

Adapted physical activity and nutrition interventions

Study reference

Sullivan and Carter 1985⁴⁸²

Setting

USA; New Orleans, LA

Inclusion criteria

Obese (body weight \geq 20% over ideal) and overweight (body weight 10–20% above ideal) mothers attending a Parent Child Development Centre

Study type

Pre–post

Description of population

Ethnicity: Black; not reported how ethnicity assessed

Age (years): Mean (range): 25.2 (16–31)

n: 10 mothers

Sex: 100% female

Income: Not reported

Description of intervention and control

A 2-month programme to alter diet, weight and cardiovascular endurance implemented at a Parent Child Development Centre (designed to aid low-income inner-city mothers with children aged 0–3 years to become more effective parents)

Dietary recommendations were given to participants based on their food diaries and a nutritional assessment. The nutritionist taught the participants a food group plan. A *Food Book* created by the Dairy Council of California was used to illustrate food groups and serving sizes. Mothers were advised to lose no more than 2 lb a week and to decrease their usual amount of food and to eat in a place without a radio or television. Dance was chosen for aerobic exercise with the music adapted to be soul. One-hour sessions were conducted twice a week for 8 weeks while childcare was provided. This included 20 minutes of dance and callisthenics followed by nutrition education highlights including discussion

Theory: Not reported

Approaches to adaptation

- Dance was chosen for the intervention as it was thought to have more appeal to this population
- Music chosen was soul music
- Childcare provided (although not explicitly stated that this was an adaptation for this population)

Outcome measures and results

Follow-up: Unclear, not reported

Changes in dietary fat: Significant reduction in the consumption of fat; significant decrease in body fat from 30.4% (range 22.1–40.0%) to 26.8% (range 23.0–33.2%)

Weight: No significant effect on weight loss

Conclusions

Authors: This programme is thought to be valuable as a preliminary study but the results cannot be considered representative for the general population because of the very small sample size. There was no significant weight loss but the pre and post analysis does demonstrate an improvement and modification of nutritional practices. There were also improvements in body fat composition and resting heart rates as a result of the aerobic exercise programme

Reviewers: This intervention appears to have been effective for the small number of mothers involved but is not generalisable and would need further study on a wider scale, as acknowledged by the authors

Comments and limitations

The findings are limited by the very small sample size

Study reference

Lasco *et al.* 1989³¹⁸ (The Community Health Assessment and Promotion Project)

Setting

USA; Atlanta, GA

Inclusion criteria

Clinically diagnosed as obese, aged 18–59 years

Study type

Pre–post

Description of population

Ethnicity: Black; not reported how ethnicity assessed

Age (years): Not reported

n: 70

Sex: 100% female

Income: Not reported

Description of intervention and control

Community coalition designed and directed a 10-week exercise and nutrition intervention. This consisted of an orientation session, attitudes assessment, selection of a specific exercise class and twice-weekly information session on nutrition and community resources. The programme used a wide range of strategies including individual consultations, reminder telephone calls and incentives and rewards and free transportation and childcare to encourage participation

The intervention was run from a clinic, a YMCA and a school, all of which were in an easily accessible area of the community. Meetings were on two week nights and each session lasted for 2 hours. The first session of the week had a nutrition focus for the first hour and the second session of the week had assessment, counselling and special interest session in the first hour. The second hour consisted of exercise

Theory: Not reported

Approaches to adaptation

- The types of food and preparation were designed to be specific to this community – with actual food preparation and sampling
- All participants were allowed to invite friends and families to sessions to create a social atmosphere
- The special interest sessions included activities that would appeal to this population such as attending the Atlanta boys choir recital or a professional basketball game

Outcome measures and results

Follow-up: Baseline to 3 months post intervention

Weight: The most weight lost was 41 lb. The changes in weight were found to be significant ($p=0.0009$). A total of 89% were also weighed 3 months after the end of the programme and 55% still weighed less than they did at the start of the programme. The average weight loss in this group was 2.8 lb (range +17 to –59 lb)

Conclusions

Authors: The results in terms of weight loss and blood pressure change indicated that a nutrition/exercise programme can lead to positive behavioural change in this population. The participation rates were also high. A comparison of the high and low participant groups indicated more family involvement, more family encouragement and less criticism from family and friends among the high participation group. The programme was subsequently run nine times with over 400 additional people participating. Community impetus for programme contributes to success of intervention; a community coalition was formed that led to the intervention

Reviewers: This intervention appears to have been effective for weight loss in this population. There is limited description of the adaptations; however, there is good evidence of the community involvement and of the elements of social support and family involvement and the strong use of incentives and rewards. The intervention appears to have been sustainable but no data are presented in this paper for the subsequent large number of participants

Comments and limitations

There was no control group. Some of the measures, e.g. food diaries and measures of family involvement, are self-identified measures and may be biased. Some test results (e.g. step test) were incomplete as the participants found them difficult to do (beta-blocker medication also made this invalid for a high proportion). One of the prime objectives was to minimise attrition and the following strategies were thought to be important: pre-screening – resulting in the enrolment of motivated people; home visitations by a male public health educator to discuss the programme with the husband and children and building family support

YMCA, Young Men's Christian Association.

Study reference

Baranowski *et al.* 1990;³²² Baranowski *et al.* 1990³²¹

Setting

USA; Texas, urban

Inclusion criteria

Sampling frame was a listing of all black American students in fifth, sixth or seventh grade in public or private school systems in the area

Study type

RCT (randomised by family)

Description of population

Ethnicity: Black American; self-identified

Age (years): Mean: adults: 31.8 experimental group, 32.9 control group; children: 10.6 experimental group, 10.0 control group

n: 96 families with 114 adults and 120 children

Sex: Adults: 79% female in the experimental group, 88.2% female in the control group; children: 51.6% female in the experimental group, 66.1% female in the control group

Income: Not reported

Other: Educational attainment: 12.9% of the experimental group and 26.5% of the control group reported to have less than a high school education

Description of intervention and control

Intervention: The intervention group was encouraged to participate in a programme with one education and two fitness sessions per week for 14 weeks. Educational sessions included individual family behavioural counselling (10–20 minutes) – the counsellor reviewed the weeks' food and activity records and there was a monetary reward for completing the record; the counsellor also reviewed the achievement of specific behavioural goals set the previous week, elicited social reinforcement for accomplishing goals and counselled the family on problem-solving for unaccomplished goals; new goals were then set and negotiated with the family

Control: Both groups came to a baseline clinic for assessment and then no contact was made with the control group during the 14 weeks

Theory: Social learning: social support and adult education theories

Approaches to adaptation

- Interviews and community advisory council meetings to ascertain the optimal location, time and content
- Key staff positions were concordant in ethnicity
- The facility was steeped in local black heritage
- Testimonials were used, which are found to be a popular method of social interaction
- Structural barriers for this population were addressed
- Family approach was encouraged
- The environment displayed posters and pictures of black figures and of the participants themselves and emphasised the visual and verbal heritage of the community

Outcome measures and results

Follow-up: Not reported

Changes in calories: There were changes in the calories expended for both the experimental group and the control group adults, with the experimental group having consistently higher levels than the control group

Weight: A significant difference was detected between the groups in weight and body surface area (however, this was because two adult males lost a very significant amount of weight)

Changes in fitness: No significant differences were detected in cardiovascular fitness among the children or adults

Conclusions

Authors: As a result of low participation, no significant differences were detected between the intervention and control groups in indicators of cardiovascular fitness. It was concluded that, because of difficulties in attendance, centre-based programmes appear to have limited value as the sole modality for intervention in public health programmes for healthy low-income black American families with young children. More comprehensive community-based programs are likely to be needed

Reviewers: This study does not demonstrate any significant changes in outcomes. This may in part be due to high levels of attrition. The study incorporates a high degree of theory and adaptation and yet it was not successful. If people are not motivated or able to attend (have too many competing life demands) then, regardless of how adapted the intervention is, there will not be positive change

Comments and limitations

High attrition/low attendance and self-reported measures

RCT, randomised controlled trial.

Study reference

Kumanyika and Charleston 1992³³⁶ (Lose Weight and Win)

Setting

USA; Baltimore, MD

Inclusion criteria

The programme was open to men and women and was aimed at those who were moderately overweight (10–100% overweight). Having diabetes or being on anti-hypertensive medication did not preclude participation but physician approval was necessary in these cases

Study type

Pre–post

Description of population

Ethnicity: Black; not reported how ethnicity assessed

Age (years): Mean (range): 51 (18–81)

n: 184 black (3 white)

Sex: 100% female

Income: Not reported

Description of intervention and control

This was part of a bigger programme called the Baltimore Church High Blood Pressure Program (CHBPP). The core components of the weight control programme are based on the state health department's 'I Can ... I Will ...' programme with adaptations to promote effectiveness in this population. Some changes were adding an exercise component, using individual and team competitions as incentives and using teams to facilitate mutual support for weight loss

Eight weekly 2-hour diet counselling/exercise sessions were provided. Meetings were held on the church property, usually early in the morning, and had as many as 30 individuals. Participants had a weigh-in, had a blood pressure check, talked with the dietician and participated in group behavioural modification activities. The latter included experience sharing, discussion and setting behavioural goals. The last 35–40 minutes were dedicated to exercise. There were two groups of participants – one group who were on anti-hypertensive medication and one group who were not on medication

Theory: Not reported

Approaches to adaptation

- Recruitment occurred through church networks and bulletins
- The setting was black churches with existing health programmes and support networks

Outcome measures and results

Follow-up: At the end of the 8-week programme and at 3 and 6 months

Weight: Mean weight loss was 6 lb (range –14 to +13 lb) in both groups at 8 weeks ($p < 0.005$). Of participants who were on no medication, 89% lost weight; of participants who were on medication, 88% lost weight. The average number of sessions attended was five and weight loss was significantly associated with attendance. Follow-up weight measurements at 6 months showed that 65% of the women with data had maintained their weight or lost more weight

Conclusions

Authors: Weight control/exercise programmes such as Lose Weight and Win may help to limit weight gain that would otherwise occur among black women and also improve activity and physical fitness levels. The high receptivity to the exercise component suggested that a lack of convenient opportunities to exercise may be more of a barrier to increasing physical activity among black women than a lack of motivation

Reviewers: This study demonstrated significant weight loss following the 8-week intervention that appeared to be sustained at a 6-month follow-up. The intervention appears acceptable and effective but may not be transferable to other settings where there is not already existing support and relationships. The results also were not compared with a control group and would need further confirmation in a controlled trial. The development of alumni classes and training lay leaders were promising strategies to sustain the intervention in the community once the research was complete

Comments and limitations

This was a post hoc evaluation and there was no control group to be able to compare how these weight changes relate to the normal trends in this population. An external control was created from women who did not attend the programme but who had had their blood pressure measured; however, this control was carried out only for blood pressure results

The programme was based on the existence of an established church health awareness programme and therefore would not necessarily be feasible or have the same effect if implemented in a different setting. As part of this there were existing interpersonal relationships between the participants and an atmosphere of mutual support

The follow-up data may represent the women who were most successful in their behaviour change. There were no significant differences between the demographics of the women who were retained to follow-up and the demographics of those who did not carry on; however, it is likely that the women who were retained were in some way more motivated

Study reference

Kanders *et al.* 1994⁴⁸³ [Black American Lifestyle Intervention (BALI)]

Setting

USA; Boston, MA, and Houston, TX, multicentre

Inclusion criteria

Women, aged 40–64 years, BMI 30–40 kg/m², earning US\$1000–5000 monthly (working class), diastolic blood pressure (without medication) < 95 mmHg, serum cholesterol < 7.76 mmol/l and no history of diabetes

Study type

Pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: 49

n: 61

Sex: 100% female

Income: Not reported

Other: 95% had completed a high school education

Description of intervention and control

A 10-week weight loss phase with culturally appropriate nutrient-balanced 1200-kcal diet in which two meals were replaced by meal replacement shakes (provided free of charge)

Intervention: 1-hour group sessions were provided, led by a female African American nutritionist. One-page handouts were distributed on nutrition, exercise and behaviour modification topics. These sessions were highly interactive and included goal-setting, problem identification and role-playing. Participants were given US\$30 at weeks 5 and 10 in return for completing a programme evaluation. Exercise was advised in the form of three 15-minute walks per week and participants were also told to increase the frequency and duration of walks gradually until they reached 200 minutes walked weekly

Theory: Not reported

Approaches to adaptation

- Shakes, etc., provided free of charge
- African American nutritionist
- Culturally adapted diet
- All educational materials, recipes and menu plans were reviewed by minority advisors to ensure that they were culturally appropriate

Outcome measures and results

Follow-up: Baseline to weeks 5 and 10

Weight: There was significant weight loss in participants (6.5 ± 5.3 lb, 3.5% of total body weight, $p=0.001$) over the 10 weeks. Breaking down the results, 17 women lost ≥ 10 lb, 18 women lost 5.1–10 lb, 14 women lost 1–5 lb, eight women remained within 1 lb of baseline weight and four gained weight

Conclusions

Authors: The weight loss results are superior to most that are reported in minority groups and both this and the attendance supported the effectiveness of the intervention. This study was to be followed by a larger more sustained intervention

Reviewers: As commented by the authors, this intervention was a pilot study and had a small sample size and no control group and therefore the conclusions are limited in their significance and generalisability; however, the intervention showed promise and it would be interesting to see the results of any future work

Comments and limitations

Pilot study and lack of detail on recruitment. Could funding of shakes be sustained – what is the cost-effectiveness?

BMI, body mass index.

Study referenceWallace *et al.* 1996⁴⁸⁴**Setting**

UK; St. John's, Halifax

Inclusion criteria

Asian women selected from a practice database

Study type

Pre–post study with qualitative and quantitative measures

Description of population

Ethnicity: Asian; not reported how ethnicity assessed (provided Punjabi and Urdu translators)

Age (years): Not reported

n: 20

Sex: 100% female

Income: Not reported

Description of intervention and control

Educational project to target a group of women with non-insulin-dependent diabetes mellitus (NIDDM)

Home visits by a district nurse accompanied by an interpreter to explain the purpose and objectives of the course. Women attended the surgery for a full medical examination. A 10-session course was delivered that was planned and facilitated collaboratively by a nursing team and a GP (topics included diet and diabetes, diet and the family, benefits of exercise). Talks were given by team members or professionals from outside the practice. Each session included a talk on one aspect of living with diabetes followed by questions and a general discussion. Each session included an exercise component led by a 'Look After Yourself tutor'. Women were encouraged to continue exercises regularly at home. There was no control group

Theory: Not reported**Approaches to adaptation**

- Sessions were translated into the participants' native languages of Punjabi and Urdu by a professional interpreter
- Interpreter was used to gain insight into knowledge and health beliefs

Outcome measures and results*Follow-up:* Post course (quantitative and qualitative) and at 12 months*Changes in dietary fat:* Cholesterol level: little change occurred*Changes in physical activity:* Activity level increased in all women*Knowledge:* Post course (qualitative): Everyone's knowledge had increased**Conclusions**

Authors: The benefits of a health education programme in a chronic condition such as NIDDM, which also has a genetic component, cannot be fully evaluated in the early stages and must be assessed after many years. Plan to involve whole families in the groups and to extend programme to Asian men and Caucasian patients

Reviewers: The intervention appeared to have changed knowledge; however, this was not quantified. The authors suggest that attitudes and beliefs also need to change, and that knowledge may not be enough as women are faced with significant barriers. Future interventions should include the family and/or men

Comments and limitations

Some women felt unable to make significant changes to their lifestyle as the barriers were too great and required modification of beliefs and attitudes. Women living in large extended families of three or more generations were influenced by the wishes and views of significant others and were expected to fulfil the roles of wife and mother in a traditional way (the women expressed desires to fulfil this). There was family pressure to provide what was perceived by Asian people living in the West as high-status food, with high calorie and fat content. Men usually do the family shopping. Unclear what exercises were carried out (not described)

GP, general practitioner.

Study reference

Agurs-Collins *et al.* 1997³⁷² [Positive Outgoing Sexy Seniors Exercise Club (POSSE) study]

Setting

USA; Washington, DC, urban

Inclusion criteria

African American men and women aged ≥ 55 years with a diagnosis of non-insulin-dependent diabetes mellitus (NIDDM) by medical history were eligible if they had $\geq 120\%$ of Metropolitan weight standards, had HbA_{1c} (glycated haemoglobin) levels $> 8\%$, were ambulatory and had no medical contraindications to programme participation

Study type

RCT

Description of population

Ethnicity: African American

Age (years): Mean: intervention group: 62.4, control group: 61

n: 64

Sex: Intervention group: 66% female, control group: 88% female

Income: Not reported

Other: Intervention group: 56.3% had completed a high school education and 59.4% were not employed; control group: 59.4% had completed a high school education and 56.2% were not employed

Description of intervention and control

Overweight African Americans with NIDDM were randomised to an intervention or control group

Intervention: 12 weekly group sessions (8 to 10 people per group) with 60 minutes of nutrition education followed by 30 minutes devoted to exercising in the physical therapy area of the clinic (participants also encouraged to exercise two additional days on their own); one individual session during this time for nutrition counselling; and six biweekly group sessions offered in the subsequent 3 months to provide additional information and support with less formal instruction and more sharing and problem-solving

Control: Minimal intervention approximating 'usual care', which was one class (within 3 weeks of enrolment) related to methods of glycaemic control and two informal mailings of nutritional information at 3 and 6 months

Theory: The behavioural component was social action theory

Approaches to adaptation

- Adapted approaches from relevant controlled trials and adaptation was based on previous relevant qualitative research
- Food information was based on the types of foods and flavourings characteristic of the population (recipes provided by participants were used in the direct instruction)
- Time given to discuss dietary adherence issues unique to their social contexts (e.g. church meals)
- Programme materials depicting African American individuals and families and community settings
- Materials reflected language, social values and situations relevant for older African American people

Outcome measures and results

Follow-up: Baseline to 12 weeks post intervention, 3 months and 6 months

Changes in physical activity: Physical activity scores increased with a net increase at 3 months of 49.4 points ($p < 0.001$); women's scores increased more to 54 points ($p < 0.001$) and men showed minimal differences when analysed separately. However, the changes in physical activity were not sustained and were no longer statistically significant at 6 months

Weight: After 12 weeks the intervention group mean weight decreased and the control group mean weight increased, with an overall net difference from baseline of -2 kg ($p = 0.006$), a 6-month net change of -1.3 kg (non-significant) and a 6-month net difference of -2.4 kg ($p = 0.01$). The results were different for men and women

Waist-to-hip ratio: This did not change during the intervention

Conclusions

Authors: This programme was successful in improving HbA_{1c} levels, for knowledge and behavioural changes (although not sustained at 6 months) and for moderate weight reduction, which was achieved within the first 12 weeks. The intervention group showed a relative advantage, which was maintained at 6 months despite the decrease in frequency of intervention contacts

Reviewers: This appears to be a successful intervention and a suitable approach for this population, although it is unclear how long the effects would be sustained

Comments and limitations

The principal limitation is the duration of the study, which is insufficient to determine whether the effects can be sustained and what level of contact would need to be put in place to maintain these effects. Participant feedback forms suggested that a third of participants never developed sufficient motivation to change their behaviour

Per patient delivery cost of US\$150 (exclusive of research expenses and laboratory costs; includes dietician salary, exercise physiologist, support staff, supplies and educational materials) – costs at this level are negligible compared with the potential savings if the programme effects can be sustained; per patient savings by avoiding the need for insulin, minimising emergency department visits and avoiding renal failure and dialysis, for example, have been estimated at US\$7500–100,000 per year

Study reference

McNabb *et al.* 1997;⁴⁸⁵ Quinn and McNabb 2001⁴⁸⁶ (PATHWAYS programme)

Setting

USA; Chicago, IL

Inclusion criteria

African American women with a BMI between 30 and 45 kg/m² and no known physical limitations that would prevent moderate physical activity. They also had to agree to random assignment to the intervention or control group, who were wait-listed to receive a delayed intervention

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Not reported

n: 39 were enrolled and 33 were available for post-treatment data collection

Sex: 100% female

Income: Not reported

Description of intervention and control

Intervention: Intervention group received a 14-week weight loss programme conducted by trained lay volunteers in the setting of African American churches. Each of the weekly sessions lasted for 90 minutes, was administered in a group format and was delivered through guided learning activities and small group instruction. The group leaders assisted and facilitated. Participants were given small hand-held calculators and food guides to analyse their food practices. They were then to develop their own plans to change their diet. The main aims were to reduce dietary fat and increase fibre intake and these changes were made gradually over time. An exercise regime was also integral to the programme – subjects were instructed to begin a home exercise programme; generally this took the form of recreational walking

Control: Control group subjects were put on a waiting list to receive the programme at the conclusion of the study period

Theory: Utilised 'discovery learning' in which participants identify their own dietary problems and with the assistance of the facilitator and their peers try to arrive at personally relevant solutions

Approaches to adaptation

- Developed particularly to address behavioural and sociocultural issues related to urban African American women
- Focus groups were held with African American women
- Focus is on weight loss but not slenderness because a large body size is more acceptable in this population
- All material made extensive use of ethnic foods and food combinations
- Venue was African American churches and so a ready support network was available
- Mentioned culturally appropriate self-directed learning activities but not much more detail
- All material took note of stressful inner-city life issues

Outcome measures and results

Follow-up: Baseline and at 1 week after the 14-week programme had been administered

BMI: BMI decreased by 1.4 kg/m² in the intervention group and increased by 0.6 kg/m² in the control group; this difference was significant ($p < 0.0001$)

Weight: The intervention group lost an average of 10 lb and the control group gained an average of 1.9 lb. The post-treatment difference in weight loss was statistically significant ($p < 0.0001$)

Conclusions

Authors: A weight loss programme delivered by trained lay volunteers was effective in producing significant and clinically meaningful weight loss among African American women who do not often benefit from typical weight loss interventions. Ongoing research is focusing on whether the weight loss can be maintained or enhanced through monthly reinforcement sessions

Reviewers: This study is well designed and describes an efficacious weight loss programme for African American women that is adapted for cultural salience and which also uses a facilitated discovery learning style that encourages people to assess their own dietary patterns and undergo problem-solving to develop personalised plans for behaviour change

Comments and limitations

Remains unknown whether weight loss can be maintained over time. The generalisability of the programme is unclear although it had also been run in a clinic setting and the authors suggest that the content is highly structured and could be successfully delivered in different settings. The programme appears to be effective and acceptable with very good attendance and minimal attrition. The adaptations appear to contribute to the success as does the discovery learning design, which motivates people through making them the agents of change in their lives so that they can assess their own needs and design an action plan

BMI, body mass index; RCT, randomised controlled trial.

