

'I can't do any serious exercise': barriers to physical activity amongst people of Pakistani and Indian origin with Type 2 diabetes

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Abstract

Type 2 diabetes is at least 4 times more common among British South Asians than in the general population. South Asians also have a higher risk of diabetic complications, a situation which has been linked to low levels of physical activity observed amongst this group. Little is known about the factors and considerations which prohibit and/or facilitate physical activity amongst South Asians. This qualitative study explored Pakistani ($n = 23$) and Indian ($n = 9$) patients' perceptions and experiences of undertaking physical activity as part of their diabetes care. Although respondents reported an awareness of the need to undertake physical activity, few had put this lifestyle advice into practice. For many, practical considerations, such as lack of time, were interwoven with cultural norms and social expectations. Whilst respondents reported health problems which could make physical activity difficult, these were reinforced by their perceptions and understandings of their diabetes, and its impact upon their future health. Education may play a role in physical activity promotion; however, health promoters may need to work with, rather than against, cultural norms and in-

dividual perceptions. We recommend a realistic and culturally sensitive approach, which identifies and capitalizes on the kinds of activities patients already do in their everyday lives.

Background

Type 2 diabetes is a serious condition that can lead to complications such as heart disease, stroke, renal failure, amputation and blindness. Its prevalence is increasing rapidly in the UK. According to a recent conservative estimate, the number of people with Type 2 diabetes will rise by at least 20% by 2036, presenting the NHS with serious clinical and financial challenges (Bagust *et al.*, 2002). Responsibility is placed upon patients to self-manage the disease. Patients are normally advised to increase their levels of physical activity, consume a healthy diet, and, in some cases, take tablets and/or insulin to improve/maintain their blood glucose control. In addition, patients are often encouraged to self-monitor their blood glucose by performing home blood or urine tests as an aid to disease self-management (Diabetes UK; www.diabetes.org.uk). Those who do not adhere to their diabetic regimens are at increased risk of developing complications and premature death (UK Prospective Diabetes Study, 1998).

Type 2 diabetes is at least 4 times more common among South Asians resident in the UK than in the general population (D'Costa *et al.*, 2000). (South Asians are defined in the literature and this study as people with ancestral origins in the Indian Sub-continent.) South Asians also have a higher risk of diabetic complications, a 40% higher mortality and

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develop the disease 10 years earlier than their white counterparts (Raleigh *et al.*, 1997). Whilst a genetic predisposition is thought to be partly responsible for their increased susceptibility to the disease and its complications, social and cultural influences are also very important (Greenhalgh, 1997). Indeed, the increased prevalence of Type 2 diabetes amongst migrant South Asians has been attributed to a 'Westernization' of their lifestyles, with declining physical activity playing a major role (Abate and Chandalia, 2001). Various surveys have reported substantially lower levels of physical activity amongst British South Asians than in the general population, particularly among women and older people (Hayes *et al.*, 2002; Fischbacher *et al.*, 2004). It has also been shown that, in general, adults with diabetes undertake less physical activity than non-diabetics (Thomas *et al.*, 2004). There is growing recognition that physical activity amongst South Asians needs to be promoted (Carroll *et al.*, 2002) and it has been shown that even moderate increases can improve glycaemic control, as well as benefiting cardiovascular health, functional status and promoting longevity (Hays and Clark, 1999).

Various studies have focused attention on barriers/facilitators to physical activity amongst members of the general population, particularly those who are inactive and/or older (Booth *et al.*, 1997; Brawley *et al.*, 2003; Grossman and Stewart, 2003). However, we only have a very limited understanding of the factors and considerations which may hinder and/or foster physical activity amongst South Asians, in general, and those with Type 2 diabetes, in particular, as there is a dearth of studies in this area. Indeed, whilst survey research has been useful in describing patterns of physical activity among South Asian groups, it can tell us little about the individual, social and cultural considerations underlying them (Fischbacher *et al.*, 2004).

In this paper, we report the findings from a qualitative study which explored Indian and Pakistani diabetic patients' experiences of, and views about, undertaking physical activity as part of their diabetes self care [the study also looked at barriers/facilitators to other aspects of the diabetic regimen, see Lawton *et al.* (Lawton *et al.*, 2005)].

