A formative review of physical activity interventions for minority ethnic populations in England

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ABSTRACT

Background Physical activity (PA) levels are lower among some UK Black and minority ethnic (BME) groups than the majority White British population and a variety of tailored interventions have emerged. This study documents the characteristics and logic of local adaptations, a vital first step in evaluating such innovations.

Methods An English PA data set was examined to identify and characterize PA programmes focussed on BME populations. Three case studies were conducted, employing documentary analysis and qualitative interviews. Netto *et al.*'s principles of adapting health promotion interventions for BME populations guided the analysis.

Results Out of 861 PA interventions, 57 focussed on BME populations. These were typically aimed to engage the most inactive groups, improve both health and social outcomes and were largely publically/charitably funded. Tailored approaches matched Netto *et al.*'s five principles: using community resources for publicity, identifying and addressing barriers, developing sensitive communication strategies, working with values and accommodating cultural identification. Another common principle was identified: building community capacity for sustainability.

Conclusions PA interventions tailored to the needs of BME groups reflect their largely disadvantaged position in society and focus on inactivity. The six principles could be used as a framework for developing, designing and evaluating tailored interventions for BME populations.

Keywords ethnicity, physical activity, tailored interventions, South Asian populations

Background

Physical activity (PA) levels are lower among many UK Black and minority ethnic (BME) groups than the majority White British population.^{1–4} South Asian populations—and Indian, Pakistani and Bangladeshi women and children in particular—are significantly less likely to meet the UK PA guidelines than the White British group.^{2,5} Barriers, enablers and facilitators to PA for BME groups have been explored, especially in relation to South Asian populations.^{6,7} Research suggests that BME groups face generally similar barriers to the UK population as a whole with limitations such as childcare, motivation and lack of time predominating.⁷ Additional, and potentially more subtle, barriers relate to differences in perceptions about the benefits of PA, what counts as PA, community expectations about participation and deeper sociocultural processes of exclusion and

discrimination.⁸ Long *et al.*, in their review of BME participation in sport and physical recreation, highlighted the mediating effects of overt racism (e.g. verbal abuse) and racism in service delivery (e.g. exclusionary dress codes).⁹ Furthermore, patterns are complex, reminding us that individuals sharing a common ethnic identity may differ importantly in terms of gender, age, generation, migration history, socio-economic background and many other socio-demographic and individual variables.^{8–10}

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The importance of developing ‘culturally appropriate’ or ‘culturally sensitive’ interventions that are acceptable to the communities for which they are intended is increasingly recognized.^{11,12} However, such terms are variously employed, and understanding about how to design and deliver PA interventions that are accessible to, and effective for, BME people is still in development.¹³ Adaptations to PA for BME groups were considered by Liu *et al.* in a recent synthesis, but solid recommendations could not be made owing to the limitations of the evidence base.¹⁴ A range of adaptations are evident, however, both in the literature on PA and public health practice more generally. A recent systematic review of PA interventions for South Asian populations identified bilingual community link workers as a way to enhance intervention acceptability and delivery particularly in areas of socio-economic disadvantage.¹¹ PA provision that is shaped by participants and delivered within local community settings has also been shown to encourage engagement.¹¹ The use of staff trained in cultural competency can bring cultural sensitivity and knowledge to the delivery of PA, which enhances trust and positive relationships between delivery and participants.¹⁵ PA interventions that ‘work with, rather than against’ cultural norms are recommended as a realistic and sensitive approach to increasing rates of PA.¹⁶

Despite the limited evidence base, it is clear that a variety of approaches are being introduced on the ground. These local level initiatives present an important learning opportunity. Given that such local innovations are often short-lived and are rarely evaluated rigorously, this review provides a formative picture of such programmes. Furthermore, experience across public health practice which indicate the interventions intended to address BME disadvantage can be ineffective and even harmful if poorly designed.¹⁷ It is therefore important to examine both how and why such interventions are being shaped to meet BME needs. Understanding the intention and ‘programme theory’ behind adaptive design and delivery is an important first step in evaluating these innovations.

