Exploring young children's obesity stigma in a story completion task

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The candidate confirms that the work submitted is her own and that the appropriate credit has been given where reference has been made to the work of others.

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Abstract

The prevalence of childhood obesity, and its associated health and psychosocial implications, has risen and continues to be of concern. Children appear to hold anti-fat attitudes and stigmatise those who are seen as overweight or obese. Evidence suggests that children as young as three years old are known to hold anti-fat attitudes towards their obese peers, but as a result of the methodologies used in obesity studies, it is thought this may be an overestimation. The present study aimed to investigate young children's obesity stigma in the context of a story completion task. It was hypothesised that that there would be no difference in what children said about the personal characteristics of a fat character compared with a healthy weight character, before being presented in a negative context. However, when presented with a negative ending to a story, there would be evidence of more negative personal attributions towards a fat character compared to a healthy weight character,

One hundred and thirty children, aged between 4 and 6 years old, participated in a story completion task using open ended questions. Children were read the first part of a story to introduce the child to the main character whose body shape was presented as either fat or healthy weight. The story continued and children were presented with either a positive (Gift) or negative (Greed) ending to the story. Each child was asked four open ended questions at different stages throughout the procedure. Qualitative data was analysed using framework analysis.

The results supported the first hypotheses in that there was no difference in what children were saying about the personal characteristics of a fat character compared with a healthy weight character. Ninety two percent of children made neutral statements relating to the storyline or the characters. Whereas eight percent of children shared positive and negative statements about the fat and healthy weight character respectively, in the absence of a negative context. The results did not support the second hypothesis, in that there was no significant difference in the number of negative character attributions made towards the fat character, compared with the healthy weight character, in the negative story end condition.

In adapting the methodological approach to eliciting young children's views and opinions of a fat character in a story completion task the evidence would suggest that obesity stigma is not a primary differentiating factor between a healthy weight and fat character, as suggested in the obesity literature.

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Chapter 1: Introduction

The worldwide prevalence of obesity has doubled since 1980, with more than 1.9 billion adults reported to be overweight, and 600 million of those being obese; 41 million children under the age of five years were reported as overweight or obese (World Health Organisation, 2014). Within the UK, Europe and the U.S.A, it has been suggested that obesity amongst child and adolescent populations has continued to rise dramatically (Raymond, Leeder and Greenburg, 2006); one study found that obesity amongst 4 and 11 year olds within England showed a rise from 11% in 1995 to 18-19% of children in 2005 (Heath Survey for England: cited Health and Social Care Information Centre (HSCIC, 2015).

Latner and Stunkard (2003) suggested that one in three children who are obese would potentially have medical complications and chronic physical illnesses later in adulthood, such as diabetes mellitus or hypertension (Gouding, Taylor, Jones, Manning and Williams, 2002; Dietz, 1998) and coronary heart disease (Freedman, Khan, Dietz, Srinivasan and Bereson, 2011; Lawlor and Leon, 2005; Gunnell, Frankel, Nanchahal, Peters and Smith, 1998).

Obesity in children not only predisposes them to medical complications, it can affect their psychological and emotional wellbeing. Peer victimisation could lead to the development of emotional and psychological issues such as depression (Wardle, 2005) and low self-esteem (Frankin, Denyer, Steinbeck, Caterson and Hill, 2006).

Research into child obesity stigma has spanned the past five decades, with researchers using a variety of measures, such as forced choice options, in order to capture children's perceptions of obesity. The specific quantitative approach used may 'force' the child to make a decision in a binary fashion, not allowing for an alternative explanation for the child's decision. Despite the application of valid and reliable measurement approaches, little research has shown what young children's understanding or belief is around the concept of obesity, and why they rank the obese character as less favourable to a healthy weight or a physically disabled target figure. Therefore, the purpose of this study was to investigate obesity stigma in young children, by eliciting statements, words or phrases through a story completion task and open ended questions. The language used when alluding to obesity is based on the language young children use such as "fat", and will therefore form the basis of

the terminology used throughout the thesis (A glossary of terms is included in Appendix 13).

The literature review described in Chapter 1 was not a systematic review but an explorative narrative review of the literature on young children's perceptions of obesity; the comprehensive literature search documentation is not included. However, healthcare data bases within the University of Leeds were utilised, including PsychInfo, Ovid Medline, Embase and Scopus, and Google scholar; using the terms: "obesity", "obese", "fat", "fatness", "overweight", "weight", "chubby", "size", "thinness", "children", "young", "very young", "preschool", "primary school", "perceptions", "attitudes", "stereotype", "stigma", "prejudice", "bias", "victimisation", "difference", "negative", "positive", "social", "desirability", "acceptance", "culture" and "blaming", "valence", "morality". These terms were used together or alone in order to search the above databases for relevant literature.

A review of the literature considered the current prevalence and physical and psychosocial consequences of childhood obesity before exploring stigmatisation and prejudice related to obesity in children. The review will then consider studies of children's understanding of fatness, critically evaluating the methodologies used before considering the limitations and gaps in the literature. This will go on to show the development of the aims of this study and the qualitative approach that was developed in order to explicate young children's narratives of a 'fat character' in a story completion task.

Prevalence of Childhood Obesity

The prevalence of childhood obesity has reached an all-time high and is now considered to be a serious threat and of major public concern (World Health Organisation, 2016). The rise in childhood obesity has increased dramatically since 2013, with the number of obese children under the age of 5 years old reaching over 42 million worldwide.

Within the United Kingdom, the National Child Measurement Programme, used to measure height and weight for reception class and year 6 pupils (NCMP, 2016), reported minimal change in the prevalence of overweight or obese children over the past five years; but that the number of reported cases remained dangerously high. In comparison to previous years, statistics show prevalence rates for children in reception class and in year 6 have doubled from 9.1% to 19.1%. However, the prevalence of obesity is much higher for those in low socio-economic, school catchment areas.

Physical and Psychosocial Consequences of Childhood Obesity

The impact of childhood obesity is known to have major medical implications in early childhood, progressing into adulthood. Sleep apnoea and sleep disruptions (Fiese, 2009); medical comorbidity such as metabolic risk factors, high blood pressure, and cardiac disease (Formeier-Saucier, 2008); asthma, diabetes and also dental issues are considered potential consequences of childhood obesity. Orthopaedic complications such as 'bowing' in the lower leg bones (Diez, 1997) and spinal abnormalities can lead to chronic musculoskeletal pain in later life (Bell, 2011). Although there is evidence of medical complications linked to childhood obesity, no direct relationships have been established between fatness and medical comorbidity (Pulgaron, 2013).

As well as the risk of chronic physical health problems, psychological and psychosocial problems are another major risk factor in childhood obesity. Research has shown that obese children are likely to be prone to anxiety, depression and low self-esteem (Wardle and Cooke, 2005) as a result of body image dissatisfaction (Pulgaron, 2013), bullying and victimisation (Storch, Milson, DeBraganza, Lewin, Geffken and Silverstein, 2007), which may lead to stigmatisation of the obese child.

Obesity Stigma in Children

Obesity stigma is generally understood to be a socially constructed concept developed out of cultural norms and values (Dovidio, Major and Crocker, 2000). Someone who is perceived as overweight or obese could be considered 'out of the norm' (Dovidio et al, 2000). Goffman (1963; p3-4) defined obesity stigmatisation as *"abominations of the body*" suggesting they may be ugly or unattractive, fat or considered large in stature; *"blemishes on the character"* implying the obese person may be lazy, have no willpower or self-control (DeJong, 1980) or considered mean or unkind. These narratives may lead to social consequences, such as peer rejection and social isolation for the fat child.

In considering the range of literature on perceptions and fatness, from adults to children, Western society appears to hold strong, negative, stereotypical beliefs about fat people (Crandall & Biernat, 1990), and that negative attitudes towards disability and anti-fat attitudes appear to be evident in very young children (Cramer and Steinwert, 1998; Su and Di Santo, 2012).

In has been reported that preschool children perceive fat children as having negative personality and behavioural characteristics (Sigelman, Miller, & Whitworth, 1986). Evidence suggests that although children have a negative perception of children with a physical disability more than a 'healthy' child, they negatively stereotype a fat child more often, and it appears to get worse as children get older (Brylinsky & Moore, 1994; Cramer & Steinwert, 1998). The literature appears to suggest that most children negatively perceive those who are different, which implies a reinforcing bias and negative perception of fatness.

The next section will briefly consider children's understanding of obesity in the context of gender differences and the role of explanatory information to measure obesity stigma in children.

Gender Differences

In relation to gender differences and children's perceptions of fatness, the evidence is mixed. Kraig and Keel (2001) found that boys showed a negative bias towards others being 'chubby', suggesting it was not a sociably desirable factor compared to an average or thin body shape, with boys believing they needed to be

muscular and strong. Whereas, girls indicated that a socially desirable factor for them would be thinness, suggesting a negative, social bias towards an average and fat body shape. Although there is a dislike for fatness in general, evidence suggests that boys and girls rate size slightly differently, in relation to what is socially desirable in the context of their peers. However, the results may be skewed when considering other ethnic groups who may be more accepting of their own and other's body image due to cultural and religious beliefs; as well as those with learning difficulties who appear to have not developed social prejudice (Goodman, Dornbusch, Richardson and Hasdorf, 1963).

Perceptions of Responsibility

Studies have investigated the link between responsibly and bias, where the obese person is seen to be at fault because they have not stopped themselves from getting fat. One study presented children with descriptive and explanatory information as to why someone was different, such as being overweight, autistic or had a physical disability (Campbell, Ferguson, Herzinger, Jackson and Marino, 2004). The results suggested that children appeared less negative towards those with autism compared to a fat child, and were less likely to offer emotional or physical support to the fat peer compared with an autistic peer (Juvonen, 1992). However, the evidence appears to be mixed in much younger children, suggesting that they are more responsive and less critical when given explanatory information (Bell and Morgan, 2000).

In considering whether children judge difference negatively, when they live with a disability or are fat themselves, Cramer and Steinwert (1998) found that children who were fat themselves were just as negative towards their fat peers. Kraig and Keel (2001) found that fat participants identified more with an average target figure than someone like them self.

The evidence of weight bias and stigma in children appears to be clear. However, it may be more negatively biased as a result of some of the methodologies used to study young children's obesity stigma. Therefore the types of methods used to measure obesity stigma in children will be evaluated.

Methodologies used in to measure Obesity Stigma

Quantitative methods

A number of methods have been used to measure children's perceptions of fatness. Table 1 shows some of the research methods used to measure bias, over the past five decades.

Table 1 Measurement tools used to study obesity stigma

Measurement Approach	Application	Reference
Attribution	Ability to control weight; ascribe a social, behavioural and personal attribute to an image (of various sizes); positive or negative	Anesbury and Tiggemann, 2000; Turnball et al, 2000; Kraidg and Keel, 2001; Sigelman et al, 1986; Staffieri, 1967; Harrison, 2009; Rowlinson, 2011.
Preference	Who would they like to play with the most and the least; prefer to…. Of the line drawings? Rank Order drawings in order of preference	Campbell et al, 2005; Richardson et al, 1961; Richardson, 1971; Nabor and Keyes, 1997; Cohen et al, 1994; Latner and Stunkard, 2003.
Friendship Choice	Randomly arranged figure arrays, varying in body shape. Who would they like as a best friend-rank order to the least favoured friend.	Penny and Haddock, 2007; Musher-Eizenman et al, 2004; Colins, 1991; Holub, 2008; Richardson, 1971;
Adjective	Up to 32, can be used in a checklist format- e.g. 16 positive and 16 negative words. Used to portray the character presented to the child. Nice/mean	Siperstein and Bak, 1977; Siperstein, 1980; Musher-Eizenman et al, 2004; Holub, 2008; Bell and Morgan, 2000.

	Smart/stupid Quiet/Loud etc.	
Story Completion	Completion using doll play. Research rater's scored child's behavior numerically	Pollock and Gilligan, 1983; Cramer and Skidd, 1992;
Story Telling	Completing a story with a variance in character sizes within the story. Forced choice questions and ratings asked afterwards.	Harrison et al, 2016; Baxter et al, 2015;
Character Body Size Rating	Acceptance of size of figure	Holub, 2008; Harrison et al, 2016; Baxter et al, 2015;
Shared Activity Questionnaire	Willingness of young children to engage in activities e.g. academic, sports, social. Who would do what activity well?	Bell and Morgan, 2000; Campbell et al, 2005; Sigelman et al, 1986 ;

To further understand some of the methods used to investigate obesity stigma in children, key studies will be discussed, evaluating the methods and the possibility that this may have contributed to a detection of strong negative weight bias in children aged from three to thirteen years old.

Key studies of Obesity Stigma in Children

Fatness research in children (10-13 year olds)

The first key study, from the USA, was by Richardson, Hastorf, Goodman and Dornbusch (1961). Their aim was to investigate 10 and 11 year old children's reactions to physical disability and fatness, using a set of six drawings of children depicting a variation in levels of disability or body size. A randomly presented group of pictures were laid out and children were asked which image they liked best. Once the researcher removed the identified drawing, the child was again asked which image they liked best, until all six images were in rank order. The results suggested that children liked the drawing of a child with no visible disability the most and the fat child the least. A comparison between gender, socioeconomic status, ethnicity, child's own disability, geographical location of accommodation, and the different testing environments was completed and showed no significant difference in the rank ordering between the subgroups. Although evidence suggests that stigmatisation gets stronger the older children get, as a result of social and cultural influences (Cramer and Steinwert, 1998), in asking children to make a decision one way or another, forcing a decision, may have influenced preference.

