Adapted nutrition interventions

Study reference

Hawthorne and Tomlinson 1997[407]

Setting

UK; Manchester, hospital outpatient clinic or diabetic clinics in 10 general practices

Inclusion criteria

Pakistani patients with type 2 diabetes mellitus attending Manchester Diabetes Centre and 10 neighbouring general practices were entered into the study

Study type

RCT

Description of population

Ethnicity: Pakistani Muslim; not reported how ethnicity assessed

Age (years): Mean (range): intervention: 52 (50–54), control: 54 (51–58)

n: 201; 112 intervention, 89 control

Sex: 56% female

Income: Not reported

Description of intervention and control

RCT of pictorial flashcard one-to-one education to improve knowledge about diabetes, increase self-caring behaviour and affect attitudes to diabetes

A total of 10 coloured photographs produced by a dietician, link worker and professional photographer were enlarged to A3 and laminated. Each card covered one or more teaching objectives. Interviews were used alongside the flashcards and were videotaped. Interviews (20 minutes) took place in the hospital clinic, at GP surgeries or at the participants' homes, in the language that they felt most comfortable using

Theory: Not reported

Approaches to adaptation

- Culturally appropriate pictorial flashcards – used Asian models, utensils and foods
- Interviews carried out by a link worker fluent in Urdu, Punjabi and English (no medical background, but trained)
- Attitudinal measures (four topics) were selected from an earlier survey and focus group discussions with Pakistani Muslims from Nottingham. Another pilot study conducted to test interview technique
- Questionnaires translated during the interview, and tailored to the individual's understanding

Outcome measures and results

Follow-up: Baseline and 6 months

Knowledge: All outcomes measuring knowledge increased in the intervention group, e.g. increase in knowledge about individual food value scores from 71% to 84% (% correct) (analysis of variance adjusted difference in knowledge scores +7.8%, 95% CI +4.9% to +10.7%). Between groups: at 6 months, intervention group showed significant improvements in knowledge scores, increased self-caring behaviours and some changes in attitudes to diabetes and diabetes service. Few changes in control group over the 6 months

Conclusions

Authors: Health education programmes can empower Asian people with diabetes to take control of their diets, learn to monitor and interpret glucose results and understand the implications of poor glycaemic control for diabetic complications. Low literacy levels and inexperience of formal education did not stop patients from learning about diabetes and how to control it. For this group, health education needs to be delivered in a combination of ways (flashcards, one-to-one interviews and reinforcement)

Reviewers: This study is poorly described and the significant results reported often do not include the percentage change and significance level. The study showed significant changes in knowledge regarding foods in the intervention group. More description of the control group is needed as it is unclear what they were receiving

Comments and limitations

Acceptability: patients were positive about the education received and felt empowered. Few people suggested improvements to the teaching method. Flashcard showing pictures of foods one could eat with diabetes and another showing sites of diabetic complications were the most popular

The control was not described and it was unclear what happened with the control group. Many patients did not want others to know that they were diabetic and they felt unable to dictate their food choices publicly and found it difficult to refuse food in social situations. Education level needs to be accounted for when designing health education programmes (culturally acceptable and appropriate to literary skills). Patients preferred one-to-one opportunistic health education at clinics rather than organised group sessions, even if these were single sex (this is in opposition to other diabetes education studies in which group formats were thought to be acceptable as well)

CI, confidence interval; GP, general practitioner; RCT; randomised controlled trial.

Study reference

Campbell *et al.* 1999[326]

Setting

USA; eastern North Carolina

Inclusion criteria

Participants were a one-eighth random subsample of the sample in the Black Churches United for Better Health (BCUBH) project. The criteria for that study were that participants were members of African American churches in 10 rural counties. Members had to be active adult members – defined as those who participated in worship services or church activities at least once per month

Study type

RCT (part of a larger study, the BCUBH project)

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): ≤ 50 years for 44.7% EXP (expert) group, 49% SPIR (spiritual) group, 44.7% control group

n: 459 participants; 109 in the expert (EXP) group, 108 in the spiritual (SPIR) group, 242 control group

Sex: EXP group: 74% female, SPIR group: 73% female

Income: In both groups about 64% had a household income of < US$20,000 a year

Other: 60.5% and 48.3% in the EXP and SPIR groups, respectively, had a high school education or more

Description of intervention and control

This intervention compared two different computer-tailored messages designed to promote fruit and vegetable intake among African American church members, who were part of a bigger multicomponent trial. Both sets of messages were tailored to the same baseline variables, were formatted similarly to resemble church bulletins and incorporated cultural themes such as African American recipes and artwork; however, one set was generated by nutrition experts and used scientific research as the source (EXP) whereas the other set was put together by pastors and referenced God and scripture (SPIR). Both of these groups were evaluated and compared with a delayed intervention control group who during the intervention did not receive any bulletins

For the bulletins there were 20 different personalised messages drawn from a library of several hundred messages and chosen based on responses to the baseline questionnaire. Tailored feedback included text and graphics showing the participant's current fruit and vegetable intake and responses to their perceived risk of cancer, perceived benefits of eating fruit and vegetables, stages of change, perceived barriers and social support. They were also tailored to the person's name and church title (Sister or Brother). Each bulletin also contained one of several randomly chosen low-fat recipes for a traditional African American fruit or vegetable dish

The *EXP bulletins* stated that they were based on the latest research and had messages about social support, the top three barriers to eating fruit and vegetables, artwork depicting families and an article on 'Why Doctors Want You to Eat Healthy'. The bookmark in the EXP included the statement 'Eat 5 servings of fruit and vegetables a day for better health'

The *SPIR bulletin*s began with a message form the pastor and his photograph. They included church-oriented artwork, a five-a-day grace and messages with spiritual and biblical themes. There was an article on 'Why God Wants You to Be Healthy' and a bookmark with a passage from the book of Genesis

Theory: Bulletins tailored to stages of change

Approaches to adaptation

- Religious setting
- Bulletins were designed like church bulletins after reviewing samples of these from the churches
- Used church names of 'Brother' or 'Sister'
- Used traditional African American recipes
- Sample messages were pre-tested with African American church members from non-participating churches
- Pastors reviewed and approved bulletins
- The SPIR bulletins also used religious language with biblical allusions and messages from the pastor and contained a photo of the pastor and ended with a five-a-day grace. They also contained church-orientated artwork, an article called 'Why God Wants You to Be Healthy' and a bookmark that had a passage from the book of Genesis about fruits and vegetables

Outcome measures and results

Follow-up: Surveys were undertaken at baseline, 1 year (subsample) and 2 years

Fruit and vegetable consumption (7-day FFQ validated in subsample with 3-day food records): Fruit and vegetable consumption at 2 years had increased for the two intervention groups compared with the control group. The EXP group consumed an average of 4.8 daily servings, the SPIR group consumed an average of 4.9 daily servings and the control group consumed 3.8 daily servings. This difference was significant ($p < 0.005$). There was no significant difference at follow-up between the EXP and SPIR intervention groups

Conclusions

Authors: The authors conclude that this intervention was successful for both groups, but that the effect of the tailored bulletin cannot be separated out from the other components of the BCUBH intervention as a whole. Although there was no significant difference between the two intervention groups in terms of fruit and vegetable consumption, there was a finding that the SPIR bulletin was perceived as significantly more trustworthy than the EXP bulletin

Reviewers: This was a very interesting study as it added an additional adaptation to an already adapted intervention to see if either expert or additional spiritual content would enhance the intervention

Comments and limitations

Included the use of self-reported data. Also, there was a delay between the completion of the survey data and the delivery of the bulletins and this may have reduced their relevance as information may have changed over that time. The effect of the bulletin cannot be separated out from the effect of the overall study

FFQ, Food Frequency Questionnaire; RCT, randomised controlled trial.