Methods

This formative investigation utilizes data from an English national data set of local level PA programmes. The data set contains details of a total of 861 PA interventions/programmes. Data were gathered from an online, self-completion survey promoted by Public Health England between March and July 2014. Approximately 6000 individuals were contacted using all media channels and who represented local authorities, clinical commissioning groups,

leisure centres, walking groups, school providers, cultural and community providers, charities, employers and sports brands. The questionnaire had 65 questions. Its purpose was to establish ‘what works’ in PA intervention by assessing the range and ‘quality’ of programmes and the extent to which they were routinely and robustly evaluated.¹⁸

For this study, interventions were identified, which included some element of tailoring or targeting for BME groups using a keyword search: ‘ethnic’, ‘BME’, ‘BAME’, ‘relig*’, ‘Asia*’, ‘Afric*’, ‘Carib*’ and ‘Musli*’. This returned 90 interventions. Programmes were removed if they reported minority ethnic involvement that was incidental to the intervention or if ethnicity was used only as a monitoring variable. Descriptive and comparative statistics were used to document key characteristics of interventions.

As the database provided limited information on the tailored elements of interventions, selection criteria were developed to identify potential case studies of adapted PA. The criteria were that: (i) the intervention had been evaluated, (ii) BME groups had been identified as a priority beyond recruitment and (iii) there was adequate ‘richness’ in the available database and evaluation material. Interventions were ranked according to these criteria, and four interventions were invited to participate. Three programmes were accepted. Evaluation and service delivery documents ($n = 24$) were examined in detail using a standardized data extraction template. Three depth interviews were conducted with the managers of each programme, structured around the template themes. Data were thematically organized, synthesized and critically evaluated using the five principles of adapted behavioural interventions by Netto *et al.*¹³ as a guide (Box 1). A sixth principle—building capacity for sustainability—emerged from the review and is described in the findings below.

Ethical approval was granted by the School of Health and Related Research Ethics Committee, University of Sheffield (ref. no. 006279). Case study organizations were consulted on the presentation of data and gave us permission to reveal their identities in the interests of sharing good practice.

Results

Survey analysis

Intervention/programme settings, size and longevity

Fifty-seven interventions (7% of the total database) were intended, in some way, to meet the needs of BME groups. Table 1 provides a breakdown of the key characteristics of interventions. In addition, each intervention/programme with tailored elements is outlined in the supplementary table. Delivery settings were dominated by community venues. Compared to

Box 1 Netto *et al.*'s five principles of adapted behavioural interventions with examples

Principles	Examples
(1) Use of community resources to publicize the intervention and increase accessibility	Use ethnic-specific media and networks, community leaders and events to publicize events
(2) Identify and address barriers to access and participation	Tailor timing and location of events for BME women to account for caring responsibilities
(3) Develop communication strategies that are sensitive to language use and information requirements	Bilingual facilitators; use spoken rather than written language to communicate with low-literacy groups
(4) Work with cultural or religious values that either promote or hinder behavioural change	Highlight compatibility of health promotion messages with religious beliefs
(5) Accommodate varying degrees of cultural identification	Account for generational and migration history difference by more intensively exposing first-generation migrants to the intervention

the full sample, the use of community venues in the BME-tailored sample was significant ($\chi(1) = 32.35$, $P = 0.01$). PA interventions for BME people were also more likely to take place in outdoor ($\chi(1) = 14.42$, $P = 0.01$) and primary care settings ($\chi(1) = 9.26$, $P = 0.01$). The data also show a concentration of activity in London (26 interventions; 46%), a reflection of the distribution of ethnic diversity in the UK.

There is a mixed picture of the longevity of programmes for minority ethnic populations and for PA interventions generally. A large proportion were short term with around half running for 2 years or less. Three in 10 in the minority ethnic sample had been running for 6 to 10+ years. There is no significant difference in timescale between the BME-based interventions and the full cohort of interventions, reflecting the high frequency of short-term interventions across the PA sector.