Richardson et al's (1961) classic study has been instrumental in the development of research methodology. In using a forced choice approach, the method sought a definitive response from the child, positive or negative, acceptable or unacceptable. However, it did not provide an opportunity for an explanation for the selection of an image or attribution ascribed to a figure drawing. It is possible that although the fat target figure is last to be selected, it does not necessarily mean that they are not liked or perceived negatively all of the time (Jarvie, Lahey, Graziano and Framer, 1983; Morgan and Wisely, 1996; Rowlinson, 2011; Wacker and Cobb, 1986; Holub, 2008; Su and Di Santo, 2012).

Richardson (1971) completed a follow-up study looking to see if children negatively perceived others after spending time with them. The study looked at children, whose body size or disability was similar to others, and explored if they perceived themselves as different. The children were living together for a period of three weeks at summer camp, in the USA. The children were measured for preferences to figure drawings on day one and day thirteen. The children were asked closed questions as to whom they had come to know at camp, their play preferences,

whom they would share a secret with, and whom they liked the most and would consider a best friend. The results suggested that at both testing stages, children preferred the child with no disabilities more and the fat child the least. Those children with a disability themselves, did tend to befriend another child with a visible disability. However, Richardson (1971) suggested that this may be the result of a child's fear of rejection by a non-disabled group member.

Latner and Stunkard (2003) completed a follow-up study of Richardson et al (1961) to investigate the level of disapproval or acceptance of a fat child, forty years on. The study looked at 10 and 11 year old children's preferences to a set of drawings replicated from Richardson et al (1961). The results appeared to support previous evidence that children ranked the fat child as the least liked compared to those with a visible disability. Latner and Stunkard (2003) believed that the children were even more negatively biased towards fatness than in Richardson et al's (1961) study. However, such a strong weight bias may be the result of the method used, in restricting children to make a decision in one direction, as well as using simple, unrealistic line drawings that do not represent children's experiences of the world.

Little research has investigated very young children, and the methods used have not necessarily been familiar or relational to the child's own experiences. However, the use of stories is more accessible to very young children's cognitive developmental stage, and forms most of their early educational, and potentially their home life, experiences.

Research with young children (2-6 year olds)

Cramer and Steinwert (1998) investigated American children's attitudes towards a fat target figure, using two study methods. Thirty participants, ranging from 41 months to 71 months old, took part in study 1. Each child was read four stories, either fantasy or reality based. After each story had been read, the child was presented with a different set of two pictures with target figures. Each child was asked which figure was the 'mean' person and which was the 'nice' person from the story. The positioning of the target figures changed after each story, with the fat or thin target being reversed. The order of either the 'mean' or 'nice' question was rotated across the four stories so that children were not always asked the same question first. The results of study 1 reported the fat target figure as consistently

being selected as the 'mean' target (would kick the sand castle over), more often than the thin target.

In study 2, eighty three American children participated. The procedure was the same as in study 1 but they introduced a third target figure who was 'average' in body shape. After the four stories were completed, the researcher presented each child with an adjective task, personal body attitudes task, and a playmate preference task. Each child was measured for height and weight, using a ponderal index (tool used to measure body composition - similar measure to Body Mass Index). The results suggested that the story task did not elicit any differences in target choice as a function of the story, age and gender. However, the overall results indicated that preschool children showed negative bias towards the fat figure in all tasks, more often than the thin or average figure.

The use of everyday storylines in their study was a catalyst to eliciting children's own experiences that may enable them to contextually relate to the story and in responding to questions. Evidence suggested that there was no difference in the choice of target figures as a function of the story or in relation to the child's own body shape. However, when children were asked to participate in an adjective and playmate preference task, children negatively stereotyped the fat target figure more. This may suggest that the task itself limits children's ability to consider an alternative perspective.

In considering these results, there may have been an overestimation of the degree of negative bias towards the fat character as a function of the methodology. In asking children to choose either a positive or negative adjective to attribute to a target figure, children may actually prefer the fat target less but not necessarily perceive them as negative in all situations (Harrison et al, 2016). Therefore, by considering a less restrictive methodology such as using open ended questions, an evaluation of whether children are more neutral about a fat character may be evident.

Tillman, Kehle, Bray, Chafouleas and Grigerick (2007) based their study on Cramer and Steinwert (1998). The aim of their study was to explore children's attitudes towards individuals they may meet in everyday life. They used the same methodological approach, which included four stories, with two based around female target figures and two around male targets. One story was realistic and the other fantasy. Children were asked to report on which of the two gender specific target

figures was ‘mean’ or ‘nice’ in the story; the target figures were presented as either fat or slim. The results showed a significant negative bias towards the fat character, suggesting that they were liked much less than the slim target figure. Although consistent with the findings of Cramer and Steinwert (1998), the forced choice approach may again have limited children’s ability to provide a more neutral response, as children were not offered an alternative to ‘being mean’. Children’s perceptions of their fat counterparts may be different to that of fictional characters, as they may consider the personal characteristics of their peers in addition to their body shape (Jarvie et al,1983). In allowing children to respond openly about their perceptions of a fat character in a story, children’s overall attitude towards obesity may be less negative than the literature suggests. A critique of Tillman’s (2007) study is that the sample size was small, and the children were also slightly older, ranging from six and half years to eight and half years old.

Su and Di Santo (2012) wanted to establish if very young children had the capacity to comprehend the tasks set out in Cramer and Steinwert (1998) and Tillman’s (2007) studies. They completed a study of forty one Canadian children, aged between 32 months and 70 months old. The aim of the study was to investigate whether children identified a fat target figure as being ‘mean’ more often than ‘nice’. Each child was asked to listen to four stories, two were about boys and two were about girls (Tillman, 2007). A child in the story either said or did something nice or something mean (Cramer and Steinwert, 1998). Black and white line drawings of either an ‘overweight’ or ‘not overweight’ character were presented to the children with each story (Cramer and Steinwert, 1998). Each child was asked which of the girls or boys in the story was the ‘mean’ one or the ‘nice’ one (depending on the action or the presented word). The researchers used a semi-structured, open ended interview in order to further explore why the child had chosen either ‘mean’ or ‘nice’ for the particular target figure. Additional questions were used to further understand the child’s responses. Chi-square tests were used to determine differences between the numbers of times children believed that the fat target figure was either ‘mean’ or ‘nice’. The results suggested that children rated the fat target figure as mean more often than not, suggesting high levels of weight bias amongst very young children. These results further support previous studies of fatness and obesity stigma (Tiggeman and Anesbury, 2000; Turnbull Heaslip and McLeod, 2000; Harriger,

Calogero, Witherington and Smith, 2010; Kraig and Keel, 2001; Latner et al, 2003, 2005; Cramer and Steinwert, 1998).

In attempting to understand children's reasons for selecting the fat character more often, Su and Di Santo (2012) completed a thematic analysis on children's reasons for applying either a mean or nice word to a target figure. The emerging themes for children's perceptions appeared to be physical attributes (bigger, fatter, fatter belly, clothing), emotional attributes (look angry rather than happy, jealous) and behavioural attributes (bullies, behaved badly towards others, selfish individuals). The emotional attribute of being happy or angry was suggested as being associated with body shape as the target's face was shown as 'blank'. However, these results may be an overestimation towards weight bias in the fat target as a result of the methods used. Contrary to negative perceptions of a fat target figure, one child did state that they thought the average target figure was mean because they were teasing the fat child.

The explanations given for the fat character being judged more often than the non-overweight character may have been the result of children being asked to comment on a character based on physical characteristics alone, such as body shape. In not drawing children's attention directly to body shape, but perhaps behavioural intentions within the context of a story, children may not actually perceive body shape as the main differentiating characteristic that results in a negative evaluation of a fat character.

A critique of Su and Di Santo's study is that there were a small number of participants based on opportunity sampling, and the study was carried out during free play at school, which led to the participant's peers interrupting or observing. This may have led to performance anxiety and social desirability bias influencing children's responses. Another concern was they asked children why they thought the fat target was mean and used prompt questions to get the child to elaborate further. In their discussion, it was implied that the fat target was considered angrier, despite no facial features, and that children suggested the fat target "treated others badly, were often bullies, and were selfish individuals"(Su and Di Santo, 2012, p.27). However, the youngest child was 2 years and 6 months old and the oldest 5 years 8 months years old, which may have impacted on the findings as a result of the youngest child's developmental stage and understanding of difference. The

terminology used for that age range was interesting, and it is unclear if this is related to the language young children are exposed to in Canada, or whether the responses were based on the oldest children's responses only.

It would be important to consider the developmental stages of very young children when considering age appropriate methodologies. In attempting to understand reasons for anti-fat attitudes in young children, maximising opportunities for open dialogue and limiting restrictive options for tasks would be important.

Development of Children's Understanding

Cognitive development

Piaget's theory, identifying the different stages of child cognitive development, continues to be a valuable framework to use when considering research with young children. However, in Piaget and Inhelder's (1954) study of the 'three mountain task' they suggested that children, between the ages of two and seven years old, were in the pre-operational developmental stage, and were considered egocentric and not flexible in their ability to complete complex tasks. This would suggest that research into children's attitudes and perceptions of the world would be difficult to investigate, in children of this age. However, Borke (1975) adapted and simplified the 'three mountain task' for very young children, and he established that children as young as three years old were not necessarily egocentric, they showed flexibility and were able to complete the adapted task. This would therefore suggest that it is important to simplify and adapt research methods; and consider the task from the child's perspective rather than the researcher's, such as the use of storytelling and pictures in order to further understand their thoughts and processes around a topic.

Theory of Mind (TOM; Frith and Frith, 2005) is considered to be a form of 'mentalising', with children as young as 3-5 years old believing that what is real in their mind is true, as it is based on what they see or have been told. To adapt or abstractly consider an alternative view point from another is suggested to be difficult at such a young age. This would suggest that children are able to take the perspective of others at an earlier stage than predicted by Piaget; suggesting children think in a more multi-dimensional and cognitively flexible way, which is in line with Borke's (1975) work.

However, Donaldson (1978) suggested that young children are able to use deductive inference when presented with real life scenarios, in particular familiar tasks, which was not reported in Piaget's work. She reported that children are able to consider both sides of a scenario and then come to a logical conclusion to answer the question, using information from what they already know. Frith and Frith (2005) investigated TOM in very young children using the Maxi task. Maxi left his chocolate in a cupboard and went out to play; in the meantime, his mother put his chocolate in the fridge. It was presumed that children up to the age of 5 years would believe Maxi would look for his chocolate in the fridge as they were told his mother had moved it. However, some children, as young as 3 years old, thought Maxi would look in the cupboard, suggesting that they are able to consider other's mental perspective. This would therefore suggest that when children are asked about a character in a story completion task, they would be able to express their own views and opinions, as well as that of others, about the character and their behaviour.

The development of stereotyping and prejudice is considered to start as children's cognitive abilities begin to develop (Aboud, 2003). This is based on the concept that very young children use categorical information; they perceive one dimension, such as body shape, to be a cue to considering other personal characteristics, such as behaviour or temperament. Therefore, stereotyping is considered to have developed through socio-cognitive processes, in that children would not consider body shape to be the same as behaviour, but that they may generalise from one characteristic to another, such as children interpreting someone as either 'like me' or 'not like me' (Demo, 1992). In selecting children aged between four and six years old, children may show more stereotypical behaviour in relation to a fat character, considering they may not be 'like me'. Also, they are less likely to have developed the political cues of social politeness around the negative comments towards others (Aboud, 2003).

Social-learning theory

It has been suggested that the development of potentially negative perceptions in younger children could evolve out of social-cognitive processes; actual experiences and observation of other's attitudes and behaviours towards difference (Bandura, 1977) may shape a child's response, which could lead to negative evaluations of others (Cramer and Steinwert, 1998). This would suggest that when

young children are presented with a fat character in a negative ending to a story, they are likely to negatively stereotype the character if perceived as different; as they have observed other's responses, such as a parent, other children or on the television and would therefore copy stereotyping behaviour.

Durkin (1995) suggested that children learn beliefs about others and the world through externalised factors which shape prejudice, by comparing themselves to out-group members. The individual sees themselves as an in-group member, with the out-group being perceived as 'inferior', for example, individuals of 'normal' weight may see 'fat' individuals as the inferior out-group member because they do not fit the 'normal' weight categorisation for being in the in-group (Puhl and Brownell, 2003). However, Brewer (1999; cited in Aboud, 2003) hypothesised that young children are more likely to develop favouritism towards in-group members, with it getting stronger over time, rather than show prejudice towards out group members; with Allport and Cameron (1954; cited in Aboud, 2003) suggesting that young children will show more of a preference towards their own group but not show a dislike to out-group members. However, Aboud (2003) reported that this was not strongly evident until children were over the age of five years. If this was true then young children may not necessarily see a fat character, presented in a negative context, more negatively than a healthy weight character in a story completion task.

Child Development and Research Methods

It is important to consider children's understanding and stages of development when conducting research. Formal interviews pose a challenge to most, and in young children can be a barrier between the researcher and child (Hill, Laybourn and Borland, 1996). In posing questions to young children, especially in a school environment, children may perceive there to be a right and wrong answer (Hill et al, 1996), and despite their own opinions, will want to produce a correct response (McCrum and Bernal, 1994). Docherty and Sandelowski (1999) suggested factors to consider when asking young children questions; make sure that it is targeted to the child's level of cognitive and social development, and consider the 'what happens if...?' in order to allow the child to reflect on their own thoughts and experiences, rather than ask them a direct question, initially forcing them to produce the 'right' answer (Darlington and Scott, 2002). In considering children's developmental stage, and the limitations imposed by some research methods, the use of storytelling is an

important approach when investigating obesity stigma in young children. It provides a more valid and realistic method to elicit young children's cognitive and social beliefs based on the child's own view of the world.