Study reference

Stolley and Fitzgibbon 1997⁴⁸⁷

Setting

USA; Chicago's inner city, IL

Inclusion criteria

Live in Chicago's inner city and attend a local tutoring programme: (1) attendance at weekly 1-hour meetings for 12 consecutive weeks, followed by a meeting every 3 months for 15 months; (2) completion of a health screening with questionnaires; and (3) enrolment of daughters in the Cabrini-Green tutoring programme

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): intervention mothers: 31.5 (3.4), control mothers: 33.7 (6.8); intervention daughters: 9.9 (1.3), control daughters: 10 (1.5)

n: 65 African American mother–daughter dyads (62 mothers and 65 daughters, some mothers with more than one daughter involved); mothers: *n*=32 intervention, *n*=30 control

Sex: 100% female

Income: Intervention mothers: 56% unemployed, control mothers: 60% unemployed

Other: Intervention mothers: 79.1% single, control mothers: 70.0% single

Description of intervention and control

Culturally specific obesity prevention programme focused on adopting a low-fat, low-calorie diet and increasing activity

Intervention: Each week subjects met in small groups of 7 to 10 dyads led by either an advanced doctoral student in clinical psychology or a registered dietician (two African American women, one white woman and one Asian woman). A concept of the week was discussed followed by an activity that reinforced the information presented

Control: Attention placebo – general health programme was run like the intervention group, meeting in small groups with group leaders. The focus of each session was on general health topics such as communicable disease control, effective communication skills, relaxation techniques and stress reduction

1-hour weekly meetings for 12 weeks

Theory: Based on the premise that the method of presentation would be as important as the curriculum in motivating participation

Approaches to adaptation

- Know Your Body programme's nutrition and fitness units adapted to fit the needs of an inner-city population
- Parental participation with this population was imperative given the mothers' limited access to dietary and physical activity information and the need for support in a stressful environment
- Programme held at a local tutoring programme – participants in the programme were all within walking distance and they felt safe knowing that they were coming to a gang-neutral site
- Tasting foods and planning meals were done with foods identified in 24-hour recalls gathered in the pilot project. Subjects brought in recipes and foods for fat and caloric content analysis
- Access to grocery stores and a financial budget were considered when menu planning
- Culturally relevant music and dance used
- Appropriate materials gathered from magazines geared towards an African American audience

Outcome measures and results

Follow-up: Measurements taken at baseline and 12 weeks

Changes in dietary fat: Mothers had a significant decrease in intake of saturated fat ($p < 0.05$) and also calories from fat ($p < 0.001$) from pre to post intervention, and also the intervention group mothers had greater reductions in overall dietary fat than the control mothers (although not significant). Daughters also showed a decrease in the percentage of calories from fat ($p < 0.05$) over time but there were no significant differences between the two groups

Weight: No significant changes detected for either the intervention or control mothers

Behaviour: There was a significant increase in parental support in the intervention group compared with the control group

Conclusions

Authors: This study suggests that a culturally adapted intervention for African American mothers and daughters can have some initial effect on behaviour change in relation to nutrition. The increase in parental support may help these changes to continue to be maintained. Future research is needed on this type of study

Reviewers: This study is interesting in design with the mother–daughter dyads and the idea of creating support within the home and parental role-modelling for behavioural change

Comments and limitations

Limitations include self-reported measures, which are prone to social desirability bias; generalisability, as the results could not be generalised to other African American populations in other areas of the country or of other SES, or to men and boys; self-selection of subjects, as mothers and daughters had to have a certain level of interest and motivation to sign up and this may influence the findings; and the lack of follow-up data for sustainability of effect

RCT, randomised controlled trial; SD, standard deviation; SES, socioeconomic status.

Study reference

Ard *et al.* 2000³²³

Setting

USA; Durham, NC

Inclusion criteria

All African American subjects interested in participating were eligible if they received clearance from their primary physician

Study type

Randomised modified cross-over study

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Not reported

n: 56

Sex: Not reported

Income: Not reported

Description of intervention and control

Modified 1000 calorie per day version of the Rice Diet, 7% fat vegan vegetarian for first 2 weeks. Participants were randomly assigned to receive the intervention immediately or after a delay of 8 weeks. A fee was charged for the programme

Patients were educated on the usefulness of exercise in weight loss and weight maintenance and advised to increase their activity above baseline levels by whatever means they felt comfortable. Participants met twice weekly for support and educational sessions. Sessions lasted for 30–60 minutes with education on basic nutritional principles and healthful eating. Low-fat and low-salt cooking techniques were demonstrated and participants were taught how to modify recipes at home. As part of a motivational approach participants had their weight and blood pressure measured at each session

Theory: Not reported

Approaches to adaptation

- Decreased direct and indirect costs of the diet programme
- Culturally sensitive recipes – instructed how to prepare food in a more healthy manner
- Included family members
- Classes held outside of work hours
- Stated ‘changing ideas about exercise’ as a cultural adaptation
- African American instructor for the majority of classes

Outcome measures and results

Follow-up: 8 weeks

BMI: Mean decreased from 37.8 kg/m² to 35.3 kg/m² ($p < 0.01$)

Weight: Average (SD) weight loss for the participants completing the intervention was 14.8 lb (6.8 lb)

Conclusions

Authors: Diet programmes can be successfully tailored to incorporate the needs of African Americans. Most importantly, these dietary programme changes can lead to significant improvements in clinical parameters; additional studies are needed to determine the permanence of these short-term changes

Reviewers: The cost of participation as well as recruitment of university employees may have meant that participants were of fairly high SES, education and income (these demographics are not provided) and perhaps the results are less generalisable to a wider population

Comments and limitations

Outcomes were monitored for 8 weeks only and there is no evidence of long-term effect. A highly motivated group was selected that included employees in the university or health centre, although it did show that this group was unable (although motivated) to lose weight on their own in the delay experienced by the control group. This study had an unusual design and approach and perhaps the results are less generalisable to a wider population

BMI, body mass index; SD, standard deviation; SES, socioeconomic status.

Study reference

Resnicow *et al.* 2000²⁸⁴ (Go Girls)

Setting

USA; city or state not reported

Inclusion criteria

Female, living in or near the public housing development, age 11–17 years, overweight based on BMI \geq 85th percentile for age and sex or percentage body fat $>$ 35% based on dual-emission X-ray absorptiometry or (if neither measurement available) visual inspection

Study type

Pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: 13.5

n: 57

Sex: 100% female

Income: Not reported

Description of intervention and control

The programme was delivered to 8–14 adolescents at a time in a community space or apartment and was conducted in four 6-month cycles over 2 years. For the first 4 months, sessions were twice per week, and for the final 2 months they were weekly. There were also some field trips at the weekends and during school holidays

Each session had three elements – an education/behavioural activity, 30–60 minutes of physical activity and preparation/tasting of low-fat meals. Primary target behaviours were increased fruit and vegetable consumption, decreased fat intake, decreased fast food intake, decreased television watching, increased physical activity and communication skills to enhance participants' ability to encourage parents to shop and prepare healthier foods. Experiential activities were designed to enhance skills, efficacy and outcome expectations. Messages emphasised the physical and health effects of changes rather than the aesthetic effects (based on focus group findings about body image) – emphasis on substitution, moderation and abstinence

Theory: Social cognitive theory

Approaches to adaptation

- Formative research with focus groups of low-income African American adolescent women
- Most staff were African American
- Messages focused on health and physical effects of changes rather than the aesthetics

Outcome measures and results

Follow-up: Baseline and immediately post intervention

Changes in dietary fat: High attendees showed more favourable results at 6 months for most outcomes compared with low attendees, e.g. low-fat practices ($p=0.05$), perceived changes in low-fat practices ($p=0.04$)

Knowledge: High attendees showed more favourable results at 6 months compared with low attendees, e.g. nutrition knowledge ($p=0.001$)

Conclusions

Authors: The authors concluded that the programme had a modest favourable impact on knowledge and some dietary behaviours and served as a maintenance programme, perhaps decelerating weight gain and the associated morbidities

Reviewers: This study has no control group and undertook a post hoc analysis. It appears to suggest some change in behaviour but no change in physical outcomes. Further evaluation is needed to see whether the intervention is effective

Comments and limitations

There was difficulty with attendance and retention and participants on average attended 43% of sessions and the dropout rate was 45%; this may have biased the sample. The analysis of low and high attendees was post hoc and the cut-off point of 50% was arbitrary. Most of the measures were self-reported and may have been influenced by social desirability bias. Some measures were developed for this intervention and had not been used previously. The relatively small sample size meant low statistical power. There was no real control group. There were budgetary limitations that limited the amount of outcome data collected

BMI, body mass index.

Study reference

Nothwehr *et al.* 2001³¹²

Setting

USA; Indianapolis, IN

Inclusion criteria

African American women aged 30–65 years with type 2 diabetes diagnosed for at least 1 year, BMI of ≥ 27 kg/m², able to walk independently, not currently pregnant and able to provide informed consent. Also had to not have any major illness or history of heart disease that would prevent them from participation in regular exercise. They were all reviewed by an endocrinologist to check eligibility for the programme

Study type

RCT (pilot study)

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: 49.4

n: 23

Sex: 100% female

Income: Predominantly low income

Other: 39% were married and 69.5% were unemployed

Description of intervention and control

Women were randomly assigned to either 10 weekly sessions about healthy eating followed by six weekly sessions about exercise or the reverse sequence. Sessions consisted of small group discussions (four to five people) and physical activity or food tasting. The sessions lasted for 90 minutes and were held in the local YMCA

Topics in the exercise sessions included group problem-solving regarding barriers to behaviour change, exercise safety, benefits of an active lifestyle, finding time to be active and relapse prevention. Handouts were given with the key messages. Participants were also given a year's free membership to the YMCA and audiotapes and videotapes of chair-based exercises

Theory: Not reported

Approaches to adaptation

- Nutrition education included learning recipes of lower-fat versions of African American dishes
- Recruitment occurred partly through adverts in churches
- The facilitator was an African American employee of the YMCA who had worked there as a wellness co-ordinator for several years

Outcome measures and results

Follow-up: Baseline to 4 and 12 months post programme

Changes in fruit and vegetable consumption: There was a significant increase in vegetable intake (an increase of 0.5 servings a day at 1 year, $p=0.02$)

Changes in calories: Significant decrease in the per cent of calories from fat (4 months, $p=0.05$)

Changes in physical activity: Significant increase in minutes of activity (4 months, $p=0.0002$, 1 year, $p=0.0001$) in both groups

Weight: No significant change in weight over the year – both groups lost an average of 3 lb

Conclusions

Authors: This study does not provide definitive evidence of which sequence is best to bring about behaviour change, and the effects of sequencing difficult behaviour changes, such as diet modification and exercise, deserve further study

Reviewers: This study does not show a difference according to sequencing, which was the overall goal, but it does show overall improvements with the intervention for both groups, including increased exercise, improved nutrition and some weight loss (although the last was not significant). However, the fact that there was weight loss and not an overall weight gain is said by some to be reaching a goal in itself (reversing the usual trajectory). However, this was a pilot study with small numbers and needs further research. The adaptation was not a focus of the study and there is relatively little adaptation described but the intervention does appear to have been acceptable with good retention of participants

Comments and limitations

Limitations included that this was a small pilot study with a small sample size and no control group (a control group could have shown a greater effect of the intervention, particularly on weight, which may have had an upward trajectory for control participants over the year). The fact that the intervention retained for longer participants who were more educated and also somewhat fitter may limit its generalisability and affect its equity as it suggests that it was more sustainable for those participants who perhaps needed it less. The intervention offered free gym access and free exercise videos, which may have assisted participation levels, but it is hard to tell to what degree these incentives were important

BMI, body mass index; RCT, randomised controlled trial; YMCA, Young Men's Christian Association.

Study referenceWilliams *et al.* 2001²⁹⁷**Setting**

USA; city or state not reported

Inclusion criteria

Workers in a non-profit day-care centre with multiple sites

Study type

Pre–post

Description of population

Ethnicity: Black; not reported how ethnicity assessed

Age (years): Mean: 40

n: 61

Sex: Most were female (exact number not reported)

Income: Not reported

Other: Education varied from less than high school to graduate degrees

Description of intervention and control

Day-care centres were used as a site to develop a culturally sensitive intervention with on-site cardiovascular screening, informal interviews and discussion of behaviour change for better health

Intervention: The intervention aimed to assess the impact of the Healthier People Health Risk Appraisal (HPHRA) as a culturally appropriate recruitment strategy to involve workers at the day-care centre in screening and risk reduction. The HPHRA uses statistical actuarial software to perform an individual analysis of health risk, which facilitates individual health promotion and disease prevention intervention. The tool gives a report of positive life factors as well as risk factors. It can be a powerful tool for intervention but has been used in few studies with ethnic minority populations. Participants had counselling focusing on the integration of physical activity and healthy diet intake with their lifestyle and culture

Theory: The conceptual framework was the health promotion model (HPM) developed by Pender.^{488,489} The HPM is based on social cognitive theory with four components – cognition, affects, actions and environmental events – interacting to determine health behaviour

Approaches to adaptation

- HPHRA was used as information to tailor the intervention for the group
- Used gender-specific, culturally appropriate pictures
- Educational brochures and interviews were based on lifestyle analysis of the participants
- All strategies and materials were submitted for review by a faculty member who taught cultural sensitivity
- Adhered to time orientation of the specific cultural group
- Assured communication was at an appropriate level for understanding
- Aware of personal space and non-verbal communication
- Developed continuous long-term relationships with the community, which is a cultural value for this population
- A working relationship and trust had been built up with this population by the university for almost 3 years before the intervention

Outcome measures and results

Follow-up: Baseline to 1 year post intervention

Changes in dietary fat: Positive changes in cholesterol but not statistically significant ($p=0.0589$); the day-care workers reported eating less fat and more fibre

Changes in physical activity: The day-care workers reported participating more in physical activity

Conclusions

Authors: Participation rates in the project increased from 26% in the first year of the project to 73% when long-term relationships were built on culturally appropriate strategies. The project's culturally sensitive educational intervention focused on individual risks and lifestyle. Statistical analysis of the outcomes of the intervention and personal interviews demonstrated the improvement of cardiovascular status in the day-care workers. This psychosocial approach can provide the foundation for culturally sensitive care in larger occupational and community settings

Reviewers: The authors considered this an effective intervention and there certainly appears to have been good engagement and also changes in behaviour/self-reported measures. However, there were no significant changes in blood values or weight and BMI. There needs to be further research to examine the effectiveness of this approach utilising comparison groups, preferably a RCT

Comments and limitations

This study is limited by having no control group and using self-reported measures, which can be prone to social desirability bias. This is also a very specific population and it is hard to assess the generalisability

BMI, body mass index; RCT, randomised controlled trial.

Study reference

Yanek *et al.* 2001³⁵² (Project Joy)

Setting

USA; inner-city churches in Baltimore, MD

Inclusion criteria

Urban core of Baltimore, primarily African American congregation (80%), high interest level and participation in local activities, average Sunday attendance of at least 150 people, no currently active programme in weight control, exercise or smoking cessation for women aged ≥ 40 years

Study type

Group RCT (randomisation later dropped)

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: spiritual and cultural group (SP): 53.6 ± 9 , standard group (SI): 51.9 ± 9 , self-help group (SH): 53.9 ± 10

n: 16 churches; *n* = 529

Sex: 100% female

Other: 92.9%, 90.4% and 93.2% of the SP, SI and SH groups, respectively, completed high school

Description of intervention and control

Impact of a 20-week active nutrition and physical activity intervention on 1-year measures relating to lifestyle risk factors and CVD risk profiles compared with a self-help (control) group. Also, studied the impact of church culture on the intervention. Three intervention groups: (1) standard group method + weekly sessions (SI); (2) standard group method + spiritual and cultural component (SP); (3) non-spiritual, self-help intervention (SH)
SI: Weigh-in and group discussion; 30- to 45-minute nutrition education module with taste testing or cooking demonstration; 30 minutes of moderate-intensity aerobic activity. After 20 weeks, lay leaders offered weekly sessions

SP: Same sessions as SI with the addition of spiritual components and church contextual components. Telephone calls from lay leaders and word of mouth from other participants motivated attendance

SH: Included materials from the American Heart Association (AHA) on healthy eating, and physical activity and information targeted participants' personal screening results and feedback

Theory: Social cognitive theory to enhance individual self-efficacy; interventions designed at the individual level to enhance self-efficacy but implemented through churches in group sessions to assure strong support

Approaches to adaptation

- One church served as a pilot venue for 20 weeks
- Community expert panel formed to review and refine the interventions (four African American churchgoing women and two African American pastors)
- Church bulletins included weekly session reminders and printed messages from Project Joy on healthy eating and physical activity accompanied by scriptures. Pastors also offered a monthly health newsletter
- Physical activity included aerobics to gospel music or praise and worship dance
- Female African American health educators from the study staff taught the curriculum
- Focus groups with churchgoing women from the African American community and, in addition, in-depth interviews with 53 churchgoing women were conducted

Outcome measures and results

Follow-up: Baseline to 1 year

Changes in fruit and vegetable consumption: 38% of the active intervention groups consumed five or more servings of fruit and vegetables a day vs 44.6% of the control group ($p = 0.0001$)

Changes in calories: Mean change in energy intake of -117 kcal/day in the active intervention groups vs -7 kcal/day in the control group ($p = 0.0038$)

Changes in dietary fat: Mean change in total fat of -8.1 g/day in the active intervention groups vs -2.3 g/day in the control group ($p = 0.0250$)

BMI: Mean change of -0.17 kg/m² in the active intervention groups vs 0.14 kg/m² in the control group ($p < 0.0012$)

Weight: Mean change of -1.1 lb in the active intervention groups vs 0.83 lb in the control group ($p < 0.0008$)

Conclusions

Authors: This study demonstrates significant improvements in anthropometric measures, blood pressure levels and diet and, to a lesser extent, physical activity at 1 year in the active intervention groups, although the magnitude of effect was modest. Follow-up was longer in this study and focused on globally healthy lifestyles as opposed to a single behavioural goal. A total of 10% of participants in the active church-based intervention achieved clinically significant improvements in CVD risk profiles (top decile for weight loss) 1 year post intervention. There were no differences in outcomes between the SI and SP churches. It is not possible to maintain a non-spiritual intervention within the African American church environment. There was a lack of interest in the self-help programme. Eight of nine active intervention churches held weekly sessions led by their own lay leaders

Reviewers: The self-help group is much smaller than the SI and SP groups. It is interesting to see that the results of the SI and SP groups are comparable, which suggests that it may be less the religious component and more the social support/group format that accounts for the success of the intervention compared with the self-help group

Comments and limitations

Authors do not present many limitations, except that the churches were not really willing to be randomised to the self-help condition. Randomisation was dropped later in the recruitment process. Despite aggressive recruitment, women from churches randomised to the self-help group were not interested in the self-help intervention. Women were avidly interested in active sessions and expressed a strong desire to receive directed assistance. For this reason, numbers recruited for self-help were lower. There were dropouts as a result of not seeing immediate results; follow-up calls were insufficient to motivate attendance. Anecdotally, churches with the strongest support from the pastor's wife had the best attendance and vice versa

BMI, body mass index; CVD, cardiovascular disease; RCT, randomised controlled trial.

Study referenceKaranja *et al.* 2002⁴⁹⁰**Setting**

USA; Portland, OR

Inclusion criteria

Relatively good health as ascertained by the participants' physicians and a desire to lose weight were the only criteria

Study type

Controlled before and after/pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): 44 (9)

n: 62

Sex: 100% female

Income: Not reported

Description of intervention and control

A 6-month weight loss programme with 26 weekly group meetings with 15–25 participants and encouraged to attend weekly supervised exercise sessions held at a local community centre. During each group meeting the first 30 minutes was spent being weighed and providing other data such as food records and self-reported exercise activity for the preceding week. The group then shared a meal prepared by participants, who discussed how they reduced the fat content of each dish. The second hour of each session was spent discussing nutrition and behaviour modification topics

Nutrition: Modelled after Kaiser Permanente's Freedom from Fat programme, which emphasises reducing energy consumption by reducing total fat intake

Exercise: Encouraged to increase physical activity gradually until exercising three to four times a week for ≥ 30 minutes. Professionally led exercise classes offered every Saturday at a local community centre; could choose between a water aerobics class, a beginners-level strength training class or a walking group. Classes were scheduled so that participants could attend two sessions on the same day. Classes created a social support system for exercise and provided demonstrations

Theory: Modelled after Kaiser Permanente's Freedom from Fat programme. Relapse prevention training. Consistent with cultural/adaptation approaches suggested by Kumanyika and Morssink⁴⁹¹ and Resnicow *et al.*³⁵

Approaches to adaptation

- Increased identification between counsellors and participants – preferred leaders who had struggled to control their own weight; African American instructors (dietician, exercise leader)
- Provided information in a demonstration format
- Increased programme ownership – women also contributed to the logistics of conducting the study
- Built social support (many African Americans experienced isolation in other weight loss programmes) – shared meals, family support
- Involved family and friends

Outcome measures and results*Follow-up:* Baseline to 6 months

Changes in calories: Significant changes from baseline to follow-up in reported intake of total energy [9623 ± 4138 kJ to 8640 ± 3962 kJ ($p=0.02$)] and dietary fat [102 ± 53 g to 80 ± 49 g ($p=0.001$)]

Changes in physical activity: Average number of hours exercised increased significantly. Proportion of participants meeting the study goal of 1.5 hours also increased significantly

Weight: Participants attending at least 75% of group meetings lost a mean of 6.2 kg at 6 months; those who attended fewer meetings lost a mean of 0.9 kg. Mean weight loss at 26 weeks was 3.7 ± 5.1 kg (range 5–25 kg) for all participants at a mean rate of 0.14 kg per week

Conclusions

Authors: Relatively larger weight losses, particularly among participants with high attendance, than have usually been observed in culturally adapted programmes for African American women. Successful weight loss was ascribed to cultural adjustments made to the programme delivery. Difficult to compare results with other studies that have tested the effects of culturally adapted programmes on weight loss in African American women because they tend to be smaller, of a shorter time period and achieve weight loss ranging from 0.2 to 4.5 kg. Although the study did not test a hypothesis about the role of cultural adaptations in promoting weight loss, the impression is that the programme outcomes were greatly enhanced by the adaptations made

Reviewers: The intervention was successful in helping African American women lose weight. It appears that there was an intervention dose-dependent response in which participants who attended > 75% of the sessions lost the majority of the weight. The adaptations are thoroughly described

Comments and limitations

Did not collect data on SES, health status (presence/absence of comorbid conditions) or previous experience in weight loss programmes – may influence comparability with other programmes. Another factor that may have contributed to improved weight loss was the relatively high BMI range of these participants.

