

“What’s the Point when you only lose a pound?” Reasons for attrition from a multi-component childhood obesity treatment interventions: a qualitative inquiry.

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**“What’s the Point when you only lose a pound?” Reasons for Attrition from a
Multi-component Childhood Obesity Treatment Interventions: A Qualitative
Inquiry**

L.J Staniford, R.J Copeland and J.D.Breckon

Abstract

This study explored the causes of drop-out from a community-based multicomponent childhood obesity treatment intervention (MCTI), considering parent and child perspectives in order to develop future interventions which manage potential attrition more effectively. Semi-structured interviews explored attrition amongst a sample of children (n=10) and their parents (n=10) who dropped out of a community-based MCTI. Parents and children highlighted psychological and motivational issues (e.g. misaligned expectations, lack of desire to make behaviour changes and perceived costs of change outweigh the perceived gains) as the driving factor for their attrition alongside attitudinal, environmental, interpersonal and treatment variables. The complexity and interaction of factors associated with attrition identified in this study points to the challenges associated with reducing drop-out in MCTI’s. The views of families’ should be a key consideration in the design and implementation of treatment interventions to harness and sustain commitment to the treatment process.

1

2 **Introduction**

3 The National Child Measurement programme data identified that 9% of children aged
4 4 to 5 years old and 20% of children aged 10 to 11 years old measured were
5 classified as obese in 2015/16 (NCMP, 2015/16). This has negative health
6 consequences if individuals maintain this increased weight status into adulthood,
7 including increased risk of heart disease, diabetes, cancers and a stroke.

8 Multicomponent childhood obesity treatment interventions (MCTIs) are regarded as
9 the most effective approach to treat childhood obesity yet many are associated with
10 high attrition (Luutikhuis et al., 2009; Staniford, Breckon & Copeland, 2011;
11 Staniford, Breckon, Copeland & Hutchison, 2011). Luutikhuis and colleagues (2009),
12 in a review of childhood obesity treatment interventions, reported that only 31 out of
13 64 studies reported follow-up measures for 80% or more of the baseline participants.
14 Despite this, there is little exploration of reasons for drop-out in interventions and
15 moreover what factors or strategies would encourage families to remain in treatment
16 over the long-term. To determine the efficacy of MCTI's (Hampl, Paves, Lamscher
17 & Eneli, 2011) and enhance patient outcomes from treatment, more needs to be
18 understood about attrition in the field of childhood obesity treatment (Staniford et al.,
19 2011).

20 Attrition is complex and in the childhood obesity treatment context it is a product of
21 the interaction between the pre-treatment characteristics of the individual, their
22 support system (i.e. parents, siblings & extended family members or significant
23 others who have a role in caring for the child, all of whom interact with the child on a
24 regular basis) and subsequent treatment variables (Dalle Grave et al., 2005). A

1 number of studies have explored attrition from MCTIs (Banks et al., 2013; Ball et al.,
2 2012; Brennan, Walkley & Wilks, 2012; Cote, Byczkowski, Kotagal, Kirk & Zeller,
3 2004; Grimes-Robison & Evans, 2008; Zeller et al., 2004) identifying lack of
4 motivation and support (Grimes-Robison & Evans, 2008), significant time
5 commitments, cost, lack of insurance cover, educational content, unsupportive
6 families (Zeller et al., 2004), a child's lack of desire to lose weight and the
7 educational content of treatment interventions as determinants (Walkley & Wilks,
8 2012). Research comparing participants who remained in treatment versus those
9 who dropped out have suggested that poor perceived quality of care was associated
10 with higher attrition rates. Quality of care (Reinehr, Brylak, Alexy, Dersting & Andler,
11 2002), ambivalence to engage in weight management programmes, fear of weight
12 bias and stigmatisation and length of visits (Hampl et al., 2011) have also been
13 identified as possible predictors of attrition.

14 Environmental influences that create an unsupportive context for health behaviour
15 changes have been implicated as barriers to weight management (Hampl et al.,
16 2011). The access and availability of physical activity opportunities and nutritious
17 foods, societal attitudes towards obese individuals including weight stigmatization
18 and the negative treatment of obese individuals in society have been identified as
19 factors that can hamper health behaviour change and weight management efforts.
20 Research identifies that children and adults living with obesity are treated unequally
21 because of their size at school, at work, in interpersonal relationships and within the
22 healthcare system (Campbell, Engel, Timperio, Cooper & Crawford, 2000). If obese
23 individuals internalise weight bias and believe that they deserve the stigma or
24 discriminatory behaviour they experience in society this has several negative
25 consequences. Negative effects of internalising weight bias include negative

1 psychological consequences, eating pathology, poor body image, low self-esteem,
2 avoidance of seeking support from healthcare services and ultimately has a negative
3 impact on an individual's weight management efforts (Major, Eliezer & Rieck, 2012).

4 A qualitative inquiry of the views and attitudes of clinicians in primary care, tertiary
5 care and community-based interventions towards attrition suggested the importance
6 of open and trusting relationships with families, realistic expectations and values
7 towards treatment as well as developing strong relationships between families on
8 programmes as key retention factors (Skelton et al., 2012). Brennan and colleagues
9 (2012) reported adolescents perceived barriers to completion of an obesity treatment
10 intervention related to the demands of the research (e.g. completion of
11 questionnaires), treatment approach (intervention did not work), intervention
12 components and strategies (e.g. too many behaviour change goals, duration of
13 sessions too long and content too boring), practical barriers (transport to the venue,
14 holidays, school commitments) and individual and/or family demands (e.g. other
15 pressures). The most common barriers reported by parents related to intervention
16 components and strategies, problem recognition and treatment motivation, parent-
17 adolescent conflict, practical barriers and individual/family demands. This research
18 highlighted the need to ensure treatment goals are relevant for both adolescents and
19 parents to reduce the demands of the intervention in terms of monitoring, behaviour
20 change strategies and the amount of information being overwhelming.