Storytelling with very young children

The purpose of using story telling with young children is that developmentally, children's understanding of themselves and the world is based on situational factors, such as, are they able to follow instructions, understand what is expected of them, relate to the questions asked and are able to understand the content of the material in the context of their developmental stage? Previous methodologies have generally not considered whether young children could relate to the tasks set (Harrison, Rowlinson and Hill, 2016).

Although not directly related to obesity stigma, Cramer and Skidd's (1992) study of 47 USA pre-school children's play responses, suggested that in adapting the methodology to meet children's developmental stage, they were able to complete a potentially complex task. For example, children were asked to complete a story using toy animals and a foam mountain. The children were rated on their imaginative play using the animals, under 4 scales (domination; affiliation; intrusion and inclusion), and then rated using a 5-subcategory and 7 point-Likert scale. This method of assessing the role of gender-stereotyped behaviour appeared a positive tool, showing clear evidence that young children were cognitively able to perform the task.

Harrison, Rowlinson and Hill (2016) investigated weight bias in two separate but related studies. Study 1 consisted of 126 UK four to six year old children who were read one of three variations of story books where the main character, who was male, was presented as either fat, in a wheelchair or healthy weight. After being read a story, children were asked questions based on Harter and Pike's (1984) Pictorial scale of Perceived Competence and Social Acceptance for young children (Harrison et al, 2016, p.66) and asked to rank order their responses, and make choices between characters. The results indicated that there was little bias towards the fat character on ratings, but showed strong evidence of social rejection when children were asked to make a choice between the healthy weight and fat character. Children appeared to respond well to multiple characters in the story compared with basic target figure drawings.

Study 2 investigated the concept of proximity effect and the influence of children's own body shape on weight bias. Study 2 repeated the process of study1 with 150 UK four to six year old children, after adapting and incorporating a female character, whose peers were all presented as fat. The results showed that children again tended to rate the fat or wheelchair character either neutrally or positively in general. However, when forced to make a preference choice, children preferred the fat character the least overall.

Harrison et al's (2016) two studies investigated weight bias in the context of children's own experiences and social context. Evidence showed that when children are not forced or limited in making a decision, they show little negative bias towards those who are different. Even when weight bias is shown, it is unclear if they are socially rejecting of a fat character outright or if they generally prefer the healthy weight character.

Charsley (2016) investigated 85 UK four to six year old 'children's perceptions of fatness in the context of visible difference' (p.28) using a personal construct approach, adapted from a child's perspective rather the researcher's. She found that most children did not show primary anti-fat attitudes or categorical out right social rejection of a fat character. Of the minority that showed rejection, it was seen across all presented target figures. This would reinforce the view that the methodological approach previously used in studies has shown an overestimation of anti-fat attitudes in young children; and that Harrison et al (2015) and Charsley's (2016) methodological approach has again enabled children to express their own thoughts and beliefs, which are less weight biased than may be predicted by other areas of the obesity literature.

In considering the methodological implications for obesity stigma, some studies appear to have shown obesity stigma is present in young children. However, the methodologies used such as forced choice, may have led to an overestimation in how much children negatively stereotype a fat character. Charsley (2016) used a repertory grid which looked at constructs held by individuals, such as how we discriminate between others, situations or events. She found a small number of children showed anti-fat attitudes and suggested that fatness was not the primary factor to differentiating personal characteristics between the characters, or towards their own self-image.

Summary

In considering research on obesity stigma in children and young children, evidence shows that children hold anti-fat attitudes from an early age. However, the evidence may be an overestimation of the level of weight bias as a result of the methodological approaches used. Recent studies in the UK have shown that when children are not forced or restricted in making a choice in a particular direction, methods set up to be realistic, age appropriate and familiar to young children, in the context of multiple characters in a story, show less anti-fat attitude in children. In addressing the methodological gaps in the literature and by not offering forced or limiting options or ratings about a fat character, it is wondered whether children would still show less anti-fat attitudes.

Research Aims:

The overall aim of the study was to investigate young children's obesity stigma when presented with a story completion task. It was hypothesised that there would be no difference in what children said about the personal characteristics of a fat character compared with a healthy weight character, before being presented in a negative context. However, when presented with a negative ending to a story, there would be evidence of more negative personal attributions towards a fat character compared to a healthy weight character.

The main research questions were:

- Do children show evidence of obesity stigma towards a fat character compared to a healthy weight character before being presented with a negative ending to a story completion task?
- Do children associate more negative personal attributions towards a fat character compared to a healthy weight character, when presented with a negative ending to a story?

Chapter 2: Method

Design

The study used a 2x2 experimental design comprising of four conditions. It used open ended questions to elicit young children's statements about a fat or healthy weight character in a story completion task with two endings. Table 2 shows participant randomisation to the 4 study conditions.

Table 2: Study Design

Condition	Fat Alfina	Healthy weight Alfina
Gift	33 children	32 children
Greed	32 children	33 children

Ethical Clearance

Ethical approval was sought from The Faculty of Medicine and Health Ethics Committee, University of Leeds and approved on 25/2/16 (ref: MREC15-021) (Appendix 1)

Participants

Letters were sent to the head teachers of fifteen primary schools in and around Leeds, West Yorkshire, providing information about the study and requesting consent for the school to participate (Appendix 2).

Participants were recruited from four primary schools in West Yorkshire, England. All of the schools were situated in a white, working class and socially deprived area of Leeds.

Information and consent forms were sent to 299 parents/guardians whose child was in year 1 or reception year (Appendix 3); 131 children participated in the study following consent from their parent or guardian (Appendix 4). Each child verbally assented to take part in the study at the start of the interview. The response of one child with learning and speech impairment was excluded from the data set. A total of 130 children's responses were included in the study.

Participant ages ranged from 4 years, 2 months to 7 years, 3 months (mean = 5 years, 5 months, SD= 8.00). Gender participation was made up of 60 boys and 70

girls. The ethnicity of each child was provided from the school's records; 98% were of White British descent, 2% were of Asian, Afro-Caribbean or other descent.

Social deprivation scores were calculated for the four primary school catchment areas, using http://dclgapps.communities.gov.uk/imd/idmap.html. Residents were predominantly White British, working class. A score of 1 out of 32,844 indicates the most deprived area in England to the largest number being the least deprived area. Calculated scores ranged from 642 to 12,500 out of 32, 844 within England.

Materials

A short, two part story was developed by the author and consistent with the reading materials used by young primary school children. The original, colour illustrations of Alfina, Holly and Thomas were commissioned and drawn by a professional cartoonist and illustrator. They were used in part, in previous Doctorate of Clinical Psychology thesis research, at the University of Leeds (Harrison, 2009; Rowlinson, 2011; Baxter, 2013 and Charsley, 2016) (Appendix 5), with children aged between four and six years old. The other images used within the story were illustrations from Google Image with no copyright infringements.

Part 1: Introductory Story- The Day of the Picnic

A neutral, introductory storyline of Alfina having a picnic and playing hide and seek included Alfina's friends, Holly and Thomas. Alfina's body shape was presented as either fat or healthy weight (Appendix 5), and Holly and Thomas's body shape remained healthy weight (Appendix 5). The purpose was to introduce the main character, Alfina to the children.

Part 2: Gift or Greed ending to the story-Cake Day

The second part of the story continued as the day after the picnic and Alfina woke up and decided to bake a birthday cake for her Grandma. Alfina's mother helps her to make the cake but is called away half way through the process. Whilst her mother is out of the room, Alfina decides to taste the cake mixture and after she puts the spoon back into the bowl, all the children are asked *"What do you think happens next?"* and then *"How do you think the story ends?"* The story then continues with two possible endings.

Gift: Alfina made a beautiful cake for Grandma (Gift); Children were asked "*what do you think of Alfina now that's she's made a cake for Grandma?"* and then *"what do you think Holly and Thomas would say about Alfina now she's made a cake for Grandma?"*(Appendix 6 Gift; fat and healthy weight, Alfina)

Greed: Alfina ended up eating nearly all of the cake mixture and could only make a tiny cake for Grandma (Greed); Children were asked *"what do you think of Alfina now that's she's eaten nearly all of the cake mixture?"* and then *"what do you think Holly and Thomas would say about Alfina now she's eaten nearly all of the cake mixture?"* (Appendix 7 Greed; fat and healthy weight, Alfina)

Procedure

After obtaining agreement from each primary school to participate, interview dates were arranged and took place between February and April 2016.

On the day of the interviews, the researcher set up in a quiet area of the school or classroom and then met with the teachers of each class. Signed consent forms from parents/guardians were collected by the researcher (securely stored at the end of the day) together with a list of children who were expected to participate. The teacher then introduced the researcher to the class and advised them that some children would be spending time with the researcher during the course of the day.

Each study condition was presented to children in a predetermined and considered way, with an even distribution of children across all four conditions. However, there was a difference in the number of boys who completed condition 3 compared with the number of girls, which was higher. This may the result of children being allocated to participate by the teacher rather than the researcher. Table 3 shows the number of girls and boys who completed each condition.

Table 3: Number of gender participants per condition

Condition	Boys (N)	Girls (N)
1 (Fat/Gift)	16	17
2 (Healthy/Gift)	16	16
3 (Fat/Greed)	12	20
4 (Healthy/Greed)	17	16

The Interview Process

The researcher collected one child at a time and an informal conversation about their day occurred to help build rapport.

Once sat at the designated seating area within the school, the researcher introduced themselves again and stated that they were going to read a story about a girl named Alfina and they would be asked a few questions, with their answers being recorded on the voice recorder (the researcher pointed to it). The child was then asked if they were happy to continue (Appendix 8: assent procedure). When assent was gained, the researcher asked them their name and age, which was clarified in line with the consent form. Their age and gender was recorded next to a 'participant number'.

Figure 1 shows an illustrated diagram of the interview process (IP) and the questions asked of each child at different stages, under the four conditions.

After the interview was completed, participants were thanked for taking part and offered a cartoon illustration of a 'Moshi monster' reward sticker to take away with them.

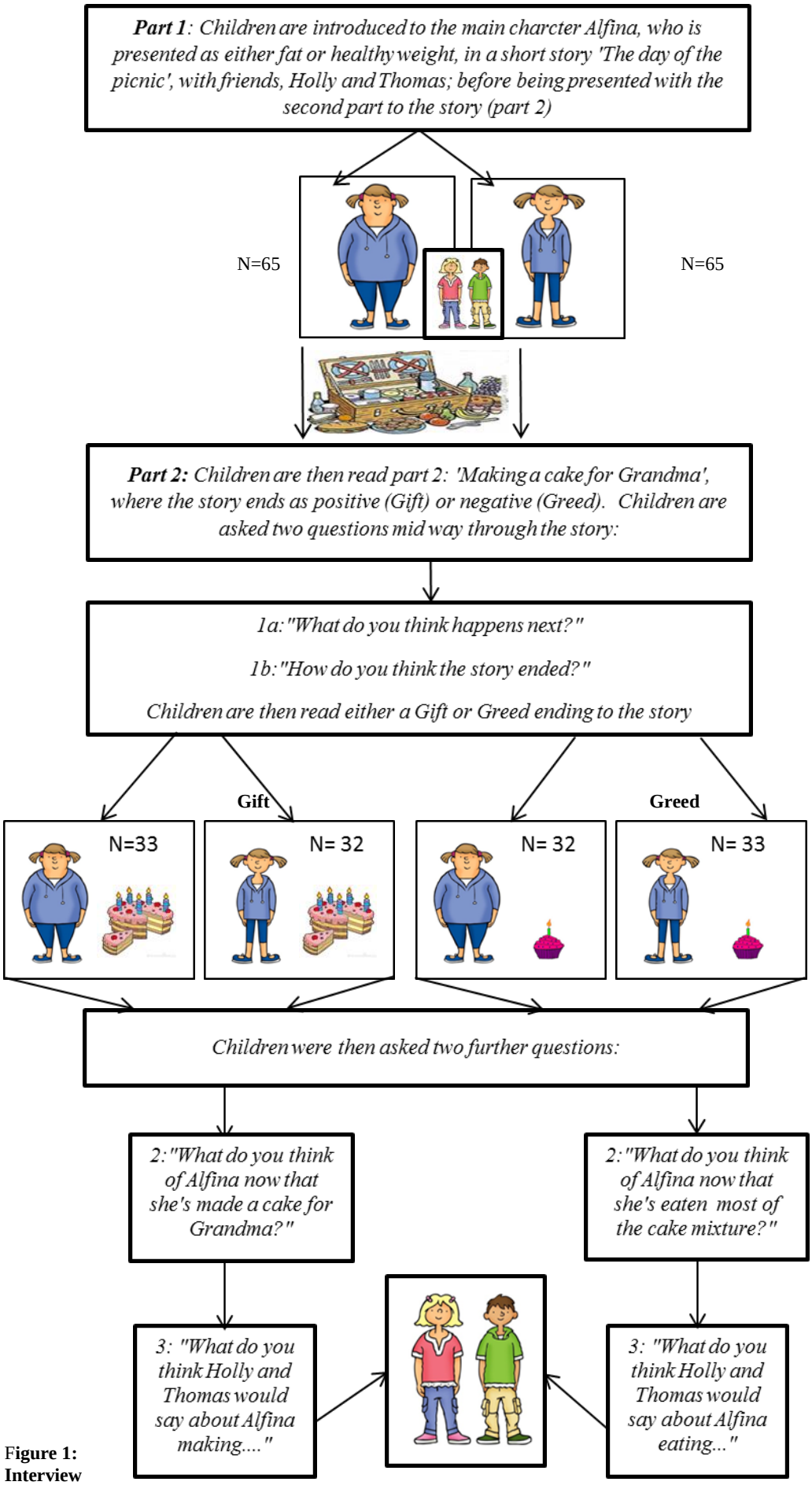

Figure 1: Interview Procedure

Pilot Study

A pilot study was completed in order to establish the appropriateness of the materials and language used in the questions for children aged between four and six years old. Five young children were recruited through friends of the researcher and some of the wording to the questions was later adapted so that children could understand what was being asked of them, for example, the word '…*describe,* Alfina…' was changed to '…*think about,* Alfina… *'*. These participants were not included in the main study.