Study reference

Campbell *et al.* 1999[320,473] [Black Churches United for Better Health Project (BCUCH)]

Setting

USA; eastern North Carolina, rural

Inclusion criteria

Members of African American churches in 10 rural counties. Members had to be active adult members – defined as those who participated in worship services or church activities at least once per month

Study type

RCT (randomised by county)

Description of population

Ethnicity: 98% African American with 1% multiracial and 1% 'other'; not reported how ethnicity assessed

Age (years): Mean: 53.8

n: 2519

Sex: 73% female

Income: 59% reported household incomes < US$20,000 per year

Other: 67% had at least a high school education

Description of intervention and control

Churches in the five intervention counties received a planned five-a-day intervention programme and the other churches did not receive any programme activities until after the completion of the 2-year follow-up survey

As well as being culturally tailored, the materials were individually tailored with people receiving personalised messages and feedback based on survey information regarding their intake of fruit and vegetables, their stage of change, barriers, beliefs and social support. The church was also supplied with monthly packets of materials including brochures, posters, banners, bulletin board materials, idea sheets and church bulletin inserts

Activities included gardening; educational sessions (including modifying cooking methods and classes on canning and freezing produce); cookbook and recipe tasting (cookbooks put together from members' recipes modified to include five-a-day and given to all members); serving more fruit and vegetables at church functions; lay health advisors who attended training sessions on topics such as providing social support and helping members to advance stages of change; community coalitions that met to plan community events; pastor support (encouraged to promote the project from the pulpit); grocer–vendor involvement (materials designed to promote locally grown produce such as recipe cards, coupons and farmers' market posters were distributed to the church members and also to local grocery stores); church-initiated activities

Theory: Used an ecological framework targeting activities at the individual, social network and community levels. Also used stages of change transtheoretical model, social cognitive theory and social support models and the PRECEDE–PROCEED model

Approaches to adaptation

- Used information from six focus groups conducted early in the project, pastor interviews and ongoing feedback from church members to make the programmes and messages more culturally relevant
- Help was obtained from pastors to incorporate spiritual themes into tailored messages, sermons and other communications
- A church team (nutrition action team) was selected to be responsible for organising and implementing programme activities
- An African American review group of pastors, project staff and community members reviewed and approved all project materials
- Worked within social networks in the community

Outcome measures and results

Follow-up: Baseline and 2 years

Changes in fruit and vegetable consumption: There was an increase in fruit and vegetable consumption in the intervention group to 4.45 servings compared with 3.60 servings in the delayed intervention group (difference of 0.85 servings, $p < 0.0001$)

Knowledge: OR of 1.8 for the intervention group vs the delayed group for an increase in knowledge that five or more daily servings are needed for health

Conclusions

Authors: This RCT of a five-a-day intervention in black churches showed a positive result in achieving dietary behaviour change. The observed effect size (0.85 servings) was greater than the half-serving increase projected in the study design and is impressive considering that all eligible subjects were included regardless of their level of participation in the project activities. In this project the institutional support and social networks of the church provided an effective avenue for diffusion of the five-a-day message. Also, partnering with the churches results in the potential for long-term maintenance and institutionalisation of the programme

Reviewers: This intervention appears to have been successful within the church setting with changes observed in knowledge and behaviour. If the programme was to be continued it would be interesting to see if there was ultimately any change in anthropomorphic measures or in health status

Comments and limitations

Limitations included findings being based on self-reported information, which is subject to response bias. Biomarkers that could have been used to validate the findings, such as carotenoid levels, were not assessed in this study. Anthropomorphic measures such as weight and height were also not determined

OR, odds ratio; RCT, randomised controlled trial.

Study reference

Kristal *et al.* 1999[474] [Women's Health Trial: Feasibility Study in Minority Populations (WHT: FSMP]

Setting

USA; Atlanta, GA, Birmingham, AL and Miami, FL

Inclusion criteria

50–79 years, postmenopausal and consumed at least 36% of energy from fat as estimated from a FFQ administered during screening

Study type

RCT

Description of population

Ethnicity: Black, Hispanic and white; self-identified

Age (years): Mean: 59.6 ± 6.7

n: 1702 of whom 530 were black

Sex: 100% female

Income: Not reported

Description of intervention and control

Low-fat diet intervention with group sessions: met weekly for 6 weeks, biweekly for 6 weeks and monthly for 9 months. Didactic nutrition education and activities to provide motivation for sustained dietary change

Nutrition intervention delivered in group sessions led by centrally trained registered dieticians. Sessions integrated both nutritional and behavioural topics and consisted of problem-solving, role-playing, sharing experiences and food tasting. Each participant received a personal goal for fat intake based on their height and estimated energy intake determined from a FFQ at baseline. Self-monitored by self-administered and scored 'fat scan'. Participants selected the specific changes in food choices and food preparation methods that best fit their own eating patterns, preferences and lifestyle

No information reported for control condition

Theory: Not reported

Approaches to adaptation

- Expanding range of foods and preparation methods, in particular to include those of US Southern black and Cuban populations
- Revised written materials and exercises to be at sixth-grade level
- Regionally and culturally specific food added to the FFQ

Outcome measures and results

Follow-up: Baseline and 6 months post randomisation

Changes in dietary fat: No differences across race/ethnic groups in overall intervention effects on total grams of fat consumed. Compared with the white group, intervention effects were significantly larger among the black group for consuming poultry (–2.5 g, $p < 0.001$) and fish (–1.0 g, $p < 0.001$), and smaller for added fat (–8.9 g, $p < 0.05$), dairy foods (–1.3 g, $p < 0.05$) and baked goods (–2.8 g, $p < 0.05$)

The authors interpreted a difference in intervention effects between race/ethnic groups of 10 as meaningful (although not statistically significant) but this corresponds to 1.3 percentage points in per cent of energy from fat

Conclusions

Authors: The study demonstrated that, if properly designed, a single nutrition intervention programme can work well even in groups with culturally diverse dietary patterns. The largest decreases in all race/ethnic groups between baseline and 6 months were in fat from added fats, red meat and baked fats. There were only modest differences across race/ethnic groups in sources of fat, which suggests that the intervention was effective in lowering fat from all food groups

Reviewers: This intervention was successful in lowering fat intake in all ethnic groups, which suggests that a more inclusive programme that is sensitive to multicultural values and practices can be successful. Reasons why the intervention was successful include that it was broadly inclusive of culturally diverse dietary and lifestyle patterns and it was designed to accommodate individual dietary patterns and food preferences rather than prescribe specific foods or menus. People are likely to utilise different practices and are not limited to their own 'cultural' practices

Comments and limitations

The specific aim of this study was to test whether a single nutrition intervention programme would be effective among women with markedly different culturally associated dietary patterns. It is difficult to comment on the intervention in terms of cultural appropriateness when it was supposed to appeal to everyone. There were two substantial differences in sources of fat and dietary patterns. At baseline, the black group consumed more fat from meat, poultry and fish and used high-fat preparation methods such as frying, not removing skin from chicken and not trimming excess fat. The white group ate more fat added to foods as flavouring, e.g. fats added to vegetables or on bread. Consistent with these baseline differences, intervention effects were larger for the white group for avoiding fat as flavouring and for the black group for modifying meat to be lower in fat. Results in this paper are reported as the black group compared with the white group, rather than with the control group. This makes it difficult to determine whether there was an actual intervention effect

Limitations include that the intervention may not be generalisable and that participants had high fat intakes at baseline, were interested in nutrition and health and were highly motivated

FFQ, Food Frequency Questionnaire; RCT, randomised controlled trial.