Sixty-six women attended the information session and were weighed, three dropped out after the first three of the 26 weekly sessions; 76% of women attended at least 50% of the 26 weekly sessions; 56% attended at least 75% of sessions (an intention-to-treat analysis was used in most analyses)

Study reference

Keyserling *et al.* 2000;⁴⁹² Keyserling *et al.* 2002⁴⁹³ (New Leaf programme)

Setting

USA; North Carolina

Inclusion criteria

African American women aged ≥ 40 years with type 2 diabetes (defined as a diagnosis of diabetes at ≥ 20 years with no history of ketoacidosis)

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: 59

n: 219

Sex: 100% female

Income: One-third reported a total annual household income of < US\$10,000

Other: Mean educational achievement was approximately 11 years in all groups

Description of intervention and control

Conducted at primary care practices. The intervention evolved from the Food for Heart programme. The intervention combined traditional clinic-based counselling with a co-ordinated community component using peer counsellors and it included physical activity to a cumulative time of 30 minutes a day; a dietary component designed to decrease total and saturated fat intake and to improve control and distribution of carbohydrates; and a diabetes care component addressing various aspects of self-care

Participants were assigned to one of three conditions: the clinic and community interventions (A), the clinic intervention only (B) or a minimal intervention (C). The clinic-based component included individual counselling visits at months 1, 2, 3 and 4. The community-based component included two group sessions and monthly telephone calls from a peer counsellor. The minimal intervention group were mailed pamphlets on staying active, healthy eating and diabetes

Theory: Transtheoretical model, social cognitive theory and basic behaviour modification principles

Approaches to adaptation

- African American peer educators
- Focused on traditional southern foods and dietary practices
- Extensive formative research carried out with focus groups in the development and pilot phases
- Focused on lifestyle activities relevant to the population (including church and social group activities)
- Given a Southern style cookbook with simple low-cost recipes

Outcome measures and results

Follow-up: Baseline to 6 and 12 months

Changes in dietary fat: Percentage calories from saturated fats, dietary cholesterol intake and total energy intake decreased in all three groups but changes were not statistically significant

Changes in physical activity: Physical activity increased over 1 year; changes were significantly higher for group A compared with group C ($p=0.005$) and for group B compared with group C ($p=0.029$)

Weight: For all groups weight increased modestly although not significantly

Conclusions

Authors: The New Leaf intervention was associated with a statistically significant enhancement of physical activity energy expenditure as assessed by an accelerometer ($p=0.014$). Group A on average were 15% more active than group C. The study was not designed to detect a difference between groups A and B but there appears to be a favourable effect of the additional community component. It was disappointing to observe that participants in all groups gained weight. Both the clinic and community components were acceptable to participants and feasible within the context of a research study. Overall, the programme was associated with a modest enhancement of physical activity compared with the minimal intervention, but whether this will translate to improved health outcomes is unknown

Reviewers: This study shows some effect on physical activity and appears acceptable and feasible. It does not tell us much about adaptation as there is no comparison with an unadapted intervention

Comments and limitations

Possible bias in physical activity measurements from differences in how much people wore the accelerometers. Also, measures were self-reported

RCT, randomised controlled trial.

Study reference

Baranowski *et al.* 2003⁴⁹⁴ [Baylor Girls health Enrichment Multisite Studies (GEMS) Fun, Food and Fitness Project (FFFP)]

Setting

USA; Houston, TX, summer day camp and homes

Inclusion criteria

8-year-old African American girls with parents willing to be involved, \geq 50th percentile for age- and gender-specific BMI (Centers for Disease Control growth charts), in possession of a home computer with internet access, informed and parental consent. Those with a medical condition, taking medication that affects growth or with a condition that would limit participation or measurement were excluded

Study type

Two-arm parallel group randomised pilot study (urn randomisation procedure)

Description of population

Ethnicity: African American; reported by parent(s) or legal guardian(s)

n: 35 girls and parents/caregivers; 19 treatment, 16 control

Sex: 100% female

Income: Majority earned \geq US\$40,000 a year with college education or postgraduate education

Description of intervention and control

Obesity prevention among healthy 8-year-old African American girls by increasing fruit and vegetable intake, lowering dietary fat, increasing water consumption and fibre intake and increasing physical activity to 60 minutes a day. Camps were subsidised. Different internet programmes for intervention girls, intervention parents/carers, control girls and control parents/carers

Intervention: 4-week summer day camp (regular + GEMS-FFFP) followed by 8-week home internet maintenance intervention for girls and parents. At camp there was a buddy system to increase physical activity; camp cheers as mnemonic devices for decision-making; problem-solving and communication skills to get parents to undertake physical activity with children; dance; games for increasing fruit and vegetable and juice intake; and food preparation. Also included education for parents and children for healthier lunches; a pedometer was also given. Girls had access to a comic book with characters who attended GEMS, problem-solving, goal-setting, a photo album, an ask the expert feature, links to other websites. Received weekly e-mails and telephone reminders to log on. Parents/carers also had a comic book linked to the children's comic book with an ask the expert feature and links to other websites

Control: 4-week summer day camp (different from the intervention) followed by monthly home internet intervention with no GEMS-FFFP components. Girls had access to general health and homework websites for 8-year-old girls. Parents/carers had access to girls' websites with information on general health issues and links

Theory: Social cognitive theory; this intervention explains how components of social cognitive theory are used throughout the intervention

Approaches to adaptation

- Focus groups with parents and children indicated a lack of fruit and vegetables at home and a lack of knowledge regarding food preparation
- Formative research also indicated that girls would not attend a live-in camp; day camp format was used instead
- Formative work indicated that girls liked that the intervention was delivered on the internet at home as this minimised travel
- African American cartoon was used on the entry webpage

Outcome measures and results

Follow-up: Baseline, 4 weeks (BMI only measured) and 12 weeks; intention-to-treat analysis

Changes in fruit and vegetable consumption: At 12 weeks there was greater consumption of water, fruit and vegetables and juice and less consumption of sweetened beverages for intervention girls; the difference was not significant

Changes in calories: At 12 weeks, lower calories; the difference was not significant

Changes in dietary fat: At 12 weeks there was a lower percentage of calories from fat for intervention girls; the difference was not significant

BMI: No significant differences in BMI between treatment groups at any time point; at 4 weeks, girls in the intervention group who were heavier at baseline showed a trend ($p < 0.08$) towards lower BMI compared with similar girls in the control group (28.6 kg/m² vs 29.3 kg/m²)

Log-on rates: Less than half of the intervention girls logged on to the website, which limited the intervention dose; weekly log-on was $< 50\%$ from the beginning for both girls and parents/carers. The control group had lower log-on rates but this was expected

Conclusions

Authors: This intervention did not lower BMI in the intervention compared with the control group at 12 weeks. The difference in BMI at baseline may have contributed to a lack of difference (even though adjusted for baseline). Trend towards lower BMI for heavier girls suggests that a camp may be useful for heavier African American girls (also observed in other studies). Summer day camp appeared to be useful for initiating behaviour; need more methods for enhancing log-on

Reviewers: Agree with authors' conclusions. Furthermore, it is unclear how generalisable this study would be as it included a highly educated and middle-income cohort – perhaps may benefit a low-income group more. Authors suggest that the initial interest in the internet component eventually became a burden; thus, its use for this group was minimal

Comments and limitations

US\$100 weekly lottery was run for 5 weeks to increase the log-on rates; they did not change from approximately 50%. There were incentives for completing the baseline and 12-week assessments (US\$10 for children, US\$25 for adults)

BMI, body mass index.

Study reference

Beech *et al.* 2003;³⁹⁶ Klesges *et al.* 2008³⁹⁵

Setting

USA; Memphis, TN

Inclusion criteria

African American girls aged 8–10 years and their parents/caregivers were eligible to participate, girls with BMI \geq 25th percentile of the Centers for Disease Control growth charts, able to participate in physical education classes at school

Study type

Pilot RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: children: 8.9 ± 0.8 , parents: 35.5 ± 7.2

n: 60

Sex: Children 100% female; gender of parents/caregivers was not reported, unclear if all women

Income: 64% had a household income $<$ \$40,000 per year and almost one-quarter had a household income $<$ \$20,000 per year

Description of intervention and control

Content was focused on knowledge and behaviour change skills to promote healthy eating and increase physical activity

Child targeted: 90-minute session with 30 minutes of hip hop aerobics as the main activity; also taste testing and food preparation activities, food art, modified farmers' market, basic label reading skills, healthy snacks and child-friendly recipes provided at each session

Parent targeted: 90-minute session with a physical activity component of dancing, a didactic nutrition segment and a segment alternating food preparation and nutrition-related games. Childcare provided with specific activities designed for the 9- to 10-year-old daughters that did not focus on nutrition or physical activity. Discussions regarding links between nutrition and parental concerns, suggestions and strategies to increase healthy family lifestyles, and cooking activities alternated with games. Culturally relevant print information to take home provided in both arms

Comparison: Focused on global self-esteem. Three monthly 90-minute sessions over a 12-week pilot period. Designed to enhance and prevent a decline in self-esteem among 8- to 10-year-old girls and to be neutral with respect to dietary practices and physical activity. Personalised greeting cards and general health information were mailed to participants bimonthly to maintain contact and build rapport

Theory: Social cognitive theory; theoretical and empirical evidence supporting the use of a family-based approach; and conceptualisation of family influences on children's weight-related behaviours informed by family systems theory. Key foci in social cognitive theory interventions include developing knowledge and skills needed to change behaviour, expecting positive outcomes in association with behaviour change, developing self-efficacy in performing new behaviours and learning self-regulatory skills

Approaches to adaptation

- Special relevance of family-based approaches to obesity prevention in African American children. Mothers, with support from extended family members, are considered to be a primary influence on African American children and youth, and the sociocultural context of the African American girl involves a much higher degree of interdependence among family members than in white families
- 12-week feasibility study of the two active interventions prior to the pilot study
- Graduate student and a member of the local community centre staff trained as a lay health educator were trained to address issues related to cultural sensitivity and cultural competence and to discuss developmental issues related to pre-adolescent African American girls
- Formative research and focus groups with girls and parents/caregivers
- African American female nurse employed

Outcome measures and results

Follow-up: Baseline and 12 weeks

Changes in physical activity: Girls in the active intervention groups increased their minutes of moderate to vigorous physical activity by 11.7%

BMI: Girls in both the child-targeted and parent-targeted interventions demonstrated a trend towards reduced BMI and waist circumference compared with girls in the comparison intervention

Conclusions

Authors: This pilot study demonstrated the feasibility, perceived acceptability and efficacy of culturally relevant obesity prevention interventions for pre-adolescent African American girls and their parents/caregivers. Both active interventions were associated with some level of behaviour change in the expected direction

Reviewers: This appears to be quite an innovative intervention in which both active groups showed trends in the hypothesised direction, even in the arm in which the girls were not intervened on themselves (in the parent-targeted group). This study is now in Phase 2, which is a 2-year RCT to evaluate the short- and long-term ability of the intervention to prevent obesity in pre-adolescent girls. Baseline data reported in Klesges *et al.*³⁹⁶

Comments and limitations

The 12-week intervention period was insufficient to see significant changes in BMI. The comparison group included statistically significantly older caregivers than the treatment groups. Both the active and the comparison interventions had to be viewed as substantive and appealing to recruit and retain African American girls and their parents/caregivers. Randomisation to a 'no treatment' control was difficult for participants to accept

BMI, body mass index; RCT, randomised controlled trial.

Study reference

Frenn *et al.* 2003³³⁷

Setting

USA; Midwest

Inclusion criteria

Two urban low- to middle-income schools. Entire classrooms of students were enrolled in the intervention or control group to prevent diffusion of the intervention

Study type

Quasi-experimental

Description of population

Ethnicity: Mixed but some results presented stratified by ethnicity – African American, Hispanic, Asian, white, Native American

Age (years): Range: 12–15

n: 130; 341 were sampled from and 130 included; 67 intervention group, 63 control group (of relevance to our study, there were 58 African American and 9 Asian participants included among the 130 participants)

Sex: Not reported

Income: Not reported

Description of intervention and control

An internet and video intervention to promote a low-fat diet and moderate and vigorous physical activity

The intervention was tailored to the students' stage of change; those in the earlier stages focused on awareness of their current behaviours and overcoming barriers to change; those in the later stages were prepared as 'peer models' to lead healthy snack and exercise sessions with the help of senior nursing staff and faculty. The intervention took place in the computer lab and consisted of four internet sessions plus a healthy snack session and a gym class (one school only) of approximately 50 minutes (six sessions in total)

Theory: Transtheoretical model and tailored to stages of change and Penders Health Promotion model^{488,495}

Approaches to adaptation

- Student actors of various racial/ethnic heritages are shown thinking about what they are eating

Outcome measures and results

Follow-up: Not reported

Changes in dietary fat: For the African American population there was a significant reduction in fat intake ($p=0.018$); for the Asian population there was a significant change in access to low-fat foods ($p=0.036$)

Changes in physical activity: Both the intervention and control groups decreased their amounts of physical activity, although the decrease was significantly less in the intervention group (–8.58 minutes as opposed to –37.61 minutes, $p=0.024$). When analysed by ethnicity and income levels there was a significant increase in physical activity for African American and Asian participants who were in the lowest income group. In addition, those who had the peer-led gym sessions increased their total physical activity, whereas those with only the internet and video intervention decreased their total physical activity, but not as much as those in the control group

Conclusions

Authors: This intervention was effective in increasing moderate and vigorous activity levels in particular groups. The internet content alone prevented a decrease in exercise to the degree that it occurred in the control group. Interventions delivered through the internet and by video may enable a reduction of health disparities in students by encouraging those most at risk to consume $\leq 30\%$ of calories from fat and to engage in moderate and vigorous physical activity

Reviewers: This study appears to show some effect in changing diet and exercise behaviours in the populations of interest. However, conclusions are limited by the study design, missing data and the presentation of the results, which included graphs for ethnic-specific data and not the actual data

Comments and limitations

Limited by the number of students with missing data; there were a lot of data missing, including from different categories, which prevented analysis of both diet and exercise in the same equations, and there was low test–retest correlation

Study reference

Robinson *et al.* 2003;³²⁹ Robinson *et al.* 2008³³⁰ (Stanford GEMS pilot study)

Setting

USA; low-income neighbourhoods of Oakland and East Palo Alto, CA

Inclusion criteria

Aged 8–10 years, identified as African American or black by a parent or guardian, BMI \geq 50th percentile for age and/or at least one overweight parent/guardian with BMI \geq 25 kg/m²

Study type

CCT

Description of population

Ethnicity: African American; identified by a parent or guardian

Age (years): Children 8–10 years and their parents

n: 61

Sex: Not reported

Income: 1% < US\$20,000 per year, 72% < US\$40,000 per year

Other: 56% lived in female-headed households

Description of intervention and control

A 12-week programme to test the feasibility, acceptability and potential efficacy of after-school dance classes and a family-based intervention to reduce television watching and thereby reduce weight gain

GEMS Jewels dance class: After-school dance classes were held at three community centres, 5 days a week, in the target neighbourhood. Each daily session lasted for up to 2.5 hours (snack, homework period, 45–60 minutes of moderate to vigorous dance, 30 minutes of discussion).

START (Sisters Taking Action to Reduce Television): A five-lesson intervention over 12 weeks, delivered in participants' homes, to reduce television, videotape and video game use. Also five newsletters mailed to the participants

Active control: Newsletters (five to parents, 11 to girls) and monthly health education lectures promoting healthful diet and activity patterns by volunteers from African American task forces of the American Heart Association and American Diabetes Association. Content focused on reducing risk, especially among African American populations, and was age appropriate and included culturally targeted educational materials

Theory: Social cognitive model suggests that four processes are important in learning and adopting new behaviours: attention, retention, production and motivation. Intervention development and implementation was organised around these processes

Approaches to adaptation

- Dance taps into the sociocultural and historical importance of dance in the African American community
- Dancing abilities are salient during adolescence and young adulthood in African American youth
- Pilot study was carried out to reduce television viewing among low-income African American families; also focus groups and interviews
- Intervention to reduce family television viewing was expected to have good 'buy-in' among African American families because of the well-publicised negative effects of television on African American girls
- African American female role models used during television reduction lessons
- Classes led by female African American college students and graduates
- Female African American intervention specialist led the family component
- Traditional African dance, hip hop and step dance was taught
- Reduced African American-specific barriers (e.g. weight ideals)

Outcome measures and results

Follow-up: Baseline to 12 weeks

Changes in calories: Small non-significant differences in the total calorie intake per day, favouring the control group

Changes in dietary fat: Non-significant differences in the percentage of calories derived from fat, favouring the treatment group

Changes in physical activity: Increased after-school physical activity (adjusted difference between treatment and control 55.1 counts/minute, 95% CI –115.6 to 225.8 counts/minute, $d=0.21$ SD, $p=0.53$)

BMI: Compared with girls in the control group, girls in the intervention group showed trends towards lower BMI (adjusted difference between treatment and control –0.32 kg/m², 95% CI –0.77 to 0.12 kg/m², Cohen's $d=0.38$ SD, $p=0.16$)

Conclusions

Authors: This study confirmed the feasibility, acceptability and potential efficacy of using dance classes and a family-based intervention to reduce television viewing, thereby reducing weight gain in African American girls. Integrating the project into the community and designing the assessment and intervention methods to meet the needs of participants led to highly successful recruitment and retention. A major barrier was transportation to after-school dance classes; this could be overcome if the programme was implemented at the school itself. Standardised effect sizes of 0.38 for BMI and 0.25 for waist circumference over 12 weeks, although not definitive, are of clinical importance. Decrease in weight concerns counters the suggestion that an obesity prevention intervention might have promoted disordered eating attitudes

Reviewers: This study showed positive results and was quite innovative as it utilised both surface and deep level adaptations in the treatment and compared with an 'active' (somewhat adapted) control condition. Furthermore, the de-emphasis on obesity prevention was seen as important. The holistic after-school programme appeared to be an effective way of engaging girls; however, it was unclear how sustainable this would be without long-term funding

Comments and limitations

Interventions focused on weight are not highly motivating to African American girls and their families as they report heavier ideal/desired weights, more positive body image, etc.; therefore, the intervention must place more stress on physical activity as being good for health. The study was not powered to detect all clinically significant differences between groups. It is quite interesting that physical activity was measured *after* the intervention was complete, to observe residual effects, because if measured during the intervention it is likely that the treatment group would have increased physical activity compared with the control group

BMI, body mass index; CCT, clinical controlled trial; CI, confidence interval; SD, standard deviation.

Study reference

Story *et al.* 2003⁴¹⁰ (Minnesota GEMS)

Setting

USA; Minnesota, community based

Inclusion criteria

8- to 10-year-old African American girls with BMI \geq 25th percentile for age and sex, able to participate in physical education classes at school, having a primary caregiver fluent in English and not held back more than one grade in school

Study type

Pilot two-arm parallel group RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): children 9.3 (0.9), parents/caregivers 36.8 (7.6)

Sex: 100% female

Income: 54% of parents reported incomes of <US\$30,000 per year

Description of intervention and control

A 12-week after-school obesity prevention programme for African American girls. Included two sessions a week focused on increasing physical activity and healthy eating. Family component included

Family intervention: Weekly family packets sent home to parents; family night events; telephone calls from intervention staff to parents (to encourage them and to check progress); organised neighbourhood walks. Two family nights held during the second and ninth weeks of the intervention. An integral part of both family nights was a family goal-setting activity. Principles and techniques from motivational interviewing were used

Control: 12-week programme unrelated to nutrition and physical activity. Focused on promoting positive self-esteem and cultural enrichment. Participants attended monthly Saturday morning meetings (three meetings during the 12-week period) that included arts and crafts, self-esteem activities, creating memory books and a workshop on African percussion instruments. Transportation was provided for both groups as required

Theory: Intervention was based on social cognitive theory and targeted key constructs from three domains: environment factors, personal factors and behavioural factors. A youth development, resiliency-based approach was also employed, which acknowledged the importance of building on individual and family strengths

Approaches to adaptation

- Club activities consisted of fun, culturally appropriate, interactive, hands-on activities and skills building (healthful snack and chilled bottled water offered at each club meeting)
- Dancing (ethnic, hip hop, aerobic) and active African American assessed games
- Transportation home was provided by the school's regular buses
- Formative assessment indicated that a traditional, no-treatment control group would be unacceptable to parents and the community
- Assessment included a checklist of 28 activities typically performed by African American girls, along with pictures of the activities
- Intervention was taught by trained African American staff

Outcome measures and results

Follow-up: Baseline and 12 weeks

Changes in fruit and vegetable consumption: Fruit and vegetable servings per day were lower for the intervention group at follow-up than the control group (not significant)

Changes in calories: Intervention group girls had a lower calorie intake, lower per cent of calories derived from fat and more servings of water per day than control group girls

Changes in physical activity: Physical activity measures demonstrated consistently greater activity levels in the intervention group than in the control group

BMI: After adjustment for baseline level, follow-up BMI did not differ between the treatment groups

Knowledge: The intervention group reported significantly higher scores than the control group at follow-up on the healthy choice behavioural intentions ($p=0.001$), diet knowledge ($p=0.001$) and preferences for physical activity ($p=0.04$)

Conclusions

Authors: An after-school obesity prevention programme for low-income African American girls is a promising model for future efforts. No between-group differences were observed for BMI, and only a few significant findings were seen for other variables. Differences are, however, in the hypothesised direction. Surprisingly, follow-up results showed a trend towards higher mean waist circumference among the intervention group compared with the control group, with an adjusted mean difference of 1.4 cm between groups; this could be because the intervention group included three of the heaviest girls in the study. The intervention group was more likely to report both moderate and less healthy weight concern behaviours at follow-up, e.g. taking on unhealthy behaviours such as skipping meals and fasting

Reviewers: No significant differences were reported in the main outcomes of interest but the intervention group showed a trend in the anticipated direction. The surprising findings are interesting to note, as they suggest that the intervention may not have been long enough or may have had adverse/opposite effects in terms of leading girls to develop excess concern with weight and shape

Comments and limitations

Small sample size and short duration – did not have the power to test for between-group differences in BMI or other key outcome measurements. Tests of statistical significance used as guides for interpretation, rather than as definitive inferential tests

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

D'Eramo-Melkus *et al.* 2004³³¹

Setting

USA; general clinical research centre of a major university hospital located in the community from which the study sample was drawn

Inclusion criteria

Women, aged 18–60 years, having a primary care provider, diagnosed with type 2 diabetes mellitus (C-peptide levels ≥ 200 pmol/l) and English speaking

Study type

Controlled before and after; pilot feasibility testing. One-group, pre–post test experimental design

Description of population

Ethnicity: Black American; not reported how ethnicity assessed

Age (years): Mean (SD): 51.7 (SD 6.9)

n: 25

Sex: 100% female

Income: Not reported

Description of intervention and control

A 6-week culturally competent, cognitive-behavioural intervention of education and care for black women with type 2 diabetes. Led by registered nurses trained in diabetes care

Intervention: Two groups of 7 to 10 women. Evening and Saturday sessions offered for convenience. Childcare and no-cost parking provided. Missed sessions could be made up. Presentation and discussion with the emphasis on problem-solving, counterconditioning, stimulus control and decision-making for goal attainment. Group context was used for support

Class 1: diabetes-related health risk for black American women; class 2: cultural barriers and beliefs that support or hinder dietary modification and desirable body weight; discussed social support systems/networks in the facilitation of behaviour change; class 3: caloric density of food and food density; class 4: monitoring glucose control and personal eating habits; class 5: activity/exercise and foot-care class; 6: identification of ways and means of reaching goals for diabetes self-care. Monthly diabetes care visits

Theory: Social learning theory, particularly self-efficacy and behaviour change. Transtheoretical model of behaviour change incorporates the personal and environmental variables of social learning theory that are modifiable, including expectancies of efficacy and outcome. Two main constructs are experiential and behavioural processes of change. These processes of change promote stage transitions

Approaches to adaptation

- Evening and Saturday sessions were offered for convenience; childcare and no-cost parking provided to reduce barriers
- Written materials and videotapes were designed for the black community (illustrations and video characters of black Americans). Videos and books served as peer-modelling tools, e.g. *Put the Fat Back*, *The Black Family Dinner Quilt Cookbook*, *Soul Sensation Cookbook* and *Get Up and Move*
- Handouts: *Diabetes in Black Americans*, *Rhonda has Diabetes* and *Rhonda Gets the Word on Exercise*
- Culturally specific recipes used *Soul Food Celebration*
- Focus groups and community advisory board of local black leaders; community members gave positive feedback on the use of these materials
- Two of the four nurses were black American women

Outcome measures and results

Follow-up: Baseline to 3 months post intervention

BMI: Significant change in mean (SD) BMI from 32.1 kg/m² (7.5 kg/m²) to 31.7 kg/m² (7.8 kg/m²) ($t=3.1$, $p=0.005$)

Weight: Significant decrease in mean (SD) weight from 193.2 lb (10.3 lb) to 191.0 lb (10.5 lb) ($t=2.3$, $p=0.03$)

Conclusions

Authors: This study suggests that, when black women are given the opportunity to participate in a planned programme of culturally competent diabetes education and care that is acceptable and accessible, improved health outcomes can be attained

Reviewers: This intervention showed statistically significant changes in mean weight and correspondingly BMI; however, given that it is a convenience sample it is difficult to generalise. Furthermore, it is difficult to know how nutrition and physical activity were affected as there were no indicators measuring changes in these outcomes

Comments and limitations

The study design needs a control condition. Included a self-selected group of volunteers who may represent black women with T2DM who would benefit the most from a self-management intervention of diabetes education and care. Future testing with a larger sample and a two-group design is warranted. Furthermore, the authors suggest that this study provided data on how to design an intervention to empower participants with the knowledge and skills necessary to assume diabetes self-management; however, this is a bit of a leap because their self-efficacy scores were not significant. 'Empowerment' would likely be reflected in these types of scores; thus, we are unsure by what mechanisms this intervention achieved its successful reduction in weight and BMI. Long-term follow-up is needed to determine if outcomes could be maintained over time. It is difficult to know if the women with type 2 diabetes are more motivated than healthy women to take up physical activity or make nutritional changes because of their condition

Study reference

Kelley *et al.* 2004⁴⁹⁶

Setting

USA; Mississippi

Inclusion criteria

African American women aged 20–40 years

Study type

Partially blinded CCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: control group: 28.51, intervention group: 31.91

n: 159 enrollees; 70 intervention group, 89 control group

Sex: 100% female

Income: Not reported

Description of intervention and control

The intervention included education on decreasing stress levels with exercise, meditation, reading, music and behavioural modification with approximately 5 minutes spent on the demonstration of deep breathing exercises

Intervention group in clusters of three to nine; women received education on breast cancer, breast self-examination, healthy eating, exercise and stress management

Control group in clusters of three to eight; women received education on poison control in the home environment

Theory: Bandura's social cognitive theory^{497–499} and Giger and Davidhizar's transcultural assessment model.²⁶⁹ The latter was derived as a means to understand diversity through cultural expression and was used to assist the nurse in utilising culturally relevant information. Related and sometimes overlapping components of this are communication, space, social organisation, time, environmental control and biological variations

Approaches to adaptation

- Lay African American women who were breast cancer survivors came to tell their stories
- A transcultural assessment model was used to help the nurse in cultural competence
- Recruitment occurred in culturally appropriate settings such as neighbourhood centres, churches and women's groups

Outcome measures and results

Follow-up: Not reported

Changes in dietary fat: No significant differences between the intervention and control groups in the amount of fat or fibre intake

Changes in physical activity: No significant differences in the amount of physical activity

Conclusions

Authors: In this research study an examination of the cultural appropriateness of an intervention for breast cancer prevention has provided a greater understanding of the theoretical application of Bandura's social cognitive theory and Giger and Davidhizar's model of transcultural assessment. There was no statistical evidence that the programme had an effect on the behavioural risk factors of high fat intake, limited amounts of physical activity and low fibre intake

Reviewers: This intervention was aimed at changing behaviours that are risk factors for breast cancer, including physical activity and nutrition, for African American women. There were no significant differences between the intervention and control groups post intervention

Comments and limitations

The sample may not be generalisable to other regions and populations. As the subjects volunteered for the study and were then randomised by groups the sample may not represent the target population. Measures are self-reported. There was quite a high number of dropouts

CCT, clinical controlled trial.

Study reference

Thrasher *et al.* 2004;²⁹³ Campbell *et al.* 2004³⁰⁰ [Wellness for African Americans Through Churches (WATCH)]

Setting

USA; five rural eastern North Carolina counties, 12 African American churches

Inclusion criteria

All active members (i.e. those attending the study church at least once per month) aged 18+ years were eligible

Study type

Randomised trial, 2×2 factorial research design

Description of population

Ethnicity: 99% African American; not reported how ethnicity assessed

Age (years): Mean: 52

n: 850 (12 churches); *n*=587 completed both the baseline and follow-up surveys

Sex: 72% women

Income: Not reported

Other: Approximately 25% had some education beyond high school

Description of intervention and control

Comparing the effectiveness of two theory-based strategies to promote colorectal cancer (CRC)-preventive behaviours. Church-based research study aimed at improving nutrition, physical activity and CRC screening among rural African Americans. Compared a tailored print and video (TPV) intervention consisting of four individually tailored newsletters and targeted videotapes with a lay health advisor (LHA) intervention, these two interventions combined (TPV + LHA) and a control. Primary prevention message encouraged increased fruit and vegetable consumption, lowering of dietary fat and moderate to vigorous physical activity on most days of the week

TPV intervention: Computer-generated tailored messages based on individuals' survey data and tailored to their stage of change, beliefs, knowledge, barriers and motivators, and cultural and spiritual factors. Four personalised computer-tailored newsletters and four videotapes corresponding to the same behaviours delivered to individuals at home bimonthly for the first 6 months after baseline data collection and not dependent on participation in church activities

LHA intervention: Used the same theoretical constructs to train lay advisors to diffuse health information while supporting the behaviour change among church members. Lay advisors were used to disseminate information and promote interactions and activities aimed at the interpersonal, social network and church levels of influence and support

Control: Offered health education sessions and speakers on topics of their choice not directly related to the study objectives – two sessions. After data collection control group was given intervention materials including the LHA training manuals and sessions

Theory: Social cognitive theory, stages of change transtheoretical framework and health belief and social support model

Approaches to adaptation

- African American church was involved, which plays a vital role in the lives of most African American adults in the southern USA and can serve as a powerful channel for health promotion efforts
- Findings from focus groups in two pilot churches were used to inform the intervention
- Additional messages were targeted to cultural, spiritual and community factors, including church-specific pastor messages and community-specific resources
- Videotapes were targeted to an African American church audience
- LHAs recruited from the churches
- Physical activity measures were modified for cultural appropriateness based on the pre-survey focus groups
- Pre-testing was undertaken with a convenience sample of African American church members not included in the study (revisions made based on feedback)
- Message content, language, literacy level (sixth grade) and graphic design were adapted

Outcome measures and results

Follow-up: Baseline and 1 year after baseline (approximately 3 months after all intervention components were delivered)

Changes in fruit and vegetable consumption: TPV intervention significantly improved fruit and vegetable consumption (0.6 servings over baseline) ($p < 0.05$)

Changes in physical activity: TPV intervention significantly improved recreational physical activity (2.5 metabolic task equivalents per hour) compared with the control. When each intervention group was compared with the control group, the TPV-only group showed significant improvement in recreational exercise ($p = 0.04$) whereas the LHA-only group showed a marginally significant improvement ($p = 0.07$) and the combined TPV + LHA group showed no significant improvement

Conclusions

Authors: This study failed to confirm the original hypothesis that a multicomponent approach that combined a tailored and targeted home-based intervention with a lay helping, church-based intervention would be more effective than either intervention alone. This may be due to exposure – only 10% of those in the LHA churches recalled talking with a LHA – limited reach with some social networks not represented among chosen LHAs. Also, the content may not have been delivered in the same way as the professionally developed tailored materials and it may take longer for a health message to diffuse through a community using LHAs. In addition, as they may have shared with others outside of the church, the full impact of LHAs may be missed by assessing change in only one part of their network (e.g. the church)

Reviewers: Compared with the control group, the TPV-only group showed a significant improvement in recreational exercise; no other outcomes were significant compared with the control group. The LHAs had limited reach

Comments and limitations

Non-respondents to follow-up survey were younger and consumed fewer fruit and vegetables at baseline. Self-reported data and the small number of clusters and factorial design limited the ability to detect significant between-group differences

Study referenceWilliams *et al.* 2004⁵⁰⁰**Setting**

USA; Georgia

Inclusion criteria

Not reported

Study type

Controlled before and after; two-group pre–post test

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: urban 34, rural 33

n: Convenience sample, *n* = 294; *n* = 160 from five rural companies, *n* = 134 from 17 urban companies

Sex: 100% female

Income: Not reported

Other: Mean education: urban 12.0 years, rural 11.0 years

Description of intervention and control

The intervention aimed to compare CVD risk factors in rural low-income African American women (LAAW) and urban LAAW with national risk factor data for AAW; test a worksite CVD risk factor reduction intervention among LAAW based on identified individual risk. There was no control group

Phase 1: During the diet and physical activity interview, participants received personal health risk assessment (HRA) reports based on self-reported baseline survey data. The intervention followed protocols established for single risk factor or multiple risk factor lifestyle modification (ATP III,⁵⁰¹ 2001,⁵⁰² JNC VI, 1997⁵⁰³). Participants were referred for medical tests if abnormal measures were identified. Lifestyle support and/or management of barriers for diet and physical activity behaviour change were part of the intervention

Phase 2: To complete the intervention with a reinforced diet and physical activity message, a follow-up letter was mailed 2 weeks after the on-site visit with a recalculated HRA report using objectively measured blood pressure, BMI, weight and total cholesterol values

Theory: Pender's health promotion model^{488,489}

Approaches to adaptation

- Interview stations displayed ethnically appropriate materials from the American Heart Association (AHA) and posters of AAW doing physical activity and preparing/eating low-fat ethnic foods
- Data collection and interview strategies were approved by a rural health expert and expert in African American culture
- Culturally sensitive food intake data collection was undertaken by senior nursing students
- Pictorial materials were provided to those with reading difficulties
- Culture and individual lifestyle were considered in all aspects of the intervention and data collection

Outcome measures and results

Follow-up: Pre-test and 1 year post intervention

Changes in dietary fat: At baseline, a significantly larger percentage of urban and rural LAAW exhibited high daily fat intake than the national sample ($p < 0.01$). At post test there was a significant decrease in the rural LAAW group in the percentage of participants with a high daily fat intake (70.5% pre-test vs 55.4% post-test, $p < 0.01$)

BMI: no significant change in BMI for either group from pre- to post-test

Changes in physical activity: no significant changes in self-reported physical activity in either group from pre- to post-test

Conclusions

Authors: This study showed that LAAW can be reached at the work site and that rural LAAW are responsive to a worksite CVD prevention intervention. Pre-test/post-test analysis showed that the intervention was effective with rural women for dietary fat intake reduction. It is thought that they are more responsive because they lack previous measurements of risk and previous access to prevention interventions in their geographical areas. Neither rural nor urban women had significant changes in physical activity levels. Different interventions or more intense/longer intervention periods may be needed for urban LAAW

Reviewers: This study was a one-off risk factor identification and brief interview intervention with LAAW in rural and urban worksites. Agree with the author that the change observed in the rural group is likely due to the lack of previous access to interventions. Given that both groups have comparable levels of education, it seems that access is perhaps the key difference here. This study showed that one-off interventions may have some effect; this needs to be tested in a more rigorously recruited sample

Comments and limitations

Pre test, significantly smaller percentages of the urban LAAW group had elevated cholesterol or high daily dietary fat intake than the rural LAAW group. Limitations include that the study was confined to one state. Sample size was large enough; however, there was no control group. More research needs to be carried out at small companies because little is known about preventive strategies that can be effective in these settings. No inclusion criteria included (convenience sample) and there was a 10% attrition rate

Study referenceAnderson *et al.* 2005³⁰⁹**Setting**

USA; Detroit, MI, urban

Inclusion criteria

No explicit criteria given

Study type

RCT, pre–post test design with repeated measures

Description of population

Ethnicity: African Americans; not reported how ethnicity assessed

Age (years): Mean (SD): 61 (11.4)

n: 239; 125 intervention, 114 control

Sex: 82% female

Income: Not reported

Other: The intervention and control groups did not differ in any baseline characteristics

Description of intervention and control

Problem-based empowerment intervention for African Americans with diabetes

Intervention: Consisted of six weekly 2-hour group sessions held in convenient community-based locations. In the first session participants were given data on blood results and information on behaviours that would affect these results and then were to identify problems and solve them under the guidance of the facilitators. The subsequent sessions focused on discussion of the previous week's experiences of self-management. The topics varied based on the individual needs and concerns of the participants

Control: 6-week wait-listed control group

Theory: Empowerment behaviour change model**Approaches to adaptation**

- Focused on concerns and priorities of the patients in the programme
- Used ethnic recipes
- Took into account reading level and literacy
- Used educational materials developed with and for the target audience

Outcome measures and results

Follow-up: Data collected at baseline, after the 6-week intervention period, after the 6-week control period and at 6 months and 1 year

Weight: No significant difference in weight was demonstrated between the intervention and control groups over the 6 weeks of the study; however, there was weight loss in the overall group between pre and post intervention when examined at all time points. The difference between mean weight pre intervention and at 1 year was 2.9 lb ($p=0.024$)

Knowledge: Only the patients' self-rated understanding of managing diabetes score was different between the intervention and control groups

Conclusions

Authors: Only one significant change was found between the control and intervention groups (this was a perceived understanding of diabetes mellitus); thus, the study was unable to show benefit from participating in the 6-week intervention; however, there were some significant pre–post improvements in measurements. We believe the results of this study can be attributed to volunteer bias, study effects (i.e. providing study data/blood results, etc. on several occasions to patients and physicians during the 1-year study period) and impact of the interventions; however, the study design does not allow us to examine the relative impact of these factors on the patient improvements seen over the 1-year study period. We believe that the best explanation for the findings is that we developed an effective intervention but employed a research design that did not allow the relative effect of the three forces at work in the study to be determined

Reviewers: This study was not able to demonstrate much difference between the intervention and control groups and the authors have provided an explanation of why they felt this occurred. This represents the tension of study designs and what is acceptable and ethical for the community

Comments and limitations

This study is limited by the short duration of the comparison between the intervention and control groups. The authors discuss how they could not make the wait-list control longer as they felt that it was unethical, particularly for an underserved population. The self-referred sample is also open to bias

RCT, randomised controlled trial; SD, standard deviation.

Study referenceEngels *et al.* 2005³¹⁹**Setting**

USA; Detroit, MI

Inclusion criteria

Urban African American children and their parents/guardians – very little information on recruitment and inclusion criteria

Study type

Pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): 11.1 (1.3)

n: 56

Sex: 69% female

Income: Not reported

Description of intervention and control

Students and parents actively involved in the Being Fit programme. The programme was delivered as an after-school programme for 12 weeks to students and parents/guardians in an urban middle school. The aims were to increase participants' fruit and vegetable intake and to affect their health-related fitness through dance and games and fitness activities. The programme was offered 4 days a week with 60- to 75-minute sessions

Major components: Provision of supervised dance sessions, sports games, fitness activities, step pedometers, 5 a Day for Better Health Program nutrition learning activities, targeted educational handouts on nutrition and fitness and thematic poster board display at the school. A 'Students and Parents Actively Involved in Being Fit' passport was given out to record fruit and vegetable intake and steps taken on a daily basis. A well-known public figure made a motivational guest appearance in support of the programme goals. The school district waived the cost of community-use fees to lease the school's gymnasium and dance rooms for the project

Theory: Combination of theories and approaches used in the intervention

Approaches to adaptation

- Programme was conceptualised by community health advocates – 'bottom-up approach'
- Targeted educational handouts
- African-style dance was offered

Outcome measures and results

Follow-up: Before test and 12 weeks post intervention

Changes in fruit and vegetable consumption: Adults' fruit and vegetable intake remained relatively unchanged; children, in contrast, increased their fruit and vegetable intake

Changes in dietary fat: Adults had reductions in body fat (1%, $p=0.004$)

Changes in physical activity: Adults showed improved fitness (4-minute reduction in walk/run time, $p=0.007$)

BMI: Adults had reductions in BMI (0.5 kg/m^2 , $p=0.002$)

Conclusions

Authors: The findings indicate that after-school programmes such as this can potentially contribute to improved health levels in urban African Americans. The adults tended to gain more health-related outcomes and the children tended to show more dietary gains. Further larger studies are warranted to test this farther

Reviewers: This study shows some promising results for both parents and children but the study design is not able to show if these are generalisable or sustainable. There is also limited detail or description of the adaptations undertaken

Comments and limitations

Findings are limited by the relatively small sample size, absence of control group and the short duration of 12 weeks. The dietary assessment tools, although validated for this population, may also have limitations and may overestimate intake. Good collaboration with the idea coming from the community but partnering with the school teacher, university and health promotion services. Utilised a wide variety of social, cognitive and behavioural strategies enveloped and delivered in a collective format. Had quite a free approach offering multiple activities and participants were allowed to choose what they participated in – less prescriptive than many interventions. Adapting the style of delivery for a teenage audience also requires significant consideration

BMI, body mass index; SD, standard deviation.

Study reference

Fitzgibbon *et al.* 2002;⁵⁰⁴ Stolley *et al.* 2003;⁵⁰⁵ Fitzgibbon *et al.* 2005⁵⁰⁶ (Hip Hop to Health Jr)

Setting

USA; Chicago, IL

Inclusion criteria

All children at the sites were eligible to participate

Study type

RCT

Description of population

Ethnicity: African American, Latino and multiracial; not reported how ethnicity assessed

Age: Mean (SD): intervention group: 48.6 (7.6) months, control group: 50.8 (SD 6.4) months

Sex: Not reported

n: 409

Income: Mean (SD) education parents: intervention group: 12.4 (SD 1.8) years, control group: 12.7 (SD 1.7) years

Description of intervention and control

The intervention took place in 12 Head Start preschool programmes; the 12 programmes were paired on class size and one member of each pair was assigned to the weight control intervention (WCI) and one to the general health intervention (GHI)

Children in the WCI schools participated in a 14-week (40 minutes, three times weekly) healthy eating and exercise intervention. The two major components were a 20-minute lesson introducing a healthy eating and exercise concept with an activity and 20 minutes of ongoing physical activity. Parents in the WCI schools also received weekly newsletters with information mirroring the child's curriculum

Children in the GHI schools received a 14-week (20 minutes once a week) class in which they learned about a variety of general health concepts such as dental health, immunisation, seat belt safety and 911 procedures

Theory: Based on social learning theory, self-determination theory and the transtheoretical model including the stages of change

Approaches to adaptation

- Addressed cognitive and environmental factors (social support, cultural attitudes, unsafe neighbourhoods, conflicting responsibilities)
- Easy and safe access to the programme
- Intervention was developed with experts in minority health and focus groups
- Fostered identification between interventionists and participants
- Emphasis was on behaviour demonstrations to facilitate lifestyle changes
- Consideration of all levels of literacy

Outcome measures and results

Follow-up: Baseline to years 1 and 2 post intervention

Changes in dietary fat: Saturated fat intake was significantly lower in WCI children at year 1 ($p=0.002$) but not at the 2-year follow-up

BMI: Post-intervention BMI scores did not differ significantly between the two groups. At 1 year there was less of an increase in BMI in the WCI children than in the GHI children (0.02 kg/m^2 vs 0.64 kg/m^2 , $p=0.002$). At year 2 the mean increase in BMI was 0.65 kg/m^2 higher in GHI children than in WCI children (1.14 kg/m^2 and 0.48 kg/m^2 respectively, $p=0.008$)

Weight: The mean increases in weight over this 2 year period were 7.95 kg for GHI children and 6.84 kg for WCI children

Conclusions

Authors: Hip Hop to Health Jr, a randomised controlled efficacy trial in minority preschool-age children, demonstrated success in reducing increases in BMI as children age, not only at the 1-year follow-up but also at the 2-year follow-up. This represents a promising approach to the prevention of overweight among minority children in the preschool years

Reviewers: This intervention appears to slow weight gain in preschool children and could prove a promising approach. There needs to be further research to address whether or not it could be delivered consistently by teachers instead of trained educators and to see whether or not the effects are sustained beyond 2 years

Comments and limitations

This intervention may not be generalisable to other populations (it was designed for this population and it was delivered by specially trained educators and perhaps could not be delivered so enthusiastically by busy teachers). There may also be a dose-response as the WCI was delivered at a higher dose than the GHI

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Fitzgibbon *et al.* 2005³⁵³ (Faith on the Move)

Setting

USA; Chicago, IL

Inclusion criteria

Self-identified as African American or black, female, age ≥ 21 years, BMI ≥ 25 kg/m², not currently pregnant or nursing, no current illegal drug use, reported consumption of no more than two alcoholic beverages per day, no medical problems that would restrict or prohibit moderate physical activity, no cancer that required treatment in the last 5 years (except skin cancers other than melanoma), agreed to randomisation, not planning to move from the Chicago area within the time frame of the classes and able to attend scheduled classes

Study type

RCT

Description of population

Ethnicity: African American or black; self-identified

Age (years): Mean (SD): faith-based group: 47.8 (10.3), no faith element: 49.1 (11.6)

n: 59

Sex: 100% female

Income: Mean income US\$20,500 per year in both groups

Other: Mean (SD) education: faith-based group: 13.6 (2.3) years, no faith element: 12.9 (2.2) years

Description of intervention and control

A 12-week culturally tailored faith-based weight loss intervention vs a culturally tailored weight loss intervention with no faith component

Culturally tailored intervention was underpinned by social cognitive theory. The intervention was delivered in a small group format; the group met twice weekly for 12 weeks. The first meeting of each week was divided into an interactive didactic component and an exercise component; the second meeting of each week was all exercise

Faith-based intervention was identical to the culturally tailored one except that it also addressed faith and spirituality issues in a structured and systematic manner. This was done through incorporating scripture each week into the content of the intervention

Theory: Theoretical underpinning was social cognitive theory

Approaches to adaptation

- Surface level: Recruitment and intervention materials were culturally appropriate to the social and behavioural preferences of black people in terms of people, places, language and locations
- Deep level: Attended to cultural, social, historical, environmental and psychological factors
- Respect for verbal communication – shared stories
- Commitment to family and other obligations – emphasised family and social support, offered childcare, discussed multiple family obligations and provided advice on how to prepare healthy food for large extended families
- Connections to ancestors and history – stories involved well-known or historical figures in the community

Outcome measures and results

Follow-up: Unclear; study states that pre and post measures were taken but it is unclear when

Changes in dietary fat: Decreases in both groups (significant with a Wilcoxon signed-rank test but not with a *t*-test)

Changes in physical activity: Significant increase in physical activity in the control group but not in the faith-based weight loss group

Weight: Overall 70% lost weight (78% in the faith-based group and 61% in the other group) with the average weight loss in the faith group being 2.6 kg and in the other group being 1.6 kg. None of the changes was significant between the two groups at 12 weeks [BMI change: $p=0.37$; weight change (kg): $p=0.34$; weight change (%): $p=0.41$]

Conclusions

Authors: Overall, this study showed that there may be benefit to adding a faith component to our previously tested culturally based weight loss programme. Weight loss was expected to be modest in both groups given the relatively short duration of the pilot intervention. Overall, the magnitude of weight loss observed in our study in the faith-based intervention was comparable or somewhat better than that seen with other interventions of similar length designed specifically for black populations. Future adequately powered trials can provide more definitive results

Reviewers: This study shows that a culturally adapted intervention for weight loss was effective but the study was not significantly powered to demonstrate if the addition of a religious element increased effectiveness. Larger studies are warranted to distinguish between the effects of cultural adaptation and the effects of specific religious adaptation

Comments and limitations

This was a pilot study and was underpowered to show any significant effects. Attendance was not different between the two groups but only 56% of the faith-based group and 60% of the weight loss group attended $\geq 75\%$ of the sessions. There was no standard control group, which meant that any differences could not be compared with a group receiving no intervention at all. The findings may not be generalisable as this was a very specific population and there were also very strict eligibility criteria and very strict screening. The outcomes were based on self-reported information, which is subject to bias

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Fitzgibbon *et al.* 2005⁴⁰⁵

Setting

USA; Chicago, IL, YMCA located in an ethnically diverse area of Chicago

Inclusion criteria

Self-identified as African American or black, female, aged 35–65 years, BMI ≥ 25 kg/m², not currently pregnant, nursing or anticipating a pregnancy, no current illegal drug use, reported consumption of no more than two alcoholic beverages per day, no medical problems that would restrict physical activity, no cancer that required treatment in the last 5 years (except skin cancer other than melanoma) and not planning to move from the Chicago area within the intervention time frame

Study type

Pilot RCT delivered in two cohorts

Description of population

Ethnicity: African American

Age (years): Mean (SD): cohort 1 ($n=27$): 44.4 (7.9), cohort 2 ($n=37$): 45.1 (6.9)

n : 64

Sex: 100% female

Income: Median: cohorts 1 and 2 both US\$42,500

Other: Education: cohort 1: 14.7 (SD 2.0) years, cohort 2: 14.9 (SD 2.6) years

Description of intervention and control

A combined breast health/weight loss intervention for 20 weeks (twice a week) [to decrease weight and dietary fat intake and increase physical activity and breast self-exam (BSE) proficiency]. Two cohorts: both cohorts were delivered in a small group format; the first 90-minute meeting included a 45-minute didactic component and 45 minutes of exercise – structured aerobic and walking; the second meeting was a 45-minute exercise session

Cohort 1: Equal time spent on breast health and weight loss

Cohort 2: 80% of time spent on weight loss, 20% on breast health

Control: Identical for both cohorts – received weekly newsletters by mail for 20 weeks on general health topics, e.g. first aid, smoking cessation and screening for cancers other than breast cancer. The modified intervention and all intervention materials were offered to this group following the completion of the 20-week trial

Theory: Social cognitive theory and cultural competency – surface and deep tailoring

Approaches to adaptation

- Based on previous work with black populations and adapted from a similar intervention conducted with a Latina population
- Cohort 1 based on previous research; cohort 2 based on interview feedback from cohort 1
- Advertising in traditionally 'black' newspapers
- Intervention incorporated black cultural values and traditions; recruitment and intervention protocol emphasised tailoring and cultural sensitivity on two levels: surface and deep
- Healthy ways of preparing traditional 'black' food; emphasised family and social support, provided childcare, included active food demonstrations, discussed multiple family obligations and provided advice on how to prepare healthy food when serving a large extended family
- Breast health was also tailored, e.g. presented incidence of breast cancer and mortality in black women
- Addressed cognitive and environmental barriers that impact minority women's ability to adopt and maintain healthy eating and exercise behaviours, e.g. addressed structural barriers by holding sessions in familiar surroundings, at a convenient time
- Shared medical anecdotes; 'stories' about health consequences of unhealthy eating and physical inactivity that involved well-known or historical figures helped to convey the importance of this research to black women
- Actively incorporated black values and culture by including ethnic foods in the intervention, attending to cultural aspects of health beliefs, holding the intervention at a place that was safe, convenient and gang neutral and recognising that black women represent a range of religious affiliations and ethnic identity
- Delivered by culturally competent interventionists

Outcome measures and results

Follow-up: 20 weeks post intervention

Cohort 1: No statistically significant differences were demonstrated between the intervention and control groups in change in BMI or weight. No difference for diet and physical activity outcomes

Cohort 2: Per cent weight change (-4.0 vs 0.9 , $p < 0.01$), weight change in kg (-3.4 vs 0.3 , $p < 0.01$) and change in BMI (-1.3 vs 0.9 kg/m², $p < 0.09$) were significantly larger in the intervention group than in the control group. Changes in frequency of regular physical activity in sessions per week [mean (SD) 2.4 (2.9) vs 0.1 (2.3), $p < 0.05$], duration of physical activity in minutes per session [mean (SD) 27.1 (38.3) vs 1.4 (29.9), $p < 0.05$] and intensity of physical activity measured on a 0–10 scale [mean (SD) 4.4 (4.8) vs 0.2 (3.5) $p < 0.01$] were significantly greater in the intervention group than in the control group. A non-significant difference in change in dietary fat consumption was observed between the intervention and control groups

No significant difference was reported between the intervention and control groups in changes in television viewing for either cohort

Conclusions

Authors: In this study, only cohort 2 demonstrated improvements in weight and associated lifestyle changes; this was thought to be due to the increased allocation of time to weight loss in cohort 2

Reviewers: Interesting that cohort 2 showed effect in terms of body weight, physical activity and diet; shifting the time allocated to weight loss from 50% to 80% had a discernable effect (suggesting a dose–dependent relationship)

Comments and limitations

Self-reported data. The majority of the women were well educated and middle class and it is unclear whether or not this intervention would be generalisable to lower-income black populations

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Resnicow *et al.* 2005³²⁴ (Go Girls)

Setting

USA; Atlanta, metropolitan area

Inclusion criteria

Middle- and upper-income churches identified and contacted prior to randomisation; household income > US\$40,000 confirmed, > 100 church members. Eligibility: 12- to 16-year-old girls, BMI > 90th percentile for age and gender

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): 13.6 (1.43)

n: 10 churches; 5 treatment, 5 comparison; *n* = 123 girls

Sex: 100% female

Income: Middle- and upper-income churches

Description of intervention and control

Church-based obesity reduction intervention for middle and upper socioeconomic African American adolescent girls delivered through culturally tailored behavioural group sessions over 6 months. Each session included an experiential group activity, approximately 30 minutes of physical activity and preparation/tasting of healthy foods. Girls participated in every session and parents were invited to participate. Girls were taught principles of substitution, moderation and abstinence

High intensity: 20–26 sessions (held weekly) and four to six motivational interviewing calls over 6 months lasting 20–30 minutes. Received a two-way pager to receive messages throughout the day and also participated in a retreat

Moderate intensity: Six sessions (once a month); selected from topics delivered to high-intensity group, e.g. fat, physical activity barriers, benefits of physical activity, fad diets. No two-way pagers, motivational interviewing calls or retreat

Theory: None reported

Approaches to adaptation

- Working with black churches
- Formative work with middle-income families; discussed terminology in relation to weight, e.g. 'thick' was generally considered positively whereas 'nasty fat' was not

Outcome measures and results

Follow-up: Baseline, 6 months and 1 year (selected measurements only)

BMI: At 6 months, net difference between the two groups was 0.5 BMI units but this was not significant ($p=0.2$); 1-year outcomes were similar

Weight: At 6 months, net difference between the two groups was 1.8 lb but this was not significant ($p=0.38$); 1-year outcomes were similar

Body fat: At 6 months, net difference between the two groups was 1.1% but this was not significant ($p=0.28$); 1-year outcomes were similar

In the high-intensity group, high attendees (> 75% of the sessions) had significantly reduced BMI (0.8 units for difference of 1.3 units, $p=0.01$), percentage body fat ($p=0.01$) and hip circumference ($p=0.01$) compared with low attendees and also a trend for weight with high attenders losing 1.3 lb and low attenders gaining 3.7 lb ($p=0.07$); 1-year outcomes similar

Other: The intervention was generally well received by participants

Conclusions

Authors: The intervention was not effective in reducing adiposity but some positive effects were observed among high attendees. The moderate-intensity comparison may have reduced the ability to detect a difference; however, it was likely that there was a failure of the high-intensity condition, possibly because of the lack of a structured programme. High attendees had sustained effects at 1 year

Reviewers: The intervention was not successful in showing effect. When comparing high attendees with low attendees the differences were significant, suggesting that either those who were particularly motivated to attend did better or there was a dose-dependent effect of the intervention

Comments and limitations:

Churches received an incentive of US\$500 if 15 eligible participants completed the baseline assessment and an additional US\$200 if 20 eligible participants completed the baseline assessment. There was difficulty recruiting as there were competing priorities at churches. Participants lost interest in pagers and the impact of motivational interviewing was mixed. Use of the moderate-intensity comparison group was needed to get buy-in from the churches

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Wang and Chan 2005³⁴⁶

Setting

USA; Hawaii

Inclusion criteria

Previously diagnosed with type 2 diabetes and managing the diabetes with diet, oral hypoglycaemic agents or insulin or both, age 44–87 years, residents of Hawaii and speakers of Mandarin, Cantonese or Taiwanese

Study type

Pre–post

Description of population

Ethnicity: Chinese; not reported how ethnicity assessed

Age (years): Mean (range): 68.8 (44–87)

n: 40

Sex: 51.5% female

Income: 75.8% retired, 81.8% combined monthly household income < US\$1001

Other: 57.6% education level of high school graduate and higher

Description of intervention and control

Group sessions were delivered by the investigator and a registered nurse (certified diabetes instructor). Maximum of 10 people per session to enhance interaction. Sessions lasted 60 minutes and were held in a clinic in Chinatown

Handouts of all lectures were given to all participants. Presentations included videos, hands-on activities and visual presentations. Topics included understanding the research programme and its components. Recipe books, exercise books and pamphlets on diabetes were also distributed

Dietary patterns were explained and analysed, including recipes brought in by participants. Exercise, calories and medicines (Western and traditional) were all discussed. Skills for managing stress were outlined (meditation, Tai Chi and Chi-gong)

Participants were asked to involve their families outside the classroom and strong peer–peer support was developed during the course. Activity log and pedometer were given to each participant

Theory: Guided by the 'empowerment model'; this aims to help a patient explore and develop their inherent ability to manage their life and disease

Approaches to adaptation

- Sessions fit in with people's schedules
- Cultural values integrated into the handouts
- Adapted for language and for low literacy and had pictorial resources
- Encouraged to involve the family
- Chinese utensils were used to demonstrate portion size
- Chinese values were incorporated into the intervention including the yin and yang concept
- Education was adapted to include information on maintaining health when flying and changing time zones, etc.
- Culturally appropriate resources were used

Outcome measures and results

Follow-up: Baseline, at the end of the intervention and 3 months post intervention

Weight: 43.6% of participants lost more than 5 lb

Conclusions

Authors: Culturally tailored diabetes management may be effective for Chinese Americans with type 2 diabetes. Participants had improved outcomes and also found a strong support network through participation in this intervention. Further study with a larger sample and a control group is recommended

Reviewers: This study showed the benefit of integrating culturally appropriate values and paradigms into a diabetes education programme and showed effective results for a preliminary study. However, the sample size was small. The cultural adaptations are well described

Comments and limitations

Small sample size and lack of control group. May not be generalisable to primary prevention. Also, the timing of the study in a holiday period when quite a few people travelled meant that some could not continue participation (programmes should not be held over Chinese New Year)

Study reference

White *et al.* 2004;²⁸⁰ Williamson *et al.* 2005;²⁸¹ Williamson *et al.* 2006;²⁸² Kennedy *et al.* 2008³¹⁴ [Health Improvement Programme for Teens (HIP Teens)]

Setting

USA; city or state not reported

Inclusion criteria

African American girls aged from 11 to 15 years who were overweight (BMI > 85% for age and gender percentile) or obese and with at least one obese biological parent (BMI > 30 kg/m²) and one designated parent who was overweight (BMI > 27 kg/m²) who was willing to participate in the programme, the adolescent's family was willing to pay US\$300 out of pocket towards the purchase of a computer worth US\$1000 and the family home had to have at least one functional telephone line and electricity

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): adolescents: 13.2 (1.4), parents: 43.2 (6.2)

n: 57

Sex: Not reported

Income: Not reported

Description of intervention and control

There were two arms, an interactive behaviour therapy group and a passive health education control group. The interventions were available continually for use over a 2-year period on the internet. There were four face-to-face counselling sessions for both groups. Because of the difficulties of disparity in access to the internet, low-cost computers and also free internet access were provided to participants in both groups. The participants were adolescents and they were randomly assigned

The internet-based behavioural intervention included the provision of nutrition education plus an internet counselling behaviour modification programme that targeted lifestyle eating and physical activity habits of the adolescent and parent. The control condition included education on healthy nutrition and exercise but behavioural changes were not prescribed and internet counselling was not provided. Thus, the behavioural programme was highly interactive whereas the control was very passive

Theory: Based on family treatment methods

Approaches to adaptation

- Presented culturally specific information on the website, such as recipes or foods commonly eaten by African Americans, and there were links to other African American health websites
- The counsellors were educated about culturally relevant dietary information and physical activity issues and incorporated these into the face-to-face and internet counselling
- The website used a family-orientated format – inviting the parents, child and other members of the family to be involved in mutual problem-solving and behavioural contracting

Outcome measures and results

Follow-up: Baseline to months 6, 12, 18 and 24

BMI: Overall, the effect of treatment was significant for parental changes in BMI ($p < 0.04$). Post hoc comparisons of groups indicated that the difference was significant at months 6 and 12 but not at months 18 and 24

Weight: Compared with the control group, adolescents in the treatment group lost more body fat and parents in the treatment group lost significantly more body weight during the first 6 months. In the following 18 months, parents and adolescents in both groups gained weight and at 2 years the weight/fat of the two treatment groups did not differ

Conclusions

Authors: An internet-based behavioural intervention was found to be superior to internet-based health education because it yielded decreased body fat for adolescent girls and decreased body weight in parents after 6 months of treatment; however, these weight/fat losses were not maintained during the subsequent 18 months. The use of the website decreased dramatically after the first year of the study. Based on these observations we have recommended that internet-based weight management interventions should be integrated into other forums for supervised behaviour change, e.g. health classes in schools, and that they might best fit with goals of relatively low weight loss and weight gain prevention

Reviewers: This intervention was effective at the 6-month mark but then had decreasing participation/interest and therefore decreasing effect so that any significant gains were lost by the 2-year mark. The authors' suggestion seems appropriate that integrating the web-based approach with some other component may help sustain the use of the internet site and encourage ongoing behavioural change. They do not comment on how regularly the content of the site varied and perhaps changing the content would sustain interest. This study was not designed to be able to assess the advantage of adaptation over non-adaptation

Comments and limitations

Small sample size. Use of individual learning styles as opposed to co-operative learning styles, which are thought to be more appropriate for African American populations. African American populations make less use of the internet and as this possibly changes in the future this type of design may become better suited to this population

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Yancey *et al.* 2001;³³⁹ Yancey *et al.* 2006;³³⁸ McCarthy *et al.* 2007³⁴⁰ [African American Women Fight Cancer with Fitness (FCF)]

Setting

USA; Los Angeles, CA

Inclusion criteria

Self-identified as African American, female

Study type

RCT

Description of population

Ethnicity: African American; self-identified

Age (years): Mean (SD): control group: 46.5 (10.10), intervention group: 44.56 (10.82)

n: 393

Sex: 100% female

Income: Moderate income

Other: On average participants had completed 3 years of college

Description of intervention and control

Culturally targeted nutrition and physical activity educational and social support intervention to produce cancer-protective anthropometric, physiological, psychological and behavioural changes in African American women. Education was delivered in group sessions and targeted lifestyle changes at the individual level. A social support component was intended to influence social environments. Economic incentives were also provided with free gym membership for all participants (and for their social support person)

Both intervention and control groups received eight weekly 2-hour sessions with ethnically matched community role models in a black-owned community health club. The intervention group focused on skills training to improve lifestyle changes. The control group sessions discussed current African American health topics

Theory: Social learning theory, social action theory and a social ecological perspective were imbedded in the intervention approach, with progressive goal setting. Physiological and psychosocial behaviour change strategies were used complementarily in the intervention

Approaches to adaptation

- Ethnically appropriate community role models
- Setting in a black-owned community gym
- Used an African American media/fitness magazine to recruit

Outcome measures and results

Follow-up: 2, 6 and 12 months

Changes in physical activity: Physical activity levels increased significantly only among intervention participants ($p < 0.0001$ and $p = 0.04$ at 2 and 6 months, respectively)

Weight: Longitudinal analysis revealed a trend towards weight stability in the intervention group at 2 months compared with the control group. Both groups were significantly heavier at 12 months (intervention group $+1.37 \text{ kg/m}^2$, $p = 0.0001$; control group $+1.02 \text{ kg/m}^2$, $p = 0.001$); at this time point, 42% of intervention women and 36% of control women had lost or maintained weight ($p = 0.08$)

Conclusions

Authors: The intervention showed significant but modest changes immediately post intervention with decay thereafter in time. Both intervention and control participants received benefit from participation, with intervention participants experiencing a broader spectrum of favourable changes in overall fitness than control participants, but control participants having better longer-term improvements. It was felt that the control condition actually delivered a more substantive social environmental intervention and therefore reduced the difference between the two groups. The findings underscore the need for multilevel social ecological interventions that address multiple barriers to active leisure participation

Reviewers: The intervention could be considered as ineffective as the control group appeared to receive more benefit than the intervention group in the long term; however, the control in itself was an intervention and both showed some moderate success

Comments and limitations

The physical activity and sedentary behaviour measures were not very developed at this time and it was difficult to distinguish between the effects of sedentary behaviour vs physical activity and resistance vs aerobic training and to examine the amount that the gym was used. As the free gym membership was delivered to both groups the intervention did not test the effectiveness of the membership alone; however, it demonstrated that free membership and the intervention or control changes made only a very modest difference. There were delays in participants being scheduled for sessions. It was shown that those who waited longer had less successful outcomes than those who started sooner. This effect may have reduced the overall effectiveness but non-differentially

BMI, body mass index; SD, standard deviation.

Study reference

Kumanyika *et al.* 2005;³²⁸ Anderson *et al.* 2007³²⁷

Setting

USA; Pennsylvania

Inclusion criteria

Age 25–70 years, BMI between 30 and 50 kg/m², with a physician in the university health system and English speaking. Exclusions were for conditions or circumstances in which weight reduction would be contraindicated, inappropriate or unfeasible or that could confound data interpretation, e.g. pregnancy, active treatment for unstable depression or other psychiatric disorders, current use of antipsychotic medication, active chemotherapy or radiotherapy, alcoholism, eating disorders or being non-ambulatory. For CVD, diabetes or obesity-related comorbidities, the condition had to be stable and permission sought from their personal physician

Study type

RCT; permuted block randomisation in a 1 : 1 : 1 ratio

Description of population

Ethnicity: African American; self-identified

Age (years): Mean (SD): phase 1: 43.4 (10.5), phase 2: 45.4 (10.2)

n: 237 people were enrolled; 167 attended no classes or only the first phase 1 class, 134 provided phase 1 follow-up data and 128 were randomised in phase 2 with 87 of them providing final follow-up data ('completers'). Of the completers there were 28 in the HELP classes, 28 in the self-HELP classes and 31 in the clinic visits only group

Sex: Phase 1 89.9% female, phase 2 90.6% female

Income: 50.5% and 56.2% had a professional occupation in phases 1 and 2, respectively

Other: 63.5% and 70.2% had > 12 years of education in phases 1 and 2, respectively

Description of intervention and control

Recruited through outpatient practices in a family practice department of an urban university health system and delivered in the family practice conference room. The intervention had two phases. Phase 1 was a 10-week, weekly weight loss class/group counselling with the option of continuing on to phase 2. Participants were not given a specific diet but were advised on caloric intake per day and encouraged to set goals for gradual behaviour change in eating patterns, particularly tracking fat and caloric intake and substituting low calorie foods into their diet. They were also advised to increase their levels of physical activity and this advice was tailored to their ability and preferences. Phase 2 was for another 8–18 months in a randomised comparison of two intervention groups aimed at weight loss maintenance or additional weight loss and a control group. The intervention groups were the HELP group – further group counselling (classes less frequent: biweekly, then monthly) – and the staff-facilitated self-HELP group. These were compared with a 'clinic visits only' group that had no further intervention delivered

Intervention classes were led by part-time nutrition exercise or behaviour change specialists usually working in pairs; four out of the nine were African American. The self-HELP group were given a kit with a personalised calendar, local resources for healthy eating and physical activity, a personal diary, a pedometer and ad hoc telephone support from an outreach worker. There were also some walks led for this group. All participants also received a seasonal study newsletter, small gifts as incentives and a video designed to motivate lifestyle changes for CVD risk reduction in African Americans

Theory: Not reported but HELP was adapted from a weekly programme used in the TONE weight loss interventions, which were based on well-established theoretical behaviour change approaches

Approaches to adaptation

- Branding: study logo and identification for an African American population
- Adapted tools: Given an adapted version of the food guide pyramid called 'soul food pyramid' and given a booklet entitled 'Heart Healthy Cooking African American style' and ethnic food recipes were modified for healthy eating
- Media/videos used from the Sistertalk intervention and video greetings from an African American principal investigator
- General delivery was in a festive and interactive atmosphere
- Cultural adaptations were based on both theoretical and empirical guidance, incorporating techniques and materials from existing studies
- Free parking and convenient public transport was available

Outcome measures and results

Follow-up: Follow-up visits in phase 2 every 6 months

Weight: Mean weight changes for completers were –1.5 kg ($p < 0.001$), +0.3 kg ($p = 0.47$) and –1.2 kg ($p = 0.04$), respectively, for phase 1, phase 2 and overall (baseline to final visit was on average 18 months)

There was no treatment effect of phase 2 ($p = 0.55$). The final study weight was < 5% below baseline for 25% of completers and was strongly predicted by phase 1 weight loss

Conclusions

Authors: There was a modest average weight loss after the programme in phase 1 that was reasonably sustained regardless of which arm people were assigned to in phase 2. About a quarter of the completers achieved a clinically significant weight loss over an overall average duration of 18 months

Reviewers: This study seemed somewhat complex in the design and execution. There does appear to be a promising effect of the phase 1 intervention and some maintenance, which suggests that this approach may have merit and potential to develop as a longer-term intervention

Comments and limitations

The incentives were important for attendance for about half of the participants. There was considerable attrition in the study with only 60% and 36% of cohorts 1 and 2, respectively, attending the 6- and 12-month follow-ups and only 70% of cohorts 3 and 4 attending the 6-month follow-up. There was a significant difference in the duration of the intervention because of the time taken for enrolment and to start the intervention

BMI, body mass index; CVD, cardiovascular disease; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Davis-Smith *et al.* 2007;³³⁴ Atkinson *et al.* 2009³⁷³ [Lifestyle Balance Church Diabetes Prevention Programme (DPP)]

Setting

USA; Georgia

Inclusion criteria

All adults > 18 years were included

Study type

Pre–post

Description of population

Ethnicity: African American

Age (years): Not reported

n: 99

Sex: 97% female

Income: Not reported

Description of intervention and control

This intervention was to determine the feasibility of implementing a diabetes prevention programme (DPP) in a rural African American church

Intervention: A six-session DPP modelled after the National Institutes for Health was implemented with adult members of the church identified as being at high risk for diabetes, based on the results of a questionnaire and a fasting glucose test. The major goals were 7% weight loss and ≥ 150 minutes of exercise a week. The three aims were nutrition, physical activity and behaviour change. The materials were modified for the church setting to be group based. Each session was led by volunteer health-care professionals and handouts were given from the sessions. Diet and physical activity log books were reviewed by the leader and the leader guided the group discussion. After the presentation and discussion, individuals set goals for diet and exercise behaviour change for the subsequent week. A prayer concluded the session. Following the intervention there was no additional support provided

Theory: Not reported

Approaches to adaptation

- A member of the church was included in the research team (on the suggestion of the pastor)
- Focus groups were held with church members to plan the intervention
- Recruitment occurred through church services and bulletins
- Church leadership was involved in the planning and implementation as an equal partner
- Intervention was changed to be group based

Outcome measures and results

Follow-up: Baseline to 6 and 12 months

BMI: Average decrease in BMI was 1.9 kg/m² at the 12-month follow-up

Weight: Weight loss ranged from 0.5 to 27.2 lb after the 6-week intervention. Overall, the mean weight loss was 8.8 lb, 6.5 lb and 10.6 lb from baseline to immediately after the intervention, to the 6-month follow-up and to the 12-month follow-up, respectively

Conclusions

Authors: This pilot project suggests that a modified six-session DPP can be translated to a group format and successfully implemented in a church setting. Further randomisation studies are needed to determine the effectiveness of such an intervention

Reviewers: This study demonstrated a successful translation of the National Institutes for Health DPP into a church setting. There were changes in weight and BMI and these appeared to be sustained to 12 months

Comments and limitations

Very small sample size (one church) and no control group. Finger-stick glucose sampling was used in lieu of plasma values

Additional comments from supporting paper: A supporting paper³⁷³ looked at what factors helped the programme fit within the community and these were the initial alignment of the programme objectives with the church mission, the endorsement and continued participation of church leadership and community activities and support. Programme success is dependent on and magnified by the broader engagement of the church community so that people realise that the changes are not just for those involved in the programme but for the wider community. Partnership and integration within the community are emphasised. Sustainability may have been contributed to by the social support of the church and the fact that ongoing healthy behaviour changes occurred at a church level following the intervention and this may have helped people to continue the behaviours that they started under the programme

BMI, body mass index.

Study reference

Gaston *et al.* 2007³⁹⁹ [Prime Time Sister Circles (PTSC)]

Setting

USA; multisite: Illinois, Washington, DC, Florida and Maryland

Inclusion criteria

African American/black women aged > 35 years

Study type

Quasi-experimental study, pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): 54.4 (9.46)

n: 134 women; 106 intervention, 28 comparison

Sex: 100% female

Income: Not reported

Description of intervention and control

10 Prime Time Sister Circle (PTSC) groups and two comparison groups in 11 sites

Intervention: The intervention was a curriculum-based approach that was low cost and short term – it incorporated a support group approach to address four key modifiable disease risk factors. A total of 8–13 women per intervention group met for 90 minutes for 10 weeks. They signed a group contract and set a specific goal related to physical activity, nutrition and stress management. They were given educational material in the form of a book. The 10-week curriculum included stress, spirituality, self-esteem, prioritising themselves first, nutrition and exercise, CVD, diabetes, nutrition and exercise. Participants were taught cognitive behavioural strategies and skills to help develop and implement their health plan in the targeted areas

Comparison: The comparison group received a copy of the book but no sessions, facilitator, expert consultants or stipend

Theory: Cognitive behavioural modality; social support and social circles; transtheoretical model; Person, Extended family, Neighbourhood (PEN) model that focused on health education, educational diagnosis of health behaviour and cultural sensitivity; based on information from focus groups

Approaches to adaptation

- Taps in to unique values and preferences of African American women
- Matched ethnicity and age and gender of facilitators
- Focus groups with the population were used to plan the approach, design and implementation

Outcome measures and results

Follow-up: Baseline to 10 weeks and 6 and 12 months

Change in calories: There was a significant increase in the number of nutritious foods eaten at 10 weeks but this was not significant at 6 and 12 months

Changes in physical activity: Significant changes in physical activity: increased from participating in aerobic exercise on 1.91 days per week at baseline to 3.97 ($p < 0.01$), 2.48 ($p < 0.05$) and 3.21 ($p < 0.01$) days per week at 10 weeks and 6 and 12 months, respectively. Engaging in strength-building exercise also increased significantly at 10 weeks and 12 months

Knowledge: At 10 weeks knowledge scores ranged from 85.1% to 93.5%; by 6 months all areas of knowledge had decreased to a range of 61.9–88.1% and at 12 months to a range of 73.1–82.7%

Conclusions

Authors: This study demonstrated the effectiveness of a culture- and gender-specific group intervention to modify certain high-risk behaviours in mid-life African American women. Significant improvements were seen at various intervals in stress management, physical activity and nutrition. The utilisation of an integrated approach and a group format were major factors in the study's success

Reviewers: This study demonstrated a significant effect of the intervention but it is unclear what contributes most to the effect – possibly it was the group support element. It is unclear how generalisable this would be to other populations as this is a very specific population in terms of gender, ethnicity and age and SES

Comments and limitations

Limitations included relatively small sample size, the quasi-experimental design of the study in multiple sites with no randomisation and the self-reported nature of the data (social desirability bias may have been increased by peer pressure in this intervention)

CVD, cardiovascular disease; SD, standard deviation; SES, socioeconomic status.

Study reference

Farooqi and Bhavsar 2001;³⁷⁰ Netto *et al.* 2007³⁶⁸ (Khush Dil)

Setting

UK; Edinburgh, UK

Inclusion criteria

People were self-referred or referred from voluntary organisations, GPs and other health-care workers. There were no exclusions

Study type

Pre–post, service evaluation

Description of population

Ethnicity: South Asian: Indian (23%), Pakistani (48%) and Bangladeshi (21%); not reported how ethnicity assessed

Age (years): Mean (range): 44 (13–81)

n: 304

Sex: 66.6% female

Income: Not reported

Description of intervention and control

The intervention included a nurse-led community-based CVD risk clinic and nutrition workshops led by a dietician. Activities included cookery workshops, exercise classes and CHD/diabetes awareness sessions to encourage lifestyle change and reduce CHD risk. It also included stress management and participation in local Asian community events. Participants attended initially for a 30-minute screening visit and had blood taken and their CHD risk assessed and this was then discussed with the nurse along with goal-setting; there was a follow-up visit at 6 months

Theory: Transtheoretical model used to assess stages of change at screening visit

Approaches to adaptation

- Materials were translated
- Staff were bilingual and ethnically matched
- Extensive formative work carried out for service in consultation with the community

Outcome measures and results

Follow-up: Measures taken at baseline, follow-up interviews at 6 months post baseline

Changes in dietary fat: 77.9% of women reported reducing the amount of oil they used in cooking and 57.5% reported healthier cooking methods such as baking, grilling and steaming; men also showed a significant decrease in consumption of fried meat

Changes in physical activity: Women and men showed an increase in moderate exercise

BMI: Significant improvements in BMI

Weight: Significant improvements in weight

Conclusions

Authors: The Kush Dil intervention led to a reduction in cardiovascular risk in a South Asian population. In addition, participants reported a shift in their motivational status, increasing the likelihood that diet and lifestyle changes can be maintained

Reviewers: This intervention provides an effective and culturally appropriate service for South Asian communities to reduce their cardiovascular risk

Comments and limitations

This was an in-service evaluation and not a research trial and therefore there is no control group for this intervention. Self-reported measures are prone to social desirability bias. It is not possible to say if the findings are generalisable to other settings and populations or to comment on sustainability

BMI, body mass index; CHD, coronary heart disease; CVD, cardiovascular disease; GP, general practitioner.

Study referenceRush *et al.* 2007⁴¹¹**Setting**

New Zealand

Inclusion criteria

Asian Indians aged > 50 years and resident in the urban Auckland area were recruited by personal contact with community organisations

Study type

Controlled before and after/pre–post

Description of population

Ethnicity: Asian Indian; not reported how ethnicity assessed

Age (years): Women: 59 ± 8, men: 62 ± 8

n: 41

Sex: 48.7% female

Income: Not reported

Description of intervention and control

Monthly group diet and physical activity intervention that emphasised the importance of lifestyle changes to reduce risk factors for chronic disease. Participants visited the university laboratory three times. The intervention lasted for 5 months

An initial group education session encouraged an increase in physical activity and improved diet and was delivered to two community groups at their regular meetings. Messages and handouts were given to everyone irrespective of their participation in the study. There were two booklets: *Good Health Is in Your Hands! A Food Guide for Indian Adults in New Zealand*, which included a Hindi translation, and *Healthy Living, Putting the Squeeze on Lifestyle Disease for NZ Indian People* (written by the study author). Following the initial session, monthly group sessions with handouts were held that included cooking demonstrations (substitute canola oil in place of other oils, remove fat from meat, increase fish consumption), a pedometer club and 'weigh-ins'. Individually marked waist threads (to assess changes in girth), pedometers and diaries to record steps taken daily were given out

Theory: Not reported

Approaches to adaptation

- Two brochures targeting the Indian population in New Zealand
- Delivered the initial group education session during a regular community group meeting
- Encouraged change not just for themselves but for their children and grandchildren

Outcome measures and results

Follow-up: Two baseline measurements were taken, 1 month before and immediately before the intervention, the average taken and follow-up was at 5 months post intervention

Changes in dietary fat: There were decreases in percentage body fat [−1.1% (SD 1.6%), $p < 0.004$] and abdominal fat [−0.14 kg (SD 0.22 kg), $p < 0.006$] – when stratified by gender there was a significant decrease in men ($p < 0.006$) whereas these changes were not statistically significant in women. Most popular reported changes were related to diet: changing cooking oil to canola, eating more cereals, removing skin from chicken before cooking and drinking water when thirsty

Weight: Men: body weight, mean (SD): −1.5 kg (1.8 kg) ($p < 0.001$), weight of body fat, mean (SD): −1.1 kg (SD 1.4 kg) ($p < 0.002$); women: body weight, mean (SD): −1.2 kg (2.5 kg) ($p = 0.06$), weight of body fat, mean (SD): −1.0 kg (2.3 kg) ($p = 0.06$)

Conclusions

Authors: In a group of older Indian people, lifestyle changes mediated by group education and individual follow-up to modify diet resulted in a reduction in whole body and abdominal fat and improvements in lipid profile and therefore a reduced risk for CVD. Beneficial changes occurred in both women and men but tended to be greater in men. The nature of the group adds potential for changes made in a relatively short period of time to be sustained by the volunteers and the rest of the community and families without the involvement of the researchers

Reviewers: The intervention showed significant changes for men but not for women. The authors suggest that, as eight women and four men had high fasting blood glucose, which would classify them as having impaired fasting glucose, their capacity for lifestyle change may be limited. This certainly could be one reason for the lack of significant changes in women; however, it would have been interesting to learn more about the intervention sessions, whether they catered for different genders, what kind of activities were performed and what were some of the challenges

Comments and limitations

This study does not report much detail of the intervention and thus it is difficult to pick out the active component; however, holding the intervention during times when the two community organisations regularly met would likely have helped engagement. It is unclear whether men and women participated in the study together or whether the two community groups were single sex

Alcohol consumption decreased from baseline. Fish consumption increased in only three cases but this recommendation was not relevant to everyone as nine people were lacto-ovo vegetarian. This is important to consider when giving out advice – what people are already eating instead of generic advice. Anecdotally, changes were adopted by others in the community group and wider families. This community has continued to work together to maintain these changes

The authors do not provide any limitations to this study; however, it is clear that the small convenience sample and having no control group are two limitations

Study reference

Shaw-Perry *et al.* 2007³¹⁰ (NEEMA; meaning 'wellness' in Swahili)

Setting

USA; eastside of San Antonio, TX, San Antonio Independent School District

Inclusion criteria

Schools with 40% African American students and not alternative schools; fourth-grade students selected because children aged around 9 years. All students were allowed to participate in the four programme components but only students with assent and parental consent participated in data collection

Study type

Controlled before and after/pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): 10.54 ± 0.74

n: 68

Sex: 55.9% female

Income: Low-income neighbourhoods

Description of intervention and control

A 14-week school-based diabetes prevention programme tailored for African American children. Programme implemented via four social networks/components: classroom, after school, home and school cafeteria. The intervention lasted for 7 weeks and there was no control group

Health education and physical education (PE) class: 13 lessons covered nutrition, physical activity, self-esteem, self-control and diabetes. The PE curriculum was aimed at promoting moderate to vigorous physical activity. Health and PE classes were held for 45 minutes a day, 5 days a week: 1 day to teach health education and 4 days for physical activity

Health club: 18 sessions to reinforce classroom learning and to promote leisure-time physical activity. Student participation was voluntary and parents were encouraged to attend with their children. Involved physical activity, aerobics, games, dancing, singing and arts and crafts. Health club meetings were held once a week, Monday to Friday, for 45 minutes during school or for 1 hour after school. A Family Fun Fair was conducted to promote healthy choices for the family

School Food Service Program also run: seven cafeteria lesson plans to improve nutrition knowledge of food service staff and a lunch visit for students to encourage them to make healthy food choices

Theory: Not reported

Approaches to adaptation

- NEEMA was chosen as the intervention name (Swahili for 'wellness') – catchy and culturally appropriate for African American children
- 'Healthy Heroes' (health book cartoons) and pictures were used and were well received
- Pictures, names of people, activities and some language and foods in the curriculum were modified to be more representative of African American culture and experience
- Components of the Bienestar health intervention were translated into instructional materials more compatible with African American family life and culture. Translation team composed of an African American researcher and three African American staff members from the Bienestar Health Program

Outcome measures and results

Follow-up: Week 3 – baseline (weeks 4–10 included the 7-week intervention) and week 11 – follow-up

Changes in dietary fat: Per cent body fat decreased from 27.26% (SD 12.89%) to 26.68% (SD 11.67%) ($p < 0.537$)

Changes in physical activity: Fitness laps increased from 16.40 (SD 9.8) to 23.72 (SD 14.79) ($p < 0.000$)

BMI: Increased from 20.30 (SD 5.29) kg/m² to 20.81 (SD 5.57) kg/m² ($p < 0.003$) (this is in the opposite direction to hypothesised change)

Conclusions

Authors: This pilot study provided teacher feedback useful for revising the NEEMA health curricula. The aim of the study was to determine if the new NEEMA instructional manual was culturally appropriate for African American children. Feedback from teachers and comments expressed by the children were positive. There was a significantly positive impact of the NEEMA PE classes on children's fitness and blood glucose levels. Teachers recommended more hands-on activities, smaller groups and the provision of more incentives to participate and more training hours for teachers. Future studies to determine efficacy should include a RCT, a larger sample of schools and a cluster analysis

Reviewers: The study demonstrated that the intervention was culturally acceptable (although students were not themselves interviewed) and was able to produce positive effects on children's fitness (although opposite effect with BMI). Success, however, could be attributed to the fact that familiar PE teachers delivered the intervention during school hours – unclear how this would work if voluntary and after school. No process data were reported, such as the number of sessions attended

Comments and limitations

Lack of a randomised control but, because this was a formative study, it involved small groups and biological measures were analysed at the individual level. Despite an increase in fitness there was an increase in BMI. This could be because, if fitness is increased in rapidly growing children, bone and muscle mass develop, producing greater increases in BMI. Students carried out two practice runs 1 day before the test – this may skew the results as students would have experience with the test and would likely strive to better their performance; thus, follow-up data may be inflated. Teachers reported that the NEEMA programme was supportive of school-based lifestyle interventions but emphasised constraints at home and school and that state action was required, e.g. food insufficiency at home (low cost of fast food and soft drinks is a cause for unhealthy behaviour)

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Two Feathers *et al.* 2005;²⁹¹ Two Feathers *et al.* 2007²⁹⁰ (REACH Detroit)

Setting

USA; Detroit, MI, urban

Inclusion criteria

African American and Latino adults with physician-diagnosed type 2 diabetes, aged > 18 years, with insurance or receiving care from a federally qualified health centre, mentally able and residing in one of the six REACH Detroit zip codes

Study type

Pre–post [with comparison of data with an existing data set for HbA_{1c} (glycated haemoglobin) results]

Description of population

Ethnicity: African American (64%) and Latino (36%); not reported how ethnicity assessed

Age (years): African American: mean (SD): 60.9 (13.9)

n: 377 (271 from 14 all-African American groups and 106 from eight mixed-race groups)

Sex: 7.5% female

Income: Not reported

Other: For the African American population it is reported that 25.4% had a high school education, 22.5% had less than a high school education and 33.8% had attended college

Description of intervention and control

This intervention aimed to compare the effects of an intervention conducted with an African American only group of participants with one conducted with a mixed-ethnicity group of participants. The intervention was based on an intervention originally developed for Native Americans. The curriculum was adapted and was called 'The Journey to Health' for African American participants. It was designed to reduce risk factors associated with diabetes complications. The content was designed to help participants gain knowledge related to healthy eating, physical activity and stress reduction through five 2-hour group meetings delivered every 4 weeks by 10 Family Health Advocates (FHAs) in two community locations. Participants were encouraged to bring a family member or friend

Theory: Social cognitive theory was used with an emphasis on behavioural capability, self-control, emotional coping response and self-efficacy

Approaches to adaptation

- Planned and implemented with guidance from a steering committee including community health leaders
- Culturally congruent content was developed and built on ethnic group identity and social support
- Stories were used that incorporated historical and cultural perspectives about healthy lifestyle practices as past norms for African Americans and described how they overcame difficult odds to keep their families healthy
- Materials were all reviewed by project staff who contributed local and cultural knowledge
- Cultural symbols and themes, patterns and concepts, values, norms and relationships were incorporated in the curriculum to reflect cultural characteristics and preferences
- Foods and physical activities were modified from the original curriculum to reflect cultural preferences, geography and changing seasons
- The African American curriculum incorporated religion and associated messages of hope
- A more family-oriented approach was taken
- Activities were developed that were directly applicable to people's daily lives

Outcome measures and results

Follow-up: 20 weeks

Changes in fruit and vegetable consumption: African Americans showed a significant improvement in vegetable consumption, from 2.1 ± 1.4 servings a day to 2.7 ± 1.4 servings a day ($p < 0.01$)

Knowledge: Significant increase in knowledge in those who followed a healthy eating plan 7 days a week, from 32.4% to 44.9% ($p < 0.05$)

Conclusions

Authors: These findings suggested that a culturally tailored, community-based healthy lifestyle intervention delivered by community residents over five sessions can significantly improve glycaemic control and reduce the risk factors associated with diabetic complications. It is also commented that there was limited evidence of interventions that have been successful for one group being replicated or adapted and being successful for another group. This intervention provided evidence of an intervention developed for and tested with Native Americans that can be adapted and be successful for African Americans and Latinos. It's important to continue to develop our understanding of the critical components of successful interventions that encourage and sustain healthy lifestyle behaviours among populations at high risk from diabetes and its complications

Reviewers: This study was interesting as it showed an intervention that has been successfully adapted and transferred from one population to another. The results are slightly limited in their power once stratified to individual ethnic groups and this may have limited the number of areas in which effectiveness could be demonstrated. It is also hard to say whether there was effect in terms of knowledge changes as values were compared only with baseline levels and there was no comparison group for the survey measurements (unlike the clinical measurements)

Comments and limitations

The survey data were limited by having no comparison group. Subgroup power may be limited by sample size. Measures were self-reported for the surveys and the small size of groups and relationships with the workers may have contributed to social desirability in the responses. There was quite a high degree of non-attendance and attrition at the sessions. The Hawthorne effect could have been operating

SD, standard deviation.

Study reference

Amoako *et al.* 2008⁴⁰⁶

Setting

USA; Guilford County, NC

Inclusion criteria

English speaking, with access to a telephone. Recruitment: 14 clinics and physicians' offices

Study type

Experimental design

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD) (range): 61.0 (9.5) (49–83)

n: 68

Sex: 100% female

Income: 65% had incomes of ≤US\$1000 a month

Description of intervention and control

Telephone intervention for diabetes self-care (to reduce uncertainty) and psychosocial adjustment (physical activity and diet)

Intervention: Once-a-week telephone semi-structured clinic interview with embedded intervention for 4 weeks. Self-care activities included diet, medication, foot care, exercise and blood sugar testing. Interview included open-ended questions, direct exploration and use of reflective comments. Four phases: warm up, assessment of problem, uncertainty appraisal and delivery of strategies to manage the uncertainty, closing. Calls (10–60 minutes) were recorded. Women could make calls to a 1-800 number as needed. Assertive communication skills taught. Printed information provided

Control: Usual care, which included regular primary care and speciality visits as well as support group meetings and scheduled classes for diabetes management. Two telephone calls to keep in touch and remind participants of the final data collection period. At completion of the post-test data collection, women were offered one intervention telephone call: 15 accepted, 15 declined

Theory: Mishel's uncertainty-in-illness theory,⁵⁰⁷ theories of counselling and behaviour change guided the interactive processes used in delivery of the intervention^{502,508}

Approaches to adaptation

- Intervener was an African American geriatric nurse practitioner with experience in the management of diabetes and cardiovascular conditions in minorities

Outcome measures and results

Follow-up: Baseline and 6 weeks post baseline

Changes in physical activity: Intervention group reported increased participation in exercise (self-care component; $p < 0.001$)

Conclusions

Authors: In this study, participants who experienced reduced uncertainty experienced a significantly greater improvement in psychosocial adjustment. Participants who experienced reduced uncertainty showed improvement that was significantly greater than that of the control group in the number of days per week that they participated in physical activity. Diet did not improve. Barriers included poor understanding of the relationship between disease and diet, poor psychosocial adjustment and denial of the seriousness of diabetes. Most of the improvements involved cognitive changes; however, they may precede behaviour change

Reviewers: This study showed improvements in psychosocial adjustment and reduced uncertainty for diabetes care. Agree that this may be important as a predecessor of other more behavioural changes (the intervention group participants increased exercise levels but did not improve their diet in this study – however, this is to be expected as it may be easier to take up a behaviour than to alter long-standing dietary patterns and practices). Future studies should include greater cognitive components to motivate people

Comments and limitations

This was part of a larger study of a telephone intervention to manage uncertainty related to diabetes self-care. Limitations include not using HbA_{1c} as an outcome to measure effectiveness and measuring the outcomes 2 weeks after the intervention. In future, multiple measurement points should be used. The authors state that, for African Americans with diabetes, modifying diet may be particularly difficult given the deeply rooted traditions surrounding food in their culture (they perceive 'eating healthfully' as having to give up part of their heritage). Family members may perceive deviations from traditional food experiences in a negative way, which can result in conflict for people with diabetes

SD, standard deviation.

Study reference

Ard *et al.* 2008³⁴⁸

Setting

USA; multicentre trial

Inclusion criteria

Age ≥ 25 years, BMI 25–45 kg/m², currently taking medication for hypertension and/or dyslipidaemia, not taking medication for diabetes, requiring a negative stress test if diabetic or with a history of CVD, no CVD event in the past 12 months and willing to lose 4 kg in phase 1 of the study (20 weeks)

Study type

Reanalysis of a multicentre RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Average: 51.6 \pm 9.3

n: 377 (271 from 14 all-African American groups and 106 from 8 mixed race groups)

Sex: 73.4% female

Income: 84.3% had income \geq US\$30,000 (50% in excess of US\$60,000)

Other: 92.5% had more than a high school education with 32.6% having a postgraduate qualification

Description of intervention and control

This intervention aimed to compare the effects of an intervention conducted with an African American only group of participants versus a mixed ethnicity group of participants. Participants met weekly in groups of 15–25 led by an interventionist who was of African American ethnicity (the mixed ethnicity groups that this was compared with also had interventionists who were of African American ethnicity). Weight loss was promoted through calorie reduction, change in dietary pattern and increased energy expenditure with physical activity. The DASH diet was used and physical activity was for 180 minutes a week. Key strategies included self-monitoring of diet and physical activity, reducing portion sizes, substituting foods and modifying foods to be lower in calories and fat, increasing fruit and vegetable and fibre intake, identifying problematic situations and undesired behaviours and rehearsing specific plans of action to deal with those situations and, lastly, developing food choice competencies

Theory: No theories explicitly stated

Approaches to adaptation

- Having an interventionist of the same ethnicity leading the group
- A minority implementation committee was charged with developing trial-wide procedures to enhance minority participation and success
- Cross-cultural training for all study personnel that included specific instruction on cultural sensitivity and motivational interviewing techniques for study interventionists
- Having all-African American groups of participants

Outcome measures and results

Follow-up: 20 weeks

Changes in fruit and vegetable and fibre consumption: Increase in fruit and vegetable consumption by about three servings a day and in fibre consumption by about 3.5 g/day

Changes in calories: Decrease in the percentage of calories from fat of about 7%

Changes in physical activity: A doubling in the proportion of people reporting at least 180 minutes of vigorous activity per week

Weight: Weight change of > 4 kg for 61.2% of the participants

Conclusions

Authors: There was a lack of a statistically significant effect of group composition on intervention attendance, the lifestyle change variables and weight loss. This suggests that special logistics to accommodate African Americans may not be worthwhile. Whether this holds true, or the importance of the group leader being African American or not, cannot be determined from these data. The results of this study suggest that, regardless of the ethnic mix of the groups, African Americans appear to respond positively to well-designed lifestyle change interventions designed to promote healthier eating and increase physical activity and weight loss

Reviewers: This study was very interesting and attempted to examine the effectiveness of a single adaptation; however, this was hampered by the group composition of the mixed groups and the culturally appropriate approach also taken to the mixed groups that most likely diluted any effects that could have been observed

Comments and limitations

The negative findings between the African American and mixed groups could have been contributed to by this being a reanalysis and not a RCT itself and there being residual confounding in the analysis. Also, there were high numbers of African Americans in the mixed groups, which may have reached 'critical mass' to alter the environment and blur the contrast. The overall intervention had adaptations anyway in terms of a minority implementation committee charged with developing trial-wide procedures to enhance minority participation and success, and cross-cultural training for all study personnel that included specific instruction on cultural sensitivity and motivational interviewing techniques for study interventionists – this may have contributed to the fact that African Americans in the programme in general had better weight loss than usually reported in these types of studies and this may well have reduced the effect of having African American-only groups. In addition, the participants were recruited because they were at a particularly high risk of CVD and this may have made them more motivated than an average population

Study reference

Befort *et al.* 2008³¹⁷

Setting

USA; Kansas City, KS

Inclusion criteria

Women were eligible if they were ≥ 18 years, obese (BMI 30–50 kg/m²), not pregnant or intending to become pregnant within 6 months, not currently involved in any other weight loss treatments, free from psychiatric illness or substance abuse, able to walk continuously for at least 10 minutes, not planning to move out of the area in 6 months and able to obtain medical clearance from their medical practitioner

Study type

RCT

Description of population

Ethnicity: African American

Age (years): Mean (SD): 44.3 (6.4)

n: 44 women were recruited and randomised, but only 34 returned for post treatment assessment

Sex: 100% female

Income: Women were recruited from a community health centre serving predominantly lower-income people

Description of intervention and control

A 16-week culturally adapted behavioural weight loss programme with randomisation to receive either four sessions of motivational interviewing or four sessions of education (attention control)

Intervention: The programme was adapted from the Lifestyle Balance programme and involved gradual, sustainable lifestyle changes using goal-setting and self-monitoring. Treatment goals were to decrease weight by 7%, decrease energy intake by 500–1000 calories a day (25% from fat), consume five to nine fruit and vegetable servings a day and exercise for 150 minutes per week. Participants received individual goals, charted their weekly weight and were instructed to self-monitor their daily food intake and physical activity

Theory: Not reported

Approaches to adaptation

- Social support was emphasised
- Barriers were addressed relating to transportation, neighbourhood safety, literacy and other stressors
- Guidance about food and physical activity was made relevant to cultural practices
- African American community leaders who had succeeded at weight loss were invited as peer mentors
- Participants developed group names for themselves
- Sessions were less didactic and more interactive in nature
- Preferences for larger body sizes were recognised

Outcome measures and results

Follow-up: 16 weeks

Changes in fruit and vegetable consumption: Increase in fruit and vegetable consumption of 1.7 (SD 3) servings a day

Changes in calories: Diet improved with a mean drop of 465 kcal/day (SD 696 kcal/day) and a drop in kcal from fat of 4.6% (SD 8.2%)

Changes in physical activity: Increase in physical activity of 101 minutes (SD 350 minutes) and an increase of energy expenditure of 7 kcal/week/kg (SD 25.1 kcal/week/kg)

Changes in dietary fat: No significant difference in outcomes between the two groups but both groups had an improved diet; mean weight loss 3 kg (SD 5.1 kg)

Weight: No significant difference in outcomes between the two groups but both groups lost weight; BMI decrease 1.1 kg/m² (SD 1.8 kg/m²)

Conclusions

Authors: Results showed that both groups lost a significant amount of weight, reduced their energy intake and per cent fat from calories and increased their fruit and vegetable intake, but adherence to the behavioural weight loss programme did not differ across the two groups. The authors suggest that further work is needed to dismantle the socioeconomic barriers from the sociocultural barriers that may limit the impact of motivational interviewing

Reviewers: The study focus is on the effect of the addition of motivational interviewing to a culturally adapted intervention. This is a bit different to our focus of how culturally adapted interventions work, but the finding that the underlying intervention was successful was helpful; however, as adaptation was not the main focus there is perhaps less detail reported on this aspect

Comments and limitations

High attrition of 23% but this is consistent with other studies of this type

Limited that the tools measured for self efficacy and motivation were not validated in this population

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Boltri *et al.* 2008⁵⁰⁹

Setting

USA; area not reported, 100,000 inhabitants

Inclusion criteria

All churches attendees aged ≥ 18 years

Study type

Pre–post

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Not reported

n: 50

Sex: Not reported

Income: Not reported

Description of intervention and control

The purpose of this intervention was to translate the National Institutes of Health (NIH) Diabetes Prevention Program (DPP) to a church setting/ African American Baptist church. Recruitment occurred through announcements in the church and in the Sunday bulletin for 2 weeks. During the church services a member of the research team also outlined the research and a survey was completed by church members on risk assessment for diabetes. High-risk people were then tested and those found to be at risk of pre-diabetes (eight) were included in the intervention

There were 16 sessions lasting for 60–90 minutes in this individualised lifestyle programme. There was goals of 7% weight loss and 150 minutes of exercise per week. The sessions were designed to teach people how to improve their diet, lower fat intake, increase exercise and change behaviour to establish a lifelong healthy lifestyle. The programme was modified by changing it to group sessions and also adding in prayer. The intervention lasted for 4 months

Theory: Not reported

Approaches to adaptation

- Changed to group format
- Addition of prayer
- Held in a church setting
- Recruitment occurred through church services and bulletins

Outcome measures and results

Follow-up: 6 months and 12 months post intervention

BMI: decreased post intervention by a mean of -1.2 kg/m^2 , at 6 months it was raised by $+0.3 \text{ kg/m}^2$ and by 12 months it was raised again by $+0.7 \text{ kg/m}^2$ but still remained slightly lower than the starting BMI

Weight: Mean weight decreased by -7.5 lb post intervention, the mean weight then increased at both the 6 month ($+1.9 \text{ lb}$) and 12 month follow-up ($+4.6 \text{ lb}$)

Conclusions

Authors: This study demonstrated successful translation of the 16-session NIH DPP into a church-based setting. Future studies should test this intervention in churches of different sizes and denominations

Reviewers: This study is interesting as it shows successful translation of a DPP to a church setting for an African American population

Comments and limitations

Very small sample and no comparison group

BMI, body mass index.

Study referenceChen *et al.* 2008⁵¹⁰**Setting**

USA; San Francisco, CA

Inclusion criteria

Children aged 8–10 years who self-identified as Chinese American and their mothers

Study type

Pre–post

Description of population

Ethnicity: Chinese; self-identified

Age (years): Mean (SD): children: 8.8 (0.8), mothers: (SD) 40 (7.1)

n: 52 children completed to the 1-month follow-up and 42 to the 6-month follow-up

Sex: 49.1% female

Income: Not reported

Other: Mean number of years of education of the mothers was 14 (SD 4.9)

Description of intervention and control

Initial data were collected for the mothers and children including height and weight. Questionnaires assessed mothers' knowledge of children's lifestyle and behaviours and also their levels of acculturation. Mothers then received information on whether their child was overweight or normal weight, their dietary intake and whether they were active or sedentary. They were also sent materials on nutrition, physical activity and healthy weight maintenance based on the baseline assessment. Parents were instructed to share the information with their children. There was a telephone consultation and follow-up 2 weeks after the mail out of the information

Theory: Based on the ecological model of childhood obesity prevention,⁵¹¹ which was derived from ecological system theory

Approaches to adaptation

- All materials were translated into Chinese and were also available in English
- Researchers were all bilingual and bicultural
- Pilot testing of the materials was undertaken to see if they were culturally appropriate in their method of delivery and their reading level

Outcome measures and results*Follow-up:* 1 and 6 months*Changes in physical activity:* Statistically significant improvements were observed in time spent in physical activity*BMI:* BMI significantly declined among children who were overweight at baseline, and those who were not overweight at baseline appeared to gain weight more slowly than the usual annual increase in this population*Knowledge:* No significant changes in parental knowledge about their children's nutrition and physical activity needs were noted as a result of the intervention**Conclusions**

Authors: Results suggest that this intervention is feasible in the population. Some data suggested that the mail intervention is preferable to mothers as there is no need to keep appointments. There is also a lower cost to this than running education sessions, which means that it could be used to reach a larger population. However, this was a pilot/feasibility study and data from a RCT with a control group are needed to support the findings. This research suggests that health-care providers need to provide parents and children with specific recommendations regarding children's weight status, dietary intake and levels of activity

Reviewers: This intervention takes the approach of mailing information, which is less hands-on but perhaps more cost-effective. It did demonstrate effect but it is hard to know whether this would be sustainable or certainly whether this would be generalisable to other populations, particularly those who may not have such good health literacy or motivation or who may have competing life concerns. It is a feasibility study and, as stated by the researchers, evidence from a larger controlled trial is needed

Comments and limitations

This is limited by it being a pilot/feasibility study with a relatively small sample size and no control group. There are limited data on the changes occurring in the study to interpret them fully. There are limited data on adaptation other than the more superficial characteristics of the study such as language and researcher characteristics. This intervention is based on ecological systems theory, which emphasises the critical and important interaction between the individual's characteristics and the environment in which a person is embedded and the context in which a person is situated. This is an interesting and perhaps cost-effective approach to reach a wide audience, although a cost-effective analysis has not been conducted

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Kim *et al.* 2008⁵¹² (The WORD)

Setting

USA; North Carolina

Inclusion criteria

Association with a participating church through membership or participation in a church activity, adult aged ≥ 18 years, African American

Study type

Two-group quasi-experimental delayed intervention design with the church as the unit of randomisation

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): ≥ 18

n: 73

Sex: 71% female

Income: 41% of the treatment group had an annual income of $<US\$20,000$ compared with 13% of the control group

Description of intervention and control

Community-based participatory research approach to develop a faith-based weight loss intervention for rural African American populations

The intervention was an 8-week behaviourally focused weight loss programme in which participants met once a week for 2 hours in groups of 8–10 people led by a pair of trained community leaders who facilitated the groups. The intervention emphasised healthy nutrition, physical activity and faith's connection with health

Theory: Community-based participatory research, social support theory, stages of change, transtheoretical model, social cognitive theory

Approaches to adaptation

- Community coalition was formed and the intervention was designed in partnership
- Formative work was carried out with the community to identify needs and assets
- The focus on body weight was identified by the community as the health issue of most interest to the community
- Bible study and prayer were part of the sessions
- Emphasised the connection between faith and health
- Recruitment through church events, announcements at church events and sign-up sheets at church, flyers posted in churches and by word of mouth. A health day was also held with community health representatives, activities and speakers
- Intervention was implemented through existing community social networks

Outcome measures and results

Follow-up: 8-week follow-up

Changes in physical activity: Treatment participants reported greater recreational physical activity from baseline to follow-up ($p=0.01$) and there was a significant change in mean recreational physical activity over time within the treatment group ($p<0.05$)

Weight: Mean weight loss of the treatment group was 3.60 ± 0.64 lb compared with 0.59 ± 0.59 lb in the control group

Conclusions

Authors: The WORD intervention resulted in a significant difference in weight loss (3.00 ± 0.87 lb) from baseline to the 8-week follow-up between the intervention participants and the control participants. Although this weight loss is significant it is relatively modest compared with that seen with other weight loss interventions. The most critical factor relating to this may be the short duration of the intervention. The use of lay health advisors in this intervention increased the possibility of programme sustainability and built on social networks within the faith community in an economical way. This study offers promising preliminary results that a faith-based weight loss programme using a community-based participatory research approach is effective in a rural African American faith community

Reviewers: This study showed promise for lifestyle change in African American faith populations. The study was not able to examine whether the intervention could result in sustained change and also was not designed in a way that could show how the adaptation contributed to intervention effectiveness

Comments and limitations

Limitations include the lack of randomisation and subsequent differences in baseline characteristics (although this was controlled for in the analysis). Also, the purposive sampling in one rural African American faith community limits the external validity of the study

Study reference

Kousar *et al.* 2008⁵¹³

Setting

Australia; Melbourne

Inclusion criteria

Pakistani-born women aged 20–60 years residing in Melbourne permanently and migrated to Australia over 5 years ago. Must have at least one component of metabolic syndrome (National Cholesterol Education Programme Adult Treatment Panel III criteria: elevated blood pressure, elevated blood glucose, obesity and increased waist circumference)

Study type

Cohort pre–post

Description of population

Ethnicity: Pakistani; not reported how ethnicity assessed

Age (years): Mean: 37.6

n: 53

Sex: 100% female

Income: Not reported

Description of intervention and control

Peer education delivering weekly modules on healthy diet and lifestyle over a 12-week period. Delivered individually by a female facilitator (a trained nutritionist with expertise in obesity management) for on average 4 hours per week (3 hours in person and 1 hour by telephone). Written materials also provided. Multifaceted goals included reducing overall energy intake and increasing physical activity. Modules aimed to increase the participants' self-efficacy and self-regulation

Theory: Formulated on the principles of cultural competence

Approaches to adaptation

- Programme including written materials was informed by cultural competence
- Engaged with consumers in a sustained reciprocal relationship, with shared responsibility
- Identified leadership within the target population
- Bilingual facilitators from same cultural group, religion and sex
- Materials translated into Urdu
- Using existing community networks
- Held sessions in people's homes to allow for transport barriers, time restrictions and family commitments
- Written materials were adapted from materials developed for the general population and refugees

Outcome measures and results

Follow-up: Baseline to weeks 12 and 24

Changes in physical activity: At 24 weeks there was a significant change in physical activity – an increase from 4000 (± 22.6) steps a day to 8617.4 (± 596.8) steps a day

BMI: At 24 weeks there was a significant change in BMI from 29.2 (± 0.46) kg/m² to 27.8 (± 0.45) kg/m²

Conclusions

Authors: This was a successful intervention for the treatment of metabolic syndrome in a high-risk ethnic population in which the principles of cultural competence were applied to overcome the cultural barriers in place for Pakistani women to allow them to make the lifestyle changes necessary to lose weight and reduce the risk of metabolic syndrome

Reviewers: This appears to have been a successful intervention, although conclusions and transferability are limited by the small sample size and lack of a control group

Comments and limitations

Limitations listed are the high-risk population; the sex bias as women only were included (justification given that women are primarily responsible for food preparation and influence the whole family); that long-term follow-up is required to assess sustainability; and that physical activity was limited by inappropriate leisure facilities and it was felt that better results could have been achieved with simultaneous environmental changes

BMI, body mass index.

Study reference

Martin *et al.* 2008⁵¹⁴

Setting

USA

Inclusion criteria

Women, 18–65 years, overweight or obese (BMI ≥ 25 kg/m²), classified as low income (<US\$16,000 annual income), attendees of the primary care clinic for at least 1 year and free of serious or uncontrolled medical conditions (e.g. renal or hepatic failure, cancer, immunological disease, uncontrolled hypertension). Women with well-controlled chronic diseases such as hypertension, diabetes or hyperlipidaemia were included

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: 41.8 \pm 12.0

n: 144 enrolled, seven participants developed conditions so that they could not participate, and only 105 completed the 5-month programme

Sex: 100% female

Income: Not reported

Other: 78% completed high school

Description of intervention and control

Weight loss maintenance of low-income African American women participating in a physician-delivered, primary care weight management intervention

Tailored: 6-month weight loss intervention delivered by a primary care physician. Intervention derived from information provided during an initial assessment. Received five physician-counselled office visits on a monthly basis. Topics included information on weight loss, ways to decrease dietary fat, ways to increase physical activity, dealing with barriers to weight loss and healthy alternatives when eating out and shopping. There was a maintenance session at month 6 on the ways to stay motivated during weight loss. Each visit lasted for approximately 15 minutes (total approximately 90 minutes). Participants received both oral recommendations and handouts summarising the focus of each visit

Standard care: Participants received no special instructions regarding weight loss and were seen as needed for regular medical care. Physicians provided usual obesity management conducted during a typical office visit

Theory: Not reported

Approaches to adaptation

- Baseline assessment provided information used for tailoring the monthly interventions. Dietary and physical activity recommendations were personalised based on a participant's activity and food preferences, physical environment, limitations, normal eating patterns and caloric intake needed to achieve weight loss
- Participants also received culturally specific menus and recipe books

Outcome measures and results

Follow-up: 6 (post treatment), 9, 12 and 18 months following randomisation

Weight: Weight loss of intervention participants (-1.52 ± 3.72 kg) was significantly greater than that of standard care participants (0.61 ± 3.37 kg) at month 9 ($p=0.01$); however, no significant difference was detected between groups at 12 months [intervention group: 1.38 ± 3.69 kg vs standard care group: -0.16 ± 3.63 kg, $F(1,6)=3.80$, $p=0.10$] or 18 months [intervention group: -0.49 ± 3.33 kg vs standard care group: $+0.07 \pm 3.75$ kg, $F(1,6)=0.85$, $p=0.39$]

Conclusions

Authors: Participants receiving a tailored weight loss intervention from physicians were able to maintain modest weight loss up to 3–6 months following treatment. Weight was regained at the 18-month follow-up suggesting that a more intensive follow-up in the primary care setting may be needed for long-term weight loss maintenance. Only a small minority achieved and maintained a weight loss of at least 5% at any follow-up, which did not differ from standard care values. Modest weight loss with brief treatment (approximately 15 minutes at each of six sessions) and prevention of weight gain can be helpful for chronic disease outcomes, i.e. hypertension and diabetes. More extended follow-up intervals are needed to determine the course of weight change

Reviewers: This study managed to improve weight loss for the participants at 9 months but that effect was lost at the 12- and 18-month follow-ups. These findings are similar to those of other studies, which suggest that long-term sustained weight loss is difficult to achieve. It is noteworthy that weight gain was kept to a minimal, which is also thought to be helpful in addressing risk factors for chronic diseases

Comments and limitations

To decrease attrition, reimbursement was provided for potential barriers, e.g. transportation and childcare. Physicians were also reimbursed. However, there was still considerable attrition – 105 completed the 6-month programme (an attrition rate of 27%). Also, the attrition rates by the 9-month, 12-month, and 18-month follow-up assessments were 29, 35 and 37% respectively. Time constraints and reimbursement could make this intervention impractical for many clinical settings. Generalisability is limited because the focus is low-income African American populations; unclear what effects might be in obese adolescents or higher SES and other ethnic groups

BMI, body mass index; RCT, randomised controlled trial; SES, socioeconomic status.

Study reference

Murrock and Gary 2008;⁵¹⁵ Murrock and Madigan 2008⁵¹⁶

Setting

USA; city or state not reported

Inclusion criteria

African American women aged ≥ 53 years, able to speak and read English, members of the church, not currently engaged in a physical activity programme, with written clearance from their physician and had signed the consent form

Study type

Quasi-experimental; randomised to intervention or control by church (although only two churches involved)

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Not reported

n: 126 participants; 66 in the experimental group, 60 in the comparison group

Sex: Not reported

Income: Not reported

Description of intervention and control

Two churches were assigned to an intervention or control group by blind draw of sealed envelopes. The study was announced from the pulpit and advertised in the church bulletin of both churches and recruitment occurred over 1 month

Intervention: Dance sessions were held twice a week for 8 weeks with each session lasting for 45 minutes and including a 5-minute warm-up, 30 minutes of dance and a 10-minute cool down. The dance was of moderate intensity. At the end of the 8 weeks the women were given a video of the dance to carry on the intervention at home

Control: The comparison group continued their normal activities and were sent health information for African American women on heart disease, obesity, diabetes and hypertension. After the 18-week assessment they also received the free dance video so that they could carry out the exercise

Theory: Based on social cognitive theory

Approaches to adaptation

- Culturally specific dance was used as it is symbolic of African American heritage and is a means of interaction, support and cohesion
- Dance was to gospel music
- The research team members were primarily African American
- The dance instructor was a female African American
- The intervention was held in the church fellowship hall

Outcome measures and results

Follow-up: Baseline and 8 and 18 weeks

Changes in physical activity: There was a significant improvement in functional capacity (this consisted of a 6-minute walk test in which the participants walked as far as possible around a pre-measured area of the church in 6 minutes; body fat was also measured using a segmental bioelectrical impedance arm-to-arm analyser). These changes occurred for both groups at 8 weeks ($p < 0.001$) and 18 weeks ($p < 0.001$); a significant difference between the groups was found only at 18 weeks ($p = 0.04$)

Conclusions

Authors: This study provided empirical data about a culturally specific dance intervention to improve functional capacity in African American women. The culturally specific dance intervention was within their own community and was taught by a respected member of their community to gospel music selected by the women. The dance steps were altered to match the age and health status of the women without reducing the health benefits. Culturally specific dance may be an initial step to encourage African American women to become more physically active and improve health outcomes

Reviewers: This study showed the effect of a culturally specific dance intervention for African American women. A significant effect was seen at the 18-week follow-up point. The intervention appeared to be acceptable and was adapted for the population; however, the design did not permit comment on how the adaptation contributes to the effect

Comments and limitations

Randomisation of the churches, not the individuals, limited the generalisation of the results, even though the groups were matched on similar characteristics. The convenience sample of people volunteering may have been different from the people who did not or could not participate. As the study was carried out in one city and with only two churches it may not be generalisable and may not apply to women who are not church attendees. There was higher attrition in the experimental group than in the comparison group and this may have affected the results

Study reference

Thompson *et al.* 2008;³⁵⁹ Thompson *et al.* 2008³⁶⁰

Setting

USA; Houston

Inclusion criteria

African American girls aged 8–10 years with a BMI \geq 50th percentile, with a home computer, internet access and an e-mail address

Study type

Randomised two-group design

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): 8–10

n: 80

Sex: 100% female

Income: Not reported

Description of intervention and control

An 8-week internet-based intervention to change fruit, juice and vegetable consumption, physical activity and self-efficacy in youth at risk of obesity. Treatment website was from a previous study with African American girls⁴⁹⁴ and was adapted to be a stand-alone internet programme by adding an introduction and a club member manual. Groups differed only on the incentive schedule (immediate, delayed). Participants' weekly goals were to increase fruit, juice, and vegetable consumption (five servings) and water consumption (five glasses) and lifestyle physical activity (30 minutes). Weekly programming included role-modelling comics, problem-solving and goal-setting/review. Modules were designed to be completed in approximately 20 minutes each week and constituted the 'required activities'. In addition, there was a 'fun activities' module.

Theory: Social cognitive theory guided the content while elaboration likelihood guided character development, the storyline and the design framework

Approaches to adaptation

- Physical activity questionnaire was adapted and had adequate reliability and validity among a very specific population (9-year-old African American girls)
- Girls prefer affiliate activities and the programme was presented as a 'club' and they received members' gifts
- Treatment website was adapted from a previous study with African American girls to be a stand-alone internet programme (culturally sensitive comic)

Outcome measures and results

Follow-up: Post-assessment data after completion of week 8 activities

Changes in fruit, juice and vegetable consumption and physical activity: Statistically significant pre-to-post differences observed in fruit, juice and vegetable consumption with an increase of 1.01 servings ($p=0.002$), increased physical activity-yesterday ($p<0.001$), increased physical activity-usually ($p=0.001$) and improved fruit, juice and vegetable self efficacy ($p=0.003$)

Conclusions

Authors: A pilot study of a theory-based internet programme for girls indicated significant changes in fruit, juice and vegetable consumption and physical activity in an at-risk group of young girls. The current study achieved greater change in fruit, juice and vegetable consumption and physical activity than a previous study using the internet programme⁴⁹⁰ (also included in this systematic review), which may be explained by a greater programme dose in the current study and an exclusive internet approach rather than a mixed internet + camp approach, which may have attracted families more interested in a low-cost summer day camp than an internet programme. A full-scale RCT may be needed to more fully examine the impact of an internet-based e-Health programme on diet and physical activity. Incentives were tied to the programme dose (i.e. increased exposure) rather than to goal attainment or behaviour change. The use of multiple recruitment methods may influence generalisability.

Reviewers: This study compared the same treatment but with a different incentive schedule. The motivation for this was not entirely clear but the study showed that fruit, juice and vegetable consumption and physical activity increased in both groups and that immediate incentives encouraged greater log-on rates than delayed incentives, but this was not significant. Overall, the interesting finding came from participation based on the recruitment method (media vs church): those recruited through the media had higher log-on rates (although this was not statistically significant)

Comments and limitations

Strengths include a delivery channel that minimised differences in delivery, the low attrition rate ($< 10\%$) and the reasonably high log-on rates (i.e. programme dose), suggesting that an acceptable dose was achieved (log-on rate averaged 74.5%). Log-on may have been enhanced compared with other studies because of the club format and staff computer support. Limitations include the small sample size, lack of a control group, self-reported measures with the possibility of socially desirable responses, the short study duration and the requirement to have a home computer with internet access, which likely excluded at-risk girls. Further, joining of sports groups, family vacations, holidays and chance or other events may have influenced fruit, juice and vegetable consumption and physical activity during the intervention.

BMI, body mass index; RCT, randomised controlled trial.

Study referenceChoudhury *et al.* 2009⁴⁰⁹**Setting**

UK; Swansea and Cardiff

Inclusion criteria

Bangladeshi adults living in and around Swansea and Cardiff with type 2 diabetes

Study type

Uncontrolled before-and-after study

Description of population

Ethnicity: Bangladeshi; not reported how ethnicity assessed

Age (years): Not reported

n: 72

Sex: 66.6% female

Income: Not reported

Description of intervention and control

Recruitment was carried out through posters displayed in GP surgeries, pharmacies, the mosque and other community settings. Peer educators and the researcher also advertised the educational sessions to their contacts who were asked to spread the word. Announcements were also made at the mosque and these would have reached people in their homes. People who registered were all telephoned or visited at their homes the day before the course and were also telephoned on the morning of the course as a reminder. The venue was within walking distance of the homes of registered responders. The intervention consisted of one 4-hour session of a culturally adapted version of the X-PERT programme (utilising four of the original six sessions – carried out in one session)

Theory: No theories are explicitly stated**Approaches to adaptation**

- Participants divided into male-only and female-only groups
- Intervention conducted near to participants' homes and any travel expenses were paid and refreshments provided
- Materials were translated into Sylheti (and back translated to ensure quality)

Outcome measures and results*Follow-up:* Outcomes were measured after the course and a course assessment questionnaire was carried out*Changes in dietary fat:* The results of the questionnaire showed an increase in the time spent on self-management of general diet and specific diet of 0.3 days*Changes in fitness:* Exercise increased over the study period but not significantly – this may be related to the sample size as the sample only had 50% power to detect a 1-day improvement in self-care activities**Conclusions**

Authors: The response in terms of registration was good; however, attendance was only 53% of those registered despite the extra reminders by telephone and home visits. The most valued things were information provided in a language that was understood and also the discussion of problems and solutions with others. The peer educators were the most important part of the course as they were well known to the community, had bilingual language ability, had the time to devote to the course, had diabetes themselves and had the ability to learn and deliver the course. Findings suggest that the 4-hour intensive course was a success and was well received and could be part of a strategy to improve outcomes for people with diabetes in the Bangladeshi community

Reviewers: This intervention seems to be well accepted but it is difficult to interpret its success as it was short-lived and the study did not have sufficient power to detect a change in exercise and diet. There are interesting lessons in terms of the success of the social support aspect and a suggestion that results may have improved with a longer duration of the programme and a larger sample size to examine the effects

Comments and limitations

The course was kept to one intensive 4-hour session because in the pilot work it was felt that numbers would not be sustained over more than one session. However, it is hypothesised that because of the acceptability of the programme it may have been possible to sustain numbers and have a longer course with perhaps more significant results. The power of the study limited the analysis of the questionnaires. The issues of cost-effectiveness and equity were not addressed

GP, general practitioner.

Study reference

Djuric *et al.* 2009³⁵⁴ [Lifestyle Improvement with Food and Exercise (LIFE)]

Setting

USA; Detroit, MI

Inclusion criteria

Women who had been diagnosed with stage I, II or IIIA breast cancer within the last 10 years and who identified themselves as African American. Other eligibility criteria were BMI 30–45 kg/m², completed chemotherapy or radiation therapy at least 3 months previously (with exception of tamoxifen), age 18–70 years, willing and able to follow a diet and exercise recommendations and having spiritual influences in their lives as determined from a spiritual index. Women with a recurrence, a second primary tumour or other history of malignant tumours were not eligible. Eligible women had to also not be presently on a special diet for a medical condition, e.g. type 2 diabetes, or currently participating in a formal weight loss programme

Study type

RCT

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): 56 (10)

n: 31

Sex: 100% female

Income: Mean household annual income: dietician group: 25% <US\$30,000, spirituality arm: 25% <US\$30,000

Other: Dietician group: 50% college graduates, spirituality arm: 67% college graduates

Description of intervention and control

Randomised culturally tailored clinical trial of spirituality counselling for weight management in African American breast cancer survivors. Both arms received individualised dietician-led dietary and exercise counselling by telephone combined with free Weight Watchers coupons for 18 months and at the 6-month time point the dietary counselling became less frequent and women were randomised to receive spiritual counselling (non-denominational) or not in addition to the standard programme. Exercise was for at least 30 minutes most days each week using participants' preferred mode of exercise. A monthly newsletter was sent

Theory: Bandura's social cognitive theory⁴⁹⁸

Approaches to adaptation

- Focus groups were held and developed the spiritual approach
- In the spiritual counselling a book called *Walk Tall: Affirmations for People of Colour* was given to participants, which included quotes from prominent figures
- Spiritual approach chosen as it is relevant to African American women
- Exchange list method for dietary change used as appeared to be preferred by African American women

Outcome measures and results

Follow-up: Baseline to 6, 12 and 18 months

Changes in fruit and vegetable consumption: Spirituality group had significant increases in fruit servings ($p=0.007$) and in their healthy eating index ($p=0.036$), and the fruit servings change was significantly different from that of the control group

Changes in physical activity: Physical activity did not change significantly in either group

Weight: Mean weight loss from baseline to 6 months was a modest 2% of baseline weight. From the 6- to 18-month assessment there was no further weight change in the spirituality arm and a gain of 0.7% in the dietician-only arm

Conclusions

Authors: Despite little effect on weight loss it did appear that spirituality counselling positively affected spiritual well-being scores and dietary quality. The spirituality framework therefore may be further refined and used for other health promotion studies with African American populations

Reviewers: The study showed that spirituality counselling may have some added effect to a culturally adapted diet programme in this population in terms of weight change; however, the differences are small

Comments and limitations

Limitations include the small sample size and the fact that the sample was fairly well educated and may not be generalisable to other populations

BMI, body mass index; RCT, randomised controlled trial; SD, standard deviation.

Study reference

Stolley *et al.* 2009⁴¹² (Moving Forward)

Setting

USA; Chicago, IL

Inclusion criteria

At least 18 years old, self-identifying as African American/black, having a stage I, II or III breast cancer diagnosis, BMI ≥ 25 kg/m², completed breast cancer treatment (except endocrine treatment) at least 6 months before baseline interview, having physician approval to participate in a moderate physical activity programme, not using prescription weight loss medication, not currently participating in an organised weight loss programme and willing to participate and able to complete the pre-intervention and post-intervention interviews and attend twice weekly classes for 6 months

Study type

Pre–post

Description of population

Ethnicity: African American/black; self-identified

Age (years): Mean (SD) (range): 51.4 (8.9) (30.6–70.1)

n: 23

Sex: 100% female

Income: Not reported

Description of intervention and control

A 6-month culturally tailored weight loss intervention

The intervention provided information to increase knowledge and improve attitudes about diet, physical activity and weight loss and their relationship to breast cancer prognosis and general health, an opportunity to enact positive behavioural changes and increase self-efficacy, an environment in which participants felt comfortable applying problem-solving skills, allowing them to confront barriers to change, and reinforcement and social support for making health behaviour changes. The intervention consisted of 6 months of two-weekly classes; the first class included 2 hours of discussion around barriers, knowledge, attitudes, facilitators, benefits and costs related to changes in diet, exercise and weight

Theory: The intervention was developed by integrating two health behaviour change theories: social cognitive theory and the health belief model

Approaches to adaptation

- Took into account unique cultural contributors to weight loss
- Literature review and focus groups with African American breast cancer survivors were used to find cultural adaptations
- Addressed the importance of food in the culture
- Included low-fat versions of soul food recipes
- Included the role of religion and worship
- Physical activity advice addressed barriers
- Acknowledged family roles and resistance to change
- Included information on the value of healthful lifestyles for children and spouses
- Facilitated social support for making changes in diet and physical activity

Outcome measures and results

Follow-up: Baseline and 6 months

Changes in fruit and vegetable consumption: Vegetable consumption increased significantly by 1.6 servings per day ($p=0.05$)

Changes in dietary fat: Fat consumption decreased significantly by 23.6 g ($p=0.03$) although the decrease in percentage of energy from fat was not significant

Changes in physical activity: Median time spent in physical activity increased significantly by 23.6 minutes per day ($p=0.02$). Changes in moderate physical activity and all physical activity also increased but not significantly

Weight: Mean weight loss was 5.6 lb ($p=0.001$) and there was a decrease in BMI of 1 kg/m²

Conclusions

Authors: Although a RCT is needed to establish efficacy, the positive results suggest that this weight loss intervention may be feasible for African American breast cancer survivors. Lifestyle interventions may reduce the disparities in breast cancer mortality rates

Reviewers: This study had a very good formative component in its development in both theory of behaviour change considerations and adaptation. It has been shown to be effective, acceptable and feasible. As stated by the authors, a larger study is required to assess generalisability and to be able to truly assess effectiveness

Comments and limitations

Limitations include the small sample size, lack of a control group, the fact that recruitment was based on self-selection and may have been biased and the fact that measures of dietary intake and physical activity were self-reported and may be biased. Also, the study cannot be generalised to a wider population as it includes a very specific population and it is not clear how long these changes may be sustained for

BMI, body mass index; SD, standard deviation.

Study reference

Sharp *et al.* 2008;³⁶⁷ Fitzgibbon *et al.* 2008;³⁶⁵ Stolley *et al.* 2009³⁶⁶ [Obesity Reduction Black Intervention Trial (ORBIT)]

Setting

USA; Chicago, IL

Inclusion criteria

Female, self-identified as African American or black, aged 30–65 years, BMI between 30 and 50 kg/m², able to participate in a programme requiring 30 minutes of uninterrupted walking or other moderate activity, able to attend class at scheduled times and return of medical approval form signed by physician

Study type

RCT

Description of population

Ethnicity: African American or black; self-identified

Age (years): 30–65

n: 213

Sex: 100% female

Income: Not reported

Description of intervention and control

Culturally proficient 6-month weight loss intervention. Intervention targeted changes in diet and physical activity patterns. There was the opportunity for monthly motivational interviewing. Intervention groups were a valuable source of social support

The weight loss intervention was conducted in a small group format and groups met twice weekly on the university campus. All participants were encouraged to adopt a low-fat high-fibre diet with increased fruit and vegetable intake and to increase their physical activity. Dietary objectives included reducing dietary fat to <30% of total daily calories, increasing dietary fibre to a minimum of 25 g per day and increasing fruit and vegetable intake to a minimum of five servings a day. Exercise objectives were three to four times a week for at least 30 minutes. The intervention involved hands-on activities such as portion size, weighing and measuring, trips to grocery stores, label reading and creating weekly meal plans

Theory: Social cognitive theory

Approaches to adaptation

- Acknowledged the importance of food in African American culture and ways to integrate this value with healthful eating
- Incorporated body image and reasons for weight loss in a way that was appropriate for this population
- Several sessions were held on how social relationships could serve as sources of support and barriers to behavioural change
- Used high-tempo, high-energy music that the participants enjoyed as well as African dance
- Addressed barriers to physical activity such as hair care, safety, weather, access and time
- Respected the importance of religion and worship in participants' lives and ways in which their faith influences their perspective on health
- There was a focus on food, family, music, social roles and responsibilities and spirituality/religion

Outcome measures and results

Follow-up: Baseline and 6 months

Changes in fruit and vegetable consumption: Women in the intervention group showed improvements in fruit intake ($p < 0.01$) and the Healthy Eating Index score ($p < 0.001$) compared with women in the control group

Changes in physical activity: Women in the intervention group also showed improvements in moderate ($p = 0.05$) and vigorous ($p < 0.001$) physical activity compared with women in the control group

Weight: Women in the intervention group lost an average of 3 kg (SD 4.9 kg) compared with a gain of 0.2 kg (SD 3.7 kg) in the control group ($p < 0.001$). However, weight change was variable within the groups with a maximum weight loss in the intervention group of 19.4% of initial body weight and a maximum weight gain in this same group of 6.4% of body weight (25% of women in the intervention group lost >5% of their initial weight over 6 months compared with only 5% in the control group)

Conclusions

Authors: This study demonstrated that a culturally adapted programme can successfully promote weight loss in obese black women; however, average weight loss was relatively modest and weight change varied widely within the intervention group. Weight loss of 5% has been shown to alleviate the burden of many chronic diseases. Further research is needed to develop programmes that will allow more black women to achieve their weight loss goals

Reviewers: This study showed an effect of a culturally adapted weight loss programme for African American women. The effects were varied within the groups, they were moderate in size and also it is unknown how long they could be sustained for. A maintenance study is under way. The study design does not tell us about the effectiveness of adaptation vs no adaptation

Comments and limitations

Self reported measures were used for diet and physical activity. Recruitment was voluntary and participants may be more motivated than the average population. Only BMI was used as a measure whereas other factors are also associated with chronic disease, such as fat distribution, and perhaps these other measures would have related to health outcomes more