

Workshop on ‘Changing nutrition behaviour to improve maternal and fetal health’

Intervening to change the diets of low-income women

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Diet-related sources of ill health, including Fe-deficiency anaemia, are prevalent in the local South Asian population. This population also has a high prevalence of low-birth-weight babies. A need for preventative measures that take a holistic view to dietary change was identified in a South Asian community in Southampton, UK. A peer-led approach was used, training and developing a local workforce to become community food assistants. This workforce, drawn from local black and minority ethnic communities, ran practical ‘hands-on’ culturally-appropriate food-related activities within their communities that were successful in achieving long-term change in the diets of local women and their families. This model has the potential for achieving sustained behaviour change and is able to engage key target groups that can often be difficult to reach through more traditional routes.

Peer-led education approach: Dietary changes: Black and minority ethnic communities

Background

Research undertaken by the University of Southampton during the 6-year period leading up to 1999 identified substantial rates of Fe-deficiency anaemia in the local young female South Asian population^(1,2). Fe deficiency remains the leading cause of anaemia in children in the UK and is a very real public health problem. The consequences of Fe deficiency include effects on physical performance capacity, increased risk of a poorer pregnancy outcome if anaemia in adolescence persists into the reproductive years and a risk of hypertension and heart disease in babies born to mothers who are anaemic⁽³⁾. The prevalence of Fe deficiency varies widely but certain factors are consistently associated with an increased risk, including: low birth weight; ethnic minority status; socio-economic deprivation; food refusal. The prevalence in children from ethnic minority groups in England ranges from 17% to 31%, and within Southampton approximately 22% of adolescent South Asian girls are Fe deficient^(1,2).

Low Fe intake alone fails to explain the prevalence of Fe deficiency and Fe-deficiency anaemia. It is thought that

Fe-deficiency anaemia may serve more as a marker for a variety of nutritional and family disadvantages^(4,5), which is suggested by its coexistence with other deficiencies such as vitamin A and D deficiencies. Indeed, these deficiencies are associated with evidence of disadvantage such as crowded living conditions, lower socio-economic status and maternal education⁽⁶⁾. Hence, it has been suggested that preventative strategies should aim not just to maximise Fe status alone but should address the whole diet⁽⁷⁾.

Previous research undertaken by the University of Southampton has suggested that anaemia is a serious source of morbidity within the local population^(1,2), which is unsurprising, given the levels of deprivation in the area. Southampton continues to have some of the worst deprivation in the UK and is ranked 91st on the overall Index of Multiple Deprivation 2007 of 354 Local Authorities in England (with 1 being the worst)⁽⁸⁾. Approximately 40% of the population live in areas of disadvantage. Southampton is also an ethnically-diverse city, with approximately 8% of the population classified as coming from ethnic minority communities, higher than the national and Health Authority average. At the time of this project

Abbreviation: CFA, community food assistants.

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central Southampton, where a high proportion of these communities live, had the highest levels of unemployment and socio-economic disadvantage and the highest circulatory disease mortality in the Southampton and South West Hampshire Health Authority⁽⁹⁾.

In order to understand the background to Fe deficiency and Fe-deficiency anaemia interviews were undertaken with Punjabi Sikh and Bangladeshi Muslim women in the local community to establish their views about health and the role that food and nutrition play in overall health for themselves and their families. It was clear that healthy eating, although seen as important to maintain or achieve good health, was also viewed as being difficult to sustain (J Davies, unpublished results). The reasons given were many and varied and included the women's belief that it was necessary to change to an English style of cooking in order to achieve healthy eating recommendations. This finding reinforced previous findings that indicate that South Asians consider alternative cuisines to be more healthy than their own. They describe other culinary traditions as having the right balance of vitamins and protein, reflecting the language of biomedical science⁽¹⁰⁾. However, they see these diets as in conflict with their culture and not palatable.

The women also said that they thought healthy eating was expensive. This opinion may have reflected their perception that healthy eating required an English style of cooking that was less acceptable to the family and therefore a waste, not only in monetary terms but also in time taken to prepare the meal. Certainly, previous work has found that South Asians are the least likely of different ethnic groups to allow cost of food items to influence their food choice⁽¹¹⁾. Culturally-important food items are prioritised within the household budget, which suggests that it is more likely that these South Asian women perceived healthy eating recommendations to be culturally unacceptable rather than simply too expensive.

