ORIGINAL ARTICLE

WATCH IT: a community based programme for obese children and adolescents

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Background: The WATCH IT programme was developed to address the needs of obese children from disadvantaged communities in Leeds and has been running since January 2004. Results of the pilot phase, prior to a randomised controlled trial, are presented.
Methods: A process evaluation to assess success of implementation was conducted in December 2004. User views (parent and child) were obtained by semi-structured interviews and focus groups. Change in BMI SD score was calculated for children attending between January 2004 and November 2005.
Results: A total of 94 children (49 girls, 45 boys), mean age (SD) 12.2 (2.0) years attended. They were moderately to severely obese (mean BMI SDS 3.09 (0.45), with low quality of life and self-image scores. There was a significant reduction in overweight at 6 months (ΔBMI SD −0.07), especially for teenagers (ΔBMI SD −0.13) and girls (ΔBMI SD −0.07). The programme was successfully implemented. By December 2004 mean attendance was 2.1 (0.7) clinics per month, and sports sessions 3.3 (1.7) sessions per month. Fourteen children dropped out and non-attendance was low (only 7.5% sessions missed in 12 months). Qualitative research indicated significant appreciation of the service, with reported increase in self-confidence and friendships, and reduction in self-harm.
Conclusion: WATCH IT offers a model for a community based service for obese children. The programme suggests that effective care can be delivered by health trainers supervised by health professionals, and so potentially provides a cost effective programme within children's communities. These findings are encouraging, and need to be substantiated by extension to other locations and evaluation by randomised controlled trial.

Childhood obesity is considered the greatest public health risk to children today, placing young people at considerable risk for obesity later in life and consequent cardiovascular disease, diabetes, liver dysfunction, and other morbidities. The evidence is emerging that when obesity has its onset in childhood these risks are increased beyond those risks relating to obesity in adulthood.[1–3] The arguments for intervening in childhood are therefore strong. Indeed, studies now tell us that co-morbidity markers are already present in adolescence, with hypertension, hyperlipidaemia, and glucose impairment commonly occurring in moderately obese young people. Alarmingly, early vascular lesions have even been detected in obese children as young as 3–8 years of age, suggesting that obesity related atherogenesis begins in early childhood.[2]

There is no doubt that if obesity could be reversed in childhood the benefits to individuals, and the savings to the health service would be enormous. The problem is the singular lack of evidence for effective interventions to tackle childhood obesity. Systematic reviews[4–6] have shown that there are very few quality trials, and these principally involve small numbers of primary school aged children, and have been carried out in academic tertiary care centres with highly specialised staff involving white, middle class, motivated families. Their applicability and generalisability to the general population is therefore very limited.

Acknowledging a lack of resources and the need for readily accessible services close to children's homes, we obtained a grant to develop "clinics" in socially disadvantaged areas of Leeds. We recognised that there was a lack of appropriate personnel in the NHS and so proposed to also ascertain whether effective care could be delivered by individuals with good personal skills but no professional qualifications. Over the course of two years we developed a pragmatic community based intervention for obese children and adolescents, and piloted it in eight centres. This paper presents the results of a programme evaluation that was undertaken to ascertain: (a) if it was successfully implemented; (b) the impact it has had on children and their families; and (c) the outcome on the health of the young people involved. This was undertaken as preliminary work needed before progressing to assessing its clinical effectiveness by randomised controlled trial.

METHODS

Development phase

WATCH IT was set up following a survey of views of patients and parents referred for obesity to our regional endocrinology clinic and the community paediatric dietetic service. Views of relevant professionals and young people at school and the community were also obtained. Key areas identified were local access (but away from school or health settings), frequent contact, and a flexible approach. In 2003, two health trainers were appointed, who opened the first four clinics located in local sports and community centres.[7 8] They initially offered counselling and support alone. Over the following year the programme was extended to include physical activity sessions and a more structured approach based on the Healthy Eating Lifestyle Programme (HELP). It has been running in its current from since January 2004.

The WATCH IT trainers are trained in motivational and solution focused approaches. The former is based on the degree to which behavioural change is important to an individual, their confidence in their ability to achieve behaviour change, and the degree to which change is a priority. The solution focused model views the patient rather than the professional as the expert in order to identify "what works".

