British Heart Foundation

PICKLES PAKORAS & PORTIONS

An evaluation of the Social cooking project 2011 – 2013

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FIGHT FOR EVERY HEARTBEAT

bhf.org.uk

EVALUATION DOCUMENT

Acknowledgements

This report was prepared by Tracy Parker, Heart Health Dietitian, British Heart Foundation - January 2013

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Terms used in this report

Cooks: Lay members of a congregation who prepare food for the congregation in a place of worship (PoW).

Management committee: Group of lay people who help to manage a place of worship. It may also include priests who have a more ecclesiastical role.

Social cooking: BHF term for the cooking and provision of meals for congregation members in places of worship such as mandirs and gurdwaras.

Sewa: Selfless service to the community.

This report contains references to a number of South Asian foods and customs that are referred to by their Hindi or Punjabi name. Translations are as follows:

achaar pickles
aloo gobi potato and cauliflower
atta plain flour
boondi sweetened, fried gram flour
chapati unleavened bread
dhal lentils
gurdwara Sikh place of worship
ghee clarified butter, or **vegetable ghee** made with vegetable oil
gram flour chickpea flour
guwar vegetable
jellebi a dessert
kadhi a dish made from gram flour and yoghurt
kheer Indian rice pudding
kitchri rice cooked with split lentils
langar the term used in the Sikh religion for the free, vegetarian-only food served in a gurdwara and eaten by everyone sitting as equals, including non-Sikhs
ladwas orange sweets
mandir Hindu temple
methi fenugreek, dried or fresh
moong dhal green lentils
pakora a deep-fried savoury item made from gram flour
paneer curd cheese made with whole milk
parsaad holy food
roti Indian bread made from wholemeal flour
rotla chapattis of millet flour or maize flour
saag spinach
sabjee vegetable
sambhar a dish made from vegetables and lentils
samosa a triangular pastry fried in ghee or oil
sangat meeting or religious ceremony
seero a sweet dessert
subzi vegetables

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PROJECT SUMMARY

Coronary heart disease is the UK's single-biggest killer, and for over 50 years, we've worked tirelessly to overcome it. A fundamental part of our vital cause is giving people the knowledge and support they need to look after their own hearts. The British Heart Foundation (BHF) Social cooking project was a crucial part of our fight for every heartbeat.

The Social cooking project 2011-2013 aimed to lower the saturated fat and salt intakes of South Asian families attending a place of worship (PoW), to reduce levels of cardiovascular disease (CVD)* in this population. It was vital to target this group as studies have shown that South Asians living in the UK are:

- twice as likely to have diabetes[1], putting them at greater risk of developing cardiovascular heart disease
- at increased risk of diabetes and CVD at a lower BMI than the rest of the population[2].

The two-year project was led by a dedicated BHF dietitian, and included a rigorous evaluation to assess whether salt and saturated fat reductions were achieved and, if so, whether they could be sustainable, PoW are ideal venues for health promotion as they attract large numbers of people on a regular basis, in particular whole families. Also, religious leaders' support for health messages can be invaluable in helping their communities take these messages on board. One of the traditions of the Hindu and Sikh faiths is to provide a meal for congregation members and visitors. These meals are cooked in the temples or gurdwaras by volunteers and depend largely on food donated by the congregation. They can be high in saturated fat with regular use of ghee, butter and full fat dairy. High levels of salt are also common.

BHF dietitians visited two PoW (a mandir, Hindu temple, in Greenford and a gurdwara, Sikh temple, in Wolverhampton) to inform cooks about healthier food preparation and encourage a drive towards lower salt and fat content and healthier donation practices. The project target for saturated fat and salt reduction was 5-10%. Nutritional analysis was taken at three stages to assess the changes made to the preparation and cooking of the food served at the PoW.

The project was a remarkable success. Food checklists showed that saturated fat and salt were reduced by altering cooking practices and the type of foods donated.

The nutritional analysis results confirmed highly significant reductions in the food served at the PoW - a 50% reduction in saturated fat and up to 40% reduction in salt. Health modelling results indicated that this could result in a 2% reduction in deaths from coronary heart disease and a 6% reduction in deaths from diabetes. As there are an estimated 500 gurdwaras and 250 mandirs in the UK, feeding tens of thousands of people, encouraging all PoW to get involved in making small changes to their cooking methods could make a big difference in reducing CVD risk in these communities.

*Cardiovascular disease includes all diseases of the heart and circulation. This includes coronary heart disease (angina and heart attack), heart failure, congenital heart disease and stroke. Of these, coronary heart disease is the biggest killer.

INTRODUCTION

In the long battle against heart disease, we've learned it's vital to give people the knowledge and support they need to keep their hearts healthy. And we know that it's crucial to target especially high risk communities.

The dietitian-led BHF Social cooking project ran from August 2011 – August 2013. It set out to lower the saturated fat and salt intakes of South Asian families attending PoW, to help reduce levels of cardiovascular disease (CVD) in this population.

Dietitians visited two PoW with the aims of:

- raising awareness of the risks to heart health caused by using large amounts of saturated fat and salt
- encouraging behaviour change to reduce their use in cooking.

To understand how effective the project was in achieving long-term reductions in saturated fat and salt, we conducted a comprehensive evaluation, which included nutritional analysis and focus groups. The Social cooking project, as this report shows, was a major success, and we believe that further interventions of this type could continue to provide significant health benefits to South Asian communities and make a crucial contribution to the fight against heart disease.

Suki
HEAD COO
WOLVERH

OK
IAMPTON

"We have changed the traditional recipes slowly, and people don't notice the difference.

It's been easy really, we just use a little less salt, swapped some ghee for vegetable oil and now use low fat milk that is donated by the congregation.

I think the food is just as delicious as before, but now we know we are eating more healthily so it has been really good for the congregation."

BACKGROUND

Why we're working with South Asian communities

Coronary heart disease (CHD) is the UK's single biggest killer. And the BHF is determined to drive the fight for every heartbeat and create a world in which people do not die prematurely or suffer from heart disease. A vital part of our prevention strategy focuses on:

- helping people make healthy choices to reduce their risk of cardiovascular disease
- people and communities at higher risk of cardiovascular disease.

Studies show that South Asians (India, Pakistan, Bangladesh and Sri Lanka) living in the UK are twice as likely to have diabetes, a risk factor for CHD[1]. British Asians also have an increased health risk for diabetes and CVD at a lower BMI, 23kg/m2 as opposed to 25kg/m2, the increased risk level for the rest of the population[2].

We know that in this community, foods with a high saturated fat content such as ghee, butter, full fat dairy foods and paneer are hugely popular, and salt is often added during cooking and at the table. National Surveys[3] suggests that saturated fat intakes in Asian and British Asian populations exceed the maximum 11% recommended. We also know that high saturated fat diets are linked to raised LDL cholesterol levels, and high salt intakes are linked with hypertension. Both are risk factors for CVD.

With a greater risk of CVD it's even more crucial for this group to be aware of the risks, and make dietary changes to reduce them. It's vital that we determinedly strive to communicate these key health issues in a way that encourages communities to act. But we know we need to focus our energies on an innovative approach to providing information on improving diet and lifestyle, especially to a first generation who may not be used to receiving health messages through the mainstream media.

1. British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford. 2010. Ethnic Differences in Cardiovascular Disease 2010 edition. London: British Heart Foundation.

2. National Institute for Health and Care Excellence (2013). BMI and waist circumference – Black, Asian and minority ethnic groups (PH 46). London: National Institute for Health and Care Excellence.

3. Department for Environment, Food and Rural Affairs (2013) Chart 4.2b Percentage of energy from saturated fatty acids by ethnicity (baseline characteristics other than ethnicity) Family Food in 2012. DEFRA: York and Previous editions.

