Diversity in Health and Social Care 2006;3:131–9

Research paper

Exploring issues related to oral health and attitudes to diet among second-generation ethnic groups

Kenneth Mullen MA MLitt PhD
Lecturer in Medical Sociology, Section of Psychological Medicine

Rohan Chauhan BDS MSc DDPH
Research Assistant, Section of Psychological Medicine

Rafik Gardee MBE LRCP&S DPH MFPH
Consultant in Public Health Medicine, Honorary Senior Lecturer, Section of Public Health

Lorna Macpherson BDS MPH PhD FDS FRCD(C) MFPH
Professor of Dental Public Health, Dental School

University of Glasgow, Scotland, UK

ABSTRACT

This paper investigates and identifies factors influencing diet among ethnic groups in Glasgow. A qualitative semi-structured research methodology was used. The sample covered the major ethnic groups living in Glasgow. One hundred respondents, both men and women from Pakistani, Indian, Chinese and white backgrounds, aged from 20 to 45 years were chosen. The sampling strategy used the electoral roll, mail shot and the use of social networks. Our qualitative study found that, to a large extent, those from the non-white ethnic groups still maintained a large part of their cultural diet, although they were now slowly moving towards a mixed diet, incorporating western foods. Respondents were aware of the components of a healthy diet, and also about specific oral and general health campaigns. There was also some limited evidence that the second generation is finding itself being culturally torn between the ideas and attitudes of their elders and the current ideas of their peers. There was evidence that hectic lifestyles and long working hours had also led to irregular eating habits. Centrally our findings show the importance that should be placed on the influence of lifestyle, and we see that such influences are not crudely related to class and deprivation, but rather need to be unpacked in relation to type of employment and the forms by which occupational work and time frames influence diet. Although our research has uncovered some evidence for a generational shift in attitudes between current and previous generations, our major finding relates to the importance of lifestyle influences on dietary modification.

Keywords: diet, ethnic minorities, oral health, qualitative methods

Introduction

Research on ethnicity and diet has often focused on dietary deficiencies among specific ethnic minority groups (Runnymede Trust, 1982; Mullen and Curtice, 1997; Kai, 2003). Such literature has considered issues relating to ethnicity and diet within the wider perspective of ethnicity and health (Wyke, 2004). In this literature, general themes of health aspects of migration, deprivation, racism and acculturation are discussed (Modood and Berthoud, 1997; Lau, 2000). Health problems considered have been diabetes (Diaz *et al*, 2005), deficiencies in diet (Emmons *et al*, 2005) and obesity (Dohn *et al*, 2005). Researchers have

frequently commented that this literature is often limited by its easier access to, and therefore focus on, first-generation migrants to a particular country (Williams and Shams, 1998; Williams *et al*, 1998).

Focusing on the literature relating to oral health, from a UK perspective, previous work has examined the general relationship between diet and dental health (Rugg-Gunn, 1993). Kalka (1988) reported changing food habits, but looked only at Gujaratis in Britain. The adding of sugar to children's drinks has also received attention (Bedi, 1989; Williams *et al*, 1989; Williams and Sahato, 1990).

Gibbons *et al* (2000) found relatively high proportions of their Indian sample consuming what could be seen as a traditional Indian diet. The Pakistani group were also following a largely traditional diet. Fizzy drinks were not consumed, but with both these groups there was noted a rise in sandwich eating. The study respondents were reported to have consciously linked changes in diet to a potential increase of problems with oral health. Their increase in sugar intake was believed to be partly linked to changing diet as people entered the UK, where the commodity was more widely available. This theory had been suggested earlier by Kalka (1988). The Chinese were found to consume sugar less frequently than other ethnic groups, and believed water was good for teeth.

Much of the focus of the work of Gibbons and his coworkers was on sugar consumption, and for all ethnic minority groups, it was reported that sugar intake between meals occurred most frequently in hot drinks or snack foods. Dietary practices seemed to be related to those experienced early in life. 'Traditional' diets were followed at main meals, but breakfast and meals taken away from the home demonstrated greater 'westernisation'. The importance of function such as the ability to chew foods was also stressed.