21 A UK based qualitative study (Banks, Kramer, Sharp, Shield & Turner, 2013),
22 conducted with 15 families whose children attended a childhood obesity treatment
23 service in a primary care clinic and 17 families who withdrew from the treatment
24 found that reasons for withdrawal included personal family needs had not been
25 considered, the clinic not being age appropriate and treatment not matching families

1 expectations. This study indicated including children in the decision to attend obesity
2 treatment, tailored treatment advice specific to each families' circumstances and age
3 appropriate treatment groups could increase the likelihood of families adhering to
4 treatment and reduce the likelihood of attrition (Banks et al., 2013). This reflects
5 review recommendations (Staniford et al., 2011) and NICE guidelines for lifestyle-
6 based weight management programmes for children and young people that advise
7 tailoring programmes to the individual child and young person's needs (NICE, 2013).

8 Future research recommendations from attrition studies include the need for
9 explorative studies to enhance the understanding of attrition and to identify if/what
10 retention strategies can be put in place to improve participation in childhood obesity
11 treatment interventions. Hampl and colleagues (2011) emphasised the need for
12 further qualitative work with children and parents involved in childhood obesity
13 interventions to elicit barriers and promote more acceptable treatment interventions.
14 The current study aimed to explore parents and children's views towards attrition
15 from MCTIs with a view to understanding how best to reduce the likelihood of
16 participants dropping out of treatment using qualitative enquiry.

17 **Methods**

18 ***Methodology***

19 A social constructionist approach was taken to consider the parents and children's
20 perspectives towards dropping out from a MCTI given that their views best inform
21 knowledge of their personal experiences. This approach recognises that participant's
22 perceptions do not exist in isolation and are not static but are shaped by interactions
23 with others, linked with social forces, and are also a product of the interaction
24 between the researcher and participant that is inherent in qualitative research. The

1 researcher acknowledged their own understandings of attrition from MCTIs
2 underpinned by their experience of working in this context could influence their
3 perceptions and interpretations of participant's views towards attrition from MCTIs.
4 Researchers are not expected to bracket preconceptions. Thus the researcher
5 engaged in reflexivity through writing a reflective journal after the completion of each
6 interview in aim to acknowledge and avoid holding onto any pre-existing
7 assumptions in the data collection and analysis process.

8 While there still remains a lack of clarity regarding *generalisability* in qualitative
9 research (Smith, 2018) an attempt has been made in the current study to offer an
10 approach which allows for generalisability (Tracy, 2010). The explicit approach taken
11 here offers an opportunity to generalise through *transferability* whereby gathering
12 direct testimony and evocation of personal perceptions from the sample allows for
13 identification of relevance to other community-based MCTIs. Moreover, it allows for
14 common themes to be addressed across all stakeholders allowing for the refinement
15 of existing services and more appropriate design of new services. For further details
16 regarding generalisability in qualitative research, see Smith and McGannon (2017).

17 ***Participants and recruitment***

18 A purposive sampling method (Palinkas et al., 2013) was used to recruit parents and
19 children who had dropped out from a childhood obesity treatment intervention called
20 GOALS (Watson et al., 2015) in the previous 12 months (Patton et al., 2002). Ethics
21 approval was attained from Sheffield Hallam University and Liverpool NHS Primary
22 Care Trust. GOALS was targeted at families with children aged 4–16 years old who
23 were obese (BMI \geq 98th centile according to the UK 1990 BMI reference charts, Cole,
24 Freeman & Preece, 1990). Potential participants were contacted via telephone by

1 the researcher, informed of the purpose of the study and were sent an information
2 sheet to support this. Parents and children who were willing to take part signed
3 informed consent and assent forms (i.e. children > 8 years old). Participants included
4 ten parents and ten children of the same parents (dyads) (aged 7-14 years old) who
5 had dropped out of the GOALS intervention either during the standard 18 week
6 intervention, or the follow-up period (i.e. families were required to attend a three
7 month & six month follow-up to monitor their weight maintenance: Watson et al.,
8 2015).

9 ***Programme characteristics***

10 The GOALS intervention consisted of one session per week for two hours that
11 combined a family fun-based physical activity session where all attending family
12 members were encouraged to participate, weekly goal setting encouraging small
13 realistic lifestyle changes, nutrition education and psychological/motivational topic
14 themed sessions (e.g. overcoming barriers to healthy lifestyles). All attending
15 members of each family were weighed and measured at baseline, 6, 12, 18 weeks
16 and at 6 and 12 month follow-ups. A more in depth description of the GOALS
17 intervention detail is available elsewhere (Watson et al., 2015).

18 ***Procedures***

19 Having received informed consent, a time and date was arranged to interview
20 parents and children that was convenient for them. To increase engagement, all
21 interviews were conducted in the participant's home. Each child was given the option
22 of having a parent or guardian present during the interview, yet no child requested
23 this. Each parent and child took part in a semi-structured interview that lasted
24 between 20-30 minutes and was digitally recorded. Semi-structured interviews were

1 developed using a flexible interview guide. Semi-structured interviews were chosen
2 as they allowed participants the opportunity to be flexible and reveal their feelings
3 related to why they dropped out of the treatment intervention thus providing deeper
4 knowledge (Sparkes & Smith, 2014). The interview guide provided a deductive
5 framework, informed by the attrition literature (Ball et al., 2012; Banks et al., 2013;
6 Barrett et al., 2008; Brennan et al., 2013; Cote et al., 2004; Dalle Grave et al., 2005;
7 Grimes-Robison & Evans, 2008; Zeller et al., 2004) and, taking into account topics
8 identified in the Foresight systems map of determinants of childhood obesity
9 (Foresight, 2007). Parents and children were asked about their experience at
10 GOALS, why they had decided to drop-out from the intervention and what factors
11 they perceived might have impeded or enabled their sustained involvement in the
12 treatment intervention.