Data Analysis

All interviews from the voice recorder were uploaded to a secure drive at the University of Leeds at the end of each interview day and deleted from the voice recorder. Each recording was identifiable by the participant's number. Demographic information and story condition number at interview were linked to the participant number and the information transferred onto an Excel spread sheet. Descriptive statistics were calculated for relevant demographic information. The digital recordings were transcribed verbatim by the researcher.

The data was analysed using framework analysis, which allows the researcher to interpret what children are saying, using a rigorous and systematic approach; unlike thematic analysis, which has been criticised for not being as robust, but subjective and less transparent (Smith and Frith, 2011).

The process of data analysis was that the researcher was immersed in, and familiarised with, the transcripts from all participants in order to establish key phrases and familiar themes presented. A coding framework was established based on positive, negative and 'not of interest' (not directly related to the characters in the story) concepts, led by the research questions. Key studies that used positive or negative adjectives were used to depict a character's personal attributions or behaviour, with the main focus being on eliciting any negative subthemes in order to capture levels of obesity stigma (See Appendix 11).

The framework was displayed on an excel spreadsheet, and the key themes indexed and colour coded; such as whether the children talked about emotional responses to the characters in the story, the story itself or if they referred to physical or behavioural characteristics of the main character or others. A process of abstraction and synthesis (Pope, Ziebland and Mays, 2000) occurred whereby the

researcher charted the data onto diagrammatic maps in order to separate the data into identified themes. The mapping and interpretation of these themes were driven by the research questions and the recurrent information elicited from the data shown on the thematic diagrams.

Z scores were used to calculate whether there was a proportional difference in the number of negative comments made between children in the greed condition who were assigned fat Alfina compared with healthy weight Alfina. The aim was to establish whether there was more of negative bias towards fat Alfina. (http://www.socscistatistics.com/tests/ztest/Default2.aspx).

To ensure validity and reliability of the data (Elliot, Fischer and Rennie, 1999) credibility checks were carried out with thesis supervisors; this entailed the author of this study presenting diagrams containing the data on excel spreadsheets (Appendix 12).

At each stage of the analysis, supervisors were asked to 'check' if their understanding of the responses was similar to that of the researcher's, based on operational definitions and the coding framework.

Chapter 3: Results

Two categories were established based around the coding framework and frequency of reporting. The two key themes were *character attributions* such as physical, emotional, personality and behavioural, and *impact on others* category, which included statements, such as the emotional impact the character had on others. (Appendix 12 shows illustrated examples of a coding map).

The number of *Character Attributions* and *Impact on Others* statements are illustrated within the sub-categories of positive, neutral and negative statements in Figures 2-7. All participants responded to a least one question throughout the interview.

Do children show evidence of obesity stigma towards a fat character compared to a healthy weight character before being presented with a negative ending to a story?

After 65 children, who were presented with fat Alfina, were asked what they thought would happen next, 42 (64%) children responded, and of the 65 presented with healthy weight Alfina, 47 (72%) responded. Of the total number of children who responded, Figure 2 shows the number of statements children made about fat or healthy weight Alfina, with the statements being coded as positive, neutral or negative.

Overall, the majority of children's responses (92%) encompassed neutral words or statements relating to the story. A small number of children (8%) believed there would be a negative consequence to Alfina's tasting the cake mixture, regardless of body shape; for example, she would "get told off" as she had made others angry. Of the total number of responses, there were no positive statements about fat or healthy weight Alfina's character or the impact she may have on others.

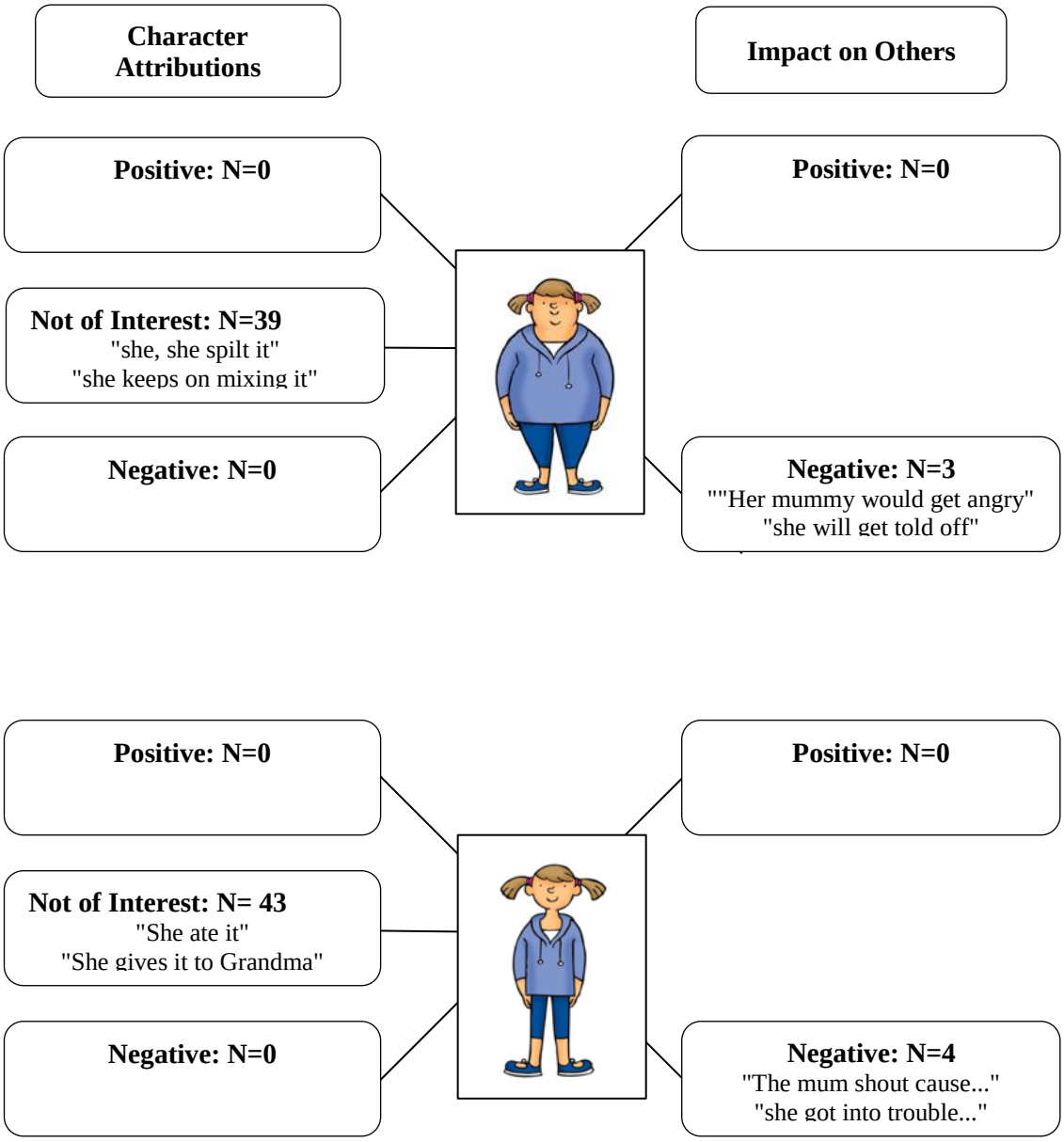

Figure 2: Summary of coded responses to:"What do you think happens next?"

In asking children what they perceived the ending to the story would be, of the 65 children presented with fat Alfina, 41 (63%) responded, with 44 (67%) children responding to healthy weight Alfina.

Before being presented with an alternative ending to the story, most children (88%) used neutrally coded statements to predict a potential ending, regardless of Alfina's body shape. Only a few children thought there would be a positive (5%) or negative (5%) ending, irrespective of Alfina's body shape. Interestingly, children referred more to the impact Alfina's actions would have on the other characters in the story, such as Grandma would be happy or mum would be angry. They rarely

made judgements about Alfina's character. Only one child reported a negative character attribution, which was directed towards fat Alfina. Figure 3 shows the positive, neutral and negative statements reported about either Alfina's character or the impact her behaviour may have on others.

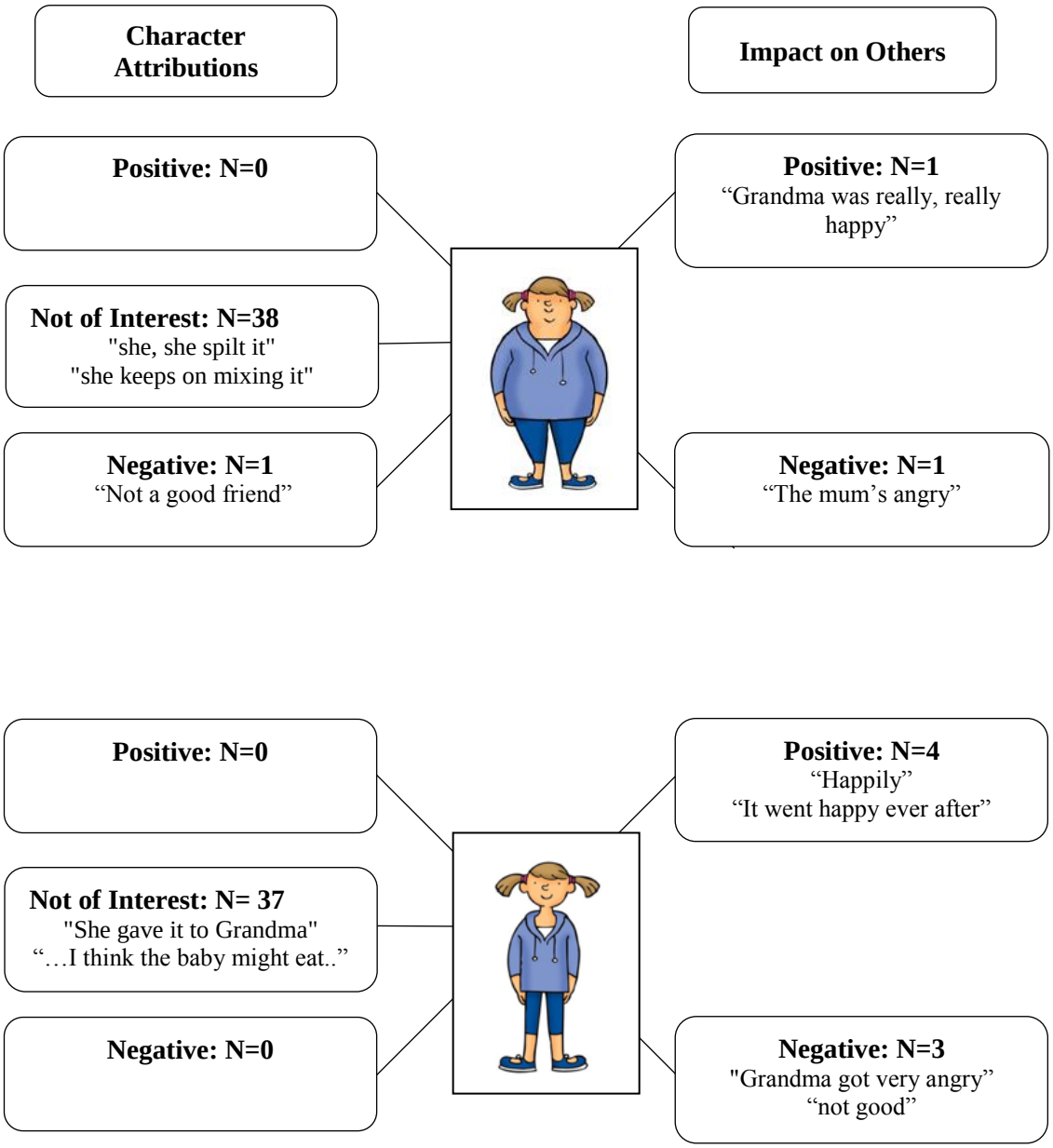

Figure 3: Summary of coded responses to: "How do you think the story ends?"Different Story Endings: Greed or Gift

A total of 65 children were presented with a positive (Gift) ending to the story. Of the 33 children who were presented with fat Alfina, 25 (75%) children responded, and of the 32 children presented with healthy weight Alfina, 29 (90%) responded.

Nearly half of the children (46%) reported positive statements about Alfina making a cake for Grandma, regardless of how Alfina's body shape was depicted, with 27 of those children referring to the positive impact Alfina had on others in the story; such as she had made other characters in the story happy. Forty percent of children made neutral remarks about the character or her impact on others, mostly talking about the celebration of a birthday or repeating the story content read out to them, with no negative statements being made about either fat or healthy weight Alfina.

Figure 4 shows the statements provided about fat and healthy weight Alfina to the gift ending, which were coded as either positive, neutral or negative.