Programmes for BME groups were relatively small in size. More than two-thirds of programmes/interventions (68%) had an annual number of participants of 5000 or less. In the main sample, one in five programmes involved 1–5000 participants per year.

Intervention/programme purpose

The aims and objectives of the programmes varied considerably with many identifying several. All but four programmes claimed to have more than one aim. Supporting PA among inactive groups was the most common (three out of four organizations identified this). The activities on offer reflected this: walking (74%), group activity classes (81%), dancing (54%), sports (54%), Yoga/Pilates/Tai-Chi (58%) and chair-based exercises (53%) were particularly common.

Costs, funding and evaluation

No clear pattern of costs could be discerned from the data from the minority ethnic sample with estimates ranging widely

from £1 to £1000 per participant. The BME-tailored interventions were more likely to be free to participants than general population-based interventions ($\chi(1) = 17.35$, $P = 0.01$). This may reflect the type of funder since, for the BME-tailored interventions, the funder was more likely to be the local authority ($\chi(1) = 18.74$, $P = 0.01$), central government ($\chi(1) = 20.71$, $P = 0.01$) or a charity ($\chi(1) = 13.79$, $P = 0.01$). More than half ($n = 33$; 58%) of all the BME-focussed programmes had two or more funders. The BME-tailored interventions were more likely to be externally evaluated than the general sample ($\chi(1) = 15.90$, $P = 0.01$), possibly reflecting the requirements of public funders to evaluate programmes. The reported barriers to the ongoing development of PA programmes with the BME-tailored interventions were more likely to be the financial resources available ($\chi(1) = 14.99$, $P = 0.01$).

Case study tailoring characteristics

As the survey was not designed to capture several of the known aspects of tailoring, the three case studies provided more detail on how and why adaptations were developed. Table 2 provides a basic summary of the case study PA interventions/programmes. Table 3 identifies some of the tailoring techniques, using Netto *et al.*'s five principles as an organizing tool (Box 1). A sixth principle is proposed as an emergent theme from the review.

(i) The use of community resources to publicize the intervention and increase accessibility

The minority status of the participants in all the case study programmes was acknowledged by using community-based organizations in settings local and familiar to the participants. The Fit as a Fiddle project, for example, partnered with 39 community-based organizations across the nine regions of the intervention. Respondents explained that the core of

Table 1 Characteristics of PA interventions for minority ethnic groups in England

Minority ethnic sample (n = 57)	n	%
Variable		
Aims/objectives of the programme/intervention ^a		
Support whole population-groups to increase PA levels	33	58
Support people with certain medical conditions to increase PA levels	30	53
Support inactive people to increase PA levels	44	77
Support weight loss	17	30
Support social cohesion	32	56
Support participation in sport	25	44
None of these/other	1	2
Duration programme been running		
0–6 months	8	14
6–12 months	5	9
1–2 years	11	20
3–5 years	13	23
6–8 years	8	14
10+ years	9	16
Other	3	5
Settings ^a		
School	15	26
Workplace	8	14
Local authority leisure facility	34	60
Private leisure facility	10	18
Home-based	8	14
Outdoor settings	34	60
Community venue	45	79
Primary care setting	12	21
Other	9	16
Types of activity provided ^a		
Walking	42	74
Dancing	31	54
Jogging / running	22	39
Cycling	22	39
Swimming	28	49
Group activity classes	46	81
Gym-based sessions	28	49
Condition-specific exercise classes	23	40
Resistance exercises	23	40
Lifestyle activity, e.g. gardening	14	25
Sports	31	54
Yoga / pilates / tai-chi	33	58
Chair-based exercises	30	53
Fall prevention, strength and balance	15	26
Other	26	46
No. of participants taking part annually		
0–100	4	7
100–250	6	11

Continued

Table 1 Continued

Minority ethnic sample (n = 57)	n	%
Variable		
250–500	5	9
500–1000	7	12
1000–5000	17	30
5000–10 000	3	5
10 000–25 000	7	12
>25 000	8	14
Fees payable ^a		
Induction / assessment fee	3	5
Fee per session	23	40
No fee	38	66
Other	2	4
Funder ^a		
Local Authority	39	68
Central Government	13	23
Clinical Commissioning Group	7	12
Charity	17	30
Privately	9	16
Other	15	26
Evaluation ^a		
In-house evaluation	34	60
External evaluation	30	53
No formal evaluation has been undertaken	9	16
Organizational barriers to ongoing provision of the programme ^a		
Financial resources	49	86
External expertise	9	16
Time	23	40
Partnerships	14	25

Note: percentages are subject to rounding.