Studies have shown that South Asians often feel that the dietary advice they receive is not appropriate to their lifestyle and not relevant to the type of food they eat^(12,13). Educational interventions, such as the provision of written information alone, have been found to be ineffective in changing the diets of ethnic minority populations in comparison with multi-faceted approaches⁽¹⁴⁾. As with other populations, health education campaigns have had little success in changing their dietary practice, as knowledge of dietary health hazards does not automatically translate into effective dietary change⁽¹⁰⁾.

There are a variety of factors that influence what individuals eat and why, which include: social pressures to eat, which have to be negotiated and reconciled with dietary recommendations; the social importance of certain foods such as red meat^(15,16); religious rules, strong cultural influences and a desire to eat the food that helps retain a sense of identity; other recognised constraints or factors, such as family eating patterns, family commitments, habit, health beliefs, environment and finances^(10,17).

Thus, the challenge was to find a dietary solution that would engage local communities, address all these issues, including the cultural ones, and achieve sustained diet-related behaviour change to reduce the prevalence of Fe-deficiency anaemia in the local black and minority

ethnic communities to match that reported for the wider population.

The approach taken

There is a limited literature describing successful interventions to change the diets of black and minority ethnic communities. However, research suggests that the efficiency and effectiveness of community-based interventions can be improved by using individuals from the local population to complement the work of health professionals⁽¹⁸⁾. Indeed, services provided by local individuals are often considered to be more appropriate and accessible to the health needs of the community. This approach fosters self-reliance, community participation and can help overcome barriers. It also allows access to typically hard-to-reach groups such as minority ethnic groups. The benefits are two-way, as local individuals also have the opportunity to develop their own skills. Exploratory work using this peer-education approach has found that it is possible to achieve both marked increases in nutrition knowledge and beneficial changes in the dietary practices of low-income families^(19–21), although for black and minority ethnic communities this approach has been less well documented. Furthermore, the best approach appears to be one in which the participants acquire knowledge and skills through guided 'hands-on' food preparation sessions. This approach is successful because observability is known to influence changeability⁽²²⁾, although the evidence of effectiveness is limited because complex interventions such as these are difficult to evaluate^(14,23).

A systematic review has found that successful dietary interventions have several features⁽²⁴⁾. They usually focus on diet alone, or diet plus exercise, rather than tackling a range of risk factors and have clear goals based on theories of behaviour change rather than relying on the provision of nutrition information alone. Also, they have personal contact with individuals or small groups sustained over time and participants receive personalised feedback on any changes in their behaviour and in risk factors. A more recent systematic review and review of primary studies undertaken supports these findings⁽²⁵⁾, with four features of intervention identified as being effective in relation to nutrition-related behaviour change: an educational component; prolonged or ongoing support; family involvement; social support from peers and lay workers.

This background led to the selection of a peer-led approach to improving the diet of South Asians in Southampton. It was planned to enable change in dietary and lifestyle practices by providing practical help and advice in the form of cookery clubs as well as other group work. This programme of work became known as the Breaking the Cycle Project.

Building the workforce

One of the first activities of the Breaking the Cycle Project was to develop a competent workforce drawn from members of the target communities. This process involved developing and running an accredited training course in community food and health skills for local residents, which

was targeted at residents from different black and minority ethnic communities. This course was accredited by the National Open College Network (a UK credit-based Awarding Body) and was made up of two units totalling fifteen sessions. The first unit focused on the underpinning knowledge required by the peer leaders, described as the community food assistants (CFA), and covered the basics of food, nutrition and health including healthy eating, hidden fats and sugars, dietary management of diabetes, CHD, breast- and bottle feeding, weaning and healthy eating for the whole family. Participants for inclusion on the course were selected from volunteers from the local communities that were being targeted by the project. Participants who successfully completed this unit could progress to the second unit, which focused on developing the skills required to be able to work with their communities and run practical, fun and interactive sessions based on knowledge they had gained in the first unit.