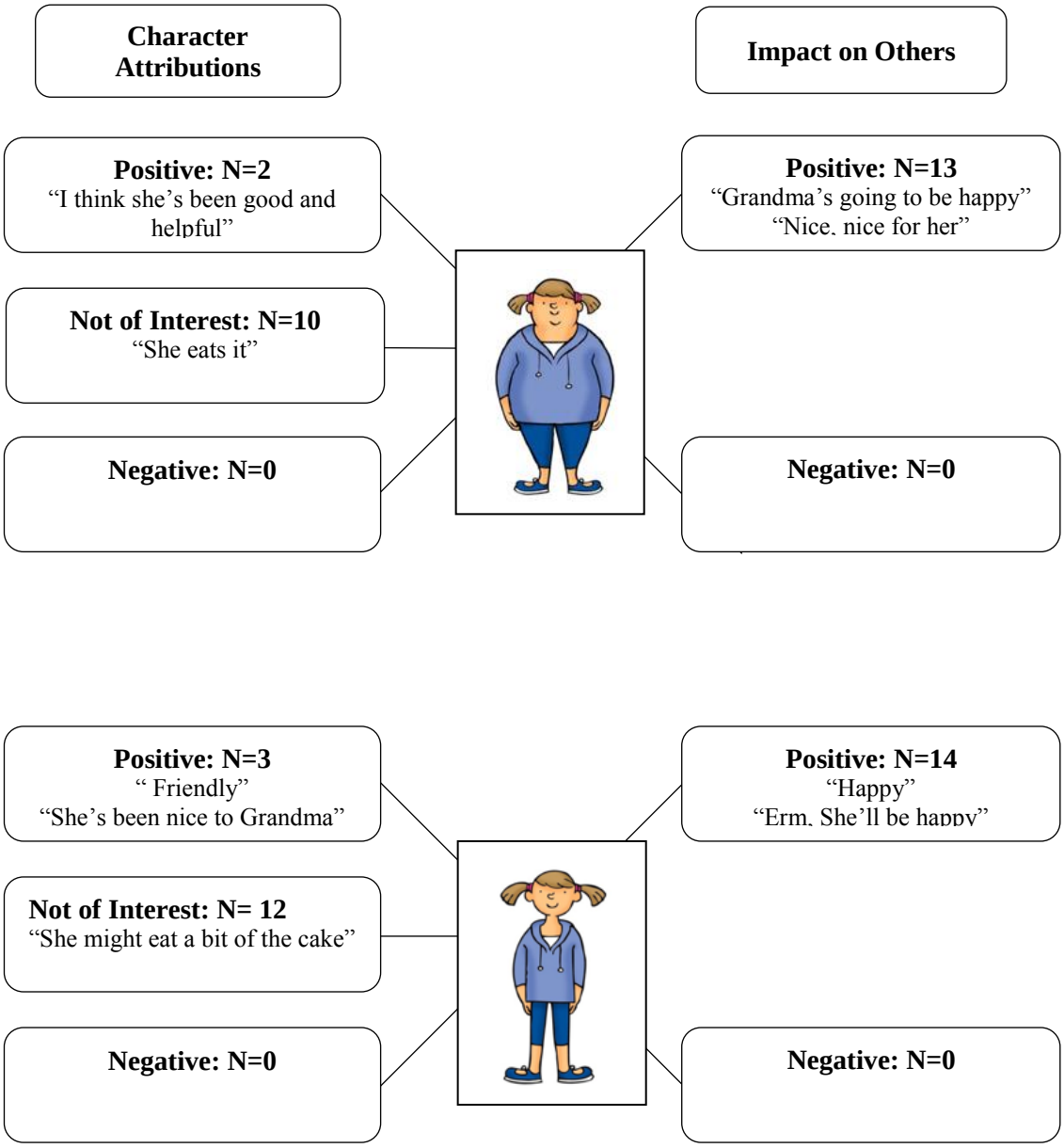

Figure 4: Summary of coded responses to a gift ending:"What do you think of Alfina now that she's made a cake for Grandma?"

Children were encouraged to consider the perspective of others by asking what they thought Holly and Thomas would think about Alfina now that she had made a cake for Grandma. Of the 33 children who were presented with fat Alfina and gift, 25 (75%) responded to what Holly and Thomas would say, with 27 (84%) out of the 32 children responding to what they would say about healthy weight Alfina.

Of the total number of children who responded, the majority of children (71%) attributed neutral statements to Alfina making a cake for Grandma, regardless

of body shape. Thirty two percent of children believed Holly and Thomas would say positive things about Alfina, with 15 of those children using positive statements that referred directly to the character attributions of Alfina. Again, there were no negative statements about either fat or healthy weight Alfina.

Figure 5 shows the total number of positive, neutral and negative statements by Holly and Thomas and associated with fat and healthy weight Alfina.

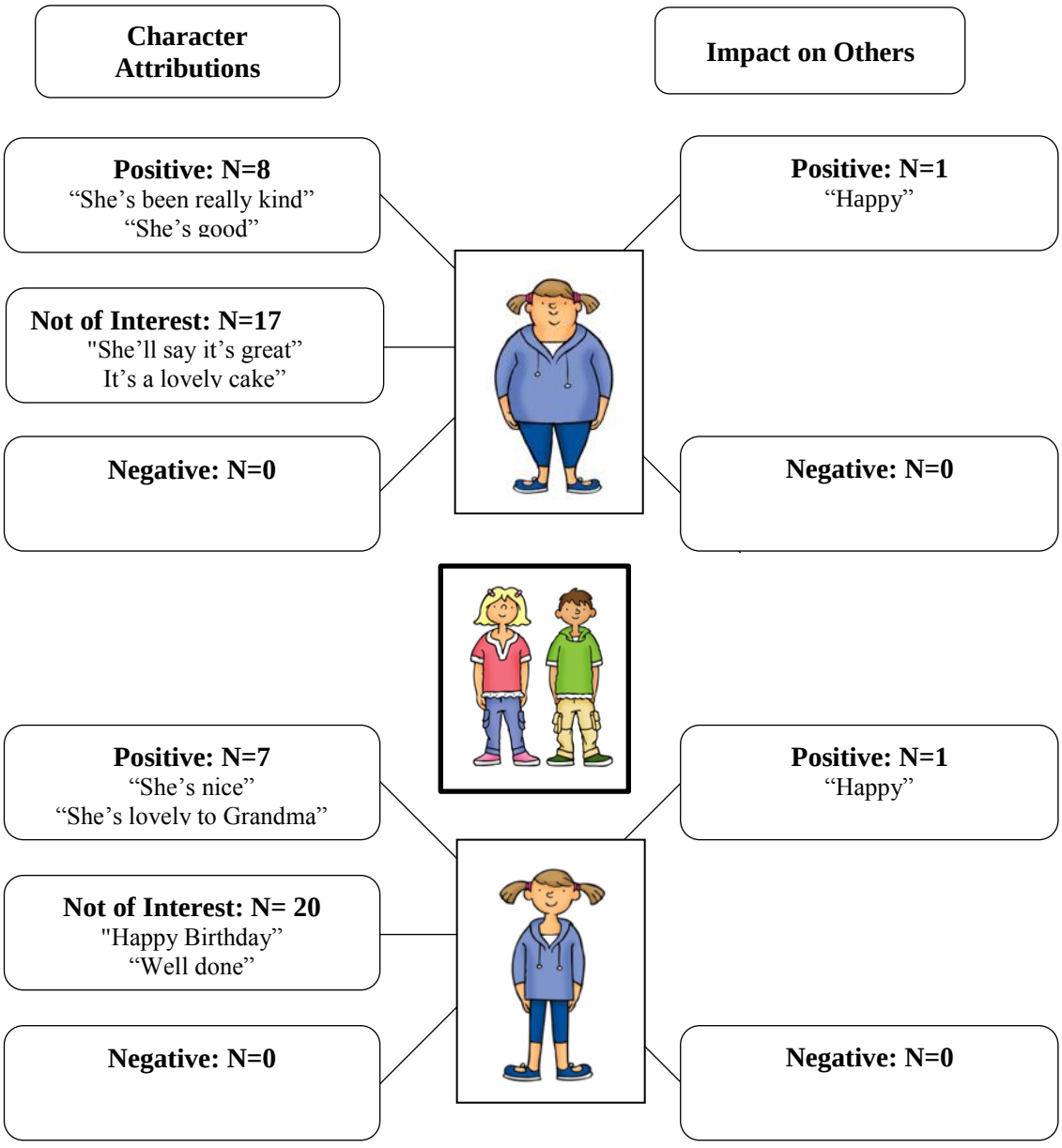

Figure 5: Summary of coded responses to a Gift ending: "What do you think Holly and Thomas would say about Alfina now that she's made a cake for Grandma?"

Do children associate more negative character attributions with a fat character compared to a healthy character, when presented with a negative ending to a story?

Sixty five children were presented with a negative (Greed) ending to the story and of the 32 children who were presented with fat Alfina, 25 (78%) children responded, and 25 (75%) out of 33 children responded to healthy weight Alfina.

Over half of the children (59%) who responded made neutral statements about fat and healthy weight Alfina, with no positive statements being made about either body shape. Twenty four percent of children reported negative statements with 18 of those children's statements suggesting that Alfina's behaviour would have had a negative impact on other people, such as Grandma or her mum being unhappy. There was no significant difference between the number of negative responses towards fat and healthy weight Alfina ($z=0.86$, $p=0.35$). None of the children made positive statements about either fat or healthy weight Alfina.

Figure 6 shows the total number of statements which were either positive, neutral or negative towards fat and healthy weight Alfina, in the Greed ending to the story.

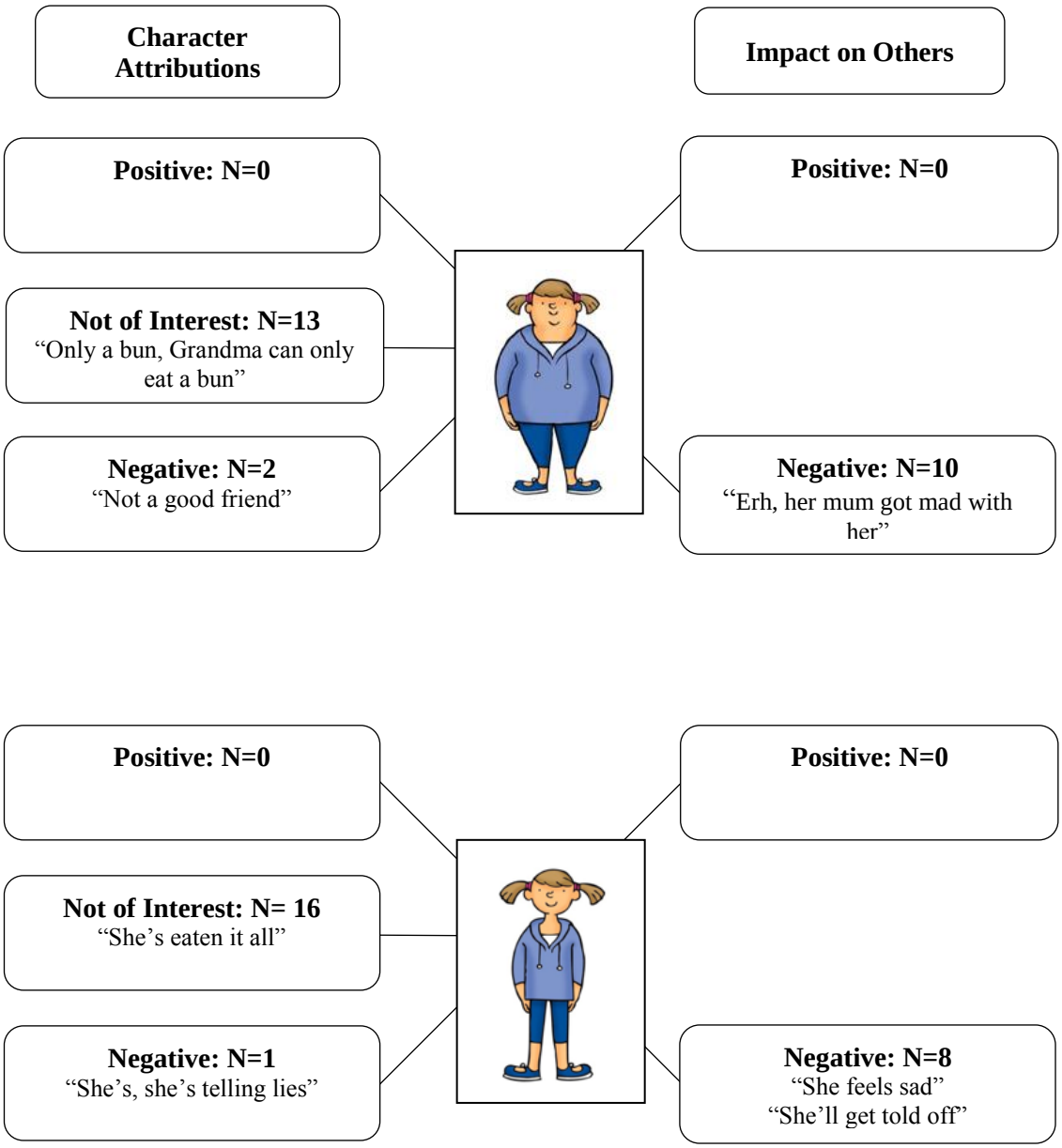

Figure 6: Summary of coded responses to a Greed ending: "What do you think of Alfina now that she's eaten most of the cake mixture?"

Children were asked to consider someone elses view point about either fat or healthy weight Alfina's behaviour in order to elicit evidence of weight bias, when presented with a negative ending to a story.

Of the 32 children who responded, 19 (59%) children reported on what they thought Holly and Thomas would say about fat Alfina, with 18 (54%) out of the 33 children reporting on what they would say about healthy weight Alfina.