HELP was originally developed by the second author (DC) for delivery by clinical psychologists, and was based on a successful programme developed for young people with difficult to control diabetes.[9] The approach and manual were modified specifically for WATCH IT, so it was appropriate for delivery by untrained professionals. The overall aim is to achieve weight maintenance, and the approach encourages young people and their families to focus on how to regulate eating behaviour, with a view to preventing weight cycling and binge eating. This is accompanied by a focus on active lifestyle and also addresses emotional wellbeing. Sessions include healthy eating information and ways to reduce sedentary behaviour and increase lifestyle activity levels. Activities make links between thoughts and emotional responses that contribute to overeating behaviours. Parents are a key part of the programme and are helped to identify and support progress.

In 2004 WATCH IT was extended to a further four centres, making a total of eight clinics. Five are situated in significantly disadvantaged areas (DETR index of multiple deprivation 29.2–47.7) of which two are severely disadvantaged (DETR index 29.2–37.0).[10] A process evaluation was completed at the end of the year, involving input from the first 48 users, and the service was adapted and moulded to its current form. Group parenting sessions were added with the content informed by the HELP approach.

Recruitment

Young people aged 8–16 years with a BMI above the 98th centile are eligible to enrol. Both parent and young person need to have fluent spoken English. Once enrolled they have a medical check by their GP. Due to the cognitive component of the programme, children with significant learning disability are screened for suitability to participate. Families are recruited by professional or self-referral. The programme initially received publicity through the local media on two occasions, which benefited recruitment.

The WATCH IT programme

WATCH IT aims to encourage lifestyle change by taking a motivational enhancement and solution focused approach, along with opportunity for physical activity. The programme has three components:

- Frequent individual appointments (30 minutes, initially weekly) for the young person and parent for encouragement, support, and motivational counselling, using the HELP manual to guide content delivery
- Group activity sessions lasting one hour, conducted weekly at a local sports centre
- Group parenting sessions, once the individual appointments have reduced in frequency.

Families commit to attend for 3 months with an option to renew 3-monthly for a year. Clinics are located in sports or community centres and take place between 3 30 and 6 30 pm on four days per week. Hour long physical activity sessions are conducted by sports coaches who have been trained by the WATCH IT team, with support from the WATCH IT trainers.

The programme is staffed by part time health trainers, appointed for their personal qualities and communication skills, who receive ongoing support and supervision from a team leader (weekly), a dietician, a psychologist (monthly), and a paediatrician (periodically). They are provided with brief training in the solution focused approach, motivational interviewing, and basic nutrition and healthy lifestyle information during a two week induction period. Training in first aid and child protection is also provided. They are provided with a WATCH IT training manual, the HELP manual, and attend further training in physical activity.

The evaluation process

The evaluation was based on:

- A process evaluation of the implementation
- User views
- Change in children's body mass indices.

The process evaluation was conducted by an independent researcher (PS) for the period January–December 2004. Measures included attendance by children and families at clinics and group sessions, the amount of support delivered by professional staff, and staff views obtained by interview.

User views were obtained by semi-structured interviews and focus groups held between April and June 2004. Fourteen boys and six girls were recruited from children attending for more than 3 months to ascertain their views on what they gained from WATCH IT and improvements they would like to see. Individual interviews lasted approximately 20 minutes, and focus groups of 6–8 children, approximately 40 minutes. A focused discussion was held in April 2005 with 36 parents and grandparents when they collected children from a residential weekend. All data were tape recorded, semi-transcribed, anonymised, then analysed using framework analysis.[11]

The primary quantitative outcome measure was change in overweight, calculated by comparing BMI SD score at entry to the programme, with that at 3 and 6 months. These data were analysed on measurements taken over the 23 month period from January 2004 to November 2005. Secondary outcomes related to psychological wellbeing: the self-image profile[12] and PedsQL quality of life questionnaires[13] were delivered at baseline and 6 months.