Study reference

Snowdon 1999[475]

Setting

UK; Luton, Bedfordshire

Inclusion criteria

No details of inclusion or exclusion criteria except that participants were women and were not recruited because of health needs

Study type

Qualitative

Description of population

Ethnicity: South Asian; not reported how ethnicity assessed

Age (years): Not reported

n: 20

Sex: 100% female

Income: Not reported

Description of intervention and control

Practical cookery clubs held by trained community members to demonstrate to local women how to make their dishes in a healthier way without affecting the taste. Club leaders were active members of the local community who were trained and received resources and then were asked to recruit 10–12 women from the community (not particularly targeting those with health needs) who have a shared language. The club was run in a local community centre or suitable kitchen over three sessions each lasting 2 hours. During the sessions the women all prepared four or five dishes using healthier recipes from the pack; they worked in small groups under the guidance of the leader and then tasted and discussed all items prepared

Theory: Not reported

Approaches to adaptation

- Undertook discussion with local community members to identify the need for intervention and the approach taken
- Resource pack with traditional but healthier recipes
- Active members of the local Asian community trained to be cookery club leaders (receive training and resource pack)

Outcome measures and results

Follow-up: 12–18 months

Knowledge: At the 12- to 18-month follow-up all of the women remembered the main messages of reducing fat, sugar and salt intake, felt that they had made changes in their diet since attending the club and gave examples of changes that included using less salt, less oil, oil instead of ghee and more fruit and vegetables and grilling more food

Conclusions

Authors: The evaluation of these starter clubs has demonstrated that this model of helping individuals to follow healthier diets was effective. All of the responding participants enjoyed attending the sessions and would recommend them to their friends. All had used the ideas in their homes and most reported positive responses from their families. Those who had not tried them had been worried about how the male members of their families would respond. The clubs subsequently have been run in Urdu-, Gujeranti-, Punjabi- and Bengali-speaking communities in Bedford and Luton. The impact on the participants as indicated by self-completed questionnaires has been similar

Reviewers: The sessions appear to have been effective but there are no objective measures. They appear feasible and acceptable in this population. There is relatively little detail of adaptations or any theory

Comments and limitations

This study includes a limited sample and there is no control group. The outcome measures are self-reported

Study reference

Resnicow *et al.* 2000;[335] Resnicow *et al.* 2001[325] (Eat for Life)

Setting

USA

Inclusion criteria

Individuals aged ≥ 18 years from Baptist and Methodist churches (including African Methodist Episcopal) were included

Study type

RCT (randomised by church)

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (range): 44 (18–87)

n: 1011 were initially recruited from 14 churches and 861 were assessed at 1-year follow-up

Sex: 73.3% female

Income: Not reported

Description of intervention and control

A multicomponent intervention to increase fruit and vegetable intake among African Americans that was delivered through black churches

The churches were assigned to three groups. One group was a comparison, one was a self-help intervention with one telephone cue call and the last was a self-help intervention with one cue call and three counselling calls. The telephone counselling was based on motivational interviewing. The comparison group received standard nutrition education materials initially and culturally sensitive intervention materials 1 year post intervention

Theory: Motivational interviewing was central to the counselling

Approaches to adaptation

- Formative work with focus groups of African Americans with varying levels of income and of fruit and vegetable intake
- Assistance with questionnaires for low literacy
- Recruitment through church liaisons and adverts
- Recipes developed by church members
- An advisory board of local pastors plus opinion leaders from the local faith community was formed to help provide ideas for conveying messages using religious themes and to review the project artwork
- The video used biblical and spiritual themes to motivate healthy eating. The video starred a well-known African American actress

Outcome measures and results

Follow-up: 1-year follow-up

Changes in fruit and vegetable consumption: The net differences between the motivational interviewing group and the comparison group were 1.38, 1.02 and 1.21 servings of fruit and vegetables per day for the 2-item, 7-item and 36-item FFQs, respectively. The net differences between the motivational interviewing group and the self-help group were 1.14, 1.10 and 0.97 servings for the three questionnaires, respectively

Changes in dietary fat: Low-fat preparation practices improved significantly in the motivational interviewing group

Conclusions

Authors: Motivational interviewing appears to be a promising strategy for modifying dietary behaviour, and black churches are an excellent setting to implement and evaluate health promotion

Reviewers: This study suggests that churches are a good setting for health promotion interventions for African American populations. It shows that it is not enough to adapt the materials if people are not motivated to use them, and the addition of motivational interviewing/or the additional contact with a counsellor appears to provide this motivation and produces a more effective intervention

Comments and limitations

Monetary incentives for the churches were donated according to the number of people who stayed in the intervention

Limited by the self-reported measures although the use of multiple measures will have improved reliability and validity and the correlation with serum carotenoids has added verification; however, this is still prone to social desirability bias. There may have been sampling bias as sampling occurred on a first-come fist-served basis in each church and it is unclear if these participants were representative of the wider church population. The improvement with motivational interviewing may be due to the additional contact with a counsellor and not the techniques involved; this needs further study with a group receiving the same contact but no motivational interviewing technique. There could have been a change in the reporting of intake that was due to learning about portion sizes rather than a real change; however, there was no change in knowledge of portion size, which tends to suggest that this would not have occurred

FFQ, Food Frequency Questionnaire; RCT, randomised controlled trial.

Study reference

Auslander *et al.* 2002;[298] Williams *et al.* 2006[307] [Eat Well Live Well (EWLW) nutrition programme]

Setting

USA; St. Louis, MO

Inclusion criteria

African American women aged 25–55 years and living in the intervention neighbourhood were eligible if they did not have diabetes, were not pregnant and were > 20% over the ideal body weight as determined by self-reported BMI (> 27 kg/m^2)

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: treatment group: 41.2 ± 7.8, control group: 40.2 ± 8.2

n: 294 African American women; 138 treatment group, 156 control group

Sex: 100% female

Income: US$1367.8 ± US$1047 treatment group, US$1619.1 ± US$1206.7 control group per month

Other: 33% of the treatment group had a high school education or less compared with 43.6% of the control group

Description of intervention and control

Community-based dietary change programme for African American women at risk of diabetes. The primary focus was to reduce dietary fat intake and increase low-fat dietary practices by tailoring the intervention to participants' readiness to make changes in their diet. Weight reduction was encouraged but the major emphasis was on lowering fat

Intervention: Peer educators were African American women from the community. The manual-based programme consisted of six group sessions (six to eight people per group) and six individual sessions with a peer educator integrated over the 3-month intervention