13 ***Data analysis***

14 Interviews were transcribed verbatim with names removed from transcripts to ensure
15 anonymity. Participants were referred to as 'parent' or 'child', along with a unique
16 identifier number. Transcribed data was imported into QSR NVivo 8 (Qualitative
17 Solutions & Research International, 2008), which was used to facilitate the
18 qualitative data analysis. QSR NVivo has also been used to facilitate the analysis of
19 qualitative data in previous studies (Hutchison et al., 2009; Snethen & Broome,
20 2007; Stewart et al., 2008).

21 The framework approach (Ritchie & Spencer, 1994) was used to analyse the data.
22 The framework approach allows a systematic process to qualitative data analysis.
23 The five interconnected phases of the framework approach aim to make the data
24 analysis approach transparent illustrating the linkage between the stages of analysis

1 (Ritchie & Lewis, 2003). In the framework approach the researcher uses both
2 inductive and deductive categorisation to develop the themes, sub themes and final
3 thematic framework and then uses the thematic framework to organise the data
4 (Ritchie & Lewis, 2003). Peer consultation took place throughout the five stages of
5 the framework approach to ensure agreement in the development of the themes and
6 sub themes, the development of the final thematic framework, charting and mapping
7 data, and final interpretations (Mays & Pope, 1995).

8 Briefly, the five stages include:

- 9 1. Familiarisation- the researcher familiarises themselves with the data from the
10 reading and re-reading of the transcripts. Recognition of themes is dependant
11 on whether it captures something important in relation to the research
12 question or something of importance to the participants.
- 13 2. Identifying a thematic framework- commonly referred to as the coding phase
14 in other thematic analysis methods. The research team identifies the key
15 themes that have emerged, the associated sub themes and discussion points
16 and issues related to the transcripts. In the development of the key themes
17 and sub themes the research team challenged and questioned emergent
18 themes until clarity and agreement was reached across all themes. This step
19 taken to consult the other researchers in the team offered the opportunity for
20 the primary researcher to reflect upon and justify decisions made around the
21 emerging themes and subsequent thematic framework developed before
22 finalising the framework. This was considered an important step to develop
23 rigour in the results (Smith & McGannon, 2018).
- 24 3. Indexing – this phase involved annotating the transcripts according to the
25 thematic framework, using QSR NVivo to facilitate this process.

- 1 4. Charting- the process of rearranging the data in line with the thematic
2 framework to create order. This phase was used to synthesise the interview
3 data as a research team so it was arranged under the themes and sub
4 themes in the charts for the final thematic framework.
- 5 5. Mapping and Interpretation – a process of presenting the data graphically in
6 aim to make sense of the themes and how they relate to each other. This also
7 allowed the research team to identify if there were relationships in the themes
8 and sub themes across parents and children.

9 To ensure trustworthiness of the research, relevant quotations are identified to
10 represent the themes decided upon in the thematic framework letting the reader
11 reflect on the research teams interpretations, allowing for naturalistic
12 generalisation (Smith, 2018).

13 Results

14 Twenty participants were interviewed (ten children and ten adults). The children were
15 aged 7-14 years old (mean age=11.8; SD=1.8) and classified as obese (three males
16 & seven females, three who dropped out in the core treatment phase & seven who
17 dropped out in the follow-up phase) and the parents (eight mothers & two fathers,
18 three who dropped out in the core treatment phase & seven who dropped out in the
19 follow-up phase). All participants declared their ethnicity as White British.

20 Thematic framework analysis revealed five core categories of variables that parents
21 and children identified had influenced their attrition from the treatment intervention.
22 These were psychological and motivational, attitudinal, interpersonal, environmental
23 and treatment-related variables (see Table 1). Similar themes and sub themes
24 emerged across children and parents, irrespective of whether they had dropped out

1 in the core treatment phase (18 week core intervention) or the follow-up phase (three

Theme	Subtheme
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2 and six month follow-up support sessions) of the GOALS intervention thus results
3 are displayed collectively. The treatment-related variables were further sub
4 categorised to differentiate variables that parents and/or children perceived would
5 have enabled their continuation in the intervention, and variables that inhibited their
6 continuation in the treatment intervention. The key themes/categories and sub
7 themes/categories that emerged are also detailed in Table 1.

Psychological and Motivational Factors	Treatment outcomes did not match initial expectations Perceived costs i.e. emotionally and psychologically of changing to a healthy lifestyle outweigh the benefits Fearful of making changes to their lifestyle Guilt due to not making any changes Lack of desire to make health behaviour changes
Attitudinal Factors	Parents and children blame each other for a lack of motivation to change Not ready to make a commitment toward lifestyle behaviour changes Parents do not recognise or acknowledge the seriousness of their child's overweight Negative perceptions towards having a healthy lifestyle (i.e. boring, restrictive, un-enjoyable) Overemphasis on health messages → children resist making health behaviour changes
Interpersonal Factors	Lack of active parental involvement Lack of family support Limited peer support Lack of group bond Professional support needed at an individual level
Environmental Factors	Media pressures Unsupportive school environment Unsupportive home environment
Treatment Variables: Enabling Factors	Professional support at a family level Hard hitting approach to highlight the seriousness of child overweight/obesity Phased treatment: reducing intensity of support progressively Flexible treatment interventions to specific family needs (i.e. length of treatment, mode of delivery, intensity of the support) School active involvement in promoting a healthy lifestyle for all Need for community-based support groups Separate groups according to small age bands
Treatment Variables: Inhibiting Factors	Perceptions of initial small weight losses vs expectations of weight loss Educational aspect of treatment perceived as boring Provision of health education insufficient to sustain involvement in interventions Discrepancy regarding the usefulness of behavioural techniques (i.e. goal-setting & self-monitoring) Practical difficulties travelling to the treatment venue

1 **Table 1** Thematic Framework displaying the key themes and sub themes related to attrition
2 common to parents and children

3 <INSERT TABLE 1 HERE>

1 **Psychological and Motivational Factors and their Influence on Attrition**

2 Psychological and motivational variables emerged as the dominant factors that
3 influenced families' attrition from the treatment intervention. Children and parents
4 revealed that they underestimated the commitment involved in taking part in the
5 treatment intervention. They suggested it was not until after attending the
6 intervention that the realisation 'hit them' and they did not feel ready to make
7 changes to their lifestyle,

8 *"When we got there it became real how much we needed to change about our eating*
9 *and we didn't do anything active I just thought we're not ready for all that."* (Parent
10 7).

