintain Individual ideal body Weigh - agree - disagree	61 29.5 28 30.1	146 70.5 65 69.9	0.0125	0.9108
9. Diet control helps blood Glucose maintenance - agree - disagree	79 30.8 9 22.5	180 69.2 31 77.5	1.1361	0.2865
10. There is no direct association between body weight reduction - agree - disagree	58 28.6 31 32.0	145 71.4 66 68.0	0.3610	0.5480

DISCUSSION

Blood glucose control is an important factor in prolonging patient's life due to diabetes. Blood glucose can be controlled either by testing glucose level at home or during clinic visits. Self-monitoring to detect hypoglycemia or hyperglycemia is vital to prevent long term effect to diabetic complications. However self- monitoring has its disadvantage as well, especially when there is a need to calibrate the instrument regularly.

In this study, the majority of respondents were having poor bloods glucose control (70.3)%. The result was comparable to the study conducted previously [14]. In that study 69.7% of low compliance patients were having poor blood glucose control. In another study which used diabetes ketoacidosis or insulin shock as criteria, about 76% of subjects were having poor blood glucose control [15].

The study showed that the mean age for patients with good blood glucose control was older as compared to poorly controlled group (52.4 + 9.7 vs. 50.8 + 10.8 yr). However, in other study the results were the opposite [16].

There was an association between blood glucose control and marital status. Being unmarried, the risk of have poor blood glucose was 4 times as compared to married. This shows that spouse or family support is important component in diabetes management [17-19].

Table 4 : Patients attitude toward blood glucose control

Attitude	Good control n %	Poor control n %	X ²	P
1. I do not have to Take high fat diet - positive - negative	80 28.0 9 39.1	197 71.1 14 60.9	1.0692	0.3011
2. I do not have to take extra vegetable - positive - negative	74 28.0 15 41.7	190 72.0 21 58.3	2.8232	0.0929
3. I should maintain my ideal body weight - positive - negative	70 29.2 19 31.7	170 70.2 41 68.3	0.1438	0.7045
4. I do not have to Do regular exercise (at least 3x per week) - positive - negative	68 29.8 21 29.2	160 70.2 51 70.8	0.0113	0.9151
5. I have to do early screening to make sure I do not have diabetes - positive - negative	80 29.9 9 29.2	191 70.5 20 69.0	0.0288	0.8653
6. I do not have to know early signs of diabetes - positive - negative	81 30.7 8 22.2	181 69.3 28 77.8	1.0866	0.29272
7. I do not have to know early complication of diabetes - positive - negative	75 28.2 14 41.2	191 71.8 20 58.8	2.4345	0.1187

However, the study did not find any relationship between duration of diabetes distance of the house from health facilities and insurance coverage with blood glucose control. This finding is quite consistent with an-other study [14].

There was no difference between patients perception and attitude with their blood glucose control. However in another study it was shown that negative attitude towards diabetes control was associated with poorly controlled blood glucose [15]. There was no association between patient's personality with blood glucose control as well. None of the personality traits seem to influence blood glucose control [20-22].

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