In an earlier study, Gelbier and Taylor (1985) found that chapattis and wheat flour were mostly consumed as staple food by Pakistanis and Punjabis. A number of Asians in the UK still maintained a similar diet. However, Asians residing in the UK had been influenced by western culture. Younger generations of Asians and working mothers had taken to eating fast foods just like the rest of the population (Gelbier and Taylor, 1985). Nevertheless mothers who were housewives were found to still maintain their traditional role of cooking the meal. If fresh food or traditional food was not available, a lot of them included frozen foods as part of their diet (Gelbier and Taylor, 1985).

Kay *et al* (1990) in their Glasgow study discovered that 66% of their sample of Asians reported that they consumed food that was cariogenic several times a day. Fifty-four per cent felt it was all right to add sugar to bottle feeds for infants.

Very few qualitative studies looking into ethnicity and oral health have been undertaken in the UK, and previous quantitative studies have been restricted by the fact that they have largely concentrated on children or older age groups (Newton *et al*, 2000). Our study focused on second and subsequent generations between the ages of 20 and 45 years, a group that has been largely neglected in previous research. This group was chosen to discover whether the beliefs and attitudes of individuals from second-generation ethnic groups are any different from their elders due to acculturation and, if so, to understand the reasons for the changes in their attitudes towards oral health. This paper therefore reports the findings of a qualitative study investigating cultural differentials in oral health and issues related to attitudes towards dietary practices in the second generation of different ethnic groups in Glasgow.

Methods

Our research method is firmly rooted within the tradition of qualitative phenomenological analysis. With a phenomenological research methodology, the main focus is on the meanings respondents give to their activities. The aim of the analysis was to 'establish the cognitive universe or cosmology' (Silverman, 1985) in respondents' thoughts about diet and oral health.

We used qualitative interviews (Strauss, 1987; Strauss and Corbin, 1998) with men and women from different ethnic groups, to build upon previous work on ethnicity, oral health and diet. One hundred respondents from Pakistani, Indian, Chinese and white backgrounds, aged 20 to 45 years, were interviewed. As further entry criteria, each interviewee had to have lived in the UK for at least 20 years. This ensured that respondents from the minority ethnic groups were second generation, and those from the white indigenous sample could be used as a comparison group. The study gained ethical approval from the University of Glasgow Ethics Committee for Non-clinical Research Involving Human Subjects.

A purposeful sampling strategy (Patton, 1990; Miles and Huberman, 1994; Maxwell, 1996) was used to gain maximum explanatory power from the interviews. The sample covered the predominant ethnic groups living in Glasgow (Umeed, 2000). The main sampling strategy was to use the electoral rolls of areas in the city where people from minority ethnic groups were concentrated, in conjunction with a name analysis system (Ecob and Williams, 1991). A short screening questionnaire covering basic demographic and household information was then sent out, enabling the selection of appropriate respondents to fit the sampling frame. Interviews were then arranged. The name analysis and use of screening questionnaires had already proved

successful in Glasgow (Ecob and Williams, 1991; Mullen, 1993). In our study, although little difficulty was experienced with the use of the name analysis method, we did encounter a few problems with the accuracy of the electoral roll and also with accessing respondents in multiple occupancy tenemental property. A chain technique (Miles and Huberman, 1994) was also used. This facilitated access to the respective ethnic minority communities via the use of community organisations.

A single dentist, with considerable experience of multi-ethnic research, carried out the qualitative interviews. As the study concentrated on the second generation, translation skills were kept to the minimum, although some interviews were conducted by the interviewer in Punjabi and Urdu and, for some interviews within the Chinese community, an interpreter was used. Although our interviewer (RC) had qualified as a dentist, this was not disclosed during the course of any interview, his role remaining strictly that of the research assistant for our study.

The sub-sections of our interview schedule were:

- definition of good oral health
- knowledge and beliefs about oral health
- oral health-related behaviours
- general attitudes regarding dental health, including attitudes towards dental attendance and dentists
- dietary practice.

In this article we analyse respondents' attitudes towards dietary practice.

Being aware of the different patterns between ethnic minority groups and the general population in regard to both socio-economic position and employment status (Modood and Berthoud, 1997; Williams *et al*, 1998), the authors collected a variety of social indicators: level of education, occupation, employment status, and Carstairs' Deprivation Category (Depcat) (Morris and Carstairs, 1991). The breakdown of the sample can be seen from Tables 1, 2 and 3.

