Adapted physical activity interventions

Study reference

Carroll *et al.* 2002[302]

Setting

UK; Leeds, urban

Inclusion criteria

Women were to be in the contemplation or pre-contemplation stage of behaviour change, to be South Asian, Muslim and living in the Beeston area of Leeds and to have confirmation from their GP that they were fit enough to participate

No other inclusion or exclusion criteria are given

Study type

Qualitative

Description of population

Ethnicity: South Asian; not reported how ethnicity assessed

Age (years): Not reported

n: 15

Sex: Not reported

Income: Not reported

Description of intervention and control

Exercise to Health's pilot project targeted South Asian women at high risk of heart disease and diabetes. It was adapted from the successful Heart Watch and Diabetes Watch programmes. Exercise programmes were twice weekly, with a moderate type of exercise and suitable equipment, and the intervention was located in a church hall in the heart of the community. The hall could be sealed off so that women had exclusive access. All but two women attended five or more sessions

Theory: Action research framework

Approaches to adaptation

- Developed following extensive formative research of the population's needs
- Bilingual female health and fitness assessor, instructor and researcher
- Project co-ordinator and researcher were multilingual South Asian Muslim women
- Use of local centres within the community
- Crèche facilities
- No charge for exercise programme
- Recruitment and promotion of the programme through the community, in appropriate languages
- Children, relatives and friends could be brought to interviews
- Women-only sessions

Outcome measures and results

Follow-up: Measurements were taken at baseline and at 6 and 14 weeks

Psychological measures (questionnaire was not repeated at 6 weeks as it was considered too short a time): The follow-up interviews showed that women felt healthier, lost weight, had made positive behavioural changes and had a positive outlook to continuing exercise

Conclusions

Authors: Women were happy with the scheme and the results and were willing to let other people know about it and to recommend it to others. None of the women experienced any difficulties accessing the programme with regard to the points of view of their families. There was much more demand for the programme than could be provided and this was a missed opportunity. The project appeared to be a success, not just from the point of view of the women but also from the perspectives of the scheme providers

Reviewers: A lot of formative work and preparation went into this project and it seemed to have been acceptable to the population. It is unfortunate that the funding ceased and this prevented further intervention and further evaluation. It is particularly unfortunate that none of the physiological measurements is presented as this prevents any assessment of effect

Comments and limitations

This was a pilot programme and the period of 6 weeks was too short, but it was not possible to continue because there was no more funding. The behavioural and psychological measures were not repeated because 6 weeks was felt too short a time for change. The physiological measures were said to have been repeated at 6 weeks but there was no documentation on the results and therefore we were unable to comment. Further tests are needed of the tools that were used as measures as they had been adapted for this population. There was no comparison group

GP, general practitioner.

Study reference

Guerin *et al.* 2003[283]

Setting

New Zealand; Hamilton

Inclusion criteria

Somali women living in Hamilton, New Zealand; no other explicit criteria given (for the gym membership it was given on a first-come first-served basis)

Study type

Qualitative

Description of population

Ethnicity: Somali; not reported how ethnicity assessed

Age (years): Average (range): 33 (17–67)

n: 37

Sex: 100% female

Income: Majority were unemployed and on government benefits

Description of intervention and control

Three exercise programmes were delivered: an exercise class at a community centre, a 3-month trial membership to a fitness centre with a women-only facility and a walking/sport group. The three classes were delivered independently at different times of the year

Community centre classes were held in a facility that had been altered to be culturally appropriate with windows painted over so that the women could not be seen exercising. Between 8 and 40 women attended each session; sessions lasted for 6 weeks (16 classes) and concluded at the start of Ramadan

Gym membership was provided for 20 women (first come first served) and was highly subsidised so that it cost only NZ$5 for 3 months

The *walking/sport group* was organised twice a week weather permitting. The women met at a sports field after dark and would walk, jog, play various ball games and participate in other exercises

Theory: Not reported

Approaches to adaptation

- Women were consulted over the design
- Facilities were adapted to be culturally appropriate
- Interpreter at exercise sessions
- Gym highly subsidised
- Outdoor sessions after dark for privacy and for fear of discrimination
- Reminder calls and help with transportation
- Music and clothing worn were adapted, e.g. modifying traditional Somali dress for safety when exercising
- Consideration of Ramadan and prayer
- Somali community radio was used
- Recognition of health issues within Islam; most common interpretation is that physical activity participation is not prohibited for women as long as it is not at the expense of caring for the family

Outcome measures and results

Follow-up: The data were from interviews, observations and casual conversations with women over a year during which these activities were provided