Over half of the children (56%) thought Holly and Thomas would make neutral statements about either fat or healthy weight Alfina, such as offering problem solving advice or repeating what Alfina had done. Forty four percent of children thought that Holly and Thomas would attribute negative statements to Alfina, regardless of body shape. Of those negative statements, they referred to Alfina's character, such that she was naughty or greedy, rather than commenting on the negative impact her behaviour would have on others. Out of those negative statements, 11 (34%) children attributed negative character attributions to fat Alfina compared with 5 (15%) towards healthy weight Alfina. There was no significant difference between the number of negative statements towards fat or healthy weight Alfina ($z=1.85$, $p=0.06$). However, the comparison shows close alignment to a potentially significant difference.

Figure 7 shows the total number of statements, which were positive, neutral or negative towards the Greed ending to the story, and attributed by Holly and Thomas.

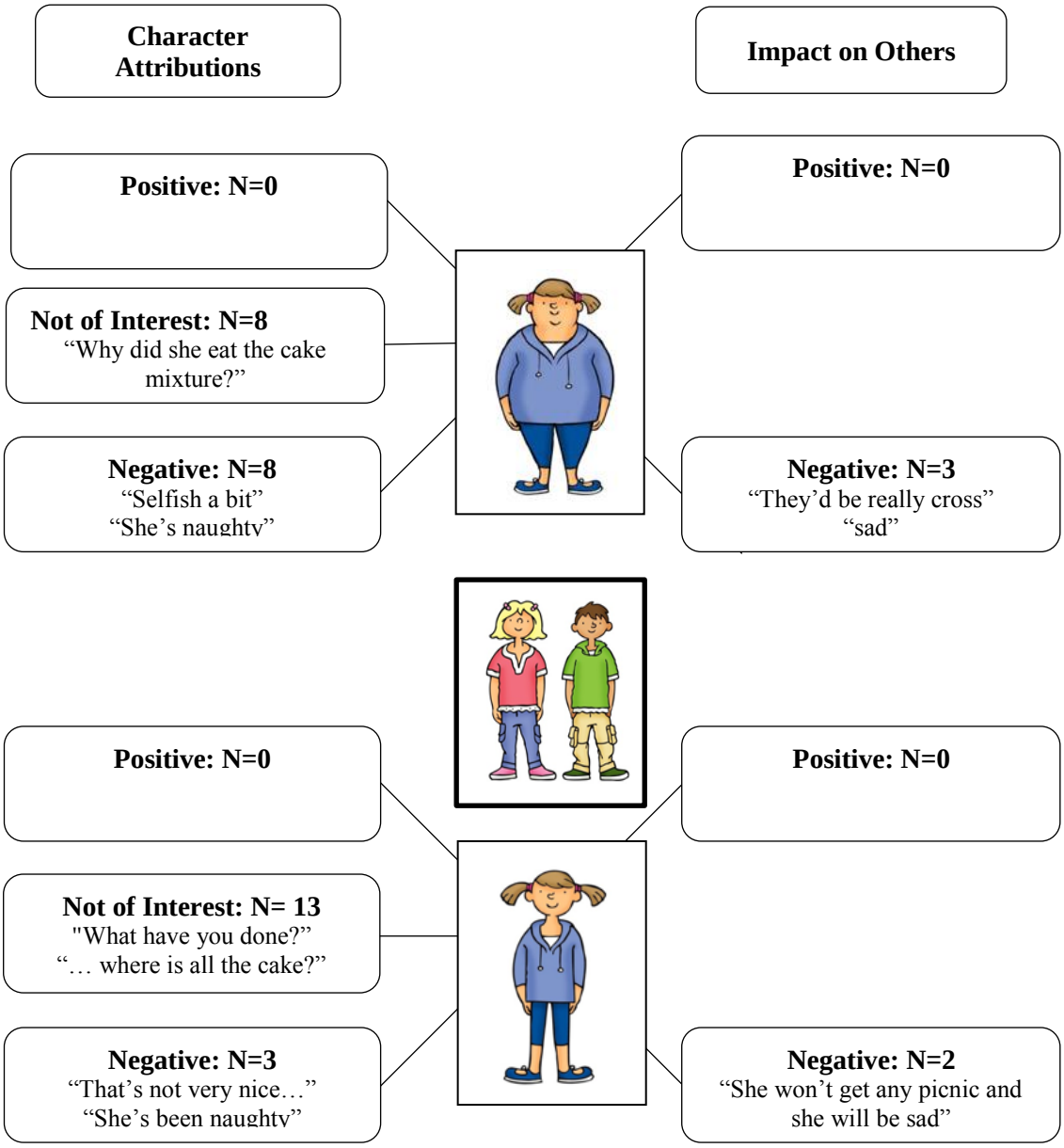

Figure 7: Summary of coded responses to a Greed ending: "What do you think Holly and Thomas would say about Alfina now that she's eaten nearly all of the cake?"

Although there appears some weight bias in the negative ending to the story, none of the children made reference to physical attributions, such as differences in body shape or fatness. Two children stated they thought fat and healthy weight Alfina were ugly. The attributions were predominately associated with her behaviour, in that she had been 'naughty' for eating the cake mixture and as a result, the other characters in the story would be unhappy or upset at her not making a proper birthday cake for her Grandma.

Those children who attributed more negative statements to both fat and healthy weight Alfina, consisted of an equal number of boys and girls from both reception class and in year 1. There were no children who the researcher considered were visually overweight within the sample.

Chapter 4: Discussion

The overall aim of the study was to investigate young children's obesity stigma using a story completion task. It was hypothesised that there would be no difference in what children said about the personal characteristics of a fat character compared with a healthy weight character, before being presented in a negative context. The second hypothesis was that when children were presented with a negative ending to a story, there would be evidence of more negative personal attributions towards a fat character compared to a healthy weight character.

The method was designed for young children in order to allow them to consider a fat character in the context of a story, using a semi-structured interview with open questions, which would allow children the freedom to express their view without the limitations of a forced choice approach. Children were shown an illustrative figure presented as either healthy weight or fat, in either a positive or negative ending to the story.

The results supported the initial hypotheses in that there was no difference in what children were saying about either a fat or healthy weight character before being presented with a negative ending to a story. What was observed was that a large proportion of children reported on functional aspects to the story, such as talking about the process of baking, the context of the story and the birthday celebrations. Consequently, the results did not support the second hypothesis as when the character was shown to have acted negatively, there was no significant difference in the number of negative character attributions made to a fat character compared with a healthy weight character.

The following sections to this chapter will discuss the findings of this study, consider research and clinical implications, incorporating the strengths and weaknesses of the study, before considering potential research opportunities.

Saliency of obesity stigma in the absence of negativity

The first aim of the study was to investigate whether young children showed evidence of obesity stigma in the absence of a negative ending to a story. In order to explore if anti-fat attitudes were present in the early stages of the task, children were asked to predict what they thought would happen next and at the end of the story, when either a fat or healthy weight character had tasted the cake mixture. The

results showed that there was no evidence of any bias against the fat character compared with the healthy weight character. Children also appeared to refer more to the potential impact the character Alfina's behaviour would have on her or others, rather than making direct reference to her body shape or personal characteristics, as indicated in the literature. What was observed was that most children commented on the storyline and incorporated some of their own experiences, regardless of body shape. When Alfina tasted the cake mixture, only a few children reported negative consequences for both fat and healthy weight Alfina, such as "she would be told off"; with children not making any negative comments towards either body shape. This would suggest that fatness was not considered to be a primary differentiating factor between a fat and healthy weight character, and that children were not showing evidence of anti-fat attitudes.

In attempting to investigate if children were withholding negative views of a fat character, by avoiding commenting on Alfina's physical and personal characteristics, children were asked to consider how the story would end. It was predicted that if children did hold such a negative view of fatness, as suggested in the literature, then they are likely to think that fat Alfina was 'greedy' and would expect her to continue to eat it. However, this was not apparent, there was no difference in the number of positive, neutral or negative statements made to the perceived ending of the story between the two body shapes. In considering previous methodologies used in research, perhaps the fact that children were not visibly directed to body shape but asked to consider the character within the context of a story, reduced the occurrence of negative statements.

In considering the prevalence of anti-fat attitudes found in the literature, perhaps in Latner and Stunkard's (2003) follow up study, the researchers may have indirectly suggested to children there was an association between body shape and character attributions. In Su and Di Santo's (2012) study, the children were additionally asked to provide a reason for their answers and in line with the assumptions made by Latner and Stunkard (2003), they found that children believed the fat character was not happy because they were 'fat; big; bigger; wide'. This may have been because in both studies, the children's attention was being drawn towards physical difference only as there were no other external cues to prompt them to consider differences in general.

The results shown in the present study would therefore support evidence from other studies which show that when children are not forced to rank order, make a preference or attribute specific adjectives that are positive or negative, there appears to be little evidence of obesity stigma (Harrison, 2009; Rowlinson, 2011; Charsley, 2016).

When children were presented with a fat character within the context of a positive ending to a story, it was predicted that there would be no difference in what children were saying about a fat or healthy weight character. It was assumed that although there may be no negativity towards fat Alfina, there would be less positivity towards her than healthy weight Alfina. However, what was observed was that there were no negative comments made towards Alfina regardless of body shape condition, and children were as positive about fat Alfina as they were about healthy weight Alfina, with only two additional positive comments being made towards healthy weight Alfina. This was in contrast to previous studies where the healthy weight or thin character was selected to be nice more often than the chubby character figure (Cramer and Steinwert, 1998; Su and Di Santo).

Interestingly, when children were asked to say what they thought of Alfina now that she had made a birthday cake for Grandma, children commented on the impact this would have on others, such as "grandma will be happy", rather consider personal characteristics that enabled her to achieve making a cake. This would suggest that children are focused on the context of the story and the outcome of the main character's behaviour, rather than directed to her physical features. Harrison et al's (2016) study found that although children preferred the healthy weight character overall, all versions of the characters were generally viewed positively in the context of the storyline.

In considering the overall results in the context of positivity, it may well have activated children's own positive experiences of baking, and the prosocial behaviour that can make others happy (Penner, Dovidio, Piliavin, Schroeder, 2005). If this were the case, then physical characteristics would not be their primary target, but the personal characteristics that constitute making others happy, such as the prosocial behaviour of kindness. This hypothesis may have been supported in that when children were asked what the two other incidental characters in the story would say about Alfina making a cake for Grandma, some children believed Holly and Thomas

thought Alfina was being ‘kind’ or that “she’s been nice”, regardless of body shape. This would suggest that children are considering personality characteristics that help to make others ‘happy’ (Penner et al, 2005).

During the interview process, the researcher wanted to maintain a neutral reading style so that children did not pick up any cues as the story was read out. This may have reduced any anti-fat attitudes that may have existed. If the intonation appeared more negative towards the fat character after eating nearly all of the cake mixture, children would presume she must be ‘bad’ because the researcher ‘implied’ that her behaviour was bad.

Despite most children being able to differentiate between gender at age five years old (Bussey and Bandura, 1999), three children called fat Alfina a “he”, which may have been associated with her shirt being the colour blue (Yee and Brown, 1994). The researcher corrected the children at the time but they did not appear surprised, nor did they ask further questions about Alfina’s gender, and appeared to refer back to her correct gender as the story progressed.

Saliency of obesity stigma in the context of negativity

When a positive contextual story was provided and open ended questions used, there was no evidence of obesity stigma. However, it could be predicted that when children were given an opportunity to think less positively about a character it would generate more negative comments when the character was presented as fat, such as they were ‘greedy’. For example, negativity towards fat Alfina’s personal characteristics should become more explicit after children are told that she had eaten most of the cake mixture, and less focused on the impact of her behaviour. However, the findings of the present study did not support this hypothesis, with most children not making any negative comments about fat Alfina. Eleven children out of the 32 presented with fat Alfina and greed, believed Holly and Thomas would attribute negative personal attributions compared with only 5 children attributing to healthy weight Alfina, suggesting that overall, children are not using fatness as a primary to differentiating factor. Children suggested they would see fat Alfina as being’ selfish’, with one child saying she was ‘greedy’ and a few implying she was naughty. However, one child did believe that Holly and Thomas saw healthy weight Alfina as ‘ugly and horrible’, and others suggesting she was ‘not nice’ and was ‘naughty’ too. Therefore, the presence of anti-fat attitudes was evident but to a much lesser degree

than suggested in the literature, with no significant difference between the frequencies of negative comments made towards fat Alfina compared with healthy weight Alfina.

Su and Di Santo found that when pre-school age children heard a negative ending to a story, such as one character said the other character's sand castle was ugly and proceeded to kick it down; 43.9% of children rated the overweight character as mean across all four stories, and only 2.4% of children rated the overweight character as 'nice' across all stories. A Chi square test showed a significant difference ($p= 0.2$ and $p=.01$ in the male fantasy stories; $p = .001$ in both female fantasy stories). The children's rationale for selecting the overweight character as being mean, in Su and Di Santo's Study (2012), was because they had a 'fat belly', and the healthy weight character was nice because they had a 'skinny belly' (p.7). This may have been the result of the researchers initially asking children to label the fat character as either nice or mean before an open ended question, again drawing attention to body shape. Whereas in the present study, children did not make any reference to fat Alfina's physical characteristics, which may have been a result of the methodology used. Although body measurements of the participants were not recorded, it is unclear if children were considering fat Alfina to be 'like me' rather than 'not like me'; because if they had perceived her as 'not like me', as none of the participants were observed to be fat, then there would be stronger evidence of obesity stigma. The results would therefore reinforce that in using this methodological approach, young children are not seeing obesity and body shape as the differentiating factor to fat and healthy weight.