^aMultiple responses possible.

adaptation involved using these local resources to both publicize the intervention and also increase uptake via their established and trusted reputation. Tandruti identified trust as the most important factor in the success of their programme. They also considered it the most challenging aspect to replicate. It was suggested that the trust invested in community organizations enabled access to existing mainstream facilities that might at first be 'guided' by the community-based organization and then happen independently. Tandruti, for example, sought to open up the local swimming pool to older South Asian women using this approach:

The Head of Leisure Service at the time said no amount of advertising in the local press would have got women to come. Initially – that's one lesson learned – is that you initially have to hold hands ... be there. (Tandruti respondent)

Table 2 Case study summary

	<i>Tandrusti</i>	<i>Fit as a Fiddle</i>	<i>Every Step Counts</i>
Location	West Midlands	9 UK regions	3 pilot sites in London, South West and N. West
Participants	Originally prioritized inactive S. Asian population in socioeconomically deprived areas; increasingly diverse.	Older inactive minority ethnic groups (particularly S. Asian, Polish and Chinese).	Inactive adults. Prioritized vulnerable populations such as BME groups
Programme/ intervention	Multistrand health and wellbeing health education programme including PA component. Various intervention types/lengths	Health and wellbeing programme focussing on diet, PA and mental wellbeing	12-week tailored walking for health intervention, including recruitment by outreach
Length of time running	10+ years	6–8 years	6–8 years
Cost to participant	Free	Free	Free

There were several practical adaptations to publicize interventions and increase uptake, for example, using volunteers from the same community as participants, using ‘word of mouth’, identifying community ‘ambassadors’ and consulting with representatives of BME populations prior to implementing initiatives in order to assess needs and preferences.

(ii) Identification of barriers to access and participation and addressing them

Barriers were not assumed but self-defined by participants at early stages in programme planning:

The best response was to engage as much as possible before-hand with the group you were working with and to find out from them what time would suit them, where would be a good venue, where can they get to and work with them in that way ... that’s what had the most success. (Every Step Counts respondent)

Approaches to addressing barriers were varied. Free and/or nominal fee PA was provided by all of the interventions, recognizing the disadvantaged socio-economic position of participants. Overhead costs such as transport and paying instructors were covered by Fit as Fiddle at the discretion of their community-based deliverers. Women-only sessions were provided in all of the case studies and felt to encourage uptake particularly among older South Asian women. The security of having a familiar face at an unfamiliar setting was also a useful adaptation, for example, asking a local leisure centre to use the same receptionist over time to ‘meet and greet’ participants to a facility that was unfamiliar. Fit as a Fiddle reported an inclusive ethos with regard to participants’ perceived barriers to PA relating to dress and faith practices.

Moreover, the Fit as a Fiddle project designed a training module for staff and volunteer PA leaders to sensitize them to behaviour change barriers for older inactive minority ethnic adults and how to balance the need for engagement and motivation with the need to be ‘culturally receptive to their needs’. Sensitivity training included issues around ‘language, body language ... cultural issues around diets, and cultural diets ... [and] how to raise awareness of the baseline mental health issues’ (Fit as a Fiddle respondent).

(iii) Develop communication strategies that address language use and different information requirements

Bilingual facilitators and PA leaders with community languages were characteristic of all three case studies. Low levels of literacy among older or new migrant minorities were also recognized and addressed by the use of word of mouth and community and family information cascade for the case study organizations. Picture leaflets were used and consulted on for Tandrusti for example:

If people don’t read any language in that area; word of mouth is the best way to recruit ... Sometimes you can spend £400 on interpreting a leaflet when no-one can read it, a picture one would be better. And that’s when we always go back to our groups [to ensure they are right].

