



Development of a childhood obesity prevention programme with a focus on UK South Asian communities[☆]

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ABSTRACT

Objective: We report the development of a childhood obesity prevention intervention for UK South Asian primary school-aged children, guided by the UK Medical Research Council (MRC) framework for complex intervention development and evaluation.

Methods: We combined information gained from a literature review, stakeholder focus groups, an expert group, review of local resources and mapping to the Analysis Grid for Environments Linked to Obesity (ANGELO framework) in an intervention development process. The study took place in 2007 in Birmingham, UK.

Results: Contextual information from the stakeholder focus groups was essential for informing intervention development. The expert group defined guiding principles for the intervention. Informing intervention design by assessing existing local resources addressed intervention sustainability. The use of the ANGELO framework ensured a comprehensive environmental approach to intervention development. The intervention consisted of two broad processes; increasing children's physical activity levels through school, and increasing skills of families through activity-based learning. The developed intervention is being evaluated in a major study.

Conclusions: The intervention development process has resulted in a tailored intervention programme to prevent childhood obesity in UK South Asian communities, but also intervention processes that could be applied to other communities and tailored to local context.

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Introduction

Childhood obesity is a global threat to health (World Health Organization, 2000). Much obesity prevention research has been undertaken in the last two decades but the “key ingredients” of successful programmes remain unclear (Brown and Summerbell, 2009; Doak et al., 2006; Flodmark et al., 2006; Waters et al., 2011). In part, this may reflect the critical roles which population-specific social norms and context play in mediating an intervention's effectiveness and which thus must be accounted for when developing new preventive strategies (Summerbell et al., 2005).

Understanding context is particularly important when developing interventions for specific cultural communities, as shown by childhood obesity prevention studies targeting minority ethnic groups in the USA (American Indian children; Gittelsohn et al., 1999) and the UK (South Asians; Pallan et al., 2012). For example, in the latter, there is much concern around children being underweight, especially among older

community members, and hierarchical family structures result in grandparents exerting control over children's lifestyle behaviours. Understanding these norms and beliefs forms a critical foundation on which the intervention development process can begin.

UK South Asian children are a specific target group for obesity prevention as they are particularly vulnerable to the short and long-term health consequences of obesity (Bhopal et al., 1999; Whincup et al., 2002). In this paper we describe the development process of a childhood obesity prevention intervention targeting primary school-aged children from this cultural group (the UK National Prevention Research Initiative-funded BEACHeS study). Specifically we reflect on the utility of a well-recognised complex intervention development framework tool (the MRC Framework; Campbell et al., 2000) as a means to ensure that contextual information is gathered and incorporated into the intervention design. This is analogous to stage 1 of the NIH Stage Model (Onken et al., 1997), which emphasises the importance of incorporating qualitative research methods into intervention development.

Methods

The stages outlined in the MRC Framework (Campbell et al., 2000) and also in the Stage Model (Onken et al., 1997) are akin to the sequential phases of drug development. The theoretical phase (preclinical/Stage 0) and modelling phase (phase I/Stage 1a) inform the development of behavioural interventions prior to feasibility or exploratory testing (phase II/Stage 1b), and precede the more

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definitive clinical trial and implementation phases (phases III–IV/Stages 2–5). In this study, the methodologies employed were a literature review on childhood obesity prevention, focus groups (FGs) with local stakeholders, a Professionals Group meeting, and a review of existing community resources. Each of these is discussed in turn below.

A further theoretical framework was used to assist in the analysis and application of the contextual data during the intervention development process; the Analysis Grid for Environments Linked to Obesity (ANGELO framework; Swinburn et al., 1999). This framework guides users to categorise 'obesogenic' environmental influences into four types: physical, economic, political and sociocultural, and consider these categories at both local and macro-levels. Data arising from the literature review and the stakeholder FGs were mapped to this framework, which was then used to inform decisions on components to include in the final intervention programme.

Literature review

We systematically searched the Cochrane, MEDLINE and the NIHR Centre for Reviews and Dissemination databases for childhood obesity prevention systematic reviews and evidence-based guidelines to ensure that the developed intervention was coherent with the existing evidence. In addition, the following websites were searched: National Institute for Health and Clinical Excellence, NIHR Health Technology Assessment Programme, Scottish Intercollegiate Guidelines Network, and Swedish Council on Health Technology Assessment. Publications up to the end of 2006 were included in the review.