These categories make the study comparable with previous studies of minority ethnic populations (Modood and Berthoud, 1997) and those carried out on the Scottish population (Central Research Unit, 2001). The respondents also accurately reflected the employment experience of ethnic minority groups. Previous writers have argued that social class measures are often deficient with regard to research on ethnic minorities (Smaje, 1995; Williams, Wright and Hunt, 1998). Researchers have also argued that local area deprivation measures are equally important (Nazroo, 1997; Chandola, 2001). In our study we have followed this lead, giving the deprivation index under each quotation.

The semi-structured interviews (Strauss, 1987; Strauss and Corbin, 1998) lasted approximately one hour. All interviews were transcribed, coded and indexed as

Table 1 Gender by ethnicity

	Ethnicity				Total
	Pakistani	Indian	Chinese	White	
Male	14	9	12	9	44
Female	15	14	16	11	56
Total	29	23	28	20	100

Table 2 Depcat score by ethnicity

Depcat score	Ethnicity				Total
	Pakistani	Indian	Chinese	White	
1–2: affluent	3	13	3	4	23
3–4: intermediate	3	3	5	4	15
5: deprived	7	1	2	1	11
6–7: very deprived	16	6	18	11	51
Total	29	23	28	20	100

Table 3 Gender by social class

	Non-manual	Manual	Unemployed	Housewife	Total
Male	30	10	4	0	44
Female	32	5	3	16	56
Total	62	15	7	16	100

soon as the interviews were completed, which allowed for important emergent themes in the data to be followed up in subsequent interviews (Strauss, 1987; Mullen, 1993). To ensure the validity and the reliability of the coding frame, a selection of transcribed interviews was coded independently by one of the principal investigators (KM) and the research assistant (RC). High degrees of agreement were achieved.

A secretary was employed for the transcription of all interviews. The qualitative data analysis package NVivo was installed, and interviews were coded. Emergent themes were noted and included in the coding frame (see Lindesmith, 1968; Dowell *et al*, 1995).

The two theoretical approaches that guided the analysis were grounded theory (Glaser and Strauss, 1967; Glaser, 1978; Strauss, 1987) and analytic induction (Znaniecki, 1934; Lindesmith, 1968; Cressy, 1973). Hammersley (1990) maintains that the two approaches are 'attempts to apply the hypothetical-deductive method to ethnography'. The final goal of both grounded theory and analytic induction is the same and this goal can be distinguished from research using statistical methods: 'The claim is not to representativeness but to faultless logic' (Silverman, 1985).

For part of the analysis the computer package QSR NVivo (Qualitative Solutions and Research (QSR), 2002) was utilised. Details of the technicalities of the process of transcription and coding can be found in Fielding and Lee (1991) and Pfaffenberger (1988). In practice NVivo was extremely useful in the early stages of the analysis, which involved the production of descriptive material. However, the researchers felt it to be inflexible when we wished to progress from a purely descriptive presentation of the material to the development of an analytic focus. Subsequent stages took the form of a detailed analysis of the taped material.

Results

Awareness of the components of a healthy diet

Respondents felt that their diet was, in general, satisfactory. The Chinese respondents in particular were quite satisfied with their diet, which was predominantly home-cooked Chinese food. Other groups felt they could reduce their intake of sugary food and fizzy drinks and eat more vegetables and fruit. Respondents seemed to be quite aware of foods that were harmful to health and actively tried to maintain a healthy diet as far as possible.

A Pakistani respondent said the following:

> 'Recently I have been drinking a lot of fresh orange [juice], cutting back on my fizzy drink. I have always had a bad habit in drinking coke so I have tried to cut down on how much of that I drink. Food-wise just chicken and fish cutting down on my red meat; found that it was getting stuck in my teeth; eating more salad and fruit and veg.' (R88: 35-year-old Pakistani male, Depcat 5)

Specifically in relation to oral health one Indian respondent stated:

> 'My parents' attitudes towards oral health has been pretty relaxed, they weren't as proactive as I am in relation to oral health, but I think it's also a very cultural thing, because of the foods that we are so used to eating.' (R1: 28-year-old Indian male, Depcat 6)

And an Indian respondent talking about his children:

> 'They avoid the fizzy drinks, obviously they do get the odd sip here and there, when they really want, when they are desperate, just to keep them quiet, but not too often of course. You know yourself what we try to do, once they have had a fizzy drink you must get them to brush their teeth before bed-time and in the morning when they get up. Probably not in the morning but definitely at night before they go to sleep.' (R83: 30-year-old Indian male, Depcat 2)