Lifestyle changes are also an important outcome. As there was no suitable dietary tool for use by children, and a modified food frequency questionnaire proved unreliable, we developed our own eating behaviour and activity questionnaire, which is now being piloted, along with accelerometers. These results are too preliminary to be presented here. All measures were obtained by the health trainer, as resources did not allow for independent assessors.

Ethics approval

Ethics approval was sought and gained from Leeds West Research Ethics Committee, for both the quantitative and qualitative aspects of the evaluation.

RESULTS

By January 2004 the programme had developed to its current form. Four health trainers were employed, running eight clinics in South and West Leeds, with physical activity sessions running at five sports centres. By November 2005, 94 children and teenagers (49 girls, 45 boys), mean age (SD) 12.2 (2.0) years, had participated for varying periods of time.

Baseline data

Baseline measures indicated that they were moderately to severely obese (mean BMI SD 3.09, SD 0.45). Fourteen children had a BMI SD score greater than 3.5. The Quality of Life scores were 65.5 (SD 17.0) showing significant impairment, as previously reported.[14] These scores were on a par with obese American youth (67.0, SD 16.3), and significantly lower than healthy weight American youth (83.0, SD 14.8) and children with cancer (72.2, SD 16.4).[15] Self-image profile scores were also impaired; when compared with data from a population of Leeds schoolchildren of the same sex and age, WATCH IT children had significantly greater negative

self-image scores (33.8±15.4 *v* 25.6±11.7, $p < 0.01$) and poorer self-esteem scores (39.9±23.8 *v* 31.9±15.9). Scores for positive self-image were low but did not reach statistical significance.

Process evaluation of the implementation

The process evaluation took place during 2004. Over this 12 month period, 61 families attended; 819 clinic appointments were kept, 98 (12%) were cancelled. On only 62 (7.5%) occasions did participants fail to attend without prior notification. This figure needs to be compared with data from general paediatric outpatient clinics where more than 20–30% DNA (did not attend) rates are common.[16] Children attended on average 2.1 (0.7) clinics per month and 3.3 (1.7) sports sessions. By December 2004, 14 (21%) of the participants had discontinued attendance; 31 opted to attend for more than 6 months.

Users' views

Detailed results from the interviews and focus groups are reported elsewhere.[17] Parents described how WATCH IT had made a dramatic difference to many of the children. They reported high levels of misery, bullying, and school problems in their children at the outset. Many had found friendship, were accepted, and felt that they could be normal at WATCH IT. They also reported that self-confidence and self-esteem had increased. Some children had developed friendships that spilled over outside of the WATCH IT sessions themselves. Self-harming in some children had stopped. The children expressed their initial reticence in attending, and a positive attitude towards the programme. They appreciated the approach taken by the health trainers and compared it with previous unsatisfactory encounters they had had with health professionals.

Change in BMI SD scores

Of the 94 children who participated in the programme between January 2004 to November 2005, 22 had discontinued attendance by 3 months, and a further 12 did not opt to extend participation from 3 to 6 months (fig 1). Most of the children who had discontinued attending were children who had enrolled in the early months of 2004 when the programme was less well established. Reasons given included transportation difficulties, clash with mosque times, and family illness. Twelve children had not participated long enough to be measured at 6 months, of whom four had not yet reached 3 months. Follow up BMI data were therefore available on 68 children at 3 months, and 48 children at 6 months.

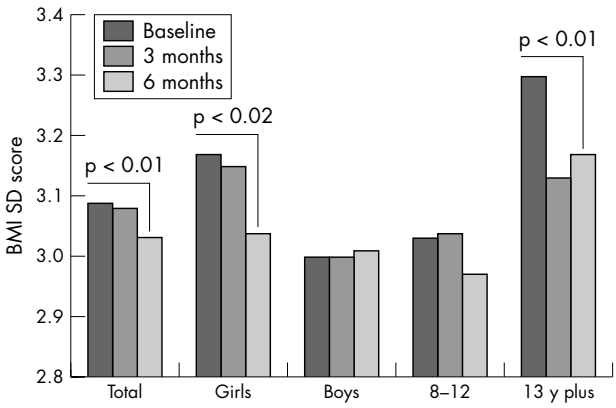

Figure 1 Change in BMI SD score in 94 children (49 girls, 45 boys) attending the WATCH IT programme for obese children (n=68 at 3 months and 48 at 6 months).