Control: Did not receive any intervention in the treatment or follow-up phases but were given a self-help workbook that reflected the content of the programme and offered a half-day workshop on healthy low-fat eating after their follow-up assessment

Theory: Stages of change, community organisation theory

Approaches to adaptation

- Collaborative approach with a partnership between the university and the community
- Tailored dietary information with recipe modification keeping culturally rich recipes in the diet while reducing fat content and pricing of traditional food
- Focus on reducing fat and not on losing weight, which is not a priority generally for this population
- Recruited through newspapers targeting African American audiences
- Peer educators were African American women from the community
- African American women in the community assisted in defining the relevant content for the intervention
- Emphasis on personal development as a means of assisting the family or community
- Stages of change were renamed to be relevant to the population

Outcome measures and results

Follow-up: Evaluated at post test (3 months after baseline) and then at follow-up (6 months after baseline)

Changes in dietary fat: The treatment group reported significantly more low-fat dietary patterns ($p < 0.0001$) at both post test and follow-up. There was also a difference in dietary fat intake with the treatment group reporting significantly less fat intake ($p < 0.0001$) and this was maintained post test and at follow-up. The actual percentages were a reduction from 35.9% to 32.1% (post test) and 32.3% (follow-up) for the intervention group compared with 36% to 35.6% (post test) and 34.5% (follow-up) in the control group

Knowledge: At post test there was a significant difference between the groups in knowledge about fat in the diet ($p < 0.0001$)

Conclusions

Authors: The gathered data indicated that a stage-based intervention conducted by trained peer leaders in the community was effective in changing dietary patterns and reducing fat intake among low-income African American women. A peer-led approach with the collaboration of a community organisation that is located in the target neighbourhood holds promise for reducing the risk of diabetes among lower-income women

Reviewers: This study shows an effective intervention for reducing fat intake among African American women at risk of diabetes. The changes appear to be sustained for 3 months after the 3-month intervention ceased (6 months after baseline). This does not seem to translate into any change in weight or BMI, but may have other health benefits and, as the authors state, a reduction in weight was not a focus of the intervention. The intervention was not designed in a way to allow us to evaluate the effectiveness of the adaptation

Comments and limitations

There may have been some effect in the control group of completing the three 45-minute FFQs over the study that might have made them think more about their diet and make dietary changes and thereby reduce the difference between the intervention and the control groups. Measures were self-reported. This was a convenience sample of women and may not be generalisable

BMI, body mass index; FFQ, Food Frequency Questionnaire; RCT, randomised controlled trial.

Study reference

Haire-Joshu *et al.* 2001;[304] Haire-Joshu *et al.* 2003;[303] Eyler *et al.* 2004[305] (Hi 5, low fat)

Setting

USA; St Louis, MO, urban

Inclusion criteria

African American parents in the Parents as Teachers (PAT) programme who were considered to be high risk (single parents, low income, ethnic minority, living with stressors such as serious illness, recent divorce or death)

Study type

Group randomised nested cohort with parents as the unit of analysis

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (range): 29 (16–77)

n: 738

Sex: 98% female

Income: 40% of parents earned < US$20,000 per year

Description of intervention and control

Culturally appropriate dietary intervention developed in partnership with PAT, which is a national parent education programme free to all parents of children from birth to 3 years

There were six intervention and six control sites. Parent educators recruited high-needs African American parents to the study; these parents are entitled to additional visits funded by the state. These parents were sent a packet of materials including pictures of foods used to guide the estimation of portion sizes. There were five personal visits with instruction on assessing current food intake, reading and interpreting nutritional labels, comparison shopping, choosing low-fat foods when eating out and recipe modification. There was also a visit that taught the parents how to model dietary behaviours to their children

Theory: Guided by community organisation principles with an ecological approach; curriculum incorporated social cognitive theory (particularly observational learning, goal-setting and behavioural capability); the approach was also guided by the family strength model, consistent with an Afrocentric approach that recognises the resilience of African American families rather than focusing on potential deficits; adult learning theory was also employed

Approaches to adaptation

- African American interviewers
- African American parents on the steering committee and focus groups
- Calendar with famous African Americans and historical events
- Used a video of an African American family relating culture, diet and health
- Participatory nature of the research to assist in overcoming historical mistrust of research
- Training for the educators included traditional dietary patterns and health

Outcome measures and results

Follow-up: Not reported

Changes in fruit and vegetable consumption: A higher percentage of the intervention group (53%) than the control group (41%) increased their fruit and vegetable intake ($p = 0.002$). The intervention group parents achieved an increase in fruit and vegetable intake of 0.53 ($p = 0.03$)

Changes in dietary fat: The intervention group's fat intake decreased from 37.88% to 36.21%, a change of 1.7% calories from fat ($p = 0.07$) and they also improved their performance of dietary behaviours ($p = 0.004$). A higher proportion of intervention group parents reduced their intake of calories from fat to < 30% ($p < 0.03$)

Conclusions

Authors: This intervention was effective and is appropriate for national adoption by over 2000 PAT sites with the potential to impact the dietary intake of African American parents nationwide

Reviewers: This intervention appears effective in changing parental behaviour although perhaps not as effective as hoped in changing role modelling of dietary behaviours to their children. Its greatest advantage is the mode of delivery and ability to be disseminated widely throughout the existing PAT programme; however, this partnership involved negotiation and resulted in fluctuations of what elements of the programme were deliverable in different settings and with the sometimes competing interests of the existing programme

Comments and limitations

The study did not show a significant increase in parental modelling of healthy dietary behaviours to children but this may have been because the control group were also in the PAT programme, which has parental modelling as a core component, and therefore the parents were used to the importance of role modelling from the outset. A larger difference may have been seen if this had not been the case

There was also some lack of consistency of the intervention because, to be consistent with the philosophy of PAT, the intervention was delivered at teachable moments and not when there were other priority needs. Therefore, the course in its entirety was delivered to only 40% of the participants. This was due to the participatory nature of the research, which gave it more sustainability over time, and it is likely that over time more of the intervention would be delivered and greater efficacy observed. The study relied on self-reported information, which may be subject to reporting bias (to enhance accuracy everyone received information about portion sizes)

Because of the setting of this intervention it has the possibility to be extended to a very wide audience. The intervention considered dissemination and sustainability as key components in the design

Study reference

Resnicow *et al.* 2004;[476] Fuemmeler *et al.* 2006;[477] Campbell *et al.* 2007[478] (Body and Soul)

Setting

USA; California, south-east (GA, NC, SC) and north-east (DE, VA) regions

Inclusion criteria

Churches recruited through local American Cancer Society (ACS) offices in California, south-east (GA, NC, SC) and north-east (DE, VA) regions. Individuals were recruited by liaisons on a first-come first-served basis

Study type

RCT (randomised by church)

Description of population

Ethnicity: African American, all churches had a predominantly African American membership; not reported how ethnicity assessed

Age (years): Mean (range): 50.6 (17–89)

n: 1022

Sex: 74.4% female

Income: Not reported

Description of intervention and control

A 6-month dietary intervention conducted with African American churches

Intervention at two levels: Churchwide events, pastor support, policy changes and environmental changes aimed at the entire congregation, regardless of consent. Lay counselling delivered only to individuals who voluntarily enrolled in the study and provided active consent. Self-help print and video materials and motivational interviewing conducted by trained volunteer advisors. Two follow-up telephone calls