Ten individuals were recruited and they all successfully completed the first unit. Eight of these ten participants also completed the second unit and were then offered the opportunity of taking up employment with the Nutrition and Dietetic Service, so that they could further develop their skills in order to become CFA. Once trained, they were given the role of running behaviour-change activities for members of their own community. All trainee CFA were women ranging in age from 23 years to 57 years and of African, Bangladeshi, Pakistani, Indian and Eastern European ethnicity.

Using the workforce to achieve change in the community: activities and actions

The CFA used a peer-led approach to enable behaviour change through a variety of activities:

1. raising awareness and increasing local knowledge of the issues through, for example, promotional activities and campaigns, educational sessions with groups within the community, development of culturally-appropriate resources and work with local retailers, centres of worship, schools etc.;
2. development of practical skills for healthy eating and cooking through, for example, budgeting sessions, shopping tours, taster sessions and cookery clubs.

The various practical sessions, including the cookery clubs, aimed to encourage the local community to use healthier recipes and cooking techniques in everyday living whilst ensuring that the dishes retained their cultural acceptability. During the cookery club sessions the participants prepared, cooked and tasted traditional recipes that used healthier cooking techniques. The sessions were also used as an opportunity for informal discussion of healthy eating and the barriers to making changes. The attendees were encouraged to try the adapted recipes and new cooking skills at home. They were also involved in planning recipes to be prepared in future sessions.

Over the period of the project a total of approximately 330 individuals took part in ten taster sessions and twenty-eight cookery club sessions. Of these participants forty-six

Table 1. Demographic profile of cookery club participants in the peer-led community intervention (Breaking the Cycle Project) carried out in the South Asian community in Southampton, UK

Demographic	% total	<i>n</i>
Gender		
Female	81	38
Male	18	8
Age range (years)		
16–25	28	13
26–35	40	18
36–45	11	5
46–55	6	3
56–65	2	1
>65	13	6
Ethnicity		
Pakistani	43	20
Indian	31	14
Bangladeshi	11	5
Other ethnic group	6	3
African	5	2
Other Asian background	2	1
Egyptian	2	1
Languages spoken		
English	37	17
Punjabi	20	9
Urdu	20	9
Hindi	6	3
Gujerati	6	3
Bengali (Sylethi)	4	2
Farsi	3	1
Other	4	2
Main health problems reportedly suffered by participants or their families		
Hypertension	22	10
Overweight or obesity	19	9
Diabetes	19	9
Problems with children's eating	13	6
Fe-deficiency anaemia	13	6
Heart disease or stroke	7	3
Underweight	3	1
Other	3	1

individuals attended cookery club sessions (for a profile of these individuals, see Table 1). In addition, the project undertook nine sessions in local schools, making contact with a minimum of 215 children (5–15 years old).

Key findings

In order to judge whether the peer-led training had worked, information was collected on whether participants accessed the activities provided (measured using process indicators) and whether they changed their behaviour (outcome evaluation). The process indicators included attendance numbers, demographic profile of those attending, acceptability of the session etc. The main outcome measures were knowledge of healthy eating, attitudes to healthy eating, changes in eating patterns, changes in shopping and cooking practices, barriers to changes and maintenance of changes. These outcomes were measured using both

Table 2. Summary of longer-term dietary changes achieved in the peer-led community intervention (Breaking the Cycle Project) carried out in South Asian community in Southampton, UK

Dietary aspect	Dietary changes achieved*
Low-fat dairy products	From 42% to 86% now using low-fat milk From 35% to 62% now using low-fat cheese From 53% to 76% now using low-fat yoghurt
Fats and oils	72% now using less fat in cooking 62% now using less fat in spreading
Fatty and fried foods	72% now eating fatty and fried foods less often
Salt	66% reportedly using less salt on each occasion No significant change in frequency of use
Cooking practices	80% had made positive changes to cooking practices
Eating patterns	75% had made positive changes to eating patterns
Fruit and vegetables	Increase from 85% to 100% now eating some fruit and/or vegetables on a daily basis
High-fibre starchy foods	Increase from 80% to 100% now using high-fibre varieties
Sugary foods	Regular or frequent consumption of sugary foods decreased from 23% to 5%

*These measures were taken at baseline and immediately on completion of the cookery clubs, with further measures taken at 12 months post contact with the project.

quantitative and qualitative techniques, e.g. questionnaires, reflection sheets, focus groups and telephone interviews. All measures were taken at baseline, immediately on completion of the cookery clubs and at 1 year post contact with the project. Fe-deficiency anaemia and Fe deficiency were initially planned to be measured at baseline and at the end of the project. However, through wider consultation it became clear that this objective was not feasible.