11 Feelings of guilt and embarrassment were expressed by many parents due to
12 perceiving they had only made limited or no efforts to change their lifestyle. They
13 suggested this made them feel responsible for their child's limited weight loss during
14 the course of attending treatment and was a major reason for their attrition,

15 *"I think I felt a bit guilty as well cause I had let it slip and I had no excuse cause I*
16 *knew what I should be doing so there was no reason why I shouldn't be doing it but I*
17 *suppose sometimes it's easier to just stick to what you know."* (Parent 10).

18 Parents and children suggested they feared making health behaviour changes. This
19 fear was reported as being the result of not knowing the impact making lifestyle
20 changes would have on their life,

21 *"I was a bit scared cause I like the things I eat and didn't want to change, cause if I*
22 *did change I wouldn't be able to like do the things I do now like going for McDonalds*
23 *with my friends and that."* (Child 6).

1 Parents and children suggested they did not place a high value on the need to
2 change their lifestyle and it was not something they prioritised in their life,
3 *“I just think there’s more important things in life like just enjoying yourself and I don’t*
4 *think it’s that important for us really.”* (Parent 3).

5 Parents’ concerns also seemed to stem from a fear of failure to successfully make,
6 and sustain health behaviour changes and lose weight. Parents felt they would
7 rather not try at all than to have tried and failed,
8 *“I think like I felt a bit guilty anyway for being in this situation and I was really scared*
9 *that if I did try to change and then failed I would have felt even worse like I had failed*
10 *(child’s name).”* (Parent 3).

11 Parents and children perceived the limited weight loss achieved in the first stage of
12 treatment as a failure and this did not align with their expectations, which negatively
13 impacted their confidence to change and contributed to their reasons for attrition,
14 *“Erm well for me if in the first bit I actually seen our (child’s name) losing weight then*
15 *yes this would have made me want to stay. I think it would have made me more*
16 *motivated definitely and it would have made a difference for her I think which was*
17 *what she needed really.”*(Parent 5).

18 For one parent and child, they were highly motivated to make lifestyle changes due
19 to being aware of the immediate danger to their own (i.e. child’s perspective), or their
20 child’s health (i.e. parent’s perspective),
21 *“I think we got what we needed from it but the rest was up to me to make the*
22 *changes to be healthier so she could lose weight.”* (Parent 2).

1 *"I knew I needed to lose weight cause the doctor said so I was scared so really*
2 *wanted to try to be healthier."* (Child 2).

3 This parent and child's reasons for attrition differed significantly from other parents
4 and children as their situation meant making lifestyle changes and losing weight had
5 to be a priority for the sake of the child's health.

6 **Blame Culture**

7 A 'blame culture' emerged between parents and children with both sides feeling the
8 other had failed to fulfil their role and take responsibility for making health behaviour
9 changes. Parents and children also blamed each other for their eventual attrition
10 from the treatment intervention,

11 *"I think there was nothing I could do cause (child's name) was just not prepared to*
12 *try and change so in the end I just thought it was pointless us being there."* (Parent
13 7).

14 *"I did want to try like but it's too hard cause like my mum wasn't being healthy and*
15 *there was loads of unhealthy things in the house so I just give up."* (Child 9).

16 For parents, they blamed their child's lack of desire to make changes as a major
17 reason for attrition,

18 *"I give up trying I couldn't get through to him ... he just didn't want to know. So I just*
19 *thought there is no point in coming anymore."* (Parent 10).

20 Conversely, children blamed their parents' lack of desire and willingness to make
21 changes to their own health behaviours in order to support them as the major factor
22 influencing their attrition,

1 *"I wasn't gonna try anymore cause why should I like if my mum and dad weren't*
2 *trying."* (Child 10).

3 **Attitudinal Variables and their Influence on Attrition**

4 Parents revealed that they did not perceive their child's obesity as a serious issue
5 given that their child was still young. The majority of parents (n=7) perceived their
6 child's extra weight as puppy fat and did not see their participation in the treatment
7 intervention as a priority,

8 *"I didn't really think we needed to be there cause there was lots of kids bigger than*
9 *our (child's name) and so I thought it's not really a big thing and I wasn't that worried*
10 *and had other more important things to be doing to be honest."* (Parent 6).

11 Parents and children expressed concerns over the negative impact changing to a
12 healthier lifestyle would have on their life, for example they perceived eating healthily
13 would mean they would be 'starving' all the time,

14 *"I just wasn't sure I wanted to eat healthy, I don't want to be starving all the time."*
15 (Parent 6).

16 Children perceived a healthy lifestyle to be boring, and that it would restrict them
17 from living their life freely,

18 *"It was kind of boring cause they just did exercise and stuff and it was the same*
19 *thing every week and it is just kind of boring being healthy and you feel the odd one*
20 *out cause you can't do the same as your friends"* (Child 1).

1 Parents and children perceived the costs of changing to a healthy lifestyle
2 outweighed the benefits and that this contributed to their attrition from the treatment
3 intervention,

4 *“I think I enjoy being unhealthy better... what’s the point of being healthy when I like
5 my life the way it is anyway.”* (Child 10).