Why we worked with PoW

PoW are ideal venues for health promotion as they attract large numbers of people, in particular whole families, and play a major role in the life of most South Asians.

Over 3,500 people attended the PoW in this project each week. So, they offer us a unique opportunity to promote health messages. Their importance in the community gives credibility to our messages, and working in a PoW is a highly effective use of a health professional's time, effort and resources.

In PoW, food has a religious significance and is an integral part of religious observance. Because prasad (holy food) is a religious offering, every effort is made to make it delicious. It's commonly made with ghee, which is high in saturated fat, and salt is used liberally.

Food also helps hold the community together. It's a Hindu and Sikh tradition to provide congregation members and visitors with a free meal. These are prepared and served by congregation volunteers through sewa, the selfless service for others. But, as much of the food is donated by the congregation, the cooks are limited as to what they can serve.

Although some cultural factors can present a barrier to change, the religious importance of caring for the community can also provide powerful cultural drivers for change. It was clear from the beginning of the project that giving both cooks and congregations the courage and determination to take the changes on board would prove challenging, but small changes introduced over time proved successful. And, despite their initial reservations, both cooks and congregations said they were interested in making changes to improve their health, as many had had health scares themselves or knew someone who had. Gaining religious leaders' support is also invaluable to helping the community accept the dietitians' messages and to emphasise the need for people to make changes.

If PoW can be encouraged to use lower salt and saturated fat recipes, it will have a powerful health impact on these at risk communities across the UK.

Previous BHF projects

We've run two previous social cooking projects with the Food Standards Agency (FSA). They focused on raising heart health awareness, specifically the impact of salt and fat in Sikh and Hindu social cooking at PoW, and provided practical, informed help to reduce fat and salt levels.

London, Birmingham, Bradford, Nottingham and Cardiff 2007
Here, we were determined to reduce salt in meals served to the congregation. This initiative took place in fifteen PoW across the country, with a minimum target salt reduction of 5%. Dietitians worked with religious leaders and volunteer cooks over two months to help them produce healthier versions of the foods they were cooking using less salt. The subsequent evaluation showed that the project was a success, with a salt reduction of 10%.

London March-December 2009
In the second campaign, we concentrated our drive for change on raising the awareness of the health risk of eating too much saturated fat. Dietitians worked with four gurdwaras and two mandirs. They identified the main sources of saturated fat in the food served and provided simple tips for change, appropriate for the PoW, but consistent with the FSA's 2009 campaign for reducing saturated fat.

Dietitians also worked with three mosques (where social cooking doesn't take place in the same way), providing health promotion events on saturated fat and cardiovascular risk factors. An evaluation showed the project led to changes in cooking practices and food procurement with a reduction in saturated fat and an increase in the more unsaturated fats in cooking. In the mosques, the events helped to increase the awareness of the key saturated fat messages. However, unlike the 2007 project, the evaluation didn't involve any quantitative assessment of the reduction in saturated fat in the meals, as the emphasis was on recalling and understanding the FSA campaign messages.

THE SOCIAL COOKING PROJECT 2011-2013

Aims and objectives

As with the previous projects, our fundamental aim was to:
- lower saturated fat and salt intakes of South Asian families attending PoW, to reduce levels of CVD in this population.

We set out to achieve this by:
- educating and training the social cooks, who are responsible for cooking for the congregation, on how to sustain long term reductions in saturated fat and salt, while still maintaining taste
- holding education sessions for the congregation on healthy eating to raise awareness of the link between saturated fat, salt and CHD, and encourage behaviour change to make healthier changes at home
- distributing BHF leaflets and posters, including resources developed from previous social cooking projects.
- using nutritional analysis to assess whether reductions in saturated fat and salt can be made and, if so, whether the changes can be sustained.

Building on what we'd learned from the previous projects, we realised the need for:
- more definitive quantitative evaluation, such as chemical nutritional analysis by an accredited analytical lab. We wanted to see if saturated fat and salt target reductions really were being achieved as a result of the small changes made to the cooking methods
- longer term follow up and evaluation to assess the sustainable benefits of the programme.

The dietitians set out to support the cooks and volunteers, to help them sustain long-term reductions in saturated fat and salt used in social cooking. The key features were:
- simple and achievable dietary tips developed for the previous projects
- presentations to the congregation to raise awareness of the impact of too much salt and saturated fat on their CHD risk.

We wanted to show large numbers of people what food can taste like through simple adaptations to reduce salt and saturated fat. This is significant, as there are often preconceived ideas that food that's been adapted in this way will taste unacceptably different. Also, the religious and health beliefs around foods such as ghee, can make healthy changes hard for the congregations to accept.

From our previous experience, we knew that time and the single-minded commitment of all those involved, especially the dietitian, was needed to give the cooks and congregation the courage and determination to overcome ingrained cultural assumptions and accept the need for change. As the project ran for two years, the project manager and dietitian built in additional time to allow for more rapport-building with all those involved in the project, especially the trustees of the PoW. and allowed for a long evaluation period. Time also allowed for nutritional analysis of the foods before intervention and at four other points during the project, to assess any reduction in saturated fat and salt and, if so, whether it could be sustained.

Although we know each PoW is unique, we set out from the beginning to share knowledge and results from the project and to develop resources, guidelines and factsheets that could be used in other PoW across the UK to help drive health improvement in other South Asian communities.

The timeline

The project ran for 24 months from August 2011 – August 2013

- Start of social cooking intervention November 2011
- End of dietetic intervention March 2012
- First phase evaluation November 2011 – March 2012
- Second phase evaluation November 2013
- Final evaluation August 2013

Organisation and resources

Financial resources
The project had a budget of £40,000 over three years, (year one: £11,000; year two: £11,000; year three: £15,000). The majority of this was allocated to dietetic time (40%), nutritional analysis (30%) and focus groups (20%), with the remainder used for filming and other project expenses.

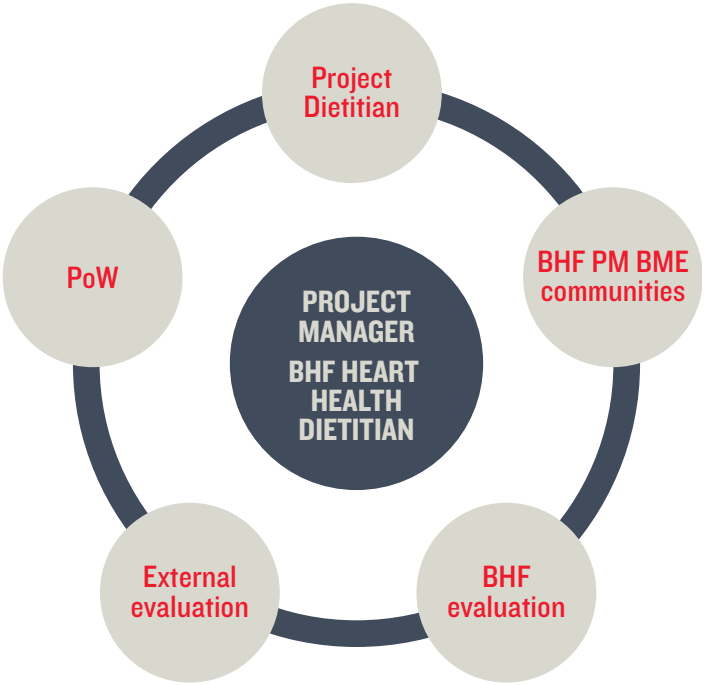
Human resources
The project was led by a Heart Health Dietitian and Project Manager, with input from the Project Manager (BME Communities), the Customer Insight Manager, Social marketing and brand and the Monitoring and Evaluation Manager, Strategic planning, performance and assurance.