Fifty four per cent of children at 3 months and 71% at 6 months had shown a decrease in BMI SDS scores. Change in mean BMI SD at 3 months was −0.01 (SD 0.12, p = NS). By 6 months it had shown a significant decrease (mean change −0.07, SD 0.16, $p < 0.01$). The mean change in BMI SD at 6 months was greater for girls (−0.07, SD 0.14, $p = 0.02$), and for participants aged 13 years and over (−0.13, SD 0.14, $p < 0.01$).

DISCUSSION

To date the evidence base for interventions for childhood obesity is limited. No trials have been published in the UK, and the few that are of adequate quality to be included in systematic reviews are mostly from academic centres in the United States. WATCH IT was set up to ascertain if it was possible to establish a service for obese children and teenagers in their own communities. At the outset, and in order to ensure families' needs were met, potential users, and other young people were surveyed for their views regarding location, and more importantly what they wished to be offered.

The data collected at baseline indicated that the service attracted boys and girls from across the entire eligible age range. The misery that many of these young people experience was reflected in both the low quality of life and self-image scores found by questionnaire, and also strongly emerged in qualitative research undertaken with their parents.

The process evaluation undertaken in the first year showed that WATCH IT was implemented well, and the attendance levels were excellent, in itself indicating families' value of the programme. The qualitative research confirmed that the programme was appreciated, particularly in terms of the increase in self-confidence and self-esteem experienced by the children, and the friendships they made.

The achievement of a statistically significant reduction in body mass index is extremely encouraging, especially as BMI (the only feasible clinical measure for adiposity) does not take into account an increase in muscle mass that is likely to occur with increased physical activity. Our findings are all the more encouraging, given the setting. Not only was this a pragmatic intervention in community facilities, but clinics were sited in disadvantaged areas. One might reasonably presume that better results are achievable in well off communities. While the change is not dramatic in absolute terms, it is important to emphasise that control data are needed to interpret the figures. Some comparison can be made by our analysis of data from 30 children referred to our hospital outpatient clinic for obesity. In this sample there was a mean *increase* of 0.2 SD over a similar period of time.

Of equal importance as the impact the programme had on the children, is the finding that effective care can be delivered by individuals who have no health professional qualifications. Our health trainers were selected for their personal qualities and were provided with a minimum of training. We feel that the key to their success in this demanding work was their working within a team with a dedicated leader and regular supervision by health professionals. The finding that non-professionals can work effectively in this area has particular importance given the government's commitment to introducing a ''personal trainer'' workforce into the NHS.

This paper would not be complete without some allusion to difficulties encountered in setting up the programme and conducting the evaluation. While there was plenty of good will, untold time and energy was expended in liaising with NHS and leisure services to ensure that the programme, which was supported by short term research funds, was incorporated into management structures. Working across agencies had its difficulties, and sports coaches and facilities were not always available as promised. The costs principally

What is already known on this topic

- The evidence base of effective interventions for obese children is very limited with no trials from the UK
- Trials outside the UK were carried out in academic centres with highly qualified staff and educated, motivated families

What this paper adds

- A community based intervention for obese children has been successfully developed in disadvantaged areas
- Health trainers with no professional qualification are effective in delivering an intervention that appears to have benefit

entailed employing four health trainers who worked part time (0.5 whole time equivalent), with clinic space, sports facilities, and coaches supplied at no cost. Lastly, data should ideally be collected by someone independent to the intervention; however funds did not permit this.

At this stage we feel that we have developed a robust and innovative intervention that is underpinned by a sound psychological approach, with clinics secured in the community within the framework of the NHS. Initial data are very encouraging, and funding has now been secured to conduct a randomised controlled trial. If the results are confirmed, the implications are enormous. A readily generalisable clinically effective intervention would have been found that capitalises and extends community resources and facilities, while placing little pressure on existing NHS services. It could be adopted at low cost throughout the country, without extensive employment of professionals who are not only costly but are simply not available.

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