6 **Interpersonal Variables and their Influence on Attrition**

7 A number of parents and children revealed that due to the lack of bond with other
8 group members, group-based sessions had not provided a support network,

9 *“I didn’t really feel like I could open up in the group cause I wasn’t really sure about
10 the people in the group and didn’t really feel confident in front of them.”* (Parent 3).

11 Children emphasised the lack of active involvement and willingness of their parents
12 and/or their family unit to change their health behaviours as one of the major
13 variables that impeded their continuation in the treatment intervention,

14 *“I think like cause like my mum does the shopping if she buys junk food then I will eat
15 it and if she says we are gonna go to the chippy then I will just go cause I like it. I
16 think if my mum made like more effort then I maybe would try harder.”* (Child 8).

17 Parents suggested the lack of peer support had a major role in their child’s lack of
18 desire to be involved in the treatment intervention,

19 *“I think cause his friends were not involved and don’t eat healthily this just made him
20 more uninterested so eventually I give up trying to get him to go.”* (Parent 5).

21 Parents and children suggested personalised support is necessary to address their
22 families’ personal needs and barriers to making health behaviour changes,

1 *"I think it should have been more one on one so you could speak about more*
2 *personal stuff."* (Parent 3).

3 **Environmental Constraints and their Influence on Attrition**

4 Children perceived that an unsupportive home environment negatively influenced
5 their motivation to sustain a healthy lifestyle and made them think "what is the point".
6 Parents and children agreed that the school environment was unsupportive in their
7 approach to dealing with weight in children and that this added to the stigma created
8 around being obese. Parents suggested this stigma created at school led children to
9 fear being ridiculed about 'being different' and this contributed to their negative
10 attitudes towards being involved in treatment interventions and influenced their
11 decision to leave,

12 *"Because our (child's name) was singled out and sent a letter home it made him very*
13 *defensive from the start so it was like fighting a losing battle."* (Parent 1).

14 Parents and children communicated feelings of stigma in general in society towards
15 being obese and the negative connotations of people assuming they must be 'lazy'
16 and eat 'like pigs' as was voiced by a number of parents and children. This stigma
17 was perceived as a barrier to participating in an intervention specifically known to be
18 for children who were obese. Parents did express worries that knowledge of them
19 being a part of this would make them a more likely target for such weight stigma,

20 *"I was worried that if we stayed involved with GOALS it would make (child's name)*
21 *an easy target for bullies cause you know its labelled like fat club and I just didn't*
22 *want (childs name) to get any back lash if people found out cause I feel like it was*
23 *my fault."* (Parent 3).

1 **Treatment Variables and their Influence on Attrition**

2 Treatment variables have been categorised into factors that parents and/or children
3 perceived would have enabled or inhibited them from remaining involved in the
4 treatment intervention (see Table 1).

5 **Enabling Factors to adhering to the treatment intervention**

6 Parents and children perceived that professional support should have been provided
7 at an individual level. They suggested this would have decreased their likelihood of
8 attrition through allowing the treatment deliverer to help families address personal
9 barriers to making and sustaining behaviour changes,

10 *“I think we really needed one to one family support to allow us to open up about the*
11 *issues that were getting in the way of making health behaviour changes.”* (Child 8).

12 Parents perceived that treatment deliverers should have adopted a strict and
13 directive delivery approach, highlighting the potentially serious consequences of
14 children carrying excess weight. They suggested this would have made it ‘hit home’
15 about the seriousness of their child’s weight and the need for them to take a leading
16 role in tackling it,

17 *“I think they need to be really straight with you as parents when you go to these*
18 *programmes and say how bad it could be if you don’t make change. I think then I*
19 *would have sit up and listened and thought right I need to get a grip of this right*
20 *now!”* (Parent 9).

21 Parents felt that the treatment intervention should have been structured into phases.
22 They believed this would allow variation in the intensity of the support so it could be
23 reduced gradually until families no longer required professional support. The belief

1 was that this phased approach would also allow the flexibility for families to exit
2 treatment when they felt ready to independently sustain behaviour changes rather
3 than adhering to prescriptive timescales of treatment,

4 *“I think no one family is going to have the same problems when they are trying to
5 become healthier so if you had like different phases where you could opt out once
6 you felt ready to go this would have been much better.”* (Parent 3).

7 Parents felt that the school was a key vehicle to try and work towards normalising
8 rather than stigmatising children with weight issues and their families, to avoid
9 children developing negative attitudes towards taking part in treatment interventions,

10 *“I think the schools need to take more responsibility and promote healthy living for all
11 kids rather than singling out the overweight ones who then feel different cause kids
12 are cruel so this makes them easy targets.”* (Parent 1).

13 Parents and children believed if the treatment group were separated into children
14 and parents, boys and girls and children were grouped with others of the same age
15 this would have increased the likelihood of the group bonding. It was believed this
16 would have reduced the likelihood of attrition,

17 *“I think the group would have bonded if the children would have been the same age
18 and then (child’s name) wouldn’t have wanted to leave.”* (Parent 8).

19 Parents and children highlighted that had the treatment intervention of been in a
20 local community centre it would have been more accessible and thus they would
21 have been more likely to keep attending,

22 *“Even though it wasn’t miles away, the time it was at meant it took a while to get
23 there and it was just a bit awkward sometimes. Like if they could have put it in like a*

1 *local community centre it could have been something we kept up, it's a shame*
2 *really.*" (Parent 6).

3 **Inhibiting Factors**

4 Parents and children suggested the limited weight loss in the initial six weeks of
5 treatment had inhibited their motivation to remain in the intervention,

6 *"I thought I was trying really hard to like be healthy but then only lost like a pound so*
7 *I just thought what's the point!"* (Child 9).