To do this, we adopted a contextually sensitive approach which took account of individual, social and cultural considerations, and the impact of these on patients' commitment and perceived ability to increase/maintain their physical activity following diabetes onset. A key objective was to inform Pakistani and Indian patients' future diabetes care, given the evidence that these patients respond well to health-related interventions, provided these are delivered in ways sensitive to their views and cultural backgrounds (Hawthorne, 1997; Greenhalgh *et al.*, 2005).

Methods

Given that so little was known about the area of investigation, a qualitative approach was deemed appropriate, as this would allow themes to be identified and explored during the study, rather than assessing predetermined hypotheses. A flexible, open-ended approach was achieved by using an emergent study design informed by grounded theory (Glaser and Strauss, 1967), which involved concurrent data collection and analysis (Strauss and Corbin, 1990), together with systematic efforts to check and refine emerging categories of data (see data analysis below). We utilized single, in-depth interviews which permitted respondents to display their own understandings and meanings, and to raise and discuss issues they perceived as salient (Britten *et al.*, 1995; Pope and Mays, 1995).

Recruitment and sample

Both clinician and local community recruitment were utilized, as other researchers have shown that recruiting members of ethnic minority groups can be difficult and time-consuming, and several methods may be needed to access a sample with broad-ranging experiences and characteristics (McLean and Campbell, 2003; Richens and Currie, 2004; Sin, 2004). Following approval from Lothian Research Ethics Committee, patients were recruited from five General Practices in Edinburgh which had a high proportion of Pakistani and Indian patients

with Type 2 diabetes. Health professionals contacted patients by letter (in English, Urdu and Punjabi), inviting them to 'opt in'. Face-to-face recruitment and snowballing were used to access respondents from Edinburgh's South Asian community, effort being made to include hard-to-reach groups, such as housebound patients. All respondents were either Indian or Pakistani, aged 18 years and over, and diagnosed with Type 2 diabetes. Bangladeshis were excluded due to the logistical problems of including an additional cultural and language group, and the very small numbers resident in Scotland (2001 Census). Respondents were pur-

posively sampled on the basis of their age, sex, length of time since diagnosis and self-reported fluency in English to ensure a diversity of perspectives (see Table I), and in proportions which reflected the demography of South Asians in Scotland (2001 Census). In line with a grounded theory approach, recruitment continued until no new themes emerged from the interviews.

Data collection

To ensure all eligible people could take part, we offered respondents interviews in Punjabi, Urdu and Hindi as well as English [in practice, all

Table I. Characteristics of the sample

Name (pseudonym)	Age (decade)	Ethnic origin	Religion	Self-reported fluency in English	Years since diagnosis	First/second-generation migrant
Mrs Khan	50s	Pakistani	Muslim	high	16	second
Mr Rahul	60s	Indian	Hindu	high	3	first
Mrs Navdeep	60s	Indian	Sikh	low	22	first
Mrs Raza	60s	Pakistani	Muslim	low	1	first
Mr Sheikh	60s	Pakistani	Muslim	moderate	10	first
Mrs Manjit	40s	Indian	Sikh	low	1	first
Mr Idrees	40s	Pakistani	Muslim	high	12	second
Mr Aftab	70s	Pakistani	Muslim	low	12	first
Mrs Mughal	50s	Pakistani	Muslim	low	6	first
Mr Mughal	70s	Pakistani	Muslim	low	20	first
Mr Mohan	60s	Indian	Hindu	high	1	first
Mrs Rahat	40s	Pakistani	Muslim	high	1	second
Mrs Abdullah	50s	Pakistani	Muslim	low	8	first
Mrs Parween	60s	Pakistani	Muslim	low	2	first
Mrs Dixit	60s	Indian	Hindu	high	16	first
Mr Mir	50s	Pakistani	Muslim	moderate	25	first
Mr Ismael	60s	Pakistani	Christian	high	24	second
Mr Maskeen	70s	Indian	Sikh	moderate	24	first
Mr Anwar	60s	Pakistani	Muslim	moderate	15	first
Mr Awan	40s	Pakistani	Muslim	moderate	10	first
Mrs Akbar	60s	Pakistani	Muslim	moderate	10	first
Mrs Qureshi	50s	Pakistani	Muslim	low	15	first
Mrs Yunus	50s	Pakistani	Muslim	low	8	first
Mr Narain	50s	Indian	Sikh	high	8	second
Mr Yunus	60s	Pakistani	Muslim	low	5	first
Mr Dar	60s	Pakistani	Muslim	high	12	first
Mrs Saeed	30s	Pakistani	Muslim	high	8	second
Mr Munir	50s	Pakistani	Muslim	low	5	first
Mrs Bhopal	50s	Indian	Sikh	high	6	first
Mr Ibrar	60s	Pakistani	Muslim	high	30	first
Mrs Rohan	40s	Indian	Hindu	low	1	first
Mrs Ghani	50s	Pakistani	Muslim	high	7	first