Project dietitians
Dietitians were recruited via the British Dietetic Association (BDA) Multicultural Nutrition Group and selected based on their work experience, commitment to work at weekends, knowledge of South Asian languages and their ability to communicate and work with the target audience.

Both dietitians had worked on the previous BHF saturated fat reduction project and spoke the language of the PoW they were visiting.

Evaluators
Healthfocus Research was comissioned to run focus groups with the cooks.

FIG. I: PROJECT ORGANISATION



The venues

Two PoW were chosen (see Appendix 1). These were:
- a Hindu mandir in Greenford (Shree Jalaram)
- a Sikh gurdwara in Wolverhampton (Guru Teg Barhadur).

One had an existing relationship with the BHF, but hadn't participated in a similar project. The other PoW was a new association. The selection process was intensive, as a long-term relationship and determined commitment on all sides was crucial to the project. The senior management team's influence on the PoW and its congregation was also a deciding factor.

The BHF Project Manager for BME Communities and Project Dietitian made initial contact with the PoW and outlined the project proposal. Once the PoW had agreed in principal, they were visited by the Project Manager, Project Manager BME Communities and Project Dietitian, and a project agreement was signed.

We worked with four main cooks, 34 volunteer cooks and reached around 3,500 congregation members over the two sites.

Wolverhampton
- Two main cooks, 5 –15 volunteers, mostly women.
- Approximately 1,000 attendees over a week.
- Approximately 1,000 meals made a week.
- Meals served 6am – 8pm, 7 days a week.
- Standard menu: dhal, vegetable curry, yoghurt (plain or sweetened), chapatis, milky dessert and pickle. If donated, fruit served approximately four times. An Indian sweet is also a popular donated item.
- Between 25-50% of food is donated.

Greenford
- Two main cooks, 4 –5 volunteers in the kitchen, 3 –14 serving.
- Between 2,200 and 2,600 attendees over a week, Thursday (day 250, evening 750), Saturday lunch (400).
- Approximately 2,000 meals made a week
- Meals served 1 –2.30pm, 7 days a week and 7.30 – 9.00pm Thursday.
- Standard menu: dhal or yoghurt curry, vegetable curry, boiled rice or khichi. Thursday an Indian sweet is served and Saturday - shrikand (yoghurt pudding) or ladwa (sweetmeat) is offered. If donated, fruit is served approximately four times a week.
- Everything except fresh vegetables is donated.

Top: Guru Teg Barhadur Gurdwara, Wolverhampton
Above: Shree Jalaram Mandir, Greenford

Demographics

(see Appendix 2: Q1-4, Q11)
- Wolverhampton gurdwara had more congregation members in the older age category (55 –75+) who were mostly retired, had been a member of the PoW for longer (>10years) and said 'yes' to having a health condition.
- Greenford responders were younger, mostly in full time work, had been a member of the PoW for less time (< 6yrs) and 60% said 'no' to having a health condition. Similar results were found in the Phase 2 questionnaire, Qs 1-4, Q11.

THE INTERVENTION

The dietitians' role

(See Fig.2)
The dietitians developed a standard format and schedule to change cooking practices in the mandir and gurdwara (see Appendix 3). However, in practice they needed considerable energy and commitment as the format/timings of the sessions differed to meet the needs of the PoW, their own style, and their working relationship with the cooks, volunteers and management committees.

FIG. 2: SUMMARY OF DIETITIANS' ROLE

BHF DIETITIANS
- Education sessions
- Food check lists
- Practical advice
- Assessing use of salt and sat fat
- Food samples for analysis

Pre-intervention

Training
The dietitians received a dedicated day's training at the BHF, to ensure they were clear on the project objectives, activities, evaluation and schedules. They also met the other people involved in the project – the internal and external evaluation team, Project Manager, Project Manager BME Communities and the Administrative Officer who provided vital day-to-day support during the first phase of the evaluation.

Visits
The first four visits aimed to build rapport, explain the project and introduce the benefits of reducing salt and saturated fat to the PoW management and the cooks and volunteers involved in the catering.

Dietitians took baseline measurements (questionnaires, checklists, and food samples (see Fig.3 on page 14) during the third and fourth visits. It was important that the cooks initially produced their dishes in the normal way without being too aware that measurements were being taken. After each visit they completed a progress report (see Appendix 4).

During the intervention

Over the next four weekly visits, dietitians worked intensively to help the cooks make small changes to the way they cooked and prepared food. Importantly, they also obtained the cooks' own ideas about what could be changed and their opinions about the difficulties of reducing salt. They discussed donation practices with management and organised two health promotion activities with the congregation members.

The key to the project was the simple practical tips given by the dietitians to make the meals healthier, based on the food checklist information and observing cooking practices during the first four visits.

The dietitian visited the PoW for (the equivalent of) 17 full days over a two-year period for the intervention and evaluation.

Extra days were allocated for:
- One day for photography/filming at PoW (August 2013)
- One day post-evaluation review at the BHF (September 2013)
- One day final project presentation at the BHF (March 2014)
- One day administration to set up follow up appointments

It quickly became obvious that the key to producing such large quantities of food was teamwork!

Written lists and posters using BHF food cards were equally effective.

Top and above: PoW cooks are very busy. It's all about teamwork.

Food donations

Much of the food used in the cooking was donated by the congregation. We used the questionnaires and food checklist to see what kinds of foods were being donated, and worked determinedly with the PoW committees to promote healthier donation practices.

Captions: Top and middle, Food is prepared in large quantities.
They cook for hundreds of people.
Above: Practical visual aids were helpful for cooks to make changes

Health promotion

The dietitians used a variety of BHF English and South Asian translated booklets and posters in health promotion activities with the congregation. They also used visual aids such as as empty food packaging to support their healthy eating presentations, which were a very popular way of showing how to make healthy changes.

One-day follow-up visits at four and 12 weeks reinforced the recommended changes.

Food samples were taken at 12 weeks, one year and 17 months later. The dietitians took three samples of each dish and made a note of the weights of typical portion sizes on the meal trays.

The last visit by each dietitian took place about three months after the final food samples were taken. This was to:

- feedback on the results of the food samples
- reinforce the importance of continuing the successful changes they'd made to their cooking practices
- provide any necessary additional guidance
- thank them for their cooperation and involvement in the project.

Certificates were given to the PoW, social cooks and individuals for their invaluable courage and support in making the project a success. (See Appendix 5.)

EVALUATING THE PROJECT

The logic model

The evaluation assessed the success of the project's outcomes, using Project logic model for Social cooking project (see Table 1).

For the PoW
- A sustained reduction in saturated fat and salt in cooking.
- The development of relationships with external health organisation to improve health.
- A healthier congregation.

For the South Asian community
- A reduction in the amount of saturated fat and salt in food at the PoW.
- The ability to identify how saturated fat and salt can be reduced at home.
- Increased understanding of the benefits of healthy eating to heart health.

For the BHF
- An information base for working with the South Asian community on dietary targets.
- Better understanding of how to sustain reductions to saturated fat and salt in the South Asian diet.
- Continued development of the relationship with the PoW, to ensure their ongoing commitment and support.
- Using the social cooking programme to share knowledge that can be used with other PoW to improve health in the South Asian community.