8 Parents and children suggested the intervention provided nothing beyond health
9 education. Therefore, they suggested once they had learnt what they needed to,
10 they stopped coming,

11 *"I think I learnt a little bit more about things like reading food labels and having the*
12 *right portion sizes but after that nothing much else so I didn't see the point in us*
13 *coming anymore."* (Parent 4).

14 Parents suggested they had not found the behavioural techniques within the
15 treatment intervention useful, although they did recognise that goal-setting was
16 helpful in motivating children to make changes (i.e. goal-setting & self-monitoring),

17 *"I didn't really find it helpful to set goals really it didn't motivate me but I think it was*
18 *good for the kids cause they really wanted to achieve whatever goal they had set."*
19 (Parent 8).

20 Children perceived that the treatment was educational and was boring which
21 heightened their negative attitudes towards having a healthy lifestyle. Instead
22 children suggested practical, fun-based learning sessions (so that it felt less like

1 school) would have increased their likelihood of remaining involved in the
2 intervention,

3 *“If it was more fun it would have made me want to be healthy more but it just felt like*
4 *school really.”* (Child 1).

5 **Discussion**

6 The retention of participants is often recognised as a major challenge for childhood
7 obesity treatment interventions (Luutikhuis et al., 2009; Staniford et al., 2011). The
8 current qualitative study explored children and parents reasons for attrition from a
9 UK community-based childhood obesity treatment intervention. In line with previous
10 findings in the child weight management context, parents and children identified a
11 complex combination of interacting variables that they perceived had led to their
12 attrition from the treatment intervention (Ball et al., 2012; Banks et al., 2013; Barrett
13 et al., 2008; Brennan et al., 2013; Cote et al., 2004; Dalle Grave et al., 2005; Grimes-
14 Robison & Evans, 2008; Zeller et al., 2004).

15 Psychological and motivational factors seemed to be voiced as the driving factors
16 associated with attrition. Families largely came to treatment expecting significant
17 weight losses. Therefore when they only achieved limited weight loss, drop out from
18 the intervention resulted. Findings were congruent with previous research reported in
19 the child weight management context (Banks et al., 2013; Brennan et al., 2013; Cote
20 et al., 2004; Dalle Grave et al., 2005). Limited weight losses in the initial phase of
21 treatment was a key reason for drop out, similar to previous research findings (Zeller
22 et al., 2004). A more intensive initial phase of treatment could encourage greater
23 weight reductions and reduce the likelihood of attrition (National Obesity
24 Observatory, 2009). Another potential option to overcome this would be to provide a

1 pre-treatment phase that supports families to manage their expectations and
2 establish realistic treatment goals. Indeed, this approach has shown efficacy in the
3 adult psychotherapy context, in terms of reduced drop-out (Barrett et al., 2008).

4 In line with previous research, children and parents felt the costs outweighed the
5 benefits of being involved in treatment with most families displaying a high degree of
6 psychological ambivalence to change (Banks et al., 2013). One option to resolve this
7 ambivalence would be the addition of a pre-treatment motivational interviewing (MI,
8 Miller & Rollnick, 2013) component. MI has shown promise early in the intervention
9 process to increase adherence to the programme goals and improve outcomes
10 (Hettema, Steele & Miller, 2005). Parents and children suggested their attrition was
11 associated with fear of failure to make, and sustain lifestyle and weight related
12 changes and placing low value on the need to make changes. MI could again
13 provide an effective strategy to overcome such perceptions in parents and children
14 (Gance, Cleveland & Oetzel, 2010).

15 Parents and children blamed each other for their attrition from the intervention.
16 Parents' perceived that it was their child's lack of desire to make lifestyle changes
17 that had led to their attrition. Their perceptions are congruent with the views of
18 parents in similar childhood obesity treatment settings (Cote et al., 2004; Lindelof,
19 Nielson & Pedersen, 2010). Research is needed to gain further insight into parents'
20 views towards their role/responsibilities in childhood obesity treatment interventions
21 to allow future interventions to effectively target parent's motivations (Cote et al.,
22 2004).

23 Conversely, children suggested that their parent's unwillingness to actively engage in
24 behaviour change had a negative impact on their motivation and increased their

1 want to leave the intervention. It is clear that unsupportive parents can be a major
2 barrier to children establishing and maintaining a healthy lifestyle (Amiri et al., 2009;
3 Cote et al., 2004). Parents need to be actively involved in making behaviour changes
4 and recognise their role as the primary agent of change (Golan & Crow, 2004;
5 Spurrier et al., 2008). To avoid this blame culture between parents and children,
6 future interventions need to encourage children and parents to take responsibility for
7 their role in addressing their own, or for parents, their child's obesity.

8 Parents and children expressed anxiety over fears of being judged for attending an
9 intervention designed purposely for weight management efforts. They suggested
10 such anxieties contributed to their decision to drop out. Societal attitudes need to
11 move from placing blame, judgement and discriminating against parents and children
12 who are obese to understanding the complex factors that might have led to their
13 obesity as emphasised in the foresight report (Foresight, 2007). Tackling attitudes
14 and discrimination in society to reduce negative connotations attached to obesity is
15 key to ensure families do not feel anxious to attend MCTIs for fear of being judged.
16 Placing the emphasis on healthy lifestyles and health behaviour change with an
17 underlying aim of weight management could help to make families feel more
18 comfortable to attend MCTIs.

19 Parents' limited acknowledgement of their child being obese is congruent with
20 previous research suggesting that parental recognition of their child's obesity is
21 commonly reported to be low (Parry, Gopalakrishnan, Parry & Saxena, 2008). What
22 appears on the surface as a lack of recognition of their child's weight status might be
23 in part explained by parents covering up their fears of being negatively judged and
24 internalising weight bias they have experienced around judgements holding them
25 personally responsible for their child being obese (Major et al., 2012). Thus their

1 attrition could be more closely related to underlying anxieties around both being held
2 responsible for their child being overweight and fears of their child being bullied for
3 attending 'fat club'. Creating non-judgmental environments is key to ensure parents
4 and children feel safe to accept support from interventions such as GOALS that are
5 designed to support families weight management efforts. Parents are then likely to
6 feel less anxious, more willing and ready to engage in treatment interventions.

