

Knowledge, self-help and socioeconomic factors in South Asian and Caucasian diabetic patients

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CLINICAL STUDY

Abstract

Aims We carried out a survey of important nonclinical issues including awareness and self-management of diabetes on a group of South Asian and Caucasian patients attending diabetic clinics within a set period.

Methods A structured questionnaire examined various issues including demographics, perceived knowledge and awareness of diabetes, perceived self-help/support, and psycho-social factors. A total of 500 patients (268 South Asians and 232 Caucasian) took part.

Results Univariate analysis showed significant differences ($P < 0.05$) with various issues including a lower perceived awareness of diabetes and its complications in South Asians, and of the nutritional content of their diet. Asians also appeared to be less worried in the event of missed clinical appointments and if treatment was not strictly adhered to.

Conclusions The study provides evidence of the inability of health information systems to convey the importance of diabetic control to the Asian population. In order that this important information reaches the required recipients, more assertive and perhaps more culturally acceptable methods need to be explored.

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Introduction

Roughly 2–4% of the UK adult population suffer from diabetes and about 5% of total health-care expenditure is spent on the care of these patients.¹ Studies in various parts of the

world^{2–5} including the UK^{6–10} report a higher prevalence of diabetes in Asians from the Indian subcontinent than in other races. The order of increase in prevalence of diabetes in Asians could be as high as four times that of people of European (Caucasian) origin.⁷ Greenhalgh¹¹ suggests various hypotheses to explain the high prevalence rates of diabetes in South Asians. Although these factors, embracing nature and nurture, are not mutually exclusive, they probably interact with each other in a complicated and undetermined manner. It is known that adequate control of diabetes is essential if complications are to be reduced.¹² If patients are to contribute to the effective control of their diabetes, their knowledge, self-caring skills, self-control, and attitude to diabetes are important.

At present, very little is known about Asian patients' attitudes towards self-help and importance of control of diabetes, although some evidence of lower uptake of health service provision by ethnic minorities in the UK has been shown^{13,14} in diabetic clinics,¹⁴ for coronary artery diseases,¹⁵ referral rates and attendance in Emergency Departments.¹⁶ Awareness of the existence and utilisation of community health and social services is also low among Asians.^{17,18} In diabetic patients, Hawthorne^{19–21} reported poorer blood glucose control and lower awareness of diabetes management in a group of Pakistani Moslems. Although a few studies, including those by Hawthorne²² and Simmons *et al*,²³ examined knowledge of diabetes in Asians and Caucasians, comprehensive comparative data on various other issues including anxiety if hospital appointments were missed and awareness of their diet do not exist. We aim to examine these in addition to the patients' perceived levels of knowledge of diabetes,

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including knowledge prior to diagnosis of diabetes and awareness of the possibility of inheritance, etc.

Materials and methods

Patients

All consecutive diabetic patients who attended the Outpatients Diabetic Clinic at Bradford Royal Infirmary between March 1996 and December 1997 were invited to participate in the study. A total of 500 eligible patients, of whom 232 were Caucasians, all born in the UK, and 268 of South Asian origin, took part. All Asians were born abroad in Pakistan, India, or Bangladesh and had settled in Bradford. Patients were included if they were over 40 years of age, were diagnosed as diabetic and had not been treated for any other eye diseases. The study was approved by the appropriate Ethical Committee and followed the tenets of the Declaration of Helsinki. Informed consent was obtained from the patients after explaining the aims of the study. None of the patients was seen more than once. Clinical details of the two groups of patients are given in Table 1.

Methods

A structured questionnaire was designed using strategies and methodological issues recommended for community-based research within a racial/ethnic minority community.²⁴ The questionnaire was based on discussions held with various clinicians and on focus interviews with South Asian subjects. The questionnaire was validated by means of detailed interviews whereby different questions and ways of questioning were investigated and adopted following patients' responses and feedback. Difficult and potentially ambiguous questions were clarified. The questions were also checked for their 'political correctness'. The issues explored are summarised in Table 2. As it is difficult to

equate education levels from foreign grades, it was decided to use the age at which full-time education was completed as a better marker. Data on employment (full-time, part-time, homemaker, student, retired) and marital status (married, separated, divorced, widowed, single) were also obtained. Immediate family with diabetes was clarified as either siblings or parents. Awareness of complications of diabetes required the subjects to name the organs that can be affected by diabetes such as eyes, feet, etc. In some questions, a visual analogue scale was used after careful explanation of its use. Each subject was given trial runs on some sample questions until it was deemed that they could perform the test.