The indigenous white group were also aware of the components of a healthy diet:

> 'I am happy with the fact that I drink lots of water, I eat lots of fruit and vegetables and I have a lot of fibre and I don't eat sweets really.' (R86: 28-year-old white female, Depcat 7)

And again a respondent who had become a vegetarian:

> 'I don't drink sugar drinks or fizzy drinks, I eat a lot of vegetables and rice and stuff like that, so in that respect it is quite healthy.' (R41: 37-year-old white male, Depcat 6)

As can be seen from the above quotations respondents were not just aware of the components of a healthy

diet, but also put such knowledge into practice. People also tended to encourage their children to eat healthily.

Satisfaction with Asian diet

Included within ideas about good and bad aspects of diet there was a strong belief among some Asian respondents that certain elements of their cultural diet were beneficial and worth protecting. As one Pakistani female said:

> 'I think it is quite healthy. Mostly the Asian food that we eat is very balanced anyway, vegetables, we have a big selection of vegetables and have your veggies and you have fresh fruit with your meals anyway. So it is very balanced.' (R71: 29-year-old Pakistani female, Depcat 6)

A female Indian respondent was attached to certain Asian aspects of diet.

> 'Yeah because I need chillies and I need garlic and ginger in my food even if I make a simple stir fry I have got to put garlic and ginger and chillies in it and that is it is not satisfied unless you have got that aroma or taste.' (R80: 27-year-old Indian female, Depcat 6)

Some spoke of their dissatisfaction with non-Asian food:

> 'If I don't have a meal that has come from my own origin I don't get satisfied.' (R3: 33-year-old Pakistani male, Depcat 6)

Some commented on the way in which dietary habits were passed on through the generations:

> 'You tend to eat what you normally eat at home and I think generally my family don't snack between meals, and I think that has had an influence on me. We drink water usually rather than drinking juice and that also benefits, has an impact on my diet yeah I think so, and the way that I copy what I had at home in the past Chinese food and things like that.' (R89: 32-year-old Chinese male, Depcat 2)

A Pakistani male respondent stated:

> 'Yes definitely, my Mother was a housewife and she really devoted all her time to us from a young age brought up on a totally Asian diet. Even when we were at school we would come home at lunch and have chapattis and then go back to school. I think the most western food that we would ever have would be fish and chips, but even that would be done in a tandoori-type of batter as in a pakora-type of fish rather than anything else. No, it is all Asian, it has a lot to do with how we were brought up by our parents. I was used to my Mum making food in the house and we would eat that food and usually every day was fresh.' (R77: 37-year-old Pakistani male, Depcat 2)

Here however, we can witness a slight westernisation affecting the diet in connection with the inclusion, but modification of the way in which it was cooked.

Dichotomy of Asian/western food

The tension in respondents' ideas about Asian and western food was often apparent. It was also linked to the category of a mixed diet and where food was consumed. A mixed diet was seen as a combination of eastern and western elements.

Although Asian respondents tried a mix of foods, both Asian and western, the influence of culture and family upbringing was predominant, and most respondents felt that their culture and what they ate as children had influenced their diet.

> 'Well obviously my culture. I eat a lot of Asian food a lot of chapattis and curries. Different curries: vegetables, chicken, lamb, meat, all different kinds of curries whatever. So that is ingrained in me. That is my food when I am at home, outside home it is like pizzas, whatever: take-away stuff.' (R79: 28-year-old Pakistani male, Depcat 7)

The Pakistani group, as well as the Indian group, even though second generation, still preferred to have Asian foods cooked at home. However, they did try to reduce the spice and oils in the food compared to how the first generation cooked their food.

Respondents from an Asian background often spoke of highly coloured foods and, in general, this was seen to be bad for health, as were Asian sweets and excessive amounts of grease:

> 'I am not personally one for Indian sweets, and all that, but they, a lot of friends who just have slabs of it. Eating mithai, and something like that. The Indian sugary snacks are quite bad, but I have got to say that most of, mind you all the curries will be bad for staining the teeth, not for decay, but just cosmetically, I think it would be bad for it.' (R73: 33-year-old Indian male, Depcat 2)

However, healthy attitudes are now influencing Asian cooking as can be seen from the following quotation:

> 'My Mum and Dad eat lots of sugar and lots of salt, and because of Indian cooking my Mum and Dad have lots of sugar in their teeth. And they put salt on everything, whenever they cut salad they put salt on it. Basically I eat what they give me, but when it is down to myself cooking, I will not have any of that stuff. So yeah it does have an effect.' (R90: 27-year-old Indian male, Depcat 4)

Respondents from a Chinese background were generally positive about their own diet in comparison to others:

> 'Probably if I was to avoid sweets and crisps and things like that, things that are kind of bad, that build up in the system, and stuff like that. I would say that sometimes the Chinese diet is a bit oily which does not really, I don't mind as much, because other cultures they use butter, which is fat instead of oils which is worse, and that clogs up your system a lot more, plus I exercise and stuff like that anyway ... 'cause of the ways of the Chinese Orient

you have a different kind of diet than what regular people like Scottish people or Indian, or whatever, basically that is what type of people, we were brought up on and that is what we cook.' (R82: 25-year-old Chinese male, Depcat 4)

The white group tended to drink more fizzy drinks as compared to the other groups, and said that Scottish culture had influenced their diet as can be seen from the quotations below:

'Culture? I would say in Scotland there is more exposure to soft drinks and chocolates, maybe more than in other cultures. My own parents encouraged me to have a balanced diet, so that would hopefully counteract the sugar drinks. But the culture definitely affects the teeth, I would think. I would not think twice about buying a can of coke two or three times a day, I try not to now. But in the past, you know, that would not have been an issue to me, whereas I can see now, I am trying to stay away from all the sugar, when I am out shopping I try to stay away from sugary brands.' (R58: 27-year-old white male, Depcat 6)

And again:

'Maybe culture in the sense that ... the west of Scotland in particular has a notoriously bad problem with diet, whether it is fatty food, or sugary food, or acidy stuff. I think the west of Scotland suffers in that regard, so if you can count the west of Scotland as a culture then maybe, yeah, that is a problem.' (R100: 31-year-old white male, Depcat 4)

One female white respondent commented:

'Culture in terms that I bridge two cultures a western culture and a more Asian culture. Like the reasons that I have just outlined, I tend to eat a more Asian diet than most people probably do, but in saying that, I never ate an entirely western diet in terms of certain foods that you would associate with western culture. I did not live on burgers or pizza.' (R78: 31-year-old white female, Depcat 2)

The influence of lifestyle

What came across strongly in our analysis was that lifestyle was a major influence on respondents' eating habits: people with children and couples tended to eat more at home than single people. Respondents felt that a hectic lifestyle made it difficult to eat healthily at all times, especially during the day. In general, the evening meal was the main meal of the day, and breakfast was sometimes skipped.

In the case of all ethnic minority groups, especially men, lifestyle was quite influential, as a large number of respondents were in the food and catering industry or were self-employed, resulting in odd working hours and irregular eating habits. An example of this is as follows:

'Yes it has a big effect on my diet. It is because I am from a business background, and like your priority is that business comes first, before you even have food. It is quite important to eat at regular times, but obviously when you are best that it is a major effect. You can only eat when you get quiet times, and if you are in a service industry you can never predict a quiet time.' (R73: 33-year-old Indian male, Depcat 2)

And again:

'Yeah absolutely you know, a lot of Asian families they're in the restaurant business, and the restaurant business makes a huge difference and you can think it this way, is because there are always late nights, so what happens is a lot of those late nights your food timings shift as well, so my Dad comes home late you know we end up eating late as well so that is bad for you.' (R1: 28-year-old Indian male, Depcat 6)

The tension between pressures of time in such situations and the health of family can also be seen from the following quotation from a respondent from a Chinese background who worked in a restaurant:

'But we tend to like home cooked, we do. We used to take them [the children] a lot, because I was busy, we always went every day, went to a good restaurant. They got sick, I mean sick in the sense of ''Mummy we don't like to go out wasting time, wasting money, and we don't want to. We love you''. So we just eat at home, so we roll with that to that sense.' (R17: 38-year-old Chinese female, Depcat 7)

The impact of a modern lifestyle was similar across all groups. However, in the non-white groups, family upbringing seemed to have a greater effect on diet, which might be due to the fact that ethnic respondents tended to stay with their families longer and seem to be in more regular contact with them. This can be accounted for by the extended family system, with many parents and grandparents continuing to live with their children after marriage and adulthood. The following respondent describes such a situation:

'So in that way I think yeah your culture does affect you. Because obviously it is a case of moving with the times almost, or moving with the changes in your situation. And I know for a fact like when there is times that my mother-in-law isn't here, and she has gone away, I will adjust our eating habits according to what we, what the kids might want more. Which I tend to do, and they are actually quite good. They like lots of boiled vegetables and things. Whereas when she is here, my mother in-law, she is cooking in the day, so it is already cooked for us.' (R60: 40-year-old Indian female, Depcat 2)

Discussion

Williams *et al* (1991) stated that although Asians generally have a high-fibre/low-sugar diet, many families have adapted to western convenience foods, often assuming that such foods are better than their traditional diet. However, our qualitative study found

that, to a large extent, those from the non-white ethnic groups still maintained a large part of their cultural diet, even though they were now moving towards a mixed diet, incorporating western foods.

Respondents were aware of the components of a healthy diet; whether such dietary information was coming via oral health or healthy diet campaigns (Rehman, 1999) was not ascertained. There was also some limited evidence that the second generation is finding itself being culturally torn between the ideas and attitudes of their elders and the current ideas of their peers.

The issues of diet that featured strongly in these interviews revolved around traditional versus indigenous food types and preparation. Tension in this area is prevalent among our respondents. Issues to do with food preparation in a busy lifestyle were coming strongly to the fore. Similarities found between ethnic groups highlight the fact that the context of work and family puts a time structure on people's everyday lives, and this explains why behaviours such as healthy eating may drop down the list of an individual's priorities. The hectic lifestyle and long working hours, associated particularly with those working in the food industry, in many cases, had also led to irregular eating habits.

In terms of these findings, the study carried out by Gibbons *et al* (2000) is important. In this work they produced an instructive oral health model based on the theoretical ideas of McKinlay (1972) and Zola (1973). In this oral health model, diet is the last link in the chain of variables impacting on final oral health status. Diet is included along with the other oral health-related behaviours of service use, tooth cleaning and smoking. Socio-demographic factors, including ethnicity, and socio-psychological factors all contribute as precursory influences on diet. So, in their oral health model, ethnicity is only one in a list of other factors. They describe their model as tentative; in our study, the qualitative data can throw light on the relative importance of some of the links in this model.

We can now see that there are positive as well as negative aspects to Asian and white diets. Diet is one of the major oral health-related behaviours. Centrally, however, our findings show the importance that should be placed on the influence of lifestyle, and immediately we see that the influences that we have discovered are not crudely related to class and deprivation, but rather need to be unpacked in relation to type of employment and the forms by which occupational work and time frames influence diet. Using crude indices of class, deprivation and ethnicity will not get us beyond a very superficial way of approaching these issues.

The set of socio-psychological factors also needs to be unpacked to give a better understanding of cultural influences. These involve self-definitions of ethnicity relating to culture, and ideas about family life. We can thus be aware of, and better understand, the cross-play at work between these elements. These factors provide a push–pull dynamic towards or away from ethnic/cultural markers in relation to diet. This is expressed in Table 4.

We can now consider the influences affecting the push towards and the pull from an Asian diet. This partly relates to the strength of a person's view of ethnic identity; in turn, the strength of this may be reinforced by the family or the peer group. These are cultural influences. In addition we have social influences that push towards the adoption of an indigenous style. However, in the UK, particularly in Scotland, what can be called an indigenous style of diet? In our interview material we have uncovered a belief in a standard, Scottish, not very healthy, diet (fizzy drinks, fatty foods, etc.).

Table 4 Influences affecting dietary practice

	Negative influences on oral health	Positive influences on oral health
Ethnic diet	Colouring, sweets	Healthier ethnic cuisine
Indigenous diet	Sweets, fizzy drinks	Changes in UK diet
Inside home/outside home	Tension between traditional and modern diets	
Lifestyle factors	Fragmented working day	
Dietary health advice		More available, more prevalent with younger generation
Family/age	Tension in cooking styles between the generations	

In the UK at present there are also strong currents towards diet, and food choices, becoming multi-ethnic and multicultural. There are at present various ethnic cuisines available in the market place, but these are adopted by mainly middle class groups (Monroe, 2005).