respondents opted to be interviewed in Punjabi ($n = 19$), English ($n = 9$) or a combination of Punjabi and English ($n = 4$). All interviews were undertaken by a bi-lingual researcher (N. A.) who is fluent in these languages, as information and nuances can be lost when third-parties are used to interpret (Cambridge, 1999; Ebden *et al.*, 1988).

A topic guide was used for the interviews, which was piloted on two Punjabi speakers to ensure it was salient and culturally meaningful. Whilst the guide was initially informed by a literature review, the study's advisory group, and preliminary discussions with patients and health-care providers, it was revised in light of emerging themes and findings. The final list of relevant topics covered in interviews was:

- Current and past involvement in physical activity.
- Intention/commitment to increase/maintain physical activity and to adhere to other aspects of the diabetic regimen.
- Barriers/facilitators to physical activity.
- Perceived impact of physical activity (and other factors) on past, present and future health.
- Perceptions of the causes of Type 2 diabetes and other diseases.
- Perceived impact of diabetes on past, present health; perceptions of future health.
- (Unmet) needs for services and support.

Interviews normally took place in respondents' homes, averaged 1 hour and were tape-recorded with their consent. When necessary, interviews were translated by N. A. into English and all interviews were transcribed in full. To ensure rigour and to highlight potential areas of misunderstanding, N. A. was assisted by two casually employed translators, one of whom was Indian and the other Pakistani. These translators checked tapes against the transcripts and were available for troubleshooting when words/concepts did not easily translate from Punjabi to English.

Analysis

Data analysis commenced as soon as the interviews began, with team members meeting regularly to review data. Team members explored respondents'

underlying reasoning, discussed deviant cases, and reached agreement on emerging themes and findings. The concurrent process of data collection and analysis directed further literature reviews, investigation topics and interview questions. Emerging themes were explored with respondents in later interviews, and, when necessary, were subjected to further revision. NUD*IST, a qualitative data-indexing package, was used to facilitate data coding and retrieval (Boyatzis, 1998). All names used in this paper are pseudonyms.

Results

Irrespective of whether or not they spoke and understood English, virtually all the respondents reported an awareness that they should be taking regular physical activity as part of their diabetes care; specifically, 'to bring the sugar down' [Mrs Rahat] (note: respondents routinely used the term 'sugar' to describe their diabetes). For instance, most described how they had been encouraged by health professionals to go out for regular walks and sometimes also to swim. However, whilst messages about the need to undertake physical activity had clearly been received, few respondents said they had put this lifestyle advice into practice. Indeed, of the 32 people who took part, only seven claimed to have made a conscious and sustained effort to increase/maintain their physical activity. Of these seven respondents, six were men. As will be illustrated below, a plethora of interweaving factors and considerations operated as barriers to respondents increasing and/or maintaining their physical activity. Consideration is also paid to the minority of respondents who had become more physically active and to the lessons which can be learnt from them. Unless otherwise indicated, the responses reported below did not differ according to the respondent characteristics in Table I.