Evaluation methods

FIG. 3: SUMMARY OF EVALUATION METHODS

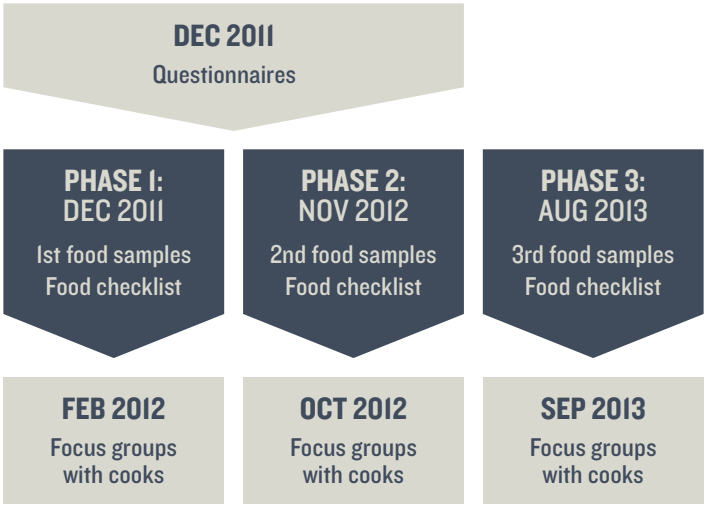


TABLE 1: PROJECT LOGIC MODEL FOR SOCIAL COOKING PROJECT

	ACTIVITIES	OUTPUTS	OUTCOMES	IMPACT
BHF FUNDING, STAFF, SUPPORT	– Funding over 2 years – Resources – Filming	– No. of resources ordered – DVD produced	– Project completed on time – Evidence of impact of the project and good practice examples – Promotional film	Similar projects can be developed and delivered in the future
PROJECT DIETITIANS		– No. of training and education sessions	– Healthier PoW meals – Healthier home meals – Changes to donation practices	Reduced risk of dying from CHD and diabetes
POW, COOKS, TRUSTEES, PRIESTS	– Cook's training – Congregation sessions – Donation practices	– No. of changes of food prep and cooking – No. of donated foods changes		
EVALUATION	– Food samples – Checklists – Questionnaires – Focus groups	– No. of food samples, Questionnaires, focus groups, checklists completed	– Development of resources as a tool for other PoW – DVD	Sustainability of project after funding has ended

The evaluations

Phase 1 evaluation
(December 2011- May 2012)
Objectives were to assess:
- the demographics of the PoW ⟶ questionnaire
- attitudes towards healthy eating ⟶ questionnaire and focus groups
- what they knew about the link between diet and CHD ⟶ questionnaire and focus groups
- the donation practices ⟶ questionnaire
- how they felt about the BHF intervention ⟶ questionnaire and focus groups
- baseline nutritional information on the foods being served ⟶ food sample nutritional analysis.

Phase 2 evaluation
(November 2012)
Objectives were to assess:
- whether the changes could be sustained without further input ⟶ food sample nutritional analysis
- if donation practices changed ⟶ food checklists
- whether the congregation noticed the changes to the food, and their attitude toward changes, particularly on salt reduction and the perceived lack of taste ⟶ repeat questionnaire
- the attitudes of the cooks to sustaining change ⟶ focus group.

Phase 3 Evaluation
(August 2013)
Objectives were to assess:
- whether the changes can be sustained without further input ⟶ food sample nutritional analysis
- the attitudes of the cooks to sustaining change ⟶ focus group
- if donation practices changed ⟶ food checklists.

Quantitative evaluation
Food sample chemical nutritional analysis (provided by Food Test Laboratories, an accredited analytical laboratory).

This was a new a strand of evaluation to see if the target saturated fat and salt reductions were being achieved. The dietitians took food samples for analysis at three points during the project – Phase 1 evaluation (pre and post intervention), phase 2 evaluation, phase 3 evaluation.

*(RI are the recommended maximum amounts of fat, saturated fat, sugar and salt for an adult in a day)

They:
- sampled 100g of each food for analysis. This allowed them to compare similar foods over the duration of the project
- recorded the portion weight of each food, to calculate the kilocalories, fat, saturated fat, sugar and salt amounts for a complete meal and compared it to the reference intake (RI)* for the adult population
- set a target of 5-10% reduction in salt and saturated fat. This was based on the results from the previous social cooking project and our experience of the community's potential resistance to changing cooking practices and to facilitate sustainability. We needed to ensure the intervention remained culturally appropriate. A bigger reduction may have met with resistance.

Questionnaires
(Developed by the BHF Insight Manager, and analysed with Survey Monkey (see Appendices 6 and 7)

- These were completed by congregation members in the first and second phase of evaluation.
- The questionnaire collection took place over the four weeks of rapport building (first phase evaluation December 2011) and again over three weeks in the second phase follow-up evaluation (November 2012).
- The questionnaires were only printed in English, as translating into two South Asian languages would have incurred extra cost and time. They were distributed and translated, where necessary, by the dietitians, with help from the congregation.
- A target of 100 completed questionnaires was set for each site for both evaluation phases.

Qualitative evaluation
Focus groups
(Facilitated and analysed by Healthfocus Research).
- The BHF Monitoring and Evaluation Manager and the Project Manager developed topic guides (see Appendices 8 and 9) with advice from Health Focus Research.
- Focus groups were undertaken with the social cooks, to supplement what they'd learned, at the three evaluation phases.

They included: Greenford mandir: One group of paid cooks, one group of volunteer cooks, one interpreter. Wolverhampton gurdwara: One group of paid and volunteer cooks (mixed), one interpreter.

Food check lists
(See Appendix 10)
- These were adapted from the 2009 Saturated fat social cooking project to identify foods being used, purchased or donated at the PoW.

KEY FINDINGS

Summary of findings

As we've shown in this report, the results of the Social cooking project showed how effective such an intervention can be in giving all those involved the courage and conviction to reduce saturated fat and salt levels by changing cooking practices and the type of foods that were donated.

Nutritional analysis of the meals showed that the project achieved a 50% reduction in saturated fat and up to 40% reduction in salt in the food served at the PoW, without any reported adverse effect on the taste of the meals from the cooks and the congregation.

Public health modelling suggests that this improvement in the nutritional quality of the meals could result in a 2% drop in CHD deaths and a 6% drop in deaths from diabetes.

Above: The reduction in saturated fat for a member of the PoW eating the new healthier meal in one year.

Knowledge about diet and links to CHD

Pre-intervention: What they knew

- Diabetes and CHD were common in both PoW (see Appendix 2, Q11). From the focus group discussions almost all the cooks had risk factors themselves or had family members/friends who had these conditions. But the link between diet and CHD was not something that was a priority. This was also borne out in the focus group discussions with the social cooks.
- They knew the dangers of a sedentary lifestyle in relation to CHD, but the link between diet and health was new to them.

Post-intervention: What they learned

- After two years there was good recall of the messages given by the dietitians at the beginning of the project.
- The link between eating too much fat/saturated fat to being overweight and CHD was more common knowledge.
- The link between salt and health wasn't retained as well.
- They also felt the visual aids, the BHF posters of the anatomy of the heart and the atherosclerosis process, and giveaways such as a tape measure for measuring waist circumference were very useful and served as reminders.

Crucially, the cooks and diners took the healthy eating messages home from the temple to their families, and said they changed their own cooking practices. (See Appendix 7, Phase 2, Q10).

There were some excellent results. For example:

- one of the older cooks at the gurdwara had sustained a 6kg weight loss by the end of the project and one priest reportedly lost 4.5kg in six weeks, by changing his diet and walking around the car park every day.
- at the mandir, the main cook reported sustained changes in their own diet and weight loss because of what they learned from the BHF intervention.

Congregations' and cooks' views on the project

Before the intervention, the cooks were concerned the congregation might complain about or not like the changes to the traditional way of cooking, particularly using less salt. The congregation's response from the questionnaires (see Appendix 6, Phase 1, Q10) mirrored the concerns of the cook. They thought food with less salt and saturated fat was a good idea, but some felt that lowering salt and saturated fat could make the food less culturally authentic and less tasty.