Changes in physical activity: Women stated that they would like to have more exercise available to help them be more physically active. It was found that engaging in physical activity was helping to decrease weight gain among this population and improve their physical health (no data reported)

Conclusions

Authors: Overall, the authors found many benefits for the Somali women in the opportunities provided for increasing physical activity. In working with the women of the Somali community they found that identification of their needs contributed to the success of the programmes. They also found that ongoing communication with the women was the best way to provide opportunities to identify and meet their needs

Reviewers: The study is limited by its design/reporting in terms of the conclusions that can be drawn about its effectiveness. However, it provides interesting insights into the adaptation of interventions for a refugee population and some of the unique features that should be taken into consideration

Comments and limitations

This study is limited by its design and there is limited evaluation of the effectiveness of the interventions

Study reference

Newton and Perri 2004[350]

Setting

USA; Florida

Inclusion criteria

Between 30 and 69 years, sedentary lifestyle (defined as < 1 hour per week of leisure time over the previous 12 months) and good health status (absence of significant medical illnesses and orthopaedic problems that would interfere with walking)

Study type

RCT (part of a wider RCT)

Description of population

Ethnicity: African American; self-classified

Age (years): 30–69

n: 90

Sex: 81% female

Income: 75% had a personal income of at least US$25,000 per year

Other: 92% had some college education or more

Description of intervention and control

Compared effects of three home-based exercise promotion interventions for improving cardiorespiratory fitness and physical activity in sedentary African American adults

Physician advice (PA): Minimal treatment corresponding to the recommended exercise guidelines that a health-care provider would typically give to a sedentary individual. After the initial meeting, participants were invited to monthly physician-led meetings in which various health topics were discussed (all health topics were unrelated to altering exercise or eating habits)

Standard behaviour exercise counselling (SB): Received 10 group sessions over 6 months. Sessions held weekly during month 1, biweekly during months 2–3 and monthly during months 4–6. Sessions were led by counsellors with graduate training in exercise science and/or behavioural science. Standard written materials were related to key behavioural components; however, materials were not tailored to address issues of particular concern to African Americans

Culturally sensitive exercise counselling (CS): Identical to the SB programme with the exception of four key elements: (1) all group members were African American; (2) the sessions were led by African American counsellors; (3) the sessions were conducted at a site located in the African American community; and (4) the programme included materials that were designed to address sociocultural concerns of African Americans regarding exercise

Theory: Not reported

Approaches to adaptation

- Participants recruited through a variety of methods
- Community leaders asked to provide advice about approved methods and to announce the study in the African American community, including securing the support of prominent African American politicians, pastors and civic leaders who publicly endorse the programme
- Personal presentations delivered to African American churches and social and fraternal organisations
- Fliers were placed in churches, beauty/barber salons, shopping markets, residential areas and other places of congregation for African Americans
- Public service announcements were delivered through radio stations and newspaper advertisements, and targeted mass mailings were delivered to areas that were densely populated with African American families
- African American Acculturation Scale used
- CS: The first three elements were to enhance identification among the participants and the group leaders. This is 'surface-level' cultural tailoring. Programme material designed to incorporate both surface and deep levels

Outcome measures and results

Follow-up: Baseline and 6 months post treatment

Changes in fitness: Post hoc tests showed significant differences between the SB and PA conditions ($p = 0.006$) and between the CS and PA groups ($p = 0.034$). Both exercise counselling groups had greater changes in fitness than the PA group

Conclusions

Authors: Participants in all three conditions reported an increase in exercise participation; however, only participants in the SB and CS counselling groups demonstrated significant improvements in cardiorespiratory fitness. Participants in the CS intervention reported significantly higher social support for exercise than the other two groups. The CS group was more satisfied with the programme than the other groups. Despite significant changes in fitness in the SB and CS counselling groups, there were no group differences in physical activity. It was hypothesised that those in the PA group were subject to 'demand characteristics' and self-reported increases in physical activity while demonstrating decreased fitness levels

Reviewers: Improvements in fitness and in physical activity did not differ significantly between the CS and SB groups. Rates of attendance and adherence were also equivalent. It is possible that the CS group may not have included cultural elements of sufficient salience to produce a greater effect than the SB intervention, e.g. the use of testimonials or 'testifying', which is a common form of communication among African Americans. CS may have made it easier to obtain social support such as 'a buddy' for exercising resulting in increased satisfaction. It is unclear which aspects of cultural tailoring were related to change in social support and participant satisfaction. Acculturation did not moderate the relationship between the intervention groups and outcome measures. This could be because there was not enough variation in acculturation between the participants – the majority were 'bicultural' and consequently receptive to information presented from both a culturally tailored and a standard orientation

Comments and limitations

The majority were highly educated, which may limit the generalisability to a less educated population. Self-reported data. Small sample size limits generalisability and its power to detect between-group differences

RCT, randomised controlled trial.