The questionnaire was administered in two main Asian languages, Urdu and Hindi, and in English. All the subjects spoke at least one of these languages. No eligible patient refused to take part in the study.

Results

Univariate analysis results of the survey are shown in Table 2. There were no significant differences in sex or marital status between the two groups. A larger percentage of Caucasians (67%) had smaller household structures, that is, of less than three people in the house, compared to Asians (36%). A significant difference also existed in income levels with 59% of Asians having an income of less than £7999 compared to 43% of Caucasians. In total, 7% of Caucasians had an income of higher than £15000 compared to 3% of Asians. Age at which full-time education was completed was significant as well. A total of 57% of Caucasians were educated to 16 years and beyond compared to 35% of Asians.

As Table 2 shows, Asians reported a significantly lower ($P < 0.05$) perceived knowledge of diabetes, awareness of diabetic complications, and awareness of the nutritional content of their diet. They also reported lower importance of keeping clinical appointments and less

Table 1 Clinical and demographic details

	Caucasians (n=232)	Asians (n=268)
Gender	M: 105 (45%), F: 127 (55%)	M: 140 (52%), F: 128 (48%)
Mean age (years)	Median: 61.30 (range: 41–80)	Median: 61.30 (range: 58–87)
Mean duration (years)	Median: 8.00 (range: 0–35)	Median: 9.73 (range: 0–29)
Country of birth	UK (46.4%)	India (8.2%), Pakistan (38.4%) Bangladesh (4.6%) Other (2.4%)
Age at diagnosis (years)	Median: 50.81 (range: 23–80 y)	Median: 50.20 (range: 19–78)
No. diagnosed before age of 30 years	3 subjects	6 subjects
Insulin requiring	134 (51%)	162 (60%)

Table 2 Results of the univariate analysis for the different issues examined

Variable	Type	Units/categories	Measure	Caucasian	Asian	Statistic	Value	df	p-value
<i>Demographic details</i>									
Sex	Categorical	1: Male 0: Female	Frequencies	105 127	140 128	χ^2	2.425	1	0.1194
Marital status	Categorical	3: Divorced 2: Widowed 1: Married	Frequencies	12 30 142	12 24 181	χ^2	2.889	3	0.408
Income (£)	Categorical	0: Single 2: >15000 1: 8000–15000 0: <7999	Frequencies	48 17 83 100	51 10 72 160	χ^2	12.56	2	0.0018
Education age (years)	Categorical	3: Over 16 1: 14–16 0: Under 14	Missing data Frequencies	32 133 61 35	26 96 83 68	χ^2	25.985	2	0.0007
Household structure	Category	2: more than 5 people 1: between 3 and 5 people 0: less than 3 people	Missing data Frequencies	3 4 72 156	21 20 148 96	χ^2	49.34	2	0.000
			Missing data		4				
<i>Awareness of diabetes/complications</i>									
Perceived possibility of inheritance	Continuous	Response ranging not at all (0) to extremely likely (1)	Mean SD <i>n</i>	0.649 0.343 232	0.692 0.306 268	Mann–Whitney	1.469	498	0.142
Perceived knowledge of diabetes	Continuous	Response ranging not at all (0) to very knowledgeable (1)	Mean SD <i>n</i> Missing data	0.605 0.238 231 1	0.476 0.251 268	Mann–Whitney	5.855	497	0.000
Perceived knowledge of diabetes prior to diagnosis	Continuous	Response ranging from not at all (0) to very knowledgeable (1)	Mean SD <i>n</i>	0.203 0.229 231	0.224 0.238 267	Mann–Whitney	–1.107	496	0.309
Awareness of diabetic complications: no. of possible complications	Categorical	3: three+ 2: two 1: one 0: none	Frequencies	166 51 15 0	158 72 38 0	χ^2	11.23	3	0.00365
Perceived awareness of nutritional content of diet	Continuous	Response ranging from not all (0) to very aware (1)	Mean SD <i>n</i> Missing data	0.710 0.241 230 1	0.539 0.255 268	Mann–Whitney	7.624	496	0.000
GP as the best source of information	Categorical	1: Yes 0: No	Frequencies	176 56	200 68	χ^2	0.163	1	0.686
Perceived importance of keeping clinic appointments	Continuous	Response ranging from not at all (0) to very important (1)	Mean SD <i>n</i> Missing data	0.854 0.202 231 1	0.781 0.227 267 1	Mann–Whitney	3.783	496	0.00017
Perceived anxiety if treatment is not adhered to	Continuous	Response ranging from not at all (0) to very anxious (1)	Mean SD <i>n</i> Missing data	0.607 0.305 222 10	0.536 0.262 265 3	Mann–Whitney	2.766	485	0.005
Perceived importance of control of diabetes	Continuous	Response ranging from not at all (0) to very important (1)	Mean SD <i>n</i> Missing data	0.713 0.238 230 2	0.575 0.245 268	Mann–Whitney	6.379	496	0.000

p-values in bold denote significant effects.