7 There was some suggestion from parents that they did not deem their child's weight
8 as a 'serious' issue or a 'priority'. These parents are unlikely to be at a motivational
9 level whereby they are ready or willing to commit to making lifestyle changes.

10 Research suggests parents who engage better in treatment interventions are those
11 who express a readiness to make lifestyle changes and address their child's weight
12 (Cobb, 2011). Treatment interventions need to strike a balance between creating a
13 safe, non-judgmental environment ascertained to above whilst still highlighting the
14 importance and seriousness of the health risks of their child's obesity and increasing
15 weight status if they do not address it. Addressing parental motivations pre-treatment
16 or early in treatment is particularly important given the central role parents seem to
17 play in families' eventual decision to exit treatment interventions. This should also
18 enhance the likelihood of parents wanting to engage and adhere to behaviour
19 change attempts (Ward-Begnoche & Speaker, 2006).

20 Parents and children expressed contradictory motivations for attending treatment
21 interventions. For children the focus was losing weight, whilst for parents the primary
22 concern was improving their child's health, confidence and helping their child to
23 make friends. Health professionals need to place the emphasis on lifestyle goal
24 orientations as the primary outcomes from the outset of such MCTIs. This should
25 avoid the unrealistic outcome expectations regarding large weight losses yet still

1 focus on lifestyle behaviour changes that will lead to positive weight related
2 outcomes. Also, there needs to be consideration for targeting parents and children's
3 motivations differently when designing treatment interventions (Barlow et al., 2007).
4 For example, focussing on the potential health consequences of obesity might
5 motivate parents yet health consequences might be too far in the distance to
6 resonate with children thus a different approach might be necessary to engage and
7 motivate children (Hart et al., 2003).

8 Children and parents reported that the lack of a strong bond between participants
9 meant that the group had not provided a support network. Recommendations,
10 suggest that to increase the likelihood of groups bonding, allowing the group to
11 provide a social support network for families, interventions should be held within
12 local communities and group children according to small age bands (Barlow et al.,
13 2007). Still, children emphasised their parents and families were their major sources
14 of support needed for sustained involvement in treatment interventions and
15 behaviour change efforts. Findings here reiterate the need for parents and whole
16 families to be actively involved in behaviour change attempts in line with NICE
17 guidelines (NICE, 2013).

18 Parents and children believed the school referral process to the treatment
19 intervention (i.e. via the National Child Measurement Programme) led children to feel
20 singled out and contributed to the stigma they felt. As ascertained to above negative
21 weight stigma attached to obesity in young people has been shown to be a barrier to
22 effective intervention (Puhl & Latner, 2007) and to parents seeking support from
23 such interventions. To overcome this, parents and children suggested running
24 interventions in the school environment. Research suggests that the school
25 environment should be considered as an appropriate context to deliver treatment

1 interventions (Hesketh et al., 2005). Moreover, there is evidence to suggest that
2 engaging children in MCTIs from a young age, through the school environment could
3 contribute to reducing the stigma felt by obese children (Turner & Savaser, 2010).
4 Creating a school environment that accepts diversity in children's shapes and sizes
5 and is non-judgemental and supportive towards the promotion of healthy weight and
6 lifestyle behaviours for all is key. Addressing weight stigma could contribute to
7 making children who are obese feel more comfortable to attend interventions such
8 as GOALS designed to facilitate their weight management without fears of being
9 stigmatised. Moreover weight management interventions need to be designed to
10 ensure they do not add to, nor create weight bias in society given the negative
11 impact this can have on children who are obese (NICE, 2013).

12 Whilst acknowledging the importance of the school environment, children considered
13 the home environment as the most important influence over their health behaviours.
14 When it was perceived as unsupportive of health behaviour changes this influenced
15 their decision to want to exit treatment prematurely. MCTIs rarely incorporate the
16 home environment into interventions despite this being acknowledged as a key
17 context bearing influence on childhood obesity (Golan & Weizman, 2001). Further
18 research is required to assess the value of incorporating the home setting into
19 MCTIs and to assess whether this can contribute to reducing attrition. Families
20 should be encouraged to work together to create a home context that supports a
21 healthy lifestyle (Lindelof et al., 2010).

22 Parents and children suggested MCTIs need to be flexible to each individual family's
23 needs (Cioffi, 2002) parallel to the NICE (2013) recommendations to tailor treatment
24 to individual family's needs. Families suggested flexibility around when they want to
25 exit treatment i.e. at whatever stage they feel ready to independently sustain health

1 behaviour changes (Skelton & Beech, 2010), the dose of treatment, length of
2 intervention and delivery mode (i.e. in group settings or individual sessions).
3 Research in the adult diabetes treatment context has highlighted the importance of
4 interventions being flexible to recipients' needs. This could include incorporating a
5 range of delivery methods (e.g. telephone contact, home visits, internet contact),
6 varying the length of the treatment and varying the intensity of professional support
7 throughout the intervention. In doing so, this might improve the retention of
8 participants (Gucciardi et al., 2008).

9 Treatment interventions need to move beyond education and develop families'
10 confidence to make and sustain behaviour change in aim to reduce the likelihood of
11 attrition (Murtagh et al., 2006; NICE, 2013). Despite children being satisfied with the
12 behavioural strategies employed, including goal-setting and self-monitoring, parents
13 suggested these strategies had not motivated them to make behaviour changes.
14 Research is needed to consider targeted behavioural strategies as part of MCTIs in
15 line with the guidance for tailoring treatment to each individual family's needs (NICE,
16 2013; Staniford et al., 2011).