We dissected intervention programmes reported in the literature into their component parts. These were summarised into meaningful groups, for example, 'activities for families' or 'increased extracurricular physical activity provision in school'. This information was presented in the stakeholder FG sessions to facilitate discussion on the most effective and feasible types of intervention for their local communities.

Focus groups with stakeholders

We recruited adult stakeholders from eight school communities in Birmingham, UK to participate in FGs. A detailed description of recruitment and FG procedures is described elsewhere (Pallan et al., 2012). Stakeholders included parents, teachers, school catering staff, other school support staff, school governors, healthcare professionals, local authority representatives, religious leaders, leisure centre staff, and retail representatives. Nine FGs were convened comprising 68 participants (88% female; 55% South Asian). Each group met for two sessions (70% attended both sessions). The aim of

the FGs was to reach consensus on up to eight intervention components that participants believed would warrant inclusion in an intervention programme for their local communities, given the perceived importance and feasibility of implementation.

FGs were audio-recorded and transcribed. Analysis was two-staged. First an inductive thematic analysis was undertaken to identify themes relating to conceptual influences on the development of childhood obesity (findings described elsewhere; Pallan et al., 2012). Second, data on ideas for childhood obesity prevention, barriers and facilitators to intervention, and the balance given to importance and feasibility of each component were extracted from the transcripts (data presented in this paper). To assist with this process a framework for data extraction was developed prior to analysis. This second analysis was a more deductive process, recognising that this is an appropriate approach when undertaking applied qualitative research that has preset aims and objectives (Pope et al., 2000).

Review of local resources

A systematic approach to mapping local community assets was developed, which included discussion with school, health and local community representatives, internet searches and visits to the communities. The purpose was to enable the intervention programme to build on existing resources, thus making it more relevant to local communities and more sustainable.

Professionals group

A Professionals Group was established to advise on intervention development. The Group consisted of nutritional, physical activity and behavioural epidemiologists, health psychologists, a dietician, an obesity programme commissioner, a paediatrician, a qualitative researcher, an educationalist and experts in ethnic minorities research. The role of the Group was to consider the FG data and the existing literature, and to advise on components to be included in the final programme.

Results

Literature review

Eight relevant systematic reviews were identified (Bautista-Castano et al., 2004; Doak et al., 2006; Flodmark et al., 2006; Hardeman et al., 2000; NHS Centre for Reviews and Dissemination, 2002; Sharma, 2006; Stice et al., 2006; Summerbell et al., 2005), encompassing 70

Table 1
Classification of intervention processes for childhood obesity intervention.

Setting	Broad description of intervention process	Type of environment targeted ^a
Family	Activities for family	Physical/sociocultural
	Educational materials aimed at families	Physical/sociocultural
	Motivational interventions and incentives to promote healthy behaviour in family	Economic/sociocultural
	Campaigns aimed at families	Political
	Develop parenting skills	Sociocultural
School: Curricular interventions	Alter physical education provision	Physical/political
	Increase physical activity provision	Physical/political
	Increase nutrition education	Political
	Increase general health education	Political
	Work on self-esteem	Sociocultural
School: Extra-curricular interventions	Motivational interventions to influence behaviour change	Economic/sociocultural
	Media promotion of healthy diet and physical activity	Political
	Lunchtime/after school/holiday clubs	Physical
	Encourage healthy travel to school	Physical/sociocultural
	Competitions/rewards to promote healthy behaviours	Economic
School: Food provision	Increase nutritional value of school meals	Physical
	Improve provision of and access to healthy food in school	Physical
School: Other	School action plans/policies related to health	Political
	Professional development for teachers	Political/sociocultural
	Involve children in school changes	Political
	Adult role models/school 'champions'	Sociocultural
Community	Provide sessions for all community members	Physical
	Work with local shops	Political/economic

^a As defined by the Analysis Grid for Environments Linked to Obesity (Swinburn et al., 1999).

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