In Gibbons *et al*'s study (2000), respondents were aware of oral health messages in relation to diet and sugar intake. Such an increase was believed to be partly caused by changing diet as people entered the UK (see Kalka, 1988). Our study reinforces this finding, but also widens the focus by showing the importance of dietary change, shifts in diet, and mixed diets. The work of Williams *et al* (1989, 1990) and Bedi (1989) on sugar intake only focused on children. The views of people in our study's age range have been little researched.

Our major findings therefore are as follows. First, respondents are aware of the positive and negative aspects of both western and non-western diets. However, diet also acts as a cultural identifier of ethnicity. Within this there are new elements of respondents trying to make their dietary practices healthier (Monroe, 2005; Rehman, 1999). For white people, diet is not seen as an index of culture or ethnicity (Collins, 2004). For many the indigenous diet is seen as unhealthy. Although our research has uncovered some evidence for a generational shift in attitudes between current and previous generations, our major finding relates to the importance of lifestyle influences on dietary modification.

Increasingly we need to take on board the implications of living in a pluralistic society and respond to the diversity of its population. In terms of oral health and dietary practices, the findings from our study help to elucidate the complex role played by the forces of acculturation, work and lifestyle, forces which will continue to be important in the future.

ACKNOWLEDGEMENTS

This research was funded by the Scottish Executive Health Department Chief Scientist Office; Grant number: CZH/4/53.

REFERENCES

Bedi R (1989) Ethnic indicators of dental health for young Asian schoolchildren resident in areas of multiple deprivation. *British Dental Journal* 166:331–4.

Central Research Unit (2001) *Scoping Study for a National Study of Scotland's Minority Ethnic Populations.* Edinburgh: Scottish Executive.

Chandola T (2001) Ethnic and class differences in health in relation to British South Asians: using the new National Statistics Socio-Economic Classification. *Social Science and Medicine* 52:1285–96.

Collins M (2004) *The Likes of Us: a biography of the white working class.* London: Granta.

Cressey D (1973) *Other People's Money.* New Jersey: Patterson Smith.

Diaz VA, Mainous AG, Koopman RJ and Geesey ME (2005) Are ethnic differences in insulin sensitivity explained by variation in carbohydrate intake? *Diabetologia* 48:1264–8.

Dohn FA, Cachelin FM and Striegel-Moore RH (2005) Factors that influence food amount ratings by white, Hispanic and Asian samples. *Obesity Research* 13:1061–9.

Dowell J, Huby G and Smith C (1995) *Scottish Consensus Statement on Qualitative Research in Primary Health Care.* Dundee: Tayside Centre for General Practice.

Ecob R and Williams R (1991) Sampling Asian minorities to assess health and welfare. *Journal of Epidemiology and Community Health* 45:93–101.

Emmons KM, Stoddard AM, Fletcher R *et al* (2005) Cancer prevention among working class, multiethnic adults: results of the healthy directions – health centres study. *American Journal of Public Health* 95:1200–5.

Fielding NG and Lee RM (1991) *Using Computers in Qualitative Research.* London: Sage.

Gelbier S and Taylor WS (1985) Some Asian communities in the UK and their culture. *British Dental Journal* 8:416–18.

Gibbons DE, Gelbier S and Newton T (2000) *The Oral Health of Minority Groups in Contemporary Britain: a case study in the South Thames Region.* London: GKT Dental Institute, Kings College.

Glaser B (1978) *Theoretical Sensitivity.* Mill Valley: The Sociological Press.

Glaser B and Strauss AL (1967) *The Discovery of Grounded Theory.* Chicago: Aldine.

Hammersley M (1990) What's wrong with ethnography? *Sociology* 24:597–615.

Kai J (ed) (2003) *Ethnicity, Health and Primary Care.* Oxford: Oxford University Press.

Kalka I (1988) The changing food habits of Gujaratis in Britain. *Journal of Human Nutrition and Dietetics* I:329–35.

Kay EJ, Shaikh I and Bhopal R (1990) Dental knowledge, beliefs, attitudes and behaviour of the Asian community in Glasgow. *Health Bulletin* 48:73–9.

Lau A (ed) (2000) *South Asian Children and Adolescents in Britain.* London: Whurr.

Lindesmith AR (1968) *Addiction and Opiates.* Chicago: Aldine.

Maxwell JA (1996) *Qualitative Research Design: an interactive approach.* London: Sage.

McKinlay J (1972) Some approaches and problems in the study of the use of services: an overview. *Journal of Health and Social Behaviour* 13:115–52.