However, the questionnaire (see Appendix 6, Q13) and focus groups with the cooks also highlighted that the PoW showed courage in making changes to improve their health, despite their reservations, as many had had health scares themselves or knew someone who had. The committee members were single-mindedly supportive of the congregation's interest and willingness to change.

As a community, they:
- were proud to be helping the BHF
- felt responsible for the welfare of their community
- were keen to be involved in initiatives that might appeal to younger community members.

"We are all responsible for what people eat… it makes us happy to think that we are looking after the people here."
Head Cook, Wolverhampton gurdwara

"I think this is a very good initiative which can lead to healthier food served in the mandir and raise awareness for it."
Mandir congregation member

"Great idea. Other gurdwaras should do similar projects".
Gurdwara congregation member

The changes to social cooking

Food checklists (see Appendix 10) were used to help identify the main sources of saturated fat and salt. These were:
- whole milk (used for tea, making yoghurt and milky puddings and in some cases to make paneer)
- ghee
- butter
- paneer
- mithai (sweets with added ghee and sugar, made on site or donated)
- fried snacks (chevdha, samosas, pakora with ghee and added salt and fried, made on site or donated).

At Wolverhampton, all meals had added salt and there were salt shakers on every table. So, saturated fat and salt were reduced by changing cooking practices and asking for different types of food donations. And:
- checklists and questionnaire showed that donation practices changed (see page 19)
- there was a shift to using more semi-skimmed milk and away from using butter and ghee to vegetable oils (although not in foods for religious festivals).

Changes highlighted by the focus groups
- The cooks boosted the amount of vegetables in recipes and cut back on paneer.
- When stacking chapatis, only alternate ones were spread with margarine or butter.
- Fruit was made readily available around the service area.
- Milky desserts were made with semi-skimmed milk and diners had to ask for mithai.
- If semi-skimmed milk was not available, the milk was watered down.
- Salt shakers were removed from dining tables (in Wolverhampton)
- Cooks replaced salty, branded pickles and chutneys with lower salt versions they prepared themselves.
- As salt was not weighed out before adding to recipes, they developed a technique whereby they would scoop out a cup or spoon full of salt and then give their hand a quick shake to get rid of some of it.
- Vegetables were added to curries without frying them.
- Portions were also reduced (particularly in Greenford), with diners having to ask for extra portions.

Food donations

Figures 4 and 5 show the types of food donated in each PoW, and how the donations changed post-intervention. The foods that are high in saturated fat are marked with an asterisk.

Figure 4 highlights the significant changes in food donations at Wolverhampton. The Trustees' and priests' determined support for and involvement in the project were vital in encouraging the members to change the types of food they donated. They gave frequent reminders to the congregation, before prayers, to donate healthier foods. Fresh fruit, less butter, more vegetable-based oils, and semi-skimmed milk are now commonplace.

"Every time the Head Priest reads from the holy book and makes the announcements at functions, he reminds people to bring fruit and lower fat products…so that is several times a week."
Cook, Wolverhampton gurdwara

Figure 5 shows that, at the mandir, using notices rather than announcements was less successful, with cooks reporting that donations changed very little.

Top: Smaller dough balls helped to reduce chapati portion sizes.
Above: PoW cooks started making their own lower salt pickles.

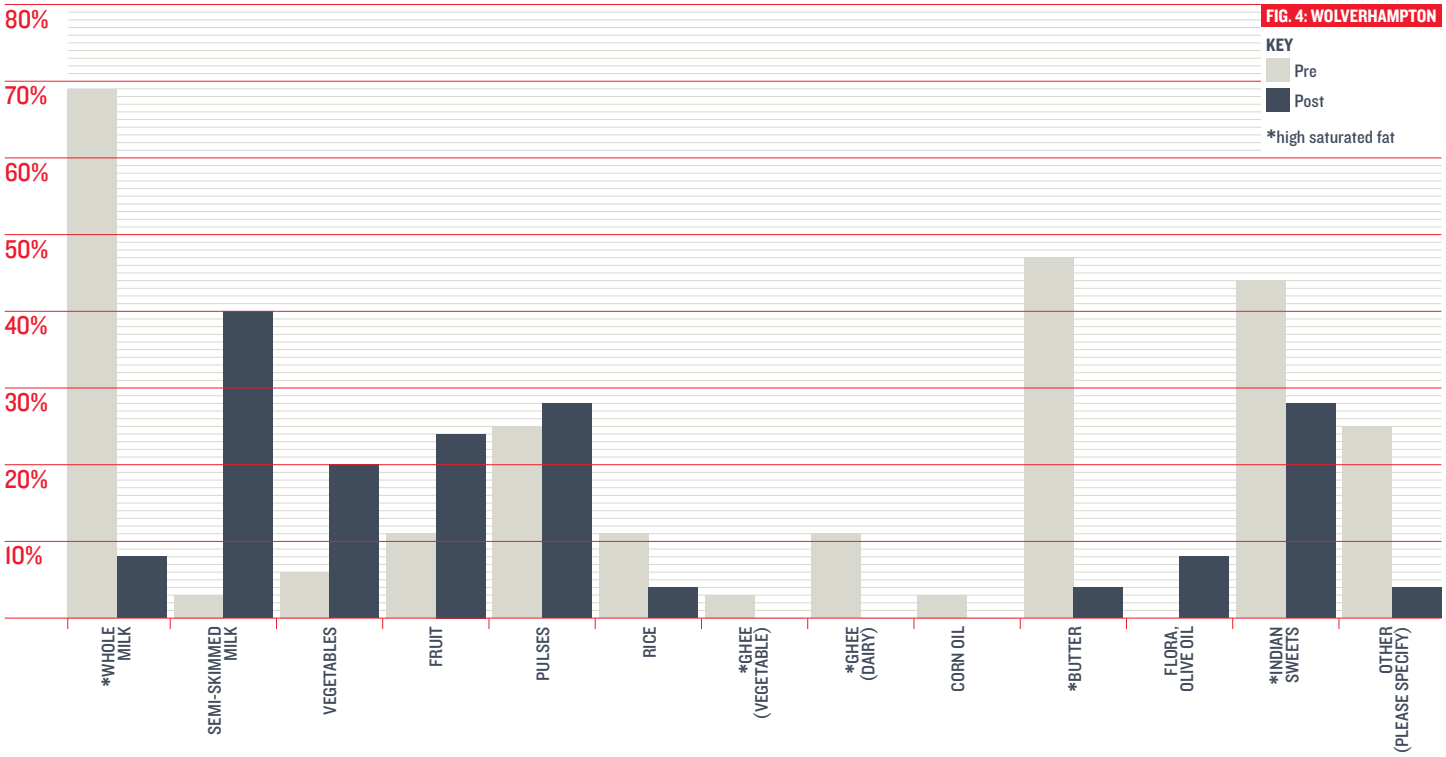


FIG. 4: WOLVERHAMPTON
KEY
Pre
Post
*high saturated fat
80%
70%
60%
50%
40%
30%
20%
10%
*WHOLE MILK
SEMI-SKIMMED MILK
VEGETABLES
FRUIT
PULSES
RICE
*GHEE (VEGETABLE)
*GHEE (DAIRY)
CORN OIL
*BUTTER
FLORA, OLIVE OIL
*INDIAN SWEETS
OTHER (PLEASE SPECIFY)