Roles, norms and responsibilities

Lack of time; obligations to others

Many respondents pointed to the difficulties of incorporating activities such as walking and swimming

into what they regarded as extremely busy lives. These respondents pointed to a strong work ethic amongst Indians and Pakistanis in Britain, amongst whom it is common for people (including those of retirement age) to work very long and anti-social hours, often in shops and restaurants which opened early and/or stayed open until very late. As Mr Ismael described:

It's just the time you know. There's so many things in the day even though I am retired now. We're still y'know—my son has got a business, so I run errands for him, do his banking or this and that. It keeps me occupied.

As Mr Ismael also alludes to, there is a powerful notion amongst Pakistanis and Indians that family comes first, and hence that people should prioritize their obligations to kin, such as helping out in family businesses and/or with child care, over the pursuit of their own interests and activities. As a consequence, as some respondents suggested, taking time out for themselves to go out exercising could be interpreted as a selfish and hence a culturally inappropriate act.

Lack of time and opportunity was particularly a problem for female respondents, some of whom pointed to a cultural norm that once a woman got married, she was expected to stay indoors, attending to domestic chores and responsibilities:

Women cannot go out.... You have to cook and provide meals at the right time, so because of that there is a restriction. He [husband] goes out when he feels like it, but it is different for women. [Mrs Mir]

Many female respondents had been brought up in India and Pakistan, and only migrated to Britain as adults (normally for the purposes of marriage and/or to join husbands who had already moved to Britain). These women found it particularly difficult to increase their physical activity as they had not been socialized into spending time outdoors, let alone to participating in sports, when they were younger. As Mrs Yunus described: 'I don't go out, nor do I have the habit of going out. I just read my namaz [prayer] and sit in my own home'.

Indeed, it is noteworthy that women such as Mrs Yunus had a very limited knowledge of their neighbourhoods, because even before they had diabetes, they had rarely ventured out on foot beyond their corner shops and other local facilities.

Fear and shame

For these female respondents, lack of familiarization with their local neighbourhood could engender feelings of vulnerability when they left their homes, which were compounded by difficulties speaking English. A good case in point is Mrs Navdeep, who described how, following her doctor's recommendation to walk regularly, she had ventured out on foot to her local chemist. However, before she reached the chemist, her leg seized up, leaving her immobile and because she spoke virtually no English, she had been unable to ask other people for help. Mrs Navdeep described how, since this unfortunate incident, she had been too frightened to go out alone: 'what if I fell or collapsed again, I speak little, little English'. Another women, Mrs Parween, similarly reen countered how, after passing out on her way to local shops, her family had refused to allow her to go out unaccompanied, as they were worried that they would be judged negatively by others: 'my daughter said, "people will wonder that your daughter can drive a car, yet her mother went out on her own"'.

External constraints

Lack of culturally sensitive facilities

Even when respondents were willing and able to increase their physical activity, their efforts were often frustrated by a lack of culturally sensitive facilities. Several women, for instance, described how they had been unable to follow their health professionals' recommendations to go swimming and/or to take up light gym work because of cultural taboos about exposing their bodies to members of the opposite sex and the lack of availability of single-sex facilities with same-sex instructors:

Yes they tell me to do exercise and to go swimming. But there are no apnay [South Asian] women, there are men. And within men you feel

ashamed [laughs]...if there are just men then it is very difficult, I can't do it then. [Mrs Mughal]

Whilst some of these respondents highlighted a need for group sessions which were organized by members of their own community who would 'understand our ways' [Mrs Mughal], others said they would find it very difficult to attend sessions scheduled at fixed times because of the many competing demands on their time. A couple of respondents also indicated that they would not consider participating in groups with fellow community members because of their perception that 'people would just come and gossip, and bitch behind each others' backs' [Mr Yunus].

Climatic conditions

Further difficulties arose from poor climatic conditions, which were described as a major barrier to physical activity by men and women alike. Virtually all respondents expressed a profound dislike of going outside, particularly in cold, wet and windy conditions. As Mrs Abdullah said:

The doctor told me to walk, and I used to go out a little but now the winter has come, I don't go now, I don't feel like going out. I feel very cold.