17 Children and parents suggested practical variables including difficulties getting to the
18 treatment venue had influenced their attrition similar to previous findings in the child
19 weight management context (Banks et al., 2013; Brennan et al., 2012; Dalle Grave
20 et al., 2005; Grossi et al., 2006; Zeller et al., 2004). Treatment interventions need to
21 gain the views of participants' who have dropped out of treatment as part of the
22 evaluation process in order to refine interventions where possible which again could
23 contribute to reducing attrition (NICE, 2013).

24 **Implications for Practice**

1 Practitioners need to assess families' outcome expectations, anxieties around their
2 fears of being negatively judged for attending MCTIs and their
3 preparedness/willingness to change as evidence here suggests this might reduce
4 the likelihood of attrition. Professionals should work with children and parents to set
5 manageable, realistic, individualised goals at the start of treatment. MCTIs need to
6 assess participants' views in the design of interventions and participant satisfaction
7 to empower families and respond to their needs throughout the treatment process in
8 line with NICE guidelines (2013). Practitioners must reassure parents they are not
9 being judged and are in a safe environment that will support them in addressing their
10 child's weight whilst maintaining the seriousness of not addressing their child's
11 obesity. From the child's perspective, data here suggests the parental modelling of
12 healthy behaviours is a key approach to achieving health behaviour change. As the
13 evidence highlights one cannot just focus efforts on a single model of causation and
14 a single support mechanism as behaviour change and supporting this is complex
15 (Kelly & Barker, 2016). Practitioners must continue to seek to understand what
16 motivates people to attend treatment interventions, make health behaviour changes
17 and better support families in this quest helping them to overcome the social and
18 economic pressures to this.

19 **Implications for Research**

20 Research is needed to assess the potential for successful strategies used in other
21 adult health contexts to reduce attrition. For example, incorporating a pre-treatment
22 phase to manage client's expectations and ensure families have realistic
23 expectations of what they can achieve from MCTIs (Barrett et al., 2008). This pre-
24 treatment phase should also reassure parents and children that it is a positive step
25 attending the intervention and they should not worry about what others think nor fear

1 weight stigmatising attitudes for attending the programme. The use of MI strategies
2 should be further investigated in the childhood obesity treatment context (Resnicow
3 et al., 2006) in light of the success of applying MI to maintain and renew motivation
4 in the adult weight management context (Grossi et al., 2006; West et al., 2010).

5 Research needs to consider different approaches to referring obese children from
6 the NCMP within schools to child weight management services. This could reduce
7 the likelihood of obese children gaining negative perceptions of treatment
8 interventions from the outset and decrease the possibility of their attrition. Moreover
9 schools need to work towards creating an environment of acceptance of diversity of
10 all shapes and body sizes given that research highlight overweight individuals as a
11 socially defined group that do experience discriminatory behaviours in various
12 sectors in society (i.e. employment, education and healthcare (Campbell et al., 2000;
13 Schvey, Puhl & Brownell, 2011)).

14 Research is needed to test the value of incorporating the home setting into treatment
15 interventions as parents and children suggested the importance of modifying the
16 home environment to support a healthy lifestyle. Continued qualitative research to
17 uncover the perceptions of parents and children towards attrition will ensure
18 interventions are better equipped to tailor treatment to families' needs in the future
19 (Cote et al., 2004); a key NICE recommendations (2013). Finally, it seems
20 appropriate that researchers are encouraged to explore the value of structuring
21 treatment into phases and varying the intensity and mode of support in an attempt to
22 reduce attrition.

23 **Limitations**

1 There are a number of pre-treatment factors that have been reported to predict

MCTIs for childhood obesity must:

2 attrition (e.g. higher BMI status, ethnicity & SES) that were not examined here yet
3 that was not the purpose of this study. Given that parents and children's' reasons for
4 attrition were similar irrespective of when they had dropped out (i.e. in the initial
5 phase or follow-up phase), no attempt was made to examine potential differences
6 between early and late drop-outs.

7 The research approach allowed generalisability through transferability, gathering
8 direct perceptions of participant's experiences to identify common themes across
9 stakeholders and through naturalistic generalisability letting the reader reflect upon
10 the thematic framework based on example quotations (Smith & McGannon, 2017).

11 The research team acknowledge the two other tenets of generalisability i.e.
12 analytical and intersectional (Smith & McGannon, 2017) yet the transferability and
13 naturalistic tenets were most relevant given the purpose of the current research.

14 **Conclusions**

15 The results confirm that attrition is a multifaceted and complex construct whereby
16 participant's (in this case parents & children) pre-treatment characteristics interact
17 with treatment variables to influence the decision to leave treatment prematurely
18 (Banks et al., 2013; Cote et al., 2004; Dalle-Grave et al., 2005). From the findings,
19 Table 2 displays a list of 'Must have' recommendations for MCTIS to reduce the
20 likelihood of attrition.

21

22

1) Resolve pre-treatment expectations and ambivalence prior to families beginning the intervention e.g. weight loss expectations, ambivalence regarding parent /child roles in treatment and the importance of making lifestyle changes.
2) Encourage modelling of health behaviours in the child's support network i.e. parents, siblings and the wider family.
3) Work with families to create a home environment that supports a healthy lifestyle from the outset.
4) Education within schools about valuing diversity in relation to size/shape, accepting differences and promoting healthy lifestyles for all to avoid the stigmatisation of children and young people who are overweight as this can be a barrier to accessing support and making health behaviour changes /weight management
5) Offer a flexible treatment approach that recognises different families needs e.g. length of treatment, intensity of support, setting, and appropriateness of behaviour change techniques.

1 **Table 2** 'Must Have' Recommendations for MCTIs for childhood obesity

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