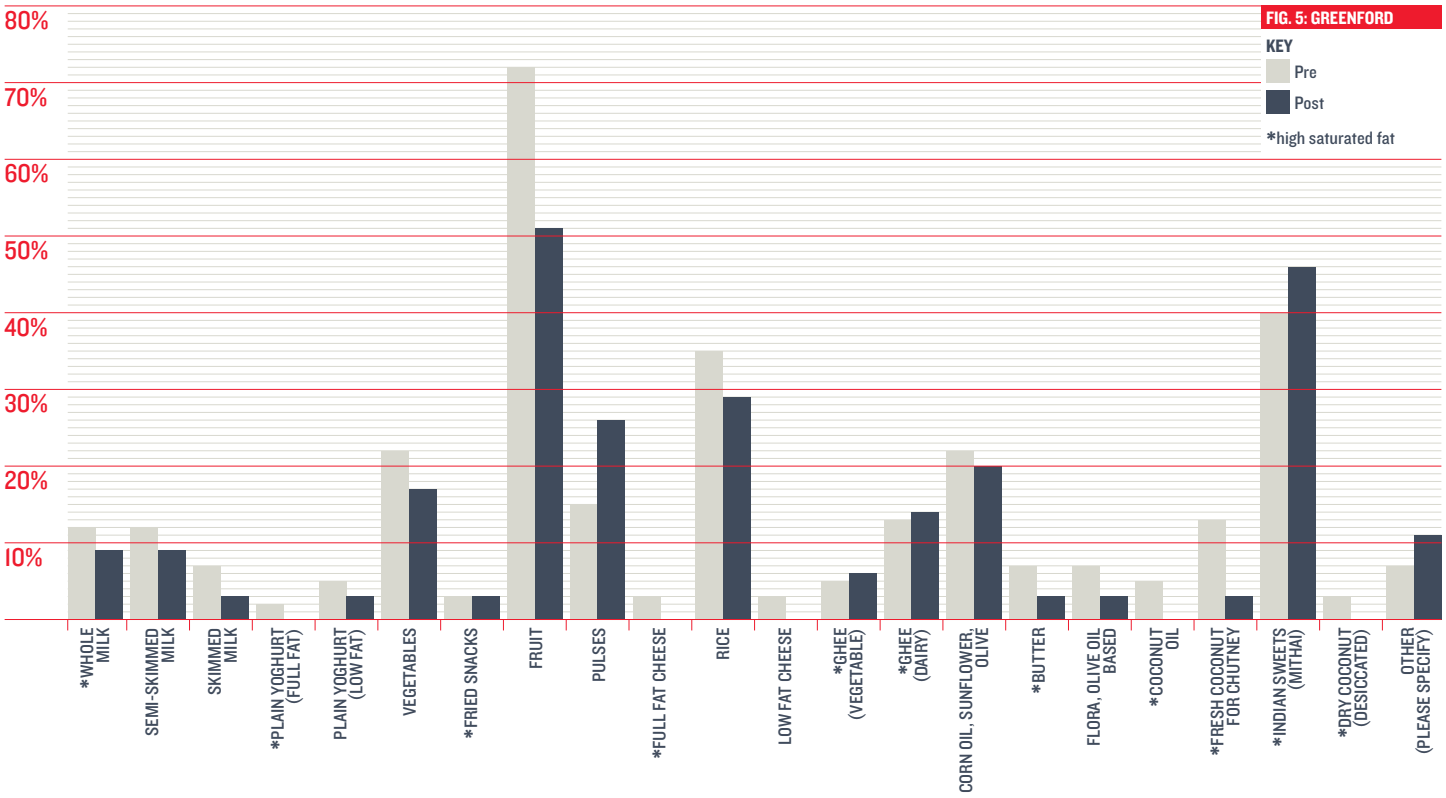


FIG. 5: GREENFORD
KEY
Pre
Post
*high saturated fat
80%
70%
60%
50%
40%
30%
20%
10%
*WHOLE MILK
SEMI-SKIMMED MILK
SKIMMED MILK
*PLAIN YOGHURT (FULL FAT)
PLAIN YOGHURT (LOW FAT)
VEGETABLES
*FRIED SNACKS
FRUIT
PULSES
*FULL FAT CHEESE
RICE
LOW FAT CHEESE
*GHEE (VEGETABLE)
*GHEE (DAIRY)
CORN OIL, SUNFLOWER, OLIVE
*BUTTER
FLORA, OLIVE OIL BASED
*COCONUT OIL
*FRESH COCONUT FOR CHUTNEY
*INDIAN SWEETS (MITHAI)
*DRY COCONUT (DESICCATED)
OTHER (PLEASE SPECIFY)

How easy was it to make the changes?

In the final focus group, the head cooks said that reducing the fat in cooking was relatively easy and the food sample analysis showed a significant reduction in fat and saturated fat. (see Tables 2 and 3, with further detail in Appendicex 11). They also said it was hard to always supervise what happens in practice, but the dietitians' lists and posters of tips helped as reminders.

Healthier donations, which have been sustained throughout the project, (particularly at the gurdwara) also made it easier to make the changes, as 'you used what was available'.

The older helpers were typically more resistant to changes, but with the dietitian's dedicated support this decreased as they became common practice.

Salt reduction continued to meet with more resistance from some cooks. Taste was still the main factor, despite many congregation members being unaware of the significant reductions in saturated fat and salt that had been made (see Fig 6).

"Most of the congregation don't even notice the changes!"
Head Cook, gurdwara

"We were very firm with the ones who complained – we just told them it was good for their health!"
Head Cook, mandir

"Many younger members reported to prefer the 'new' way of cooking."
Head Cook, mandir

Nutritional analysis

The meals in the PoW follow a similar meal structure. They're vegetarian and usually consist of:

- dhal
- vegetable curry or pulse dish
- chapati, puri, paratha and or rice
- yoghurt
- milk pudding
- fruit or mithai.

See below for comparison of the phase 1 pre-intervention and final phase 3 nutritional analysis of the meals in each PoW. Interim food analysis results comparing phase 1 and phase 2 can be found in Appendix 11.

Greenford mandir

The typical foods at Greenford were:

1. Rotla 2. Vegetable curry 3. Khadi 4. Carrot pickle
5. Chapati 6. Khichri

TABLE 2: GREENFORD NUTRITIONAL ANALYSIS (see appendices II for more detail)

GREENFORD	BASELINE PRE-INTERVENTION SAMPLES (DEC 2011)	FINAL SAMPLES (AUG 2013) AVERAGE 3 SAMPLES	% CHANGE
PORTION SIZE (g)	770	554	-28
ENERGY (kcal)	1143	646	-43
FAT (g)	42	20	-55
SATURATED FAT (g)	11	6	-45
SUGAR (g)	33	6	-81
SALT (g)	5	4	-20

Reference intakes (RI): Energy (kcal) 2000, fat 70g, saturated fat 20g, sugar 90g, salt 6g

The initial analysis showed that, in just one meal, the foods provided:

- 60% of an individual's daily calorie intake
- half of their daily saturated fat intake and
- almost all of the recommended salt intake.

However, the reductions over the duration of the project were impressive:

- 55% fat
- 45% saturated fat

and a 30% reduction in portion sizes

Salt usage didn't really change and in some cases (rotla and chapatti breads) it increased. This may have been the result of salted butter being donated and used during the final evaluation stage. At Greenford, the change to healthier donation practices was less successful.

Reducing portion sizes had the greatest influence on saturated fat and salt reduction in Greenford.

The changes in Greenford, which are now standard practice, are:

- one chapati now offered instead of two
- ladwas (orange sweets) now broken in half
- using smaller spoons when serving meals, especially sweets like shrikand
- much less fat added to pilau rice
- buttering alternate chapatis
- vegetables, eg, aubergines, not fried before making vegetable curry.