The main dietary outcomes achieved are summarised in Table 2. The evaluations indicate that these changes appear to have been sustained over a 12-month period after attendance at the cookery club sessions.

As ongoing monitoring and evaluation suggested that male family members were an important barrier to changing diet at home, the project also did some targeted work with male members of the local communities, which included a health assessment session run at one of the general practitioner surgeries, in order to raise their awareness of the issues concerned. Following this session, work was done with male community leaders that led to healthier cooking practices being introduced into some of the restaurants in Southampton.

In keeping with the holistic life-cycle approach of the project, resources and training were also developed for staff in the Sure Start⁽²⁶⁾ Central team working with the 0–5 years age-group and the National Healthy Schools Programme⁽²⁷⁾ and local schools, particularly focusing on those working with the 5–11 years age-group; the aim was to support the development of skills in public health nutrition within the wider workforce and ensure consistency and appropriateness of nutrition messages.

Lessons learned

There are a number of limitations to this project in terms of the methodology, which restrict the conclusions that can be drawn and the generalisability of the results. These limitations include: no control group; self-reported measures; various sources of confounding and bias; small study size; measurement error; no validated tools available to measure change.

Nevertheless, some important lessons and findings from this project have been replicated in subsequent work locally, which suggests that practical ‘hands-on’ activities such as cookery clubs can be successful in terms of achieving positive dietary changes. This outcome has been seen in both black and minority ethnic communities and in wider communities.

It was apparent that training individuals from the local community to become CFA created community champions who took the lead and were enthusiastic about working with their communities, in both a voluntary and paid capacity. It was discovered that there was a need to balance the individual’s motivation and expectations of attending and completing an accredited course with the needs and expectations of those running such a course. For some individuals their motivation for attendance was to gain an additional qualification rather than it being seen as a way of training to become a CFA. Others had the expectation that this training might lead to being able to work as a dietitian or other recognised nutrition specialist. The need to manage these expectations is particularly important because of the resources and professional time required to develop and run such courses, as well as the considerable personal investment required from the participants in terms of time to attend and completion of coursework. The focus groups and interviews undertaken with the participants suggested that they were motivated by a perceived need in the community as well as a family history of nutrition-related ill health.

The evaluation suggested that the trainee CFA believed they already had a good strong foundation in nutrition knowledge before attending the course. However, on completion there was universal agreement that they had gained knowledge and skills beyond their expectations and had not appreciated the depth and breadth of knowledge required to become competent peer leaders. The experience gained locally is that this misconception is common, which is in part because individuals are routinely exposed to food and health messages as well as making decisions about food on a daily basis for themselves and their families. This perception that they already know enough about nutrition is an important potential barrier to learning and

needs to be overcome before it is possible to start training individuals. This issue was addressed by quality assurance of training programmes and building in formal assessments that gave participants the opportunity to test their understanding and knowledge of key messages in nutrition.

One of the main points of learning was the level and type of support that these participants needed, not only as part of the training course but beyond the end of the course, to put into practice the skills they had acquired. The training course was accredited by the National Open College Network and covered a comprehensive series of interrelated topics that the CFA would probably need to utilise when working with members of their community and their families. The coursework assessment process was designed in order to test and ensure a minimum level of understanding of key concepts and practical skills. However, it became apparent at the end of the training course that participants lacked confidence and needed additional support and guidance to enable them to use these skills in a real-life context. This reinforcement process involved working alongside the CFA in the community until they were confident and competent enough to be able to work independently, which required more time from health professionals than had been anticipated in the planning process. Also apparent from the experience gained has been the need for ongoing support mechanisms for workers to keep up-to-date and develop their skills through experiential learning.