Every Step Counts consulted on and used picture-based representations for the training of community walk leaders to better meet literacy and language requirements.

Attention to the use of language was also highlighted by Tandrusti who referred to their participants as ‘learners’ to

Table 3 Case study examples of PA adaptations for BME populations

<i>Intervention/programme</i>	<i>Use of community resources to publicize the intervention and increase accessibility</i>	<i>Identify and address barriers to access and participation</i>	<i>Develop communication strategies that are sensitive to language use and information requirements</i>	<i>Work with cultural or religious values that either promote or hinder behavioural change</i>	<i>Accommodate varying degrees of cultural identification</i>	<i>Build capacity and confidence for sustainability</i>
Tandrusti Project of the Workers' Educational Association, West Midlands	Used community networks to promote the intervention—community workers marketing by 'word of mouth'. Very wide range of local community organizations partnered the project—promoted local accessibility	Researched and addressed barriers relating to gender, socio-economic status and age prior to interventions. Arranged collective use of PA resources in broader community, e.g. parks and open spaces specifically aimed at 'opening up' facilities and places otherwise underused	Communication sensitive to the abilities and knowledges of the groups, e.g. multilingual tutors. Communication materials (e.g. leaflets) modified to account for low literacy (e.g. using graphics/pictures)	Explored religious values and how PA may be constrained by them. Challenged by adapting delivery, e.g. men or women only; particularly vulnerable groups time in the community gym, e.g. Yemini women. Embedded wide range of religious festivals into delivery. Community gyms located at places of worship to link faith to health	Cultural affiliation accounted for in different elements of the programme delivery, e.g. similar interventions delivered to different groups at different times in locally relevant settings. Provision seeks to bring existing self-affiliating groups together for PA, e.g. elders groups	Trained volunteers from the community to be health champions. Trains and advises other statutory and non-statutory agencies in culturally appropriate PA provision. Used positive language, e.g. 'learners' rather than 'low education': promoting high self esteem
Fit as a Fiddle Moving Moments project—Faith and Community Strand Project led by Sporting Equals; contracted by Age UK	Used 'BME infrastructure organizations' to help recruit BME volunteers to deliver Health and Wellbeing sessions for local BME groups. Volunteers recruited from the community. Participant groups involved in planning, marketing and implementing	Consultation exercises conducted to identify what participants comfortable with, sensitive to differences between BME groups. Work with perceived barriers relating to dress, faith practices by ensuring participation not prescriptive but sympathetic. Physical accessibility addressed through delivery by locating in/ near places of worship	Delivery in community languages (e.g. Punjabi) and according to 'cultural context of their lives'. Emphasis on the development of trust in delivery, focusing on areas of common interest before directly addressing health issues	Linked religious teaching to promote health messages. Places of worship used to promote activity. Focussed on cultural values relating to weight loss, feeling healthier and easing stress	Self-affiliating older groups brought together for PA. Used themes of identification and association, e.g. 'memories of home' to engage volunteers. Connections forged through music from the culture of the participants. Volunteers with similar backgrounds to beneficiaries used to engage older Asian groups. 'Buddies' used to provide support and encouragement	Devised a 'good practice guide' as an outcome of the project. Trained volunteers to capacity-build. Comprehensive cultural competency part of volunteer training