These respondents described how, particularly in the Winter months, they made very extensive use of their cars, even when making very short trips, such as to their local shops. Most made it clear that, despite encouragement from health professionals, they would not consider taking up any activity which required them to go outside in bad weather. A couple of respondents suggested that the provision of equipment which could be used indoors, such as exercise bikes and treadmills, might constitute a viable solution.

Perceptions and experiences of disease

Co-morbidities

As some of the above accounts have already indicated, health problems often co-existed with social and cultural considerations. Many respondents' accounts were peppered with references to health complaints, such as asthma, painful knees,

swollen feet and joints, and breathlessness, which made attempts to pursue even simple activities, such as walking, extremely difficult, and which could leave respondents feeling frustrated and despondent:

They tell you to exercise and I exercise a little, but I can't move around a lot because I have a problem with my leg [arthritis]. If I walk a little then it swells up. [Mr Mohan]

Several respondents also described how they had had heart attacks which had left them feeling extremely weak and lethargic; one was recovering from a coronary bypass operation and one had suffered paralysis following a stroke, which had resulted in him becoming housebound.

Accounts of causation; perceptions of future health

Whilst respondents reported a plethora of health problems which made the pursuit of an active lifestyle difficult, in many cases, the physical difficulties they experienced appear to have been interlinked with, and reinforced by, their health beliefs and perceptions of disease causation.

A particularly striking feature of the interviews is that when respondents talked about why they thought that they had got diabetes (and other diseases) they almost universally attributed the causes to factors outside their control. Indeed, very few imputed their own lifestyle choices and behaviours in any direct and obvious way; on the contrary, respondents tended to blame external factors such as the will of Allah/God, genetics or a change in climate and environment brought about by their migration to the UK.

God has given me this disease of sugar. Whatever happens, it happens because God wants it to happen. [Mrs Abdullah]

When our people move over here...everything changes—the country changes, the air changes and the water changes. That is why we get a lot of sugar. [Mr Mughal]

The absence of notions of individual responsibility and control also extended to respondents' perceptions

of their future health. When respondents reflected upon their futures, their accounts tended to be fatalistic and surrounded by a strong sense of inevitability. Most respondents described a perception that ageing, ill-health and bodily decline went inextricably and inexorably hand-in-hand. Put simply, respondents not only expected their health would continue to deteriorate as they got older, many also expressed a belief that they could do little, if anything, to reverse or delay this process:

With age, as you know, you become weaker, and there is not much you can do about it. [Mr Anwar]

As I get older, I will become weaker, that is how things are. [Mr Yunus]

These perceptions appeared to be partly borne out of respondents' exposure to the omnipotent presence of morbidity and mortality amongst their (older) kin and fellow community members, most of whom 'have a problem of one kind or another health-wise, whether it's the kidneys, or the heart or diabetes, there is always a problem' [Mr Rahul] and amongst whom, 'like, in total, the age that we last is 55–65 years' [Mr Awan]. For some respondents, however, these fatalistic notions seemed to have been reinforced by their belief that health, illness and death are pre-ordained by Allah/God.

What our master wants will happen. That is how it is, we cannot do anything. [Mrs Manjit]

Whatever is going to happen is going to happen. My death will come when it will, it is in Allah's hands. [Mrs Akbar]

Diabetes triggers irreversible decline

For many respondents, then, diabetes was seen both as being part of, and as reinforcing, a process of bodily decline over which they could exercise little control. Indeed, it was very common for respondents to describe their diabetes as marking a turning point in their lives, because they perceived the disease as taking something fundamental away from them—their health, strength and vitality—which they could not regain.

When I found out 10 years ago [diagnosis of diabetes], my heart felt like it was crying. At that moment, I moved from being fine and healthy, to being much older than I was. [Mr Aftab]

Before I had diabetes, I was very healthy. Since I've had diabetes, I don't have any strength left. Yesterday I was sitting here by myself and started crying because I can't even walk around that much. [Mr Maskeen]

My health is going down quicker because of sugar no matter how much we control it. [Mr Awan]

In many cases, this perception that diabetes 'weakened' and 'aged' the body appeared to have a demotivational effect as far as the uptake or maintenance of physical activity was concerned. Indeed, Mr Maskeen (quoted above) went on to describe how he had stopped lifting weights and rarely went out walking after he found out that he had diabetes because of his perception that the disease had left him feeling 'low and weak'. Other respondents recounted similar experiences:

It's all very well to go and ask an aged Asian to go and exercise, but I'm sure I've lost something there—that's another aspect of this thing, I don't have any strength. [Mr Rahul]

When I found out I had diabetes, my legs started giving in, and I stopped playing cricket when I found out. I haven't played sports or anything since then. Ten, 12 years now, I haven't played any sports at all. [Mr Idrees]

Arguably, the perception that diabetes weakens the body, and brings about a process of deterioration and decline, not only acted as a barrier to physical activity, for some this expectation may have become a self-fulfilling prophecy. Indeed, as participants slowed down and became less active following the diagnosis of diabetes, they also became weaker, a situation which, as respondents such as Mrs Yunus recognized, resulted in their becoming even more sedentary still:

Since I've had the sugar I've become like this more and more. It is like how a garment becomes

old and used and begins to rip apart.... Because of sugar, I don't have any life in me at all. I do try, I will try not to sit for too long and somehow keep myself active, but it's not the same, my body feels dull, so I tend to give up. [Mrs Yunus]

Physical activity can engender anxiety

Following repeated encouragement from health professionals, some respondents did try to increase their physical activity. However, these attempts tended to be fleeting. Respondents described how they had found the embodied experience of physical exertion unpleasant and sometimes even frightening, particularly when, like Mrs Parween, they felt that they were at risk of falling or fainting.

I can't walk. I walk a short distance and become breathless and when I become breathless, one can fall that's another problem. If you have the courage and strength then you can do everything. When I stand I become dizzy. [Mrs Parween]

Furthermore, rather than seeing sweating, increased heart rate and breathlessness as 'normal' byproducts of physical activity, some respondents perceived them as illness states and thus as something they should try to avoid:

I can't do any serious exercise on the weights or the machines and all that because I feel...I start feeling ill y'know if I exercise. [Mr Idrees]

Activities and active respondents

As indicated earlier, only a minority of respondents said they had made conscious and sustained efforts to include/retain activities (e.g. brisk walking, light gym work, swimming and indoor cycling) in their daily/weekly routines. As has also been described, the majority of these respondents were men; indeed, as we have shown, due to gendered norms, social rules and cultural expectations, various barriers to physical activity appeared to pertain more to women than to men. Yet, as the active respondents' accounts suggest, it was not just the absence of specific barriers which fostered physical activity, other factors also appeared to be at play.

Short-term goals

Unsurprisingly, given the health beliefs reported earlier, respondents did not tend to prioritize their long-term health in their accounts of why they were physically active, instead they pointed to more short-term goals and considerations. A couple, for instance, described how they had made efforts to increase and maintain their physical activity in order to avoid moving on to insulin. These respondents described a fear and dislike of having to inject themselves, and also pointed to the stigma which could arise from being seen to inject by others:

In our culture, you're not wanting to show that you've got any kind of diseases, like diabetes, which is why we don't want the injections. [Mr Narain]

More commonly, however, respondents described how they undertook physical activity in conjunction with self-monitoring their blood glucose. These respondents highlighted the instant sense of gratification and achievement which they gained from exercising, and then seeing their readings go down. For these respondents, low readings provided a positive reinforcement, which motivated them to continue to be active:

I monitor to see if my sugar is high and then I start going round [starts running on the spot] and then I check and see that it has fallen. That's it. That's the reason why I still exercise. I just run about here in the rooms of the home for about 5–7 minutes, no more than that. I go here and there and my sugar becomes low. [Mr Sheik]

I do enough already

A small minority of respondents (who are not included in those above) also pointed out that, by virtue of leading busy lives, they might be doing adequate physical activity already. A good case in point is Mrs Akbar, who described how, in addition to assisting with the care of her 5-year-old grandson, she routinely helped out in the kitchens of a family-run restaurant where: 'I go and wash all of the dishes, I will clean huge pans, and the workers

will try to stop me because the pans are heavy, and I will tell them to move out of my way [laughter]'. A couple of Pakistani respondents also speculated that praying might help to keep them active, as this required them to perform a sequence of standing, kneeling and bending motions at regular intervals throughout the day.