Table 3 Multivariate analysis of factors which showed significance in Table 2

	Independent variables		
	Race	Income	Education level
Perceived knowledge of diabetes	P=0.000 ($\beta=-0.225$)	P=0.283 ($\beta=0.052$)	P=0.0045 ($\beta=0.138$)
Awareness of diabetic complications: no. of possible complications	P=0.001 ($\beta=-0.154$)	P=0.95 ($\beta=0.003$)	P=0.015 ($\beta=0.12$)
Perceived awareness of nutritional content of diet	P=0.000 ($\beta=-0.325$)	P=0.665 ($\beta=0.021$)	P=0.355 ($\beta=0.044$)
Perceived importance of keeping clinic appointments	P=0.000 ($\beta=0.161$)	P=0.345 ($\beta=0.047$)	P=0.06 ($\beta=-0.092$)
Perceived anxiety if treatment is not adhered to	P=0.074 ($\beta=-0.088$)	P=0.938 ($\beta=0.003$)	P=0.0617 ($\beta=0.095$)
Perceived importance of control of diabetes	P=0.00 ($\beta=-0.272$)	P=0.47 ($\beta=0.035$)	P=0.302 ($\beta=0.050$)

anxiety if treatment was not adhered to as well as lower importance of control of the diabetes. No significant differences existed in knowledge of diabetes prior to diagnosis.

Significant dependent variables, such as awareness of diabetes and importance of keeping clinical appointments, could be influenced by other variables including socioeconomic and educational status differences between the two groups. We carried out multivariate analysis on factors that showed to be significant in the univariate analysis in Table 2. These are shown in Table 3 and were carried out to examine the contributions of race, education age, and income levels. Race showed significance with all the issues examined except 'perceived anxiety if treatment was not adhered to', although this was significant to 93%. The level of education was significant for some issues, while income level did not show significance with any of the issues examined.

Some limitations of the study need to be acknowledged. In cases where perceived knowledge and awareness have been examined, we have to rely on the patient's ability to report accurately. In some cases, this may be over- or underestimated, for example, Asians may be more aware of how little they know, whereas the Caucasian population may be giving themselves more credit. Asians reported a lower awareness of diabetes and this was also confirmed by their identification of a lower number of named organs that could be affected by diabetes. Although racial differences in responses to the technique may have existed to an extent, we do not believe that it influenced the results a great deal.

Discussion

The study shows a lack of understanding of diabetes and its complications by one racial group. Undoubtedly, various issues interlink with each other in a complicated and, at present, rather undetermined manner, to produce an overall picture of lower awareness and self-help in the South Asian population. Although genetic effects may

play a role in the higher prevalence of diabetes in the Asian population,²⁵ lifestyle issues such as exercise are also very important^{26,27} and sedentary lifestyles may place Asians in the high-risk category.^{28,29} Although information to promote increased physical activity and control obesity has been promoted by health information systems, this study highlights a lack of understanding of these important issues in Asians. In addition, a lower awareness of the nutritional content of the diet was demonstrated. We hypothesise that various issues, including inadequate or inappropriate manner of dissemination of health information as well as the inability of the patients to uptake and retain the important information are responsible.

In order to ensure dissemination of important information, cultural and religious influences need to be understood. Language barriers would possibly play a major role.³⁰ The patients' having to rely on relatives or interpreters may lead to information being lost or changed. A study by Ebden *et al*³¹ claimed that 16–39% of the simplest questions can be mistranslated by relatives. Communication difficulties may also make it difficult to rearrange appointments. Religious obligations, such as fasting, would make control of diabetes more difficult.³² Previous studies have shown that, when communication problems are overcome and people are approached in a culturally sensitive way, they are receptive to advice that advocates changes in lifestyle and the use of preventative services.³³ Although this may be difficult, especially for older females, for example, written information in a native language would not be appropriate for people who are illiterate, other methods, such as pictorial flashcards, have been used in other parts of the country.²¹ Link-workers who explain reasons for regular appointments and provide encouragement would benefit.¹³ Although quite a number of these approaches are currently being employed in different parts of the country, the results from this study suggest that fundamental differences in important diabetes-related issues between Asian and Caucasian patients still exist.

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