Every Step Counts Walking for Health Outreach Programme	Project sought out places of congregation, e.g. community centres. Identified 'local ambassadors' to give project credibility and enhance accessibility. Promotional material (fliers, posters) distributed around population-relevant locations, e.g. Asian supermarkets, shops	Identified barriers through consultation with local people/target user-group. Project that specifically targeted South Asian women patterned around domestic/childcare responsibilities on request of participants	Interpreters (informal) used where required. Training for community walk leaders adapted to account for literacy levels and English as an additional language—pictures used in material, minimizing text	Working with the 'pull' of non-health outcomes such as social contact, the opportunity to make new friends and cross-generational contact in promotion of programme. Tackling social fears (e.g. perceived dangerous places) by accessing those places as a group. Avoiding potential cultural barriers to PA through choice of activity: walking requires no equipment, change of clothes, etc.	Ladies-only groups set up in response to requests by participants. Walk leader training offered to participants; leaders from the community	Recognition of social isolation and other—non-health related vulnerabilities acted on by incorporating confidence-building visits on walks; example of signing up for ESOL on walk that included local library. Training participants as walk leaders
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convey and confer empowerment and as a way of recognizing earlier experiences of discrimination and exclusion:

We never say 'no previous qualifications' it's about no opportunities for education and I think that empowers people ... If you say 'no previous qualifications' then when you say 'no previous opportunities for' people are much more engaging and tell you that as well.

(iv) Identify and work with cultural or religious values that either motivate or inhibit behavioural change

The case studies identified some areas of adaptation around religious or cultural festivals, storytelling, music and religious practice that were incorporated into health promotion messages and behaviour change models. In addition, however, all programmes sought to challenge culturally dominant perceptions about PA not being suited to older people. Two of the case studies sought to challenge the norm and practice of being 'seated to be sociable' in their programmes. Organizations and participants were reported to be generally receptive to a different way of thinking around PA for older people once programmes were pitched in terms of the health benefits of making small changes. A prerequisite to this however was the demonstration of cultural understanding and trust in the messenger (see Principle i).

(v) Accommodate degrees of cultural affiliation in the planning and evaluation of targeted interventions

Tandruti were sensitive to heterogeneity within particular ethnic groups, particularly the varied needs of different generations. They reported that single ethnicity services were not popular with British-born people: 'we have a second and third generation they don't want a specific BME service. They're using mainstream services'. Although focussing on BME groups, these were increasingly diverse and mixed and Tandruti sought to encourage mixing between groups. Nevertheless, the case studies organized PA around commonly self-affiliating groups, e.g. Yemeni, Polish, Pakistani while recognizing affiliational intersections with socio-economic group, gender, family status and migration history. Importantly, affiliation was self-defined. 'Buddies' with similar backgrounds were used in Fit as a Fiddle to encourage engagement and retention.

(vi) Build local capacity for sustainability

In addition to the five principles identified by Netto *et al.*, a further principle was evident across our three case studies. All these programmes embedded within their approach a

focus on building capacity among the target population to deliver interventions with the intention of making them sustainable in the long term. This emerged from a consultative approach to developing interventions that encouraged participants to 'co-produce' and take ownership of them. Every step counts sought to train community members to run walking groups themselves. Fit as a Fiddle also trained volunteers and ensured participants engaged in mainstream sport/PA services and combined PA with mental wellbeing and dietary interventions. Building capacity included developing confidence and addressing misconceptions about local mainstream facilities as 'not for us'. For Fit as a Fiddle, this was manifest in a training module that was designed to support volunteers and organizations. It also presented an ongoing challenge to community-based organizations that could potentially support PA interventions:

The organizations that we worked with, the delivery organizations, they need that capacity-building to enable them to change, enable them to empower older people to take responsibility for their own health but that takes time and takes effort. (Fit as a Fiddle respondent)

Discussion

Main finding

A substantial number of PA interventions in England are seeking to meet the needs of BME populations. Case studies of established initiatives suggest that effective tailoring is multifactorial and includes a core focus on consultation and community capacity-building.

What is already known?