Over time, the CFA gained experience, developed confidence and enjoyed running the various project activities, including the cookery club sessions. Indeed, some of the CFA saw this achievement as a potential future career. However, some CFA had not expected so much detailed preparation for running the activities and found it time consuming, which meant that there was a conflict between wishing to continue working in this area and their family commitments. For the women in these cultures this constraint was important and reinforced the need for clear explanations of roles and responsibilities to be given at the outset of training any workforce to run similar activities.

Evaluation of the practical 'hands-on' cookery showed that the CFA were able to achieve two key outcomes:

1. they engaged members of the target community effectively. Evaluations were very positive; participants said that they '... really enjoyed it and would love to do it again' and asked if there could be further sessions organised. One of the reasons women gave for their ongoing engagement was the informal and sociable nature of the sessions. Indeed, engagement generally was not an issue, which is in line with other studies using a 'hands-on' approach⁽²⁸⁾. This success was in part a result of the contacts and networks of the CFA and the wider team, and also because 'word-of-mouth' of participants recommending sessions generated a demand for additional sessions. What is less clear is whether this approach, in terms of cookery clubs, is more successful in engaging communities that have a long-standing culture and tradition of cooking than communities that have less-clearly-defined traditions. South Asians are known to spend more time preparing meals than many other ethnic groups⁽²⁹⁾ and meal

preparation is an important aspect of women's roles as wives and mothers⁽³⁰⁾;

2. they motivated individuals to make long-term changes to their eating habits. There are clearly limitations to the project, which mean it is difficult to be sure that the changes in diet reported are a reflection of true change. Nevertheless, the subsequent replication of these results locally would suggest that this practical, 'hands-on' approach is effective in influencing long-term changes in dietary patterns. The key benefit of a 'hands-on', practical approach was that it helped participants understand and be able to translate key messages into practical skills that enabled them to make real changes to their diets and those of their families.

A crucial factor in the success of the project was the existence of skilled and competent public health personnel with an appropriate depth of knowledge and skills in nutrition and community development. A competent public health nutrition workforce is needed to provide the leadership and competencies around the core areas of public health nutrition practice, without which it is not possible to build or quality assure other elements of the wider workforce, such as CFA. This wider workforce has an important role to play if the important and growing nutrition-related public health concerns are to be seriously tackled.

Key elements of success

The evaluation shows that a peer-led approach was successful in cascading information both formally and informally in a diverse cross-section of the local South Asian population. The dietary changes were successfully achieved and maintained through guided practical culturally-appropriate 'hands-on' sessions that enabled the women to gain confidence and test out skills in a supported environment with ongoing contact over a number of sessions and shared learning and experience. It achieved this outcome by:

1. putting the user at the centre of the project, making the delivery of advice culturally sensitive and appropriate and empowering users, through their knowledge and understanding of their communities, to inform and direct service delivery;
2. basing the intervention on evidence of what was known to be effective in achieving dietary change. Evidence was supplemented by local information gathered through talking to local community groups, which ensured that the target group's perspective, needs and concerns were understood. This approach is based on community development principles, which helped to increase the project's successes and build in sustainability;
3. working in partnership with communities of interest and key stakeholders, raising awareness of the problem among key decision makers and stakeholders and engaging with the relevant professional workforce. The Breaking the Cycle Project was the only 'health' project funded by Southampton City Council's Neighbourhood Renewal Project, which created a new partnership and understanding of health in its wider context;

4. reviewing workforce capacity and drawing on relevant expertise to develop trained, skilled and competent staff who were 'fit for purpose'. This approach created a new workforce of peer-educators who were able to work with their communities, using a practical 'hands-on' approach that was well received by the community and resulted in long-term dietary changes;
5. developing an evaluation framework so that changes over time could be measured and ensuring that the impact of the work and its benefits could be articulated and used to inform future service delivery and design.

Acknowledgements

This work was supported by a large number of individuals and organisations who made this project possible, including those involved in the Steering Group. Funding was received from the Hampshire and Isle of Wight Workforce Development Consortium, the Neighbourhood Renewal Area and the Neighbourhood Renewal Fund. The authors declare no conflict of interest. J. D. was the lead and manager for the programme of work, wrote the original article and made any necessary recommended amendments from the co-authors and others and produced the final article. P. D. was a main contributor to the programme of work and provided comments and feedback on the article. B. M. was a main contributor to the programme of work and provided comments, feedback and amendments to the article.

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