In Su and Di Santo's study, the emerging themes from children's rationale for selection of the figure drawings were physical, emotional and behavioural attributes. However, there was no reports of what behavioural attributions were seen, nor if any neutral statements were made about the overweight character. This may suggest a bias towards the fat character already by the researchers whose primary focus was in using a methodology that again drew children's attention to physical body shapes using figure-line drawings, which may be eliciting stronger anti-fat attitudes (Davison and Birch, 2004; Kraig and Keel, 2001; Latner, Stunkard and Wilson, 2005).

Methodological Implications for Obesity Stigma Studies

In summary, some research has shown strong obesity stigma in young children. However, the methodologies used such as forced choice, appear to have led to an overestimation in how much children negatively stereotype a fat character. The following section will consider recent studies that have found that when the methodology is less constrained, there is less obesity stigma observed.

Charsley (2016) used a repertory grid which looked at constructs held by individuals, such as how we discriminate between others, situations or events (p.26). She presented children with a 'standard' character illustration and three other character illustrations, such as a girl, a boy, a girl or boy in a wheelchair or an obese girl or boy, dependent on whether the condition was being presented to female or male participants. The purpose was to understand children's 'visibility and desirability of physical differences' (p.3). Children were also asked about self-image and friendship preferences. Although she found a small number of children showed anti-fat attitudes, the results suggested that fatness was not the primary factor to differentiating personal characteristics between the characters, or towards their own self-image. It appeared that children identified gender, disability and the fat character to be most different to the main character in equal measures. Only six out of the twenty nine children who selected the fat character to be different made a direct reference to fatness; all the other children commented on the physical attributes of the character either in the wheelchair or of different gender, such as referring to hair colour or clothing not body shape. The study also found that children showed a broad range of reasons for friendship preferences with no evidence of strong anti-fat attitudes.

Similarly, Rowlinson (2011), as part of her study, used a 5-point rating scale based on Harrison (2010), to investigate attitudes towards a fat character. After a story was read out, children were asked to rate their attitude towards a main fictional character and a comparison character, who was presented as either fat or in a wheelchair. Both studies found that children rated all characters either neutrally or positively in equal measures, rather than clear negativity, suggesting less anti-fat attitudes and more neutral opinions, compared with the results of the forced choice tasks they both carried out. This would support social learning theory in that

children may be favouring those that are healthy weight, seen as in-group members, but not rejecting the out-group member (Brewer, 1999).

Four to six year old children were selected for the present study, because in most of the studies, from the USA, have shown that pre-school children have anti-fat attitudes. In addition, there is little literature on when children from four years to six years old acquire and reflect such negativity back. It would be interesting to investigate older children who are more in the Piagetian concrete operational stage, where they are more abstract in their thinking. If prejudice is stronger with age (Koroni, Garagouni, Roussi-Vergou and Zafiropoulou, 2009; Kraig and Keel, 2001) then more research is required to understand the origin of these anti-fat biases.

Strengths and Limitations of the current study

Strengths

The overall strength of this study was the use of storytelling which was age appropriate, familiar and based on activities that young children were most likely have participated in, for example, a picnic and baking a cake.

Secondly, through association and in providing an opportunity for open dialogue, children were free to express their own opinions without having to be forced to make a choice in one direction or attribute words that ordinarily they may not have chosen, for example, 'mean'. This would support other evidence to suggest that children are able to participate in qualitative research as evident in other studies (Cramer and Steinwert, 1998; Harrison et al, 2016; Baxter et al, 2015). The results also suggest that children are using theory of mind and are able to consider others' cognitive beliefs (Frith and Frith, 2005) at the 'pre-operational' stage.

This methodological approach allowed the researcher to be guided by the child and to experience the child's implicit world, rather than it being driven by the researcher's world view. Previous research has tended to impose the adult's view of the world, incorporating methods that force a child to make decisions (Cramer and Steinwert, 1998; Koroni et al, 2009; Brylinski and Moore, 1994; Kraig and Keel, 2001). Although Su and Di Santo (2012) did provide the opportunity for the child's explanation for their decision, the outcome may have been driven by an adult's perspective, believing the child would use body shape as a primary differentiating

factor to elicit obesity stigma, as suggested in earlier studies of obesity (Richardson et al, 1961).

There was a large sample size, which would allow for more generalisability to child populations and in line with other major studies; with 130 children assenting to take part in the study. This was similar to other UK studies such as Harrison (2010) who had 126 children; Rowlinson (2011) 153 children and Charsley (2016) 85 children. Other major studies have been based on USA or Canadian participants, such as Su and Di Santo (2012) whose study was based on 41 children; Cramer and Steinwert (1998) who had 30 children in study 1 but they had 83 children participate in study 2; and Nabor and Keyes (1995) with 32 children participating. Also, some of the studies were carried out in free time at school, and based on opportunity sampling. In the present study, children were in a familiar environment, with few distractions or opportunities to overhear other children's responses. The school environment allowed children to feel less anxious about the research environment by providing an established structure similar to the classroom, and where children knew that peers and teachers were nearby.

Although there was no significant difference in the number of negative comments made between children assigned either fat or healthy weight Alfina, the marginal difference in conditions 3 and 4 raises the possibility that if the study was underpowered, a significant difference may have been detected with a larger sample. However, the current study did consist of a similar sample size to previous studies (Harrison et al, 2016; Charsley, 2016, Baxter et al, 2015).

Limitations

The main limitation of the study was the generalisability of the results in relation to socio-economic status and ethnicity. The four primary schools that took part were in the same catchment area and the participant sample within this study based in low socio economic communities. Therefore, the views of others within central and the surrounding areas of Leeds are not incorporated. Within the sampling, there was a scarcity of ethnic minority groups. There is little research with young children and ethnic minority groups as to the prevalence of anti-fat attitudes. However, Latner, Stunkard and Wilson (2005) found that African-American and Asian participants showed a preference to obesity unlike their White counterparts

(Phul and Latner, 2007). Further research in this area would be of interest given the growing ethnic populations within the UK.

The questions were set up to minimise social desirability effects, such as using open ended questions in order to reduce response bias (Baxter, Smith, Litaker, Baglio, Guinn and Shaffer, 2004); and children's need to find the right or wrong answer for the researcher. However, this may have limited what children wanted to say, and by adding in further prompt questions, perhaps more evidence of obesity stigma could have been elicited.

An important consideration in the present study was the researcher's own weight. If children were not showing strong anti-fat bias in the context of negativity was it related to the researcher being overweight, and the presence of a number of teachers and parents who would be considered overweight or obese too? If this was true, then children may well be demonstrating an awareness of social cues and constraints (Lemerise and Arsenio, 2000). It is unclear too as to what educational information children were provided with about obesity and the language used in class or at home. Phul and Latner (2007) suggested that although educators are keen to maintain their student's wellbeing, an awareness of society's ever increasing obesity stigma may 'perpetuate bias unintentionally' (p.563). It would be interesting to complete the same research project but with a healthy weight researcher in order to ascertain if there was more obesity stigma evident.

In considering the imbalance in the number of boys' assigned condition 3 compared to girls, it was unclear if this affected the results of the study. In the literature, girls are shown to be more negatively biased towards fatness and healthy weight, preferring thinness overall, whereas boys prefer healthy weight more than fatness in the context of their peers. The fact that the main character was female may have led to fewer negative comments, and boys were not comparing the character in the context of their own peers. An analysis of gender differences was not completed as it was not part of the initial aims of the study. However, this could be of interest in considering future research. Additionally, it may be interesting to use characters which are gender-matched to the participants in order to make the story completion task gender-relevant to the children.

In addition, it is possible that the methodological approach in this study may have directly led to an underestimation of the level of obesity stigma observed. The

open nature of the questions asked may not have reflected children's underlying perceptions and the use of illustrative images of the characters may have affected children's responses. The use of photographs of children may be a more realistic representation of fatness within the context of their own peers. Previous studies have also shown that when children rank order a target figure with varying body shapes, children appear to prefer the healthy weight character overall but not out rightly reject the fat character (Harrison et al, 2016; Baxter et al, 2015). Rating Alfina's body shape was not completed in this study in order to minimise any forced choice bias. However, it would be interesting to consider asking children to rate the body shape of the fat and healthy weight character, in order to consider if children are seeing a difference within the context of a story completion task.

Future recommendations for research

In considering the present study, what was interesting was that of all the children who participated, not one could been seen as visibly obese. Across the four schools, the researcher only saw one child who could be categorised as overweight. Interestingly, there was no evidence of any of the participants, or their peers, having a disability. This would lead to question whether the lack of exposure to difference and diversity minimised any evidence of anti-fat attitudes, leading to physical characteristics not being a primary factor to differentiating between fat and healthy weight Alfina. However, this could be challenged when considering the researcher's and teacher's own weight.

In considering diversity, recent studies have continued to find children prefer the child with no disabilities more and the fat child the least (Harrison et al, 2016; Latner and Stunkard, 2003). It would be of interest to investigate this further by adding another condition to the present methodology, such as disability. This would provide an opportunity to compare children's responses to a third variable, such as whether children started to identify physical differences as a primary differentiating factor.

In considering the story completion task and the open ended questions to the methodology in the present study, perhaps incorporating more subtle forced choice approaches may further test whether obesity stigma is present young children. Harrison et al (2016) used a rating scale, with questions based on the Pictorial Scale

of Perceived Competence and Social Acceptance for Young Children, and found evidence of less obesity stigma using this method than in the forced choice approach. Perhaps implementing this approach, using some of the positive and negative responses said by children in the present study, for example "which one of the characters would you consider would be told off ?", may be of benefit as it would continue to consider the child's view rather than an adult's.

As obesity stigma is suggested to get stronger as children get older (Phul and Latner, 2007; Cramer and Steinwert, 1998), it would also be of interest to utilise this methodology with children aged from seven years old and upwards. In using this qualitative approach with older children, it may elicit similar findings in that anti-fat attitudes have been overestimated in the past.

Implications for current practice

In considering the evidence from this study that suggests that obesity stigma may not be as dominant in young children's minds as predicted, consideration as to the way children are educated about health and weight must be reviewed. Many educational programmes and interventions have been set up in order to help promote healthy living and healthy body shape (Latner and Stunkard, 2007; Puhl and Latner, 2007). However, if fatness is not their primary focus at such a young age, then perhaps drawing attention to it in a negative way may foster obesity stigma.

As Puhl and Latner (2008) have suggested, if adults are holding strong stigmatising and stereotypical views of obesity, an awareness of their role as educators and teachers must be reviewed in order to minimise any bias that may be transferred to young children, which may increase the risk of creating stigma and stereotypical behaviour at an early age. This could be incorporated into the England National Child Measurement Programme, which identifies obesity as a negative, unhealthy concept. Targeting government programmes and reviewing the purpose of them would be important, as they may well be instilling anti-fat attitudes unknowingly by bringing obesity to the attention of such young children. Health initiatives such as change4life (Gov.uk) has been set up to look at lifestyle choices, such as eating and exercise, but directed more to educating parents and much older children than children from the age of 4 years.

In considering the results of the present study and the limited presence of obesity stigma, awareness must be shared with schools that of those minority

children who do stigmatise their obese peers, stigmatising could lead to bullying and potentially copying behaviour from the majority. Therefore increased awareness of signs of distress and social withdrawal need to be monitored and addressed sooner than later.

Conclusions

The present study aimed to investigate young children's obesity stigma using a story completion task. In allowing children the freedom to express their opinions about a fat character in the context of negativity, children showed little obesity stigma. In adapting the methodology to consider a child's perspective, and in not forcing children to choose in a either a negative or positive direction, young children appeared to make more neutral statements about the fat character; with fatness not appearing to be the primary differentiating factor for children.

The results of the present study would suggest that previous research has overestimated the prevalence of obesity stigma in young children, which has been used to guide educational practices. It would therefore be recommended that this approach be used with older children, and adapted to incorporate further differences, such as those with a disability to observe if the fat character remained the least preferred as research suggests.

It would be recommended that by incorporating more subtle approaches to measuring stigma, such as friendship preferences and rating scales, alongside this methodological approach, it would be interesting to see if there is further evidence of obesity stigma when children are forced to consider the fat character in more detail. The evidence is crucial to enabling educators and teachers to consider that the strength of stigma may not be as prevalent as suggested.

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Appendices

Appendix 1: Ethics Approval

UNIVERSITY OF LEEDS

Faculty of Medicine and Health Research Office
School of Medicine Research Ethics Committee (SoMREC)

Room 10.111b, level 10
Worsley Building
Clarendon Way
Leeds, LS2 9NL
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25 February 2016

Louise Harrold
Psychologist in Clinical Training
Faculty of Medicine & Health
Leeds Institute of Health Sciences
University of Leeds
Charles Thackrah Building
101 Clarendon Road
LEEDS LS2 9LJ

Dear Louise

Ref no: **MREC15-021**

Title: **Young Children's Perceptions of a Fat Character: Exploring Children's Narratives in a Story Completion Task**

Your research application has been reviewed by the School of Medicine Ethics Committee (SoMREC) and we can confirm that ethics approval is granted based on the following documentation received from you and subject to the following condition:

- **Evidence of managerial permission for participation must be submitted for each site (school) prior to the study commencing at that site**

Document	*Version*	*Date Submitted*
L Harrold Ethics Application SIGNED 17 11 15 word	3.0	17/11/2015
MREC15-021 PIS Consent Let to Head 23 Dec 2015	1.0	23/12/2015
L Harrold recruitment letters: to parents and to head teachers	2.0	19/11/2015
L Harrold Interview Schedule	1.0	06/11/2016
L Harrold Risk assessment form	1.0	06/11/2016

Please notify the committee if you intend to make any amendments to the original research ethics application or documentation. All changes must receive ethics approval prior to implementation. Please contact the Faculty Research Ethics Administrator for further information (fmhuniethics@leeds.ac.uk)

Ethics approval does not infer you have the right of access to any member of staff or student or documents and the premises of the University of Leeds. Nor does it imply any right of access to the premises of any other organisation, including clinical areas. The committee takes no responsibility for you gaining access to staff, students and/or premises prior to, during or following your research activities.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

We wish you every success with the project.