It is known that rates of PA are relatively low among some BME groups in the UK. Recent data also show that the rate of decline in sport and PA participation over time in England is the highest among socioeconomically disadvantaged and BME groups.¹⁹ A variety of attempts have been made to tailor PA to the needs of BME people, and results have been partial and inconclusive.¹⁴ It is known that tailoring interventions that are 'culturally sensitive', addressing cultural competency in staff, basing interventions on community preferences and in community settings are generally beneficial.^{11,13,14}

What this study adds

This study uses and adds to a unique data set that provides contemporary information on the 'state-of-the-field' of PA provision for BME groups in England. It shows how PA

programmes for BME groups are focussing on engaging inactive groups and are more likely than other PA programmes to be funded by public and charity funds. This reflects the generally disadvantaged position of BME populations in the UK but also makes PA programmes more vulnerable to changes in public and charity spending capacities and priorities. This makes the principle of embedding capacity-building for sustainability into programmes important, and this was an approach that was being adopted by the case study organizations. It is also a principle that can be added to those set out by Netto *et al.* in their examination of the principles of adaptation for BME health promotion interventions.¹³ Finer-grained analysis of case studies illustrated aspects of PA adaptation that have been relatively unexplored. It revealed that programmes adopted a package of adaptations. While a number of 'surface adaptations' were evident, what seemed more important was an underlying commitment to an organizational approach or *ethos* of being community-led and concerned with participant empowerment, an ethos reflected in other public health adaptations for BME populations.²⁰ Case study organizations regarded community trust and long-term embeddedness of community-based delivery organizations as a prerequisite to the success of adaptation. This ethos ran through what might be regarded as 'surface' adaptations (those that focus on observable differences between groups such as dress codes) if applied in isolation.²⁰

Findings also indicate that the most vulnerable populations (in terms of social position and health risk) may require more bespoke tailoring, whereas established and less vulnerable populations with knowledge of/familiarity with 'mainstream' provision may require less. This is consistent with a needs-based approach to public health and reflects findings on first-generation South Asian populations, for example, requiring greater support and tailoring to encourage PA uptake.¹

Limitations

The survey was cross-sectional, represented programmes in England and respondents were self-selected. This encouraged bias towards established, longer term PA provision and limits transferability. As PA interventions are characteristically short term, it is likely that many interventions are not represented. The case studies were selected partly on the basis of existing available evaluative evidence. As many interventions are not robustly evaluated, we are not able to establish if the characteristics of the case studies represent practices across PA for BME groups. Although the case studies engaged with ethnically diverse populations, South

Asian groups predominated. This limitation points to a need for future work to encompass a wider range of ethnicities and contexts. There is also a need for evaluative work to examine whether and how these principles translate into better levels of access and better outcomes in terms of levels of PA and improved health.¹³ This study explores which approaches are being used; more research is required on the effectiveness of adaptive design and delivery.¹⁴

Conclusion

The work emphasizes the multifaceted nature of adaptations to PA for BME groups in England. It adds to Netto *et al.*'s analysis of how principles of adapted health promotion interventions, including PA interventions, are demonstrated in practice. These principles of using community resources, identifying and addressing barriers to PA, developing communication strategies, working with cultural values, accommodating cultural affiliation and building capacity and confidence represent the backdrop to working with and encouraging PA participation among under-represented groups. These offer a framework for designing, delivering and evaluating PA interventions for BME groups.

Supplementary data

Supplementary data are available at the *Journal of Public Health* online.

Acknowledgements

We would like to thank the participants in the study and acknowledge the schemes under which the case study interventions were funded: Tandrusti is part of the Workers' Educational Association, West Midlands and funded by Dudley Metropolitan Borough Council Office of Public Health and BIG Lottery; Fit as a Fiddle was delivered by Sporting Equals and funded by Age UK via BIG Lottery; and Every Step Counts was delivered and funded by Ramblers UK. We would also like to thank Dr Emma Hock, ScHARR, University of Sheffield and Dr Graham Baker, University of Edinburgh for their comments and advice on the manuscript. The views and opinions expressed are those of the authors, and not necessarily those of the NHS, the NIHR or the Department of Health.

Funding

The project was funded by the National Institute for Health Research Collaboration for Leadership in Applied Health

Research and Care Yorkshire and Humber (NIHR CLAHRC YH) (www.clahrc-yh.nihr.ac.uk). The survey was commissioned and funded by Public Health England.

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