Study reference

Andersen *et al.* 2006[468]

Setting

USA; Baltimore, MD

Inclusion criteria

Adult commuters in the subway station were included; people were excluded if they were carrying items larger than a briefcase, were carrying a baby or child or were judged to be < 18 years of age

Study type

Observational

Description of population

Ethnicity: African American, Caucasian or other categories but these were assigned by observers not self-assigned; 8477 were classified as African American, 6689 as Caucasian and 869 as 'others'

Age (years): 14–31% of the African American participants were > 40 years age in the five different data sets

n: 540 people were observed in the pilot phase; 16,035 adult commuters were observed in the study

Sex: Not reported

Income: Not reported

Description of intervention and control

Adult commuters in an urban subway station (of a university hospital in Baltimore) were observed while taking the escalators or stairs

Pilot phase: People were observed for 1 week and then a sign was put up that encouraged people to use the stairs and people were observed for the following week. This was carried out at one subway stop only

Study phase: A culturally sensitive sign was developed. People were observed for 2 weeks before the sign was put up. People were then observed for 2 weeks with the sign present and for a further 2 weeks after the sign was taken down. Data were once again recorded for one week without the sign present at week 7. Finally, the last phase of the study involved putting the sign up once again at week 8 and recording stair use. Data were collected unobtrusively from a distant point above

Theory: Not reported

Approaches to adaptation

- Images on the sign featured an African American role model and the slogan was developed from ideas from the community that a barrier to exercise was time – 'No time for exercise? Try the stairs'
- Community consulted for the development of the culturally sensitive intervention, including focus groups

Outcome measures and results

Follow-up: See study phase above

Changes in physical activity: African American people increased their stair use when the sign was displayed, from 10.3% (95% CI 9% to 11.5%) to 16.4% (95% CI 15.1% to 17.7%; NNT = 16). Stair use remained elevated 1 week after the sign was removed but returned to baseline levels 3 weeks after removal, and overall stair use did not differ from baseline to 4 weeks after the display of the sign

Conclusions

Authors: A low-cost culturally sensitive sign can significantly increase the proportion of African American commuters who use the stairs rather than an adjacent escalator in an urban subway station. Given that stair use may be an efficient way to add physical activity into a daily routine, these findings have important public health implications

Reviewers: This is an observational study and so it is difficult to draw causal associations. The sample included different people with different age and weight distributions, and all of the variables – ethnicity, age and weight – were judged by observation only. However, observationally, it did appear that significantly more people chose to use the stairs when the sign was in situ

Comments and limitations

The greatest limitation to this study is that the data collection was carried out by estimating people's ethnicity, weight and age. The authors comment that there was good agreement between investigators in their judgement, but this does not alter the fact that there was likely a large margin of error in terms of people's true demographics and particularly their self-assigned ethnicity

CI, confidence interval; NNT, number needed to treat.

Study reference

Stewart *et al.* 2006[413] (CHAMPS III)

Setting

USA; San Francisco, CA

Inclusion criteria

No explicit inclusion criteria

Study type

Pre–post

Description of population

Ethnicity: African American (90%), Asian (2%) and white (8%); not reported how ethnicity assessed

Age (years): 97% of African American participants were > 60 years

n: 321; 53 participants completed the 6-month follow-up

Sex: Not reported

Income: Not reported

Description of intervention and control

Community Health Activities Model Programme for Seniors, CHAMPS II, was diffused to lower-income and minority groups

Intervention: A choice-based individually tailored programme providing information, skills training, support and problem-solving through personal planning, regular telephone follow-up, group workshops, newsletters, activity diaries and functional fitness assessments

Theory: Social cognitive theory

Approaches to adaptation

- Had community group consultations on how to adapt the intervention
- Classes made much more interactive for this audience
- More media resources used such as television and the internet
- Adaptations continued during implementation; was an ongoing process in response to feedback and evaluation

Outcome measures and results

Follow-up: Process evaluation was conducted with staff, volunteers, and directors every 6–12 months while the programme was running; participant outcomes were measured at the end of each cohort's 6-month intervention

Changes in calories: 53 participants who completed to 6 months showed an increased expenditure of calories per week of 481 (SD 1939)