Miles B and Huberman AM (1994) *Qualitative Data Analysis – An Expanded Sourcebook.* London: Sage.

Modood MB and Berthoud R (1997) *Ethnic Minorities in Britain.* London: Policy Studies Institute.

Monroe J (2005) *Star of India: the spicy adventures of curry.* Chichester: John Wiley and Sons.

Morris R and Carstairs V (1991) Which deprivation? A comparison of selected deprivation indexes. *Journal of Public Health Medicine* 13:318–26.

Mullen K (1993) *A Healthy Balance: Glaswegian men talking about health, tobacco and alcohol.* London: Avebury.

Mullen K and Curtice L (1997) The disadvantaged – their health needs and public health initiatives. In: Detals R, Holland WW, McEwen J and Omenn GS (eds) *Oxford Textbook of Public Health.* Oxford: Oxford University Press, pp. 1517–36.

Nazroo J (1997) *The Health of Britain's Ethnic Minorities.* London: Policy Studies Institute.

Newton JT, Khan FA, Bhavnani V, Gelbier S and Gibbons DE (2000) Self-assessed oral health status of ethnic minority residents of South London, *Community Dental Oral Epidemiology* 28:424–34.

Patton MQ (1990) *Qualitative Evaluation and Research Methods.* Newbury Park: Sage.

Pfaffenberger B (1988) *Microcomputer-application in Qualitative Research.* London: Sage.

Qualitative Solutions and Research (QSR) (2002) *QSR NVivo User Guide.* Victoria: Qualitative Solutions and Research.

Rehman U (1999) *Food for Thought: a pack for professionals working with the Asian and Chinese communities.* Glasgow: Healthy City Partnership.

Rugg-Gunn AJ (1993) *Nutrition and Dental Health.* Oxford: Oxford Medical Publications.

Runnymede Trust (1982) *Britain's Black Population.* London: Heinemann Educational Books.

Silverman D (1985) *Qualitative Methodology and Sociology.* Aldershot: Gower.

Smaje C (1995) *Health Race and Ethnicity.* London: King's Fund Institute.

Strauss A (1987) *Qualitative Analysis for Social Scientists.* Cambridge: Cambridge University Press.

Strauss A and Corbin J (1998) *Basics of Qualitative Research: techniques and procedures for developing grounded theory.* London: Sage.

Umeed I (2000) *Health Needs and Knowledge: self-reported health status of South Asian men in Glasgow.* Glasgow: GGHB.

Williams R and Shams M (1998) Generational continuity and change in British Asian health and health behaviour. *Journal of Epidemiology and Community Health* 52:558–63.

Williams R, Wright W and Hunt K (1998) Social class and health: the puzzling counter-example of British South Asians. *Social Science and Medicine* 47:1277–88.

Williams SA and Sahota P (1990) An enquiry into the attitudes of Muslim Asian mothers regarding infant feeding practices and dental health. *Journal of Human Nutrition and Diet* 3:393–401.

Williams SA, Sahota P and Fairpo CG (1989) Infant feeding practices within white and Asian communities in inner city Leeds. *Journal of Human Nutrition and Dietetics* 2:325–8.

Williams SA, Ahmed IA and Hussain P (1991) Ethnicity, health and dental care-perspectives among British Asians: 1. *Dental Update* May:154–60.

Williams SA, Ahmed IA and Hussain P (1991) Ethnicity, health and dental care-perspectives among British Asians: 2. *Dental Update* June:205–7.

Wyke S (2004) Ethnicity and health. In: Alder B, Porter M, Abraham C and Van Teijlingen E (eds) *Psychology and Sociology Applied to Medicine.* London: Churchill Livingstone, pp. 46–7.

Zola IK (1973) Pathways to the doctor: from person to patient. *Social Science and Medicine* 7:677–89.

Znaniecki F (1934) *The Method of Sociology.* New York: Rinehart.

CONFLICTS OF INTEREST

None.

ADDRESS FOR CORRESPONDENCE

Dr Kenneth Mullen, Section of Psychological Medicine, University of Glasgow, Gartnavel Royal Hospital, Great Western Road, Glasgow G12 0XH, Scotland, UK. Tel: +44 (0)141 211 3932; fax: +44 (0)141 357 4899; email: K.Mullen@ clinmed.gla.ac.uk

Received 10 April 2006
Accepted 7 June 2006