Discussion

In this study we have identified a plethora of complex and often interweaving factors which appeared to influence physical activity (or lack of activity) amongst Pakistani and Indian patients with Type 2 diabetes. As we have shown, practical considerations (e.g. lack of time, lack of opportunities to partake in physical activities) were often interwoven with social rules and cultural expectations, such as the prioritization of obligations to kin, restrictions on (women) leaving the home (especially to enter mixed-sex settings), and lack of socialization into sporting and other outdoor activities. Whilst respondents reported health problems which could make physical activity difficult, these seemed to be reflected in, and reinforced by, their health beliefs; specifically, their perception that their diabetes weakened their bodies in ways which could not be reversed or delayed. Consequently, when respondents were motivated to undertake physical activity, they tended to have short-term considerations rather than long-term health goals in mind.

Before discussing the findings further, a caveat is necessary. This study focused on Pakistani and Indian respondents; hence, there is a danger that the findings could be perceived as being specific to them, when, in actuality, some issues and experiences may be shared by other cultural/ethnic groups. Indeed, other studies have suggested that certain factors and considerations, such as perceived lack of time, dislike of going outdoors in bad weather and the experience of ill-health, can act as barriers to physical activity, irrespective of people's ethnic group [e.g. (Booth *et al.*, 1997; Eyler *et al.*, 1998; O'Brien Cousins, 2000; Grossman

and Stewart, 2003)]. Whilst we would not wish the findings of this study to be ghettoized, especially if this leads to their being perceived as a South Asian 'problem', we would also caution against taking the appearance of similarity at face value, especially if this results in a 'one size fits all' approach to physical activity promotion (Booth *et al.*, 1997).

Indeed, this study has highlighted various issues and considerations which appear to have particular salience for our Pakistani and Indian respondents, and which may help to account for the low levels of physical activity observed amongst these groups when compared to members of the general population (Hayes *et al.*, 2002; Fischbacher *et al.*, 2004; Thomas *et al.*, 2004). Whilst lack of time may not be a problem specific to Pakistanis and Indians, our findings indicate that pressures to work long and/or antisocial hours, together with obligations to kin, may place particular demands and constraints on these people's time. Furthermore, whilst our respondents highlighted a dislike of going outdoors in bad weather in common with other cultural/ethnic groups, their movements outside the home also appear to have been curtailed by social rules and cultural considerations, including the absence of a culture of exercise. Arguably, the lack of socialization of women (and to a lesser extent men) into sporting and outdoor activities presents a particular challenge to health promoters/educators, as it has been shown that past experience of, and success with, physical activity act as key facilitators to current physical activity [see (Eyler *et al.*, 2002)]. This lack of socialization may also help to explain why some respondents seemed to be unaware that breathlessness, increased heart rate and sweating are normal byproducts of physical exertion.

A subtle, yet fundamental, barrier identified in this study was respondents' disease perceptions. Like Ismail *et al.* (Ismail *et al.*, 2005), who explored Pakistanis' and Indians' beliefs about the causes of epilepsy, we found fatalism to be common amongst our respondents, who perceived themselves as being able to exercise little control over their present and future health. Clearly education does have a role to play here: the importance of physical activity for the prevention and delay of diabetic

complications should be emphasized to patients, together with the need to make, and sustain, long-term lifestyle changes. However, we should also be realistic about what education can achieve, as various studies have shown that people may reject or fail to respond to health education messages if these do not strike a responsive chord with their own experiences (Blaxter, 1983; Davison *et al.*, 1991; Hunt *et al.*, 1998). As a wealth of medical sociology studies have now demonstrated, people's perceptions and understandings of their disease need to be situated and understood not only in terms of their individual experiences, but also within the broader social, cultural and historical context of their lives (Lawton, 2003). As our findings suggest, respondents' 'lay epidemiology' (Davison *et al.* 1991) may have derived in part from their religious beliefs, and also their exposure to widespread ill-health and premature death amongst senior family and community members, an exposure which may engender a perception that ill-health is an inevitable and hence biographically anticipated feature of ageing [see (Cornwell, 1984; Sanders *et al.*, 2002)]. [Such an exposure, furthermore, may have resulted from respondents' migration to a country where they encounter significant health inequalities by virtue of being poorer and less well educated than the majority population, see Nazroo (Nazroo, 2001)]. Arguably, simplistic messages which emphasize the role and importance of the individual and individual behaviours in the prevention and control of Type 2 diabetes do not rest comfortably with the disease perceptions arising from these multifaceted experiences.