Control: Churchwide events only, no individual lay counselling

Theory: Process evaluation used the RE-AIM model[479,480] emphasising the importance of both external validity (reach and adoption) and internal validity (efficacy and implementation)

Approaches to adaptation

- Focused on churches because of their importance within African American communities as a resource for spiritual guidance and social-emotional support
- 'Body and Soul Sunday' involving serving fruit and vegetables after services or church programmes, sponsoring food demonstrations or taste tests, organising tours of food markets, inviting guest speakers and having pastor sermons related to health
- Self-help materials, e.g. cookbook and video, recipes submitted by church members; video *Forgotten Miracles*, an 18-minute video that targeted fruit and vegetable intake using both spiritual and secular motivational messages
- Motivational interviewing: churches identified individuals with a college degree or higher and a background in a 'helping profession' for training

Outcome measures and results

Follow-up: Baseline and 6 months

Changes in fruit and vegetable consumption: Fruit and vegetable intake (servings per day): two-item measure: intervention 4.8 ± 0.12, control 4.1 ± 0.12, estimated effect size 0.39 ($p < 0.05$); 17-item measure: intervention 6.6 ± 0.39, control 5.2 ± 0.45, estimated effect size 0.18 ($p < 0.05$). Intervention group reported significantly greater consumption of fruit and vegetables than the control group. Adjusted post-test difference was 0.7 servings per day based on the two-item measure and 1.4 servings for the 17-item measure. Differences equate to standardised effect sizes. The change in fruit and vegetable intake comprised 0.4 and 0.9 servings from fruit and 0.2 and 0.5 servings from vegetables across the two-item and 17-item measures, respectively

Conclusions

Authors: This project demonstrated that a research-based intervention can be adapted and implemented under real-world conditions using volunteer staff and lay counsellors, and under these conditions positive effects on behaviour change can be achieved. Effect size for change in fruit and vegetable intake was smaller than that observed in parent efficacy trials but statistically significant. 'These "dilutions" of implementation are consistent with the transition from efficacy to effectiveness' (p. 103)

Reviewers: This intervention was successful in increasing fruit and vegetable consumption among the intervention group in a church setting. However, the group seemed to be a higher-income, higher-education group than in other African American studies. Furthermore, self-selection bias was possible as a result of non-random individual sampling. However, the point was to test the intervention in real-life conditions and the authors acknowledged that the effects would be diluted

Comments and limitations

Self-reported fruit and vegetable intake (however, the two measures have been validated against serum carotenoids among African American populations suggesting partial validity). Quota sampling framework (first come first served); therefore, participants may not be representative of the entire church population. Programme exposure also self-reported. Unclear if effects due to counselling or motivational interviewing per se. RE-AIM framework applied post hoc to process analysis; may have weakened ability to fully utilise the predictive value of the model

RCT, randomised controlled trial.

Study reference

Anderson-Loftin *et al.* 2005[371]

Setting

USA; diabetes education centre in a rural South Carolina county

Inclusion criteria

African American, medical diagnosis of type 2 diabetes, aged ≥ 18 years, no mental/physical limitations that would preclude participation in group activities and discussion and at least one of the following indicators of diabetic complications defined as high risk and modifiable by diet: (1) HbA_{1c} (glycated haemoglobin) ≥ 8%; (2) cholesterol ≥ 100 mg/dl; (3) triglycerides ≥ 200 mg/dl; (4) low-density lipoprotein cholesterol ≥ 100 mg/dl; (5) weight ≥ 25 kg/m^2; and (6) high-fat dietary patterns [score on the Food Habits Questionnaire (FHQ)] ≥ 2.5

Study type

Longitudinal experimental pre–post test control group

Description of population

Ethnicity: African Americans; not reported how ethnicity assessed

Age (years): Mean (SD) (range): treatment group: 58.9 (10.1) (40–77), control group: 55.7 (12.1) (32–86)

n: 97; 49 intervention, 48 control

Sex: Intervention group 78% female, control group 75% female

Description of intervention and control

Intervention: Four weekly 90-minute educational classes in low-fat dietary strategies. Five monthly 1-hour peer-professional group discussions and weekly telephone follow-up by a nurse case manager. Participation of family members was encouraged not only to integrate black cultural traditions with food but also to capitalise on the value of family and to provide transportation – a common barrier in rural areas. Experiential teaching method was used, e.g. assisting with meal preparations, reading food labels and making food choices at a simulated church supper. Educational classes: taught to make healthy, low-fat food choices according to the Diabetes Food Pyramid and strategies for reducing fats and set individualised mutual goals. Because of low literacy, the intervention focused on one major dietary concept for improved chances of success

Control: Referral to a local 8-hour traditional diabetes class. Received instruction about diabetes and complications

Theory: Not reported

Approaches to adaptation

- Traditional African American meal prepared using low-fat techniques; served to participants and their families after classes
- Teaching methods: demonstration, storytelling, vicarious experiences and role-modelling used because learning occurs by experiential methods, especially among an African American population with low literacy
- FHQ adapted
- Ethnic food models
- Language differences with health-care providers and rural prejudices against outsiders – insider health-care providers used
- Educational classes taught by a local dietician experienced in nutrition for rural black southerners with diabetes
- Peer-professional groups: preferred group structure

Outcome measures and results

Follow-up: Baseline and 6 months post intervention

Changes in dietary fat: The intervention group reduced high-fat dietary habits to moderate whereas the high-fat dietary habits of the control group remained unchanged

BMI: Intervention group BMI decreased by a mean of 0.81 kg/m^2 at 6 months, control group BMI increased by 0.57 kg/m^2; 1.38 kg/m^2 difference between groups at 6 months ($p = 0.009$)

Weight: At 6 months, weight decreased by 1.8 kg for the intervention group and increased by 1.9 kg for the control group, a net difference of 3.7 kg

Conclusions

Authors: This study shows that a culturally competent self-management intervention can improve health outcomes for southern African Americans, especially those at risk because of a high-fat diet and a BMI ≥ 35 kg/m^2. Statistically significant changes were seen for BMI and FHQ in the intervention group and between genders; men gained weight despite a decrease in significant dietary fat behaviours compared with women. Improved cultural competency can improve adherence; there was 78% retention for the intervention group and 56% for the control group. A larger RCT was proposed

Reviewers: This study was effective at reducing BMI and dietary fat behaviours, although findings were more pronounced for BMI. Because this study is well described in terms of the adaptations, it gives a good sense of why the programme may have worked. However, in the adapted arm there was also more contact (as the control group were referred to a diabetes programme and it is not known whether they attended or not). A more informative control would be a similar-intensity intervention without adaptations; however, it would be difficult to keep the fidelity of such a control if the health educator was also from a similar background

Comments and limitations

All participants received US$15 for attendance, a Soul Food Light sweatshirt, small token gifts and 'door prizes' at each intervention and testing session and when receiving the results of laboratory tests

BMI, body mass index; SD, standard deviation.