Changes in physical activity: Increase in hours of physical activity per week of 1.9 (SD 8.0)

Conclusions

Authors: The project enabled community organisations to implement physical activity promotion programmes. The overarching challenge was to retain the original programme features within each organisation's resources yet for it to be sustainable. Although the programmes differed from the original research programme they were a catalyst for numerous community-level changes. The findings were said to be able to guide similar projects to reach underserved older adults

Reviewers: This intervention did not show any significant effect in terms of increased physical activity although there were trends in this direction. There was a strong community partnership in the intervention. The successes that occurred were the environmental/community changes in the development of new and better recreational facilities and opportunities. This infrastructure has been sustained to 1.5 years by the community

Comments and limitations

This study has a relatively small sample that completed to 6 months. There is no comparison group. The recruitment was self-referral and prone to bias

SD, standard deviation.

Study reference

Taylor-Piliae *et al.* 2006;[402] Taylor-Piliae *et al.* 2006[403]

Setting

USA; San Francisco, CA, urban

Inclusion criteria

Chinese, ≥ 45 years with at least one major CVD risk factor living in the San Francisco Bay Area, Cantonese or English speaker, not practising Tai Chi in the last 6 months and willing to give written informed consent

Study type

Quasi-experimental

Description of population

Ethnicity: Chinese; not reported how ethnicity assessed

Age (years): 66 ± 8.3

n: 39

Sex: 69% female

Income: The majority reported an income of < US$35,000 per year

Other: Most were Cantonese speakers. The majority reported ≤ 12 years of education

Description of intervention and control

Recruitment occurred through flyers, posters, brochures and newspaper advertisements. Intervention was a 12-week community-based Tai Chi exercise programme in a community centre. The subjects were recruited to cohorts of a maximum of 20 per group and had 60-minute sessions three times a week. Yang Style 24 posture Tai Chi was used, which is thought to have an intensity equal to brisk walking. Each session had a 20-minute warm-up, 30 minutes of Tai Chi and then a 10-minute cool down. Subjects were encouraged to practice at home at least two other days a week and on completion of the 12 weeks they received a CD-ROM of the Master performing the sequence

Theory: Minimal theory as was exercise only

Approaches to adaptation

- Used culturally appropriate traditional exercise from China
- Set in community centre that is familiar and where a large number of Chinese elders gather regularly
- Delivered in Cantonese (principal investigator, research assistant and instructor all bilingual)

Outcome measures and results

Follow-up: Baseline to 6 and 12 weeks

Changes in physical activity: Subjects were sedentary at baseline but had a significant increase in aerobic endurance over time ($p = 0.001$)

Conclusions

Authors: This innovative culturally relevant community-based 12-week Tai Chi exercise intervention appealed to Chinese adults with CVD risk factors and resulted in significant improvements in aerobic endurance. This intervention has the potential to reduce expenditure associated with CVD by facilitating a lifestyle that promotes physical activity while remaining a low-tech, low-cost alternative to exercise

Reviewers: This intervention appears to have been highly acceptable to the population and had positive effects on aerobic endurance. A prolonged effect or any effects on weight or other health factors are yet to be demonstrated. This has limited generalisability although it shows that using a form of exercise that is traditional to a population is acceptable and feasible

Comments and limitations

Possible selection bias – may have included only people interested in Tai Chi and may not be generalisable within this population. No control group and small sample size. Unknown if there is a longer term effect/sustainability

Study reference

Young and Stewart 2006[397]

Setting

USA; Baltimore City and Baltimore County, MD

Inclusion criteria

African American woman, attended study churches or had friends who were church members or lived in the neighbourhood, between 25 and 75 years, did not engage in moderate-intensity activity more than three times a week and indicated willingness to increase their level of physical activity

Study type

RCT (randomised by church)

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: active intervention: 48.0 ± 2.2, control: 48.4 ± 2.3

n: 196

Sex: 100% female

Income: Not reported

Other: Prevalence of obesity (BMI ≥ 30 kg/m^2) was 65%

Description of intervention and control

Participants were randomised to an aerobic exercise or a Stretch N Health intervention

Intervention: 1-hour weekly exercise class led by certified aerobics instructors from the African American community who served as role models. An emphasis was placed on optimising social support, and women were paired with a buddy and encouraged to contact them regularly for support. Information handouts and monthly newsletters were given out. Volunteers were trained so that the classes could continue once the trial was over