Wolverhampton gurdwara
The typical food at Wolverhampton were:

1. Chapatti 2. Seero 3. Fruit 4. Rice 5. Dhal, 6. Vegetable curry

TABLE 3: WOLVERHAMPTON NUTRITIONAL ANALYSIS (see appendices for more detail)

WOLVERHAMPTON	BASELINE PRE-INTERVENTION SAMPLES (DEC 2011)	FINAL SAMPLES (AUG 2013) AVERAGE 3 SAMPLES	% CHANGE
PORTION SIZE (g)	610	593	-3
ENERGY (kcal)	1026	509	-50
FAT (g)	33	14	-57
SATURATED FAT (g)	12	6	-53
SUGAR (g)	35	12	-62
SALT (g)	7	4	-40

Reference intakes (RI): Energy (kcal) 2000, fat 70g, saturated fat 20g, sugar 90g, salt 6g

The initial analysis showed that, in just one meal, the foods provided:
- over half of an individual's daily calorie and saturated fat intake, and
- more than the recommended daily salt intake.

As in Greenford, this was a great motivator to get the cooks and volunteers on board to make the nutritional changes. A comparison table was pinned on a notice board in the gurdwara to increase the congregation's understanding and commitment to the project.

Again, we saw impressive results - overall the amount of fat, saturated fat, sugar and salt in the meals had more than halved:
- 57% fat
- 53% saturated fat
- 62% sugar
- 40% salt

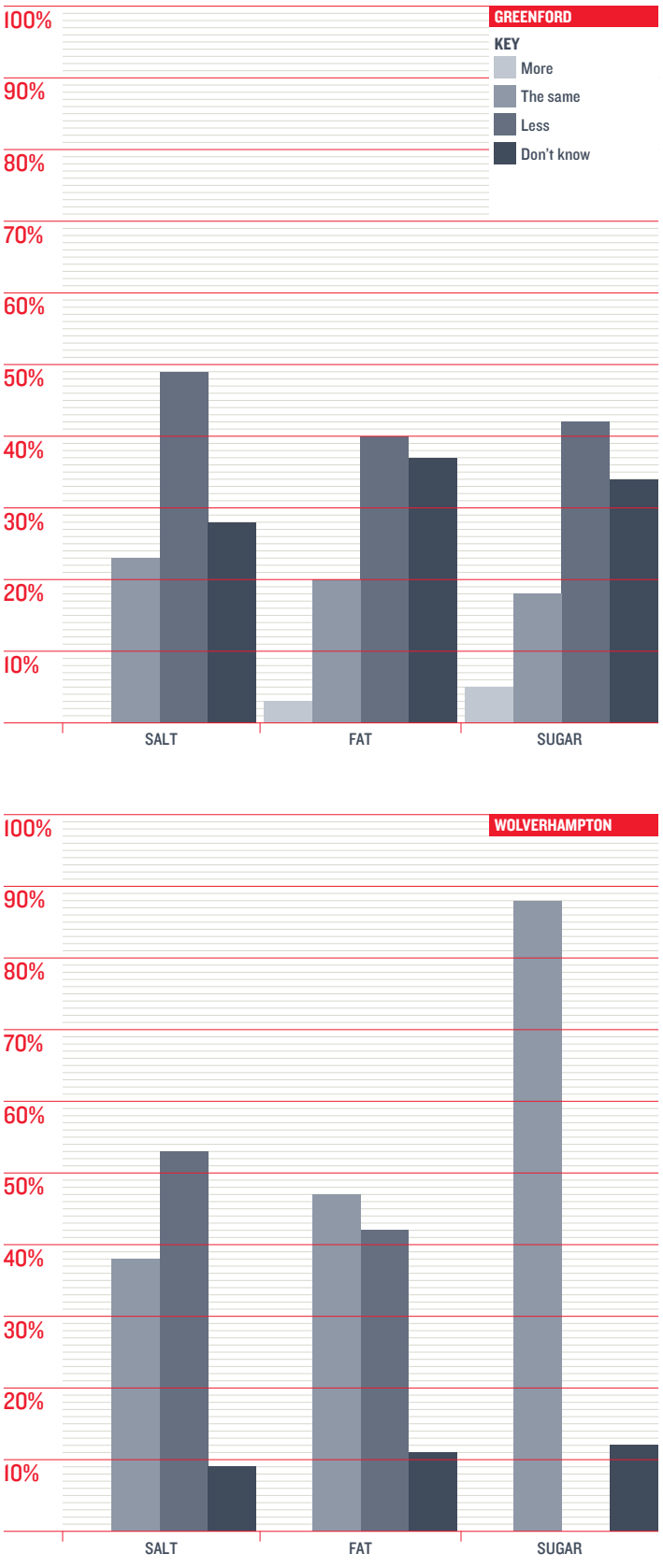
Portion sizes were initially reduced in phase 2 of the evaluation (see Appendix 11). But, in phase 3 evaluation the portion sizes were similar to the first food sample results at the beginning of the project. This indicates that, rather than reducing portion sizes, most of the reductions have been due to changes to cooking practices, such as:
- using less fat in cooking and 'buttering' the chapattis
- not frying vegetables before adding to curries
- using lower fat milks
- homemade pickles using less salt
- less paneer in curries
- using vegetable oil instead of ghee
- less fat in pilau rice
- smaller chapati dough balls
- chapatis only buttered alternately when stacked
- vegetables no longer fried before making vegetable curry
- semi-skimmed and/or watered down milk used in puddings
- yoghurt watered down and boondi not added routinely
- no salt shakers on tables.

Congregations' responses – what about the taste?

Previous social cooking projects showed there are often preconceived ideas that food that has been adapted to reduce the fat or salt content will be less tasty. During this project, the reactions to the new meals were significant (see Figure 6).

In both PoW only about half of the diners seemed to notice there was less salt. In Greenford, about 40% thought there was less fat or didn't know. In Wolverhampton, about half said there was the same or less fat. Most importantly, both PoW reported no adverse effect on the taste of the food, given the significant reductions in salt and saturated fat (see Figure 6).

FIG. 6: QUESTION 9 – Have you noticed any changes in the level of salt, fat and sugar in the food since the BHF initiative?



WHAT WE LEARNED FOR THE FUTURE

The impact of nutrition changes on CVD – public health modelling (PRIME)

The PRIME model used the pre-intervention nutritional analysis and the final nutritional analysis to translate changes in dietary quality into changes in cardiovascular and cancer health outcomes.

The scenario used was:

'What would happen if the rest of the diet remained totally constant, and only one meal a week changed?'

Despite the fact that the model calculation only affects one meal per week, because of the large change in the nutritional quality of the diet achieved, the project still got some noticeable results. The model suggests that the improvement in the nutritional quality of the meals could result in a 2% drop in CHD deaths and a 6% drop in deaths from diabetes.

This project has shown that working with cooks and congregations in PoW to raise awareness and make dietary changes is effective in helping to try to reduce CVD in this community, although time, dedication and effort are needed.

Using nutritional analysis

Robust nutritional analysis proved extremely valuable to this project. It confirmed that:

- the targets of 5-10% reductions in salt and saturated fat were substantially surpassed, with up to 40% reductions in salt and 50% in saturated fat
- this type of social cooking project can be implemented in PoW without the need for further expensive nutritional analysis
- simple practical advice plays an important role in reducing the amount of saturated fat and salt used in cooking in PoW
- using nutritional analysis of the trays of food being served, when compared to the daily reference intakes for adults, was a motivating factor for getting the cooks and volunteers on board to make healthy changes to the meals they were preparing.

Using health modelling

Health modelling predicts that this improvement in the nutritional quality of the meals could result in a 2% drop in CHD deaths and a 6% drop in deaths from diabetes. However it's important to note that this doesn't take account of different causes of death in the population, so it's quite complicated to convert these results into number of lives saved at these PoW. But, as there are an estimated 500 gurdwaras and 250 mandirs around the UK, feeding tens of thousands of people, extending these findings to all PoW could make a big difference in reducing CVD risk in this community.