Most of our respondents, like the current British cohort of Indian and Pakistani people with Type 2 diabetes, were first-generation migrants (National Resource Centre for Ethnic Minority Health, 2004). Whilst it is likely, therefore, that some of the social and cultural factors described above will attenuate over time, especially amongst the later generations of those who have migrated to Britain, for now health promoters/educators may need to consider working with, rather than against, cultural norms, values and individual perceptions. For instance, rather than appealing to the promotion of individual

health and personal gain, they might consider emphasizing the benefits of physical activity in terms of helping people to maintain their roles within their families and to fulfil their obligations to others [see also (Juarbe, 2002)]. Furthermore, given the importance that Pakistanis and Indians attach to group norms and social values, initiatives which receive community endorsement may help to alleviate people's anxieties that others will perceive them as selfish if they take out time to undertake physical activity. Our findings also underline the importance of educating the whole family, and not just the person with diabetes, about the importance of physical activity for glycaemic control.

Whilst it would appear that some people would benefit from the provision of culturally sensitive facilities, such as single-sex sessions at local swimming pools with same-sex instructors, solutions such as this may be impractical for others. Indeed, to ensure that their efforts are both realistic and culturally sensitive, health promoters/educators need to take account of some people's inability and/or dislike of going outdoors. They may also need to accommodate the fact that people may have many competing demands on their time which, as some of our respondents indicated, would make it difficult to attend organized sessions scheduled at fixed times. Consequently, health promoters/educators should try to encourage activities which are flexible in terms of when and where they can be done, and indoor pursuits may be necessary. Whilst some respondents suggested that the provision of indoor sporting equipment (e.g. exercise bicycles) might serve to fulfil these requirements, activities should also be considered that can be built into people's everyday lives by capitalizing on the kinds of things they do already (as is currently recommended in the promotion of physical activity for the wider population). Such activities could be identified and explored in discussions with patients during their consultations. Furthermore, if one important lesson can be learnt from those who are active, rather than simply appealing to long-term health considerations, activities should provide some sense of instant gratification. Johnson (Johnson, 2000) has suggested raising the 'fun factor' so that

exercise becomes part of other socially rewarding activities. Our findings also suggest that, whilst the use of blood glucose monitoring is controversial in the management of Type 2 diabetes (Coster *et al.*, 2000; Peel *et al.*, 2004), it may have a useful part to play by demonstrating the immediate effects of physical activity.

Finally, consideration needs to be paid to the term physical activity, and the ways it was used and understood by our respondents. It is noteworthy that the vast majority pointed to activities such as walking, swimming, cycling and gym work to substantiate or refute the view that they were physically active. Whilst only a few described more mundane and routine activities—such as performing kneeling and bending motions during prayers—their comments open the door to considering that Indians and Pakistanis may undertake certain physical activities during their everyday lives which are not necessarily recognized as such by themselves nor by researchers and/or health-care professionals. Indeed, there is growing recognition that, given the emphasis currently placed on sporting and rigorous activities, not only are most physical activity assessments geared more to men than women (Eyler *et al.*, 1998), they may also be culturally bound (Eyler *et al.*, 2002; Fischbacher *et al.*, 2004). Hence, as Fischbacher *et al.* have recommended, we need to think of more culturally sensitive ways of determining physical activities amongst members of ethnic minority groups (Fischbacher *et al.*, 2004). As this study suggests, research is needed not only to establish whether important types of activity are not being identified using current criteria and measures, but also to ensure that those seeking to promote physical activity (e.g. by capitalizing on everyday life activities) do so in culturally appropriate ways.

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