Study reference

Goodman and Blake 2005[481]

Setting

USA; church-based community setting

Inclusion criteria

Not reported

Study type

Pre–post test

Description of population

Ethnicity: African Americans; not reported how ethnicity assessed

Age (years): Range: 25–75

n: 82

Sex: Not reported

Income: Not reported

Description of intervention and control

Computer-based nutrition education programme for African Americans adults (church-based sample). Interactive multimedia was used to simulate situations that involve complex learned behaviour, skills, values and environment related to nutrition and health

Computer-based programme composed of a pre-test assessment module (knowledge about healthy diet and eating habits) and two sections each containing four modules and a food game. Based on an assessment score, the learner would complete the entire section on basic nutrition or proceed to the section on food and health. Section 1: healthy eating and basic food groups with examples; section 2: meal planning and food preparation methods; benefits of selecting healthy choices (grilled foods) and the risks associated with poor choices (fried foods). Entire programme takes approximately 30–45 minutes to complete. Graphics and voice narration. The use of the programme does not require previous experience with a computer or a reading level higher than sixth grade

Theory: Not reported

Approaches to adaptation

- Multimedia computer programme to provide nutrition information to African Americans (using an existing software writing system)
- Nutrient content of programme derived from established nutrition curriculum, Families First, developed by a consortium at six historically black college and universities (HBCU)
- Section 1 of programme: related messages that healthy diets reduce risks for health conditions associated with high rates of mortality and morbidity among African Americans
- Section 2 of programme: meal planning and food preparation methods that incorporate foods traditionally consumed in the African American community with suggestions on how to improve their nutritional value
- Audio and sound so that limited reading required; use of voice narration, music, video clips, graphics
- Game board with names of foods found in traditional African American diets. When participants clicked on a name, a healthy substitute was suggested
- Depictions and pictures of African Americans were designed to engage the user in the programme and keep them interested
- African Americans appear to be more receptive to information on diet when it is related to specific diseases and clearly indicates which specific foods to eat or avoid, and this was the approach adopted here
- Encouraging African American families to modify the content of traditional foods and alter preparation methods is recommended rather than suggesting that people entirely change culturally significant eating patterns

Outcome measures and results

Follow-up: 3 and 6 months

BMI: BMI was lower for participants who completed the programme compared with their initial screening scores and weight. There was a 7% increase in the number of people in the 'normal' category, a 2% decrease in the 'overweight' category and a 5% decrease in the 'obese' category

Conclusions

Authors: This study indicates that African Americans are responsive to culturally sensitive education programmes that focus on health and illness prevention. Individuals who received nutrition information by computer demonstrated a positive change in health-promoting nutrition behaviours and positive changes in BMI. The computer program appears to promote interest in nutrition and healthy eating and to capture the attention of the user. Health-promoting activities could be provided on a regular basis within the context of church-related activities and have the potential to promote lifestyle changes in food consumption and eating patterns

Reviewers: A poor-quality study in terms of reporting, in which recruitment and important demographics such as gender were not described. The study was successful in shifting patterns of BMI; however, it is unclear how and no measures of statistical significance are given for the reported findings

Comments and limitations

User-friendly format easy to use, even for those with limited computer abilities. Limitation: no indication of statistical analysis methods

BMI, body mass index.

Study reference

Kreuter *et al.* 2005[293]

Setting

USA; St Louis, MO, 10 urban public health centres

Inclusion criteria

Women who were able to demonstrate reading ability and reading comprehension by completing a six-item self-administered questionnaire written at fifth-grade reading level that included one open-ended question requiring an appropriate written response

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (range): 35.6 (18–65)

n: 1227

Sex: 100% female

Income: Not reported

Other: Mean education of 12.3 years (range 2–20 years)

Description of intervention and control

Women were assigned to a usual care control group or to receive a series of six women's health magazines with the content tailored to each individual. The magazines were generated from either BCT, CRT or both (BCT + CRT), and women receiving magazines were randomly assigned to one of these three groups

All women aged 40–65 years received magazines that promoted the use of mammography and all women aged 18–39 years received magazines that promoted fruit and vegetable intake. Each magazine contained 10 tailored stories – for the younger age group there were six stories addressing fruit and vegetable intake and four on general topics

Women in the control group were sent nothing during the intervention but were sent a full set of tailored magazines after the intervention

Theory: Not reported

Approaches to adaptation

- The CRT was based on four cultural concepts known to be prevalent among African American women: religiosity, collectivism (belief that the basic unit of society is the family or group), racial pride (holding positive attitudes about one's race) and time orientation (related to a person's tendency to think and act according to consequences that are primarily immediate or primarily distal)
- Magazines were based on the cultural concepts above
- The magazines contained artwork from local African American artists and stories on local African American history
- There was extensive consultation in the development of the material and formative evaluation with the population of interest

Outcome measures and results

Follow-up: 1, 6 and 18 months post baseline

Changes in fruit and vegetable consumption: Women receiving BCT + CRT magazines were more likely than those in the BCT, CRT and control groups to have greater increases in daily fruit and vegetable servings (+0.96 servings vs +0.43 vs +0.25 vs +0.59, respectively) (and in the older age group to report getting a mammogram)

Conclusions

Authors: Systematically integrating culture into tailored cancer prevention and control interventions may enhance their effectiveness in diverse populations and certainly justifies further enquiry

Reviewers: This study shows that cultural tailoring combined with tailoring for behaviour change appears to be a more effective strategy for changing nutritional behaviours

Comments and limitations

Limitations include the self-reported measures of outcomes. The fact that the magazines for BCT + CRT contained more varied articles may also have contributed to their increased effect, although it is not possible to measure this in this study. Also, the findings may not be generalisable to other populations

This study explicitly set out to examine whether cultural tailoring had a greater effect than behavioural tailoring or no tailoring at all. This is the most beneficial type of study for our research hypothesis and suggested in this case that there is benefit from cultural tailoring in combination with behavioural tailoring. It is very interesting that the group receiving CRT magazines did not experience good levels of change; they never exceeded that of the control group and it was only when CRT was combined with BCT that there was an effect. The authors suggest that there is an important link between culture, behaviour and communication that needs to be investigated and pursued farther

BCT, behavioral construct tailoring; CRT, culturally relevant tailoring; RCT, randomised controlled trial.

Study reference

Resnicow *et al.* 2002;[295] Resnicow *et al.* 2005[294] (Healthy Body/Healthy Spirit)

Setting

USA; Atlanta, urban

Inclusion criteria

Members of 16 African American churches in a metropolitan area of Atlanta, ≥18 years

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): group 1: 46.3 (13.4), group 2: 45.9 (12.7), group 3: 46.6 (13.7)

n: 1056

Sex: Group 1: 74.2% female, group 2: 76.1% female, group 3: 78% female

Income: 10.5%, 13.1% and 11.1% of groups 1, 2 and 3, respectively, had income <US$20,000

Other: 30.6%, 21.7% and 26.7% had completed high school or vocational training in groups 1, 2 and 3, respectively

Description of intervention and control

Sixteen churches were randomly assigned to three conditions: group 1 (five churches) received a standard nutrition and physical activity intervention; group 2 (six churches) received a culturally targeted self-help nutrition and physical activity intervention; group 3 (five churches) received the same intervention as group 2 plus four telephone counselling calls based on motivational interviewing. Culturally tailored material included a cookbook and video developed for a previous trial (Eat for Life[316]), an exercise video, an exercise guide and an audio cassette for exercise. The advice was to undertake 30 minutes of exercise on most days of the week and that activity of greater intensity and duration will result in added health benefits. Group 1 (control) received an intervention of the same approximate intensity and type as group 2 and a health fair, a newsletter, an aerobics video and numerous educational health brochures. Motivational interviewing was delivered by telephone by psychologists; there were calls at 4, 12, 26 and 40 weeks

Theory: Not reported

Approaches to adaptation

- Materials were designed based on previous work for the Eat for Life study and with focus groups with local black church members not participating in the project to discover food preferences, cooking practices and exercise patterns relevant to this population as well as deep structure issues
- Exercise video was hosted by well-known African American celebrities from the area and there was also video footage of African American families attempting to make lifestyle changes within their homes (including two pastors). It also included clips of sermons and scriptures
- The video *Forgotten Miracles* contained biblical and spiritual themes to motivate healthy eating, including the use of a church setting and scriptures
- The cookbook contained recipes submitted by members of the participating churches
- An audio cassette used gospel music for working out and this had biblical quotes and sound bites from the pastors between songs
- Recruitment occurred through the church and church networks

Outcome measures and results

Follow-up: Not reported

Changes in fruit and vegetable consumption: Fruit and vegetable intake change scores were 0.17, 0.44 and 1.13 servings, respectively, for groups 1, 2 and 3

Changes in physical activity: Significantly bigger increases in activity for groups 2 and 3 than for group 1 for each of the three scores. Groups 2 and 3 did not vary significantly from each other on any of these scores

Conclusions

Authors: The two self-help groups were generally successful in inducing change in fruit and vegetable intake and physical activity. The impact of adding the motivational interviewing varied depending on the behaviour; for fruit and vegetable intake there was a clear additive effect but for physical activity there was no real difference. This may be because of differences in the delivery of the motivational interviewing for these two subjects or it may be that the self-help material for physical activity was better than that for fruit and vegetables and left little to be added. This effect could also be due to the fact that more people elected to work on their fruit and vegetable intake in the motivational interviewing sessions. The motivational interviewing group also appeared to have the greatest number of people making changes to both fruit and vegetable intake and physical activity at the same time (70%). Overall, churches appear to be an excellent setting to implement and evaluate culturally targeted interventions for the African American population and continued refinement and evaluation of such interventions appears warranted

Reviewers: This appears to be a successful intervention for nutrition and physical activity modification in a church setting for an African American population. There appears to be an advantage of a culturally tailored programme and perhaps an added benefit of adding motivational interviewing to this programme, certainly for the promotion of increased fruit and vegetable intake

Comments and limitations

Self-reported measures although they were validated with serum and exercise tests. May be sampling bias as was sampled on a first-come first-served basis and this may not be representative of the wider population, reducing external validity. Possible social desirability bias. Effects of motivational interviewing may be due to the added contact and not to the type of counselling itself

RCT, randomised controlled trial; SD, standard deviation.

Study reference

Shankar *et al.* 2007;[315] Klassen *et al.* 2008[316]

Setting

USA; Washington DC, urban

Inclusion criteria

Women aged 20–50 years from 11 public housing communities

Study type

Pre–post

Description of population

Ethnicity: African-American; not reported how ethnicity assessed although study states that only American women whose parents and grandparents were born in the USA were included

Age (years): 19% aged 20–29 years, 37% aged 30–39 years, 44% aged 40–50 years

n: 212

Sex: 100% female

Income: Not reported

Other: 39% had less than a high school level of education and 83% were currently not working

Description of intervention and control

The intervention was designed to be brief and low cost with the aim of being replicable in other low-income communities. Included 90-minute classes with a professional nutritionist, which were conducted twice a week for 3 weeks, followed by one 90-minute booster session held 6 weeks later. The sessions were led by a female African American registered dietician in small groups and took place in the community centre kitchen. Extensive formative work informed the intervention

Programme activities combined nutrition education and food-related skill development. To build self-efficacy for nutrition-related problem-solving, psychosocial tools such as goal-setting and planning were used. Social support was planned with techniques to encourage interaction within the class and also women were partnered and were encouraged to contact each other outside of class

Theory: Social ecological framework

Approaches to adaptation

- African American registered dietician led the classes
- The pictures used featured African American families with positive attitudes towards fruit and vegetable consumption

Outcome measures and results

Follow-up: Baseline to weeks 4 and 20 weeks after enrolment

Changes in fruit and vegetable consumption: Baseline dietary recalls showed average daily consumption of 3.05 servings of fruit and vegetables. No improvements were seen in fruit and vegetable consumption at follow-up

Changes in calories: Statistically significant decreases in total calories and per cent calories from fat were seen at both the post-test and follow-up end points for the whole sample

Conclusions

Authors: The aggregate results demonstrated that the intervention produced dietary improvement in attendees and should be considered as a possible model for a nutrition intervention in low-resource households and communities

Reviewers: This study appears to show effect for the sample as a whole and some difference in effect dependent on attendance; however, further research is needed to truly evaluate effectiveness. There was quite a high degree of attrition in the study

Comments and limitations

There was quite a high loss to follow-up. Women enrolling were often at the extremes of ill health as otherwise they were busy with Welfare to Work programmes and therefore they were not a representative sample. There was no control group. There was relatively short-term evaluation

Study reference

Cullen and Thompson 2008[313]

Setting

USA

Inclusion criteria

Families with 9- to 12-year-old African American girls who owned a home computer with internet access and had a parent or guardian willing to participate in the programme

Study type

Pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Not reported

n: 67 families (parent and 9- to 12-year-old daughter) (three recruitment groups)

Sex: Not reported

Income: Not reported

Other: Parental education was at college level or above for 92% of mothers and 60% of fathers

Description of intervention and control

An eight-session web-based programme for families of African American girls promoting healthy home food environments and positive parenting behaviours to increase fruit and vegetable intake. An existing web-based programme was used as a starting point – it had low log-on rates and interviews with African American mothers were used to alter it and identify factors that may explain how parents can influence their children's diet. The new programme was called Family Eats. It included eight photonovella stories (maximum of 3 minutes) portraying real life-type situations regarding nutrition. There were a lot of pictures, activity pages, links to recipes, parenting tips and links to other fact-based websites. Grocery lists that could be saved to participants' computers were added. Thoughts and quotes on modelling of fruit and vegetable consumption and getting children to eat fruit and vegetables were added. The website was designed to be accessed on a weekly basis; the structure remained the same but the content changed to take participants through a planned sequence of material

Theory: Social cognitive theory

Approaches to adaptation

- Interviews with African American mothers were used to design/adapt the intervention from a previous programme
- Scenarios depicted included an extended family environment
- Materials were reviewed by African American staff to ensure that characters and situations depicted were realistic and culturally sensitive

Outcome measures and results

Follow-up: Baseline to weeks 1 and 8

Changes in fruit and vegetable consumption: Significantly positive changes were reported in self-efficacy for fruit and vegetable availability ($p < 0.05$), and daughters reported parent modelling of fruit and vegetable consumption ($p < 0.05$)

Changes in dietary fat: Significantly positive changes were reported in modifying meat fat practices ($p < 0.05$) and marginally significant changes in fat substitution practices ($p < 0.10$)

Conclusions

Authors: An internet-delivered nutrition intervention for families was successful in achieving change in some mediating variables, with modest log-on rates. Further research should investigate the impact on dietary behaviours

Reviewers: There seem to be positive effects from this study perhaps as a result of targeting the family together, but it is limited by the requirement to have internet access at home and also because the log-on rate diminished considerably as the novelty value of the intervention wore off

Comments and limitations

Small sample size and lack of generalisability to other demographic populations in other regions or with less education or resources; being internet based, limits intervention to those with internet access and computer experience and this may limit the generalisability of this intervention, particularly in very-low-income groups. There was a novelty aspect to the intervention and, although it was accessible, once the novelty had worn off the log-on rates decreased; these low log-on rates minimise the effectiveness of the programme

Study reference

Utz *et al*. 2008[408]

Setting

USA; rural county of central Virginia

Inclusion criteria

Pre-screened and enrolled if they were African American (self-identified), aged 18+, reported being diagnosed with type 2 diabetes mellitus, resident of a rural county and able to give informed consent (e.g. no evidence of dementia or mental illness during routine screening)

Study type

Quasi-experimental random design

Description of population

Ethnicity: African American; self-identified

Age (years): Mean: 60.2 ± 14.6

n: 22

Sex: 82% female

Income: Not reported

Other: 10/21 (47.7%) had less than high school completion

Description of intervention and control

A culturally tailored intervention for a rural African American population based on the seven areas of self-management identified by the American Association of Diabetes Educators in literature published at that time

Group diabetes management: Held weekly for 2 hours for 8 weeks: storytelling, hands-on activities and problem-solving

Individual diabetes management: Met with educator on three occasions over 8 weeks at the same time as the group sessions but in a separate room. The individual sessions were 10–15 minutes

Theory: Social cognitive theory

Approaches to adaptation

- Used media approaches in sites appropriate to reach an African American population
- As incentives, set of diabetes educational material culturally tailored for African Americans and free books with recipes for African Americans with diabetes; the use of small gifts given at intervals during the study has been found to enhance retention of participants in other studies with rural African Americans
- Cultural understanding gained from focus group research was used to develop the intervention
- Storytelling related to overcoming chronic illness, using figurative language that was characteristic of the region and delivered by an African American woman, was used as a 'lesson' to begin most group sessions
- Diabetes educational material with simple, colourful one-page handouts culturally tailored for African Americans
- Involving African American group leaders and role models in group sessions
- Hands-on activities, e.g. cooking
- Involving family/friends in sessions

Outcome measures and results

Follow-up: Study conducted over a 6-month period. Outcomes measured at baseline and 10 weeks after baseline

Outcome measure: Daily actions for diabetes self-care measured – two-sample *t*-test using change scores from baseline to post intervention did not indicate significant differences in outcomes between the two groups. Median test and analysis of covariance controlling for baseline level of outcome and number of years since diagnosis obtained similar results of non-significance

Conclusions

Authors: Culturally tailored approach was well received by all participants. Group diabetes management tended to show improvements in difficult areas such as carbohydrate spacing and foot care compared with individual diabetes management, as well as higher self-efficacy, although these results were not significant. They provide a preliminary indication that the culturally tailored group approach may be more effective with rural African Americans with type 2 diabetes. Storytelling is a culturally appropriate education and empowerment strategy that was well received because of traditions of oral history, which value the teaching and community-building functions of storytelling

Reviewers: The conclusions drawn by the authors are slightly premature as this was a very small sample. However, storytelling may hold promise in this population as an intervention delivery strategy and should be further tested. Furthermore, as both intervention arms received culturally tailored information, the differences between the arms were group effect and greater contact with an educator. Focus groups or interviews would have been helpful at this formative stage to gauge the benefits of group vs individual delivery. Contamination is a possibility given that the interventions were held at the same time and place but in different rooms and because of the small tight-knit community. Different numbers were reported within the paper: 18 women, 4 men reported in recruitment and sample section; 16 women and 6 men reported in a table

Comments and limitations

Results limited by small sample size and brief follow-up of 10 weeks. Difference in the amount of time that educators spent with participants: group 16 hours total, individual time estimated at a total of 1–2 hours (which, although a lot less than the group, is more than was planned)

Study reference

Resnicow *et al.* 2009[296]

Setting

USA; Detroit, MI and Atlanta, GA, urban

Inclusion criteria

Self-identifying as black or African American, living at least half of their life in the USA, not currently hospitalised or living in skilled care facilities, the absence of mental or physical conditions that would inhibit or be endangered by participation in the study and consuming < 10 servings of fruit and vegetables per day

Study type

RCT, 2 : 1 randomisation

Description of population

Ethnicity: African Americans; self-identified

Age (years): Mean: 49

n: 560

Sex: 73% female

Income: 60% earned at least US$40,000 per year

Other: 69% had at least some college education

Description of intervention and control

Intervention to test whether or not tailoring a print-based fruit and vegetable intervention on ethnic identity would enhance the programme effect

Participants were randomised to receive three newsletters focused on fruit and vegetable behaviour change over 3 months. One set was tailored only on demographic and social cognitive variables (control condition) whereas the other (intervention) was additionally tailored to ethnic identity. Both groups received newsletters once a month over 3 months and each contained two recipe cards with small bags of spices that corresponded to the recipes and a magnetised refrigerator notepad or magnet with fruit and vegetable serving sizes. Text for both groups was individualised with the participants' names and tailored to sociobehavioural variables

The control group newsletters targeted a general black American audience with a slight Afrocentric focus (as this was most prevalent in the pilot study). In contrast, the intervention newsletters contained tailored messages designed to each of the 16 types of ethnic identity. Graphics were tailored to the ethnic identity types in the intervention group and for the control group they were ethnically neutral and therefore usually did not feature people or any other racial or ethnic cues

Theory: Not reported

Approaches to adaptation

- African American interviewers
- Newsletters were tailored to ethnic identity
- Materials were pre-tested with African American focus groups
- Messages were further refined by experts in black identity theory
- Graphics were tailored to the ethnic identity subtypes from a database of over 2000 photos

Outcome measures and results

Follow-up: Baseline and 3 months post baseline

Changes in fruit and vegetable consumption: Intervention group increased daily mean fruit and vegetable intake by 1.1 servings compared with 0.8 servings in the control group ($p = 0.13$). Afrocentric experimental group participants showed a 1.4-serving increase in fruit and vegetable intake per day compared with a 0.43-serving increase among Afrocentric control participants ($p < 0.05$)

Conclusions

Authors: Although the overall between-group effects were not significant, tailoring dietary messages on ethnic identify may improve the impact for some African American subgroups. Perhaps a brief measure could be created and tested that could be applied in the health-care setting

Reviewers: This study stood alone as one that tested the hypothesis of ethnic identity and adjusting the degree of tailoring of material accordingly to see whether this affects efficacy. The overall hypothesis is not proven and reasons why, including the tailoring of the control group, etc., are given. However, for participants who are Afrocentric, a significant difference was demonstrated

Comments and limitations

It is suggested that three newsletters was perhaps an insufficient dose to obtain a significant effect. Another reason for limited differences between the two groups may have been the intensity of the background tailoring used in both groups and also the decision to culturally tailor the control group. Measures were self-reported and there could also be social desirability bias. The reliability of some of the subcategories of the ethnic identity scale was low. External validity was limited by the 31% participation rate of those contacted

RCT, randomised controlled trial.