Investing time and commitment

These projects are complex, and developing a rapport with PoW leaders, committees, cooks and congregation to ensure their commitment is critical to success. Their help and goodwill can't be taken for granted and may involve a great deal of effort and relationship-building before any actual intervention can take place.

More set-up time at the beginning of the project to build rapport between the project manager, dietitian and the PoW helped communications throughout the project. PoW leaders and the congregation bravely supported the initiative and were proud to be helping the BHF. Interestingly, the associated PR opportunities for the PoW also seemed to be a powerful motivator to work with us. They were happy for filming and photography to take place to promote the project, but it's important to understand that getting agreement from PoW leaders can take time. Planning these types of activity needs to be done in advance as the PoW leaders may not meet that often, and to avoid any conflict with religious and cultural beliefs and festivals.

These initiatives are also time-intensive. Cooking times are often early mornings or evenings and meetings with the PoW leaders are also often in the evenings or at weekends. So, any organisations undertaking such work in the future need to recognise the importance of tenacity, flexibility and goodwill on the part of the dietitians and allow timetables and schedules to be flexible.

The role of healthcare professionals

The dietitians' dedication and commitment were crucial to bringing about the dietary changes. In both PoW, the rapport they created with the communities and their ability to influence the complex dynamics within cooking teams appears to have been a significant part of the success of this initiative. Cooks in both PoW agreed that the personal factor was significant - they would not have made changes if they'd only been sent health/catering information without human support. So, it's important that any future work with PoW should involve a dedicated health professional as well as practical resources. Religious and social similarity of health professionals and others helping to set up the intervention can be useful, but aren't essential.

Overcoming barriers to change

Established cultural practices can present a barrier to change, but the religious beliefs of South Asian communities can also provide powerful cultural drivers for change. Caring for the community is a central theme for both Sikhs and Hindus and this helped motivate the cooks to make changes in their cooking practices. However, the challenge of overcoming these barriers always needs to be taken into account and the success we achieved, especially at Wolverhampton, required considerable time and effort on the dietitians' part.

NB. It's important to understand that you can't control cooking methods for religious festivals and other celebrations or holidays, as some foods are considered holy. The aim of the project was to make healthy changes to the 'everyday' food produced. We found that there was mixed feelings in both PoW from both the cooks and the congregation that lowering salt and saturated fat in the meals could make the food less culturally authentic and less tasty. Explaining, at the beginning of the project, that the way they prepare special and 'holy' foods doesn't need to change gave the cooks confidence to make changes to the everyday food.

Reducing fat and salt

It's easier to reduce fat than salt. Concern about taste can be a barrier to change for both the cooks and congregation, particularly in relation to salt, and it's hard to generate consistent practice among them. A slow reduction is likely to be more constructive and acceptable than sudden radical change. Encouraging cooks to make their own recipes, especially pickles, worked well in reducing salt intakes. The nutritional analysis showed them the difference it made and was a great motivator for them to make changes to other recipes. The types of foods donated can also make a big difference to salt reduction, eg, salted vs. unsalted butter. So, working with the PoW to change their donation practices is an important part of helping them reduce their salt and saturated fat intakes.

EVALUATING THE PROJECT

Tackling food donation practices

There was more success in sustained changes to the types of donated food when the trustees and priests actively encouraged their members to donate healthier foods. In this project being reminded of the healthier food changes regularly around prayer time worked better than just having lists on noticeboards.

Future interventions will need to focus on how best to encourage congregations to do this. For example, it's helpful if the committee develops guidelines on healthier food donations. These are a useful guide for the congregation to actively support the work and changes.

Engaging the whole community

Importantly, involving the congregation through healthy eating presentations to the congregation was successful, and the practical and visual BHF resources, eg, the recipe book and booklets in the appropriate language, proved to be popular. But it's important to note that what PoW members knew about the relation between diet and their CVD risk was surprisingly limited – simple dietary messages are still new to some people in this community.

This highlights the need to tailor the information to each PoW and perhaps allow more time to working with the congregation members to ensure their commitment to change. The benefits of the cooks and diners taking the healthy eating messages home to their families, and shifting their own cooking practices, is crucial to long-term success.

Next steps

We've invested time and resources in working with cooks and congregations in PoW, and this report has shown it's an effective method of helping to lower saturated fat and salt intakes in the South Asian community. We're keen to share our knowledge and results so that others can use this information and implement similar interventions.

To do this, we initially aim to:

- invite media to attend events at our headquarters to interview BHF staff involved in the project, the dietitians and people from the temples on how the project went, what the benefits were, and how easy they think it would be for other temples to replicate the programme
- offer the media the chance to film/record/visit one of the temples for the sights and sounds of kitchens and people eating that TV and radio in particular might need
- produce a photo album of pictures we got from the temples that we'll promote on our Facebook page
- start a blog from one of the case studies in the film that we'll promote on Facebook and Twitter.

From the project findings we've produced a resource pack, which includes:

- a project summary
- guidance on how to set up a social cooking intervention
- a list of practical tips to promote healthier cooking practices
- ways to encourage healthier donations
- a DVD.

The DVD was commissioned to help communicate the benefits of the social cooking intervention. It's a summary of the project including a description of the intervention and the results.

The resource pack includes the web link bhf.org.uk/socialcooking to encourage people to find out more about the project and ethnicity and heart disease. To order a pack, please call the Orderline on 0870 600 6566 or email orderline@bhf.org.uk and quote code G959.

However, as the cooks in both PoW agreed that they would not have had the courage to make changes if they'd only been sent health/catering information without human support, it's unlikely that the report, paper guidance and DVD will be successful as a standalone resource. The 'human' factor to tailor advice and give support to each PoW seems to be an important part of achieving successful results.

The primary audience for the resource is the trustees/senior management of gurdwaras and mandirs, to show them that this is something they could encourage in their PoW. However, it's also valuable for organisations that could fund a similar project – local health authorities, hospitals, dietetic departments or local health charities.

Taking it forward

A post-evaluation review meeting was set up to discuss what we learned and how it could best be disseminated. This was attended by the project manager, internal and external evaluators and project dietitians (see Appendix 24 and 25 – Project dietitian feedback). Suggestions included:

- ambassadors from the PoW in this project volunteering to work with other PoW to gain more widespread acceptance of the value of healthier social cooking.
- conducting a social cooking training session in selected PoW across the UK to increase awareness and to demonstrate that taste needn't be affected by small changes.
- using PoW forum meetings to promote the project and encourage other PoW to take on board some of the healthier cooking recommendations. Project promoters could be BHF staff, PoW champions or South Asian heart health champions.
- developing partnerships to fund health professionals to provide the social cooking service or PoW could fund it themselves.

And finally...

We'd like to extend our heartfelt thanks for the drive and dedication of everyone who took part in the Social cooking project. It has, and continues to have, a major impact on the health of this part of the South Asian community, and we believe that further projects in the future will bring us all closer to winning the fight for every heartbeat.

APPENDICES

This full report and all the following appendices are available at **bhf.org.uk/socialcooking**

Appendices

1. Criteria for place of worship (PoW) selection
2. Questionnaire Survey Monkey results
3. Standard format for dietitians visits to PoW
4. Social cooking dietitian's progress report form
5. PoW certificates
6. Questionnaire phase 1
7. Questionnaire phase 2
8. Focus group topic guide phase 1
9. Focus group topic guide phase 3
10. Food checklists
11. Nutritional analysis comparison phase 1 and phase 2

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