Yours sincerely

Dr Roger Parslow
Co-Chair, SoMREC, University of Leeds

Dr Ruth Brooke
Co-Chair, SoMREC, University of Leeds

(Approval granted by Co-Chair Dr Ruth Brooke on behalf of committee)

Appendix 2: Letters to Head Teacher

Date

Dear Head Teacher

I am a graduate psychologist currently working on my Doctorate in clinical psychology at the University of Leeds. As part of my training I am completing a research project exploring ***how young children, aged 4-6 years old, perceive visible physical difference in other children, such as obesity.*** In particular, this will look at how children respond to overweight children. This project has been approved by the School of Medicine Research Ethics Committee, project Number MREC15-021, 02/2016. I would like to explain a little about the research and would welcome the opportunity to discuss with you **the possibility of undertaking this project in your school.**

I plan to conduct my research with reception and Year 1 pupils. This would involve me spending some time with your pupils on a one to one basis for approximately 15 minutes to read a short story, specifically designed for children of this age. The art work in the story has been specially designed by an illustrator for the purposes of this study, and follows the style of the Oxford Reading Scheme. The story is colourful, clear and simple, and aims to be fun and enjoyable for the child taking part.

Ideally the story would be read to the child in an area the school uses for reading, such as a quiet corner of the classroom, so there would be minimum disruption. Following the story, I would ask the child a few questions about the central character in the story. The parents of children in reception class and Year 1 will be sent a letter asking for consent for their child's participation.

I am looking to include children from around 5 Primary schools. If you feel your school is in a position to help with this study then in return we will be able to provide a summary of the final report.

I will ring you shortly to ask whether I could arrange an appointment to come and discuss the study further. Alternatively, you can contact me on 07757705888 (mobile) or my supervisor Andrew Hill on the above telephone number or address.

Many thanks,

Yours sincerely,

Louise Harrold	Professor Andrew J Hill	Dr Gary Latchford
Psychologist in Clinical Training	Professor of Medical Psychology	Clinical Psychologist

Appendix 3 Letters to Parent/Guardian

Date:

Dear Parent/Guardian

Your child's head teacher has agreed to help with a research project involving reception and Year 1 pupils in this school on the subject of **how young children view physical difference in other children. T**his project has been approved by the School of Medicine Research Ethics Committee, project Number MREC15-021, on 02/2016. This study is part of my Doctoral degree in Clinical Psychology. Your child is eligible to participate, but can only do so with your permission. **If your child chooses not to participate at the time, then the interview will be stopped immediately and information not used.**

Six stories have been prepared and printed. The difference between the stories is that one of the children whom the story is about is drawn differently e.g. overweight and then ending of the story is different too. The study involves your child reading one of these stories with the researcher, followed by a few questions about the main character in the story. This should take around 10- 15 minutes. The task should be fun to complete and the story follows the style of the Oxford Reading Scheme. The researcher will read the story with your child in their classroom and their class teacher will be present at all times. The researcher is experienced and qualified to work with children.

Several Primary schools in the area are also participating and the intention is to include 100 children in the study. Your child's participation is entirely voluntary and the study will form part of normal classroom activities. The only information I need to record about your child is their age, gender and ethnicity. All information collected during the course of the research will be kept strictly confidential and will not be linked to children's names.

If you agree to your child's participation please complete the permission slip enclosed and return it to your child's teacher within two weeks of the date letter. Please speak to your child about taking part and if you or your child have any questions about the research project, please speak to your child's teacher, or leave a message for myself at the address/ number above.

With many thanks

Yours sincerely

Louise Harrold	Professor Andrew Hill	Dr Gary Latchford
Psychologist in Clinical Training	Professor of Medical Psychology	Clinical Psychologist

Appendix 4: Parental Consent form

How young children view physical difference in other children

Permission to participate form

☐ I have received and understood the information provided

☐ I understand that my child's participation is voluntary

☐ I understand that l am free to withdraw my child at any time, prior to the interview without giving any reason.

☐ I agree to my child taking part in the above study.

Name of Child ……..

Name of Parent / Guardian ……

Signed by …….. Date ……..

Relationship to the child (i.e. parent/guardian) ……....

Appendix 5: Character Illustrations

Healthy Alfina

Fat Alfina

Holly

Thomas

Appendix 6: Story- GIFT

“Well done, Alfina. That is the nicest birthday cake I’ve ever seen. It’s beautiful and grandma will love it”.

“I put all my favourite sweets on top, especially for grandma” said Alfina.

or

Appendix 7: Story- GREED

“No, mum, there’s still a little bit left”. Alfina wasn’t able to make the big birthday cake she planned to but she did make a little fairy cake for her grandma.”

or

Appendix 8-Assent Procedure

Assent from Child

Hi, I'm Louise, what's your name?

Hi (*child's name*), nice to meet you and thank you for coming to see me.

Do you know why you've come to see me?

Well, I am going to read you a story and ask you some questions over the next few minutes. I am going to record what you say on this recorder (point to the digital recorder and microphone).

Is that ok with you (*child's name*)? If you want to stop at any point just let me know.

Are you happy to continue?

OK, let's start.

Appendix 9: Interview Schedule

Voice record the child's responses once assent has occurred.

The day of the picnic: Read the introduction part to the story in order to introduce the character, Alfina who is presented as either fat or healthy.

Cake Day: The continuation of the story has two parts to it:

Read out Part 1: Alfina, woke up the next day…..Alfina put the spoon back in the bowl.

1. ***What do you think happens next?***

2. ***How do you think the story ends?***

Say to the child: "What a brilliant idea that's a great ending (*name of the child*)" or "that's ok if you can't think of anything".

"*Shall we see how the story ended?"*

Part 3: Read the ending to the story either Gift or Greed.

Greed: Well, Alfina ended up eating nearly all of the cake mixture…

3. ***"What do you think of Alfina now that she's eaten nearly all of the cake mixture?"***
4. ***"What would Holly and Thomas say about Alfina now that's she's eaten nearly all of the cake mixture"*** *If they do not respond, prompt with "What would Holly and Thomas THINK about Alfina for eating…?"*

Gift: "Well, Alfina ended up making the most beautiful, big birthday cake…"

3. ***"What do you think of Alfina now that she's made a cake for Grandma?"***
4. ***"What would Holly and Thomas say about Alfina now that she's made a cake for Grandma?"*** *If they do not respond, prompt with "What would Holly and Thomas THINK about Alfina for making…?"*

Once all the responses are complete and recorded say, " that's it, thank you for listening and helping me today. Would you like a sticker as a thank you?"

Appendix 10: Operational Definitions

Obesity Stigma:

Goffman (1963; p3-4) defined obesity stigmatisation as *"abominations of the body*" suggesting they may be ugly or unattractive, fat or considered large in stature; *"blemishes on the character"* implying the obese person may be lazy, have no willpower or self-control (DeJong, 1980) or considered mean or unkind.

Personal Attributions

Positive

Positive personal attributions towards either fat or healthy weight Alfina are identified when a child talks about key characteristics such as "she's been kind", "She's a good friend".

Not of interest

Not of interest personal attributions towards either fat or healthy weight Alfina are identified when a child talks about general attributions that are associated with Alfina, information regarding the storyline, is part of the process of baking a cake, birthday celebrations or unrelated information, such as "her baby stopped crying", "she put it in the oven", "They went to cut the cake", "She went for a run"

Negative

Negative personal attributions towards either fat or healthy weight Alfina are identified when a child talks about key characteristics such as "She's greedy" "That's not very nice, that's being a bad friend"

In considering what else children were saying about either fat or healthy weight Alfina throughout the course of the story, children's responses were coded in relation to the emotional reaction of others to Alfina making a birthday cake for Grandma. The operational definitions for the subthemes of 'positive', 'negative' and 'neutral' are shown below.

Impact on Others

Positive

The positive emotional reactions of others, towards either fat or healthy weight Alfina's behaviour, were identified when a child talked about how others may have felt, such as " Grandma will be happy" "They are happy"

Not of interest

The not of interest emotional reactions of others, general attributions associated with Alfina or information relating to the storyline were identified when a child said, for example, "she put the eggs in", "Grandma come", "She might come back"

Negative

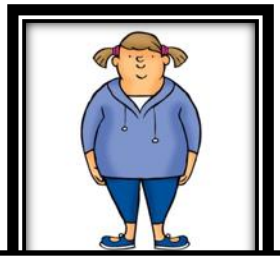
The negative emotional reactions of others, towards either fat or healthy weight Alfina's behaviour, were identified when a child talked about how others may have felt, such as "She'll get old off" "the mum is angry"

Appendix 11: Coding Framework

	Positive	Not of Interest	Negative
Personality Characteristics	Kind; nice; funny; friendly; smart; thoughtful; loving;	Talks about other characters in the story; their peers; family; topics related to the story; cake baking; hobbies; interests.	Mean; unkind; nasty; unfriendly; lower intelligence; stupid; unloving;
Physical Characteristics	Attractive; good looking; small; thin; average; strong; muscular; healthy;	Talks about other characters in the story; their peers; family; topics related to the story; cake baking; hobbies; interests.	Unattractive; big; fat; large; ugly; chubby; weak; sick; unhealthy;
Behavioural Characteristics	Works hard; neat; brave; quiet; well behaved; affectionate;	Talks about other characters in the story; their peers; family; topics related to the story; cake baking; hobbies; interests.	Lazy; sloppy; nasty; bullies; greedy; afraid; loud; naughty; distant;
Emotional Attributions	Happy; joyful;	Talks about other characters in the story; their peers; family; topics related to the story; cake baking; hobbies; interests.	Sad; miserable;
Other (cognitive,	Many friends; doesn't get teased;	Talks about other characters in the	Unpopular; least wanted as a friend;

emotional or physical impact on others)	popular; makes others happy;	story; their peers; family; topics related to the story; cake baking; hobbies; interests.	least liked by peers; few friends; teased; makes others sad or unhappy; make others angry;

Appendix 12: Thematic Map Examples



What do you think of Alfina now that she's made a cake for Grandma?

Positive

I think that she been good and helpful
She's been very nice to Grandma
Total: 2

No response

1
1
1
1
1
1
1
1

Total: 8

Not of interest

She eats it
They'll eat it
She's gone, she going to give it to Grandma
She's gonna give it to Grandma
Give it to Grandma

because it's a special day
They might sing happy birthday
She was happy
Happy
Happy
I think she feels happy
She feels happy
Really happy
Nice, nice for her
She feels happy
Happy
She's happy
Grandma's going to be happy
That Grandma will feel Happy
Her Grandma will be really happy and she's been really kind
erh, Grandma will say yaay
good job

She might be proud of herself
Total: 23

Negative

Total: 33

What do you think happens next?

Positive	Not of interest	Negative
		She got told off
	can't drink it can you?	The mum shout cause she had a taste of that
	The baby ruined it all up	She got into trouble by her mum
	for a	She told off for being too low down cause she ate some
No response	swim	
	She will get ill, cause there are eggs in	**Total 4**
	Um, she, something happened next	
1	At the end there was only a tiny bun	
1	can we see?	
1	Mum will recognise her that she's eaten the cake	
1	She ate it	
1	She's going taste it, going to taste the liquid	
1	it doesn't taste nice cause there's not enough mixture in it	
1	Grandma thought it tasted nice	
1	Putting the chocolate on the cake	
1	They put, put it in the oven	
1	She put the cake in the oven	
1	She puts, she puts lots of sprinkles on the cake	
1	I think they're putting the chocolate on the cake	
1	They put it in the bun cases	
1	I think she gives it, I think she put the cheese into the chocolate	
1	I think she's mixing the cake	
1	She cracked an egg and put it in	
1	She put it in the oven	
1	She will stir it	
Total 18	It's going to splash on her	
	Put it in the oven	
	I think um that im it went everywhere	
	The birthday cake looked nice	
	She started to put it in the oven	
	She puts the cheese and the eggs in	
	She might have cooked it, she might have put it in too long and it might have burnt	
	She, maybe she's making some buns	
	Carried on making it	
	He started like a cake, he put it in the oven	

Well they mix it up and then put some strawberries on and icing on and then they're to do it, party

She put it in the oven

They put it in the oven and when it's really ready they'll put decorate on it, and put candles on

Mum comes in

Mummy comes in

Grandma comes in

She gives it to Grandma

Does she give it to Grandma?

they went to give the cake to Grandma

She, she goes to Grandma to give the cake

cause there's re's not enough mixture

Total 43

Appendix 13 Glossary of Terms

Fat/Fatness:

The term obesity has been used in the literature interchangeably between overweight, high body mass index (BMI), chubby, fat or obese. However, each word does not have the exact same meaning, and as obesity has been suggested to relate to BMI in the UK, the term **FAT** will be used to look at children's perceptions, not the term obesity.

Perceptions:

The term attitudes, awareness, perceptions, stigmatisation and prejudice have again been used interchangeably within the literature, when investigating children's beliefs of obesity. However, for the purpose of this study, **PERCEPTIONS** will be the only term used to explore what children do consider when presented with a fat target figure.

Perceptions and its use with