Stretch N Health condition: Free, alternating, weekly low-intensity stretching classes and health lectures. Certified aerobics instructors from African American community led classes. Member of the African American community led the health lectures. Participants were given a list from which to choose relevant topics: healthy eating, stress management, time management skills, meal planning for children and families, and natural herbal remedies. Newsletters with general health messages provided. At the end of 6 months of classes, 1 month of aerobic exercise classes was provided

Theory: Resnicow *et al.*'s two dimensions of cultural sensitivity;[35] social cognitive theory

Approaches to adaptation

- Certified aerobics instructors from the African American community led classes. Members of the African American community led the health lectures
- Conducted intervention in participants' churches
- Women were asked to pray for fellow participants in the aerobic intervention
- Handouts matched to physical and social characteristics relevant to African American women
- Focus groups/formative work showed that social support was a core cultural value, and an important factor for engaging in physical activity
- Used gospel music in the aerobic intervention

Outcome measures and results

Follow-up: Not reported

Changes in physical activity: Prevalence of no physical activity declined to 32% in the intervention group and 31% in the comparison group. Physical activity measures, estimated daily energy expenditure, kcal/kg/day; activity summary score did not differ between the two groups ($p = 0.3$)

Conclusions

Authors: Church-based aerobic exercise intervention did not increase habitual physical activity levels more than a Stretch N Health lecture intervention. Both treatment groups reduced their degree of physical inactivity, although this was not a focus of this trial and may have implications for obesity reduction. From other studies it appears that secondary trials are better at retaining participants than primary prevention trials. Shorter-term intervention and follow-up (3–4 months), brief (< 1 hour) assessments and conducting assessment procedures at convenient community locations are suggested for future studies. Qualitative work was also recommended to understand the values that surround African American women and their attitudes towards physical activity

Reviewers: This study was not successful in demonstrating a significant difference in improving physical activity levels when comparing the aerobic intervention with the stretching intervention. However, we agree with the author that results are limited because of low participation. They noted that both groups decreased physical inactivity; however, this is to be expected in an intervention with a physical activity component (as in both conditions). The authors have raised a credible suggestion for further interventions that could reduce attrition – conducting assessment procedures at convenient community locations. Low participation may need to be addressed by increasing social support components, as the authors suggest that baseline levels of social support predicted change in physical activity

Comments and limitations
Low participation contributed to a lack of significance between group differences in activity levels. Churches were sites rather than true partners in the research process and lacked ownership of the programme; therefore, women were not receiving tailored messages from the pastor or church officials. Authors suggest that the adaptations made in this intervention may not have met the deep structure-level adaptations needed. Trial did not use a true control group. Only 117 (60%) completed the 6-month follow-up physical activity assessment (61% active and 58% comparison). The reasons for this were being unable to schedule, having no interest, not participating in the intervention, being unwilling to be measured, being unable to locate

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

Study reference

Banks-Wallace *et al.* 2004;[469] Banks-Wallace and Conn 2005;[470] Banks-Wallace 2007[471] (Walk the Talk: a nursing intervention for black women)

Setting

USA; Mid-Missouri

Inclusion criteria

African American women, self-reported engagement in non-work- or non-chore-related physical activity for at most 20 minutes per day, no more than 2 days per week, ≥ 18 years, expressed a desire to increase physical activity and either currently treated for hypertension or been notified by a health-care provider that they have hypertension

Study type

Pilot pre–post single-group design

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean: 50.3

n: 21

Sex: 100% female

Income: Not reported

Other: All had completed high school

Description of intervention and control

Pilot 12-month group intervention to increase physical activity among sedentary hypertensive African American women: 3-hour monthly meeting with an at-home walking component. Involved professional and personal storytelling, interactive learning, group physical activity and walking partners, with the aim of enhancing problem-solving skills and social support for walking for cardiovascular health

Monthly group sessions: (1) Brief sharing of current life situation by both participants and research team members; (2) professional storytelling; (3) interactive learning about cardiovascular health promotion; (4) group physical activity; (5) debriefing period; and (6) informal visiting while sharing a heart-healthy snack

Women walked together during the session, initially for 5 minutes and increasing gradually to 40 minutes. Line dancing was used as a substitute when the weather prevented walking. Participants were instructed to select a walking partner from the group to walk 2 days a week to promote social support. Each woman was given a Stanford Walking Kit to develop a personalised walking outline over a 6-week period

Theory: Not reported

Approaches to adaptation

- A questionnaire (CAPSPAQ) was developed to provide assessment of physical activity patterns of African American ≥ 40 years of age
- Storytelling using stories based in African or African American culture
- Incentives: Books by African American authors
- Pre-intervention meetings with African Americans
- Recruitment by respected member of the African American community (protocol specialist)
- Gathered support among African American businesses (a prerequisite to hang flyers)
- African American principal investigator and previous experiences/relationships with the community
- African American radio to advertise the programme
- Maintaining an African American-only environment (non-African American research members asked to leave)
- Video by Association of Black Cardiologists

Outcome measures and results

Follow-up: Baseline, 12-month intervention with 6-month follow-up (18 months)

Changes in physical activity: Mean (SD) steps per day taken by participants: baseline (n = 21): 3857.2 (2578.0); 12 months (n = 13): 4059.7 (2721.6), change of +5%; 18 months (n = 15): 5281.6 (3257.0), change of +37%

Weight: Mean (SD) weight: baseline (n = 21): 206.1 lb (28.8 lb); 12 months (n = 13): 187.5 lb (29.6 lb), change of –10%; 18 months (n = 15): 213.3 lb (60.2 lb), change of +4%

Conclusions

Authors: Results from this pilot study are encouraging with respect to the potential of group-level interventions as a strategy for promoting cardiovascular health among hypertensive African American women. Maintained decreases in systolic blood pressure and further decreases in diastolic blood pressure despite regaining weight during the follow-up period. Negligible change in steps taken per day at the end of the 12-month intervention; however, during the 6-month follow-up, walking behaviour increased a mean of 37% over baseline. A follow-on study with a larger sample size and control is needed

Reviewers: Longer follow-up allowed detection of sustained/increased walking behaviour after the intervention period. Women were not able to sustain weight change and gained weight from baseline. Effectiveness was difficult to determine because of the small sample size and low follow-up rates. A lot of effort was put into recruitment of 21 participants

Comments and limitations

Single-group design and small sample size make it impossible to accurately evaluate the clinical effectiveness of the intervention with respect to decreasing CVD risk factors. Intended to triangulate walking diaries, pedometers and CAPSPAQ but implausible physical activity reports on CAPSPAQ and failure to record information on walking calendars forced elimination of these outcome measures. Because of the variability among individual participants across data collection periods and the overall small sample size, more appropriate to discuss trends rather than statistical significance

Compensation: US$10 for competing data assessments. Personal pampering items, books by African American authors, candles and note cards were raffled off every 3 months to encourage participation in intervention meetings

Pedometers do not provide information about activity intensity or duration – proposed using accelerometers along with pedometers in future studies to measure walking intensity and duration along with changes in steps per day

CVD, cardiovascular disease; SD, standard deviation.

Study reference

Huhman *et al.* 2005;[285] Huhman *et al.* 2007;[286] Huhman *et al.* 2008[287] (the VERB campaign)

Setting

USA; national

Inclusion criteria

Children aged 9–13 years

Study type

Prospective longitudinal quasi-experimental study

Description of population

Ethnicity: Multiethnic: African American, Asian American, American Indian, Hispanic; not reported how ethnicity assessed

Age (years): Not reported

n: 3120 parent–child dyads in the initial survey and 2257 in the second evaluation

Sex: Not reported

Income: Not reported

Description of intervention and control

VERB was a campaign to promote physical activity to 'tweens' in the USA by delivering messages to a general audience and then to 'tweens' in various racial or ethnic groups. Messages were marketed on television, in print, on billboards, through a website and through school and community promotions. A portion of the marketing was directed at parents. Six advertising agencies were employed to undertake the general and targeted messages

The African American programme started sponsorships with music groups and developed a theme urging parental involvement; it also utilised sponsored music events and sports events to deliver the messages. The Asian American programme shifted the focus to parents promoting the benefits of daily exercise; they encouraged parents to be active with their children and marketed the messages at cultural events

Theory: Theory of planned behaviour and social cognitive theory were used in planning this intervention

Approaches to adaptation

- Extensive qualitative evaluation with 'tweens' of all ethnicities
- Full range of formative evaluation and testing of concepts with the ethnic group
- Tailored visual imagery
- Language appropriate
- Ethnic-specific media
- For African American children, cultural cues from fashion and music were particularly important as well as messages that reinforce how 'cool' they are and require language that does not attempt to mimic slang
- The Asian American campaign highlighted the close ties to their native heritage

Outcome measures and results

Follow-up: Baseline to years 2 and 4

Changes in physical activity: An association between increasing awareness and increasing activity was not initially found and the marketing was reviewed and intensified; by 2 and 4 years there were increases in activity associated with increased awareness

Knowledge: Outcomes for African American 'tweens' showed that, although the initial reach of the programme was not as large as for white or Hispanic tweens, there were no significant differences after 4 years when levels of awareness were 72%. Awareness among Asian Americans was 45% and 63% at 2 and 4 years, respectively

Conclusions

Authors: The VERB campaign continued to positively influence children's attitudes to physical activity and their physical activity patterns. With adequate and sustained investment, health marketing shows promise to affect the attitudes and behaviour of children

Reviewers: This study shows some positive effects of a national media campaign for physical activity that was targeted to specific ethnic minority groups. However the study design has inherent limitations

Comments and limitations

All data in the longitudinal study were self-reported. Reverse causation could mean that physically active children noticed the messages more than non-active children. The response rate to the telephone survey was 32% after 2 years

It is interesting that this paper talks about health media campaigns and how, generally, only one message is developed, which, if tailoring at all, will be translated and include ethnic-specific characters in the advertising. The authors felt that this was not enough and that there needed to be a separate approach, formative evaluation and campaigns which, although true to the original message, were also developed specifically for the target populations

Study reference

Whitt-Glover *et al.* 2008[308]

Setting

USA; suburban community in North Carolina

Inclusion criteria

Self-identified as black, ≥ 18 years, not currently meeting recommendations for moderate or vigorous physical activity [self-report of < 30 minutes of moderate physical activity on ≤ 5 days per week, ≤ 20 minutes of vigorous physical activity on ≤ 3 days per week or carrying out recommended moderate and physical activity but in bouts lasting < 10 minutes (assessed using a modified International Physical Activity Questionnaire)], responding 'no' to all questions on the Physical Activity Readiness Questionnaire

Study type

Pre–post intervention, single-group design

Description of population

Ethnicity: Black; self-identified

Age (years): 52 ± 14 (range 20–83)

n: 87

Sex: 89% female

Other: 96% had high school education or higher

Description of intervention and control

A 3-month faith-based physical activity intervention to determine the effect of daily walking and moderate- and vigorous-intensity physical activity among sedentary black participants (particularly in bouts lasting 10+ minutes)

A total of eight group sessions focused on behavioural strategies. Weekly sessions included 30 minutes of moderate physical activity and a 60-minute discussion session. Group leaders led weekly intervention sessions at churches

Certified fitness instructor conducted the 30-minute moderate physical activity session and provided an opportunity to practice. Participants kept weekly logs of pedometer step counts to self-monitor walking. Weekly summary to track progress given to participants. Incentives were used to encourage an increase in daily moderate physical activity to at least 30 minutes by engaging in moderate-intensity walking. Each church pastor acted as a liaison and was paid a modest honorarium. They received a group leader training manual and all session materials to facilitate continued implementation after completion of the study

Theory: Social cognitive theory

Approaches to adaptation

- Local church pastors participated in in-depth interviews to provide input on the design, development and implementation strategies for health promotion in churches in general and a faith-based physical activity programme specifically
- Sessions opened and closed with prayer. Session content was presented from a theological perspective
- Incentives were culturally relevant
- Churches were recognised as having a central role in spiritual guidance, communication, social support and networking among black participants
- Black women were recruited as group leaders. Group leader characteristics were health knowledge, physically active but not athletic, previous experience working with black populations in faith-based settings, comfortable speaking in group settings, not a member of a church involved in the intervention

Outcome measures and results

Follow-up: Baseline and after 3 months

Changes in physical activity: Self-reported increase in minutes per week of moderate physical activity was 66.9 ± 77.6 or 251% ($p < 0.01$) and in minutes per week of vigorous physical activity was 43.8 ± 66.4 or 438% ($p < 0.01$)

BMI: BMI remained stable over 12-week intervention

Weight: Weight remained stable over 12-week intervention

Conclusions

Authors: Statistically significant increases were demonstrated in the number of steps per day after 4 weeks and after 12 weeks, and significant changes in moderate physical activity and vigorous physical activity were seen after 12 weeks. This study suggests that a faith-based programme was successful in increasing physical activity levels over a 3-month period among sedentary black adults. It is surprising that weight did not change; however, the increase in steps may have prevented excess weight gain. Changes in steps per day did not reach the recommended 10,000 steps per day. It remains unclear how big an increase in steps per day is necessary for significant changes in clinical outcomes

Reviewers: Although there were significant increases in steps per day, and increases in physical activity, there were no observed changes in weight and BMI. Agree with the authors that the increase in steps per day may not have been enough to result in clinically meaningful changes (e.g. in weight); however, weight maintenance would also be an appropriate objective. With regard to collaborative research with churches, randomisation may not be appropriate in churches

Comments and limitations

Lack of a control group because this was a pilot study and reluctance of some faith-based communities to be a part of a randomised study. Small sample size – study had a large enough sample to test for meaningful differences in daily walking as assessed by pedometers. No objective data for participation in moderate physical activity and vigorous physical activity (tried to use accelerometers but encountered adherence issues and were therefore unable to use data for analyses). Generalisability of findings may be limited in the general population (e.g. those who do not attend church)

In community church-based interventions, high retention and participation are often reported, for example in this study the participation rate was 6.2 ± 1.8 of 8 sessions

BMI, body mass index.

Study reference

Wilbur *et al.* 2008[472]

Setting

USA; Midwestern urban; centres in predominantly African American communities

Inclusion criteria

40–65 years

Study type

Quasi-experimental design

Description of population

Ethnicity: African American; not reported how ethnicity assessed

Age (years): Mean (SD): 48.6 (6.0)

n: 156 intervention, 125 control

Sex: Not reported

Income: Not reported

Description of intervention and control

A 12-month trial of a home-based walking intervention enhanced by behavioural strategies targeted and tailored to African American women for the intervention group. A 24-week intensive adoption phase followed by a 24-week maintenance phase for the intervention group. Weight loss not a focus of the intervention

All participants: Individualised orientation and tailored walking prescription (walk three times a week within target heart range with gradual progression to 20–30 minutes). Places and times to walk determined by women. All received heart monitors to wear during walking, log books, toll-free telephone number, coupon to buy walking shoes and newsletters with walking tips

Intervention: Four targeted workshops held at community health centre, 6 to 10 women per workshop, 60 minutes long, followed by weekly tailored telephone calls over 24 weeks [weekly for 3 weeks, then every other week for 14 weeks and monthly during maintenance phase (weeks 25–48)]. Women reported walking frequency via an automated telephone system

Theory: Intervention guided by the client–professional interaction component of the interaction model of client health behaviour (health information, decisional control, social support); previously successful strategies based on social cognitive theory and the transtheoretical model incorporated into this intervention to move women from contemplation into the preparation and action stages of motivational readiness

Approaches to adaptation

- All aspects of intervention designed to be culturally sensitive to African American women based on findings from focus groups held with community-based women (formative work)
- Newsletter with walking tips for African American women sent out
- Each workshop began with a 10-minute video featuring six African American female role models from targeted communities discussing the workshop topic
- Video followed by a 50-minute group discussion facilitated by staff member of the same ethnicity and having ties with the community

Outcome measures and results

Follow-up: Baseline to 24 and 48 weeks

Changes in physical activity: Intervention group: increase from 19.5% to 44.2% at 24 weeks and 41.6% at 48 weeks; control group: increase from 23.3% to 41.8% at 24 weeks and 34.9% at 48 weeks

BMI: No significant changes in BMI from baseline to 24 weeks and 48 weeks for either treatment group – BMI stable

Conclusions

Authors: Using objective monitoring and self-monitoring (heart rate monitors, walking logs and automated telephone response reporting) provided multiple sources of data for more accurate indication of adherence. Self-reported improvements in physical activity were found, but no difference was detected between the treatment groups. Both groups maintained BMI for the duration of the study and did not gain any weight. This suggests a positive effect of exercise

Reviewers: Significant increase in fitness suggests that this intervention was successful even though the women did not meet the recommended time spent walking at moderate intensity. It appears that group support was important for adherence and booster workshops (in addition to or instead of telephone calls) may be helpful in further interventions. The automated telephone response system is novel and may suggest a new way of getting women to self-report at their convenience. In other populations (with computers) online reporting may be a promising next step. Because the objective was weight maintenance, a result of maintained BMI can be considered successful

Comments and limitations

Self-report measures might not be sensitive enough to detect differences between treatment groups for physical activity. In addition, women may have provided socially desirable responses as they may have connected personally with their respective intervention staff. All women reported walking every week via a toll-free number accessible at any time. The correlations between the telephone response system and heart rate monitor data with the walking log were 0.79 and 0.73 respectively. Women assumed not to be walking if no data were reported; thus, walks may be under-reported. Adoption phase: intervention group attended an average of 2.4 of the 4 workshops and received an average of 7.2 tailored calls. Another change was the movement from telephone landlines to mobile phones, which may have caused under-reporting if women were limiting their mobile telephone minutes. US$50 was given after each data collection

BMI, body mass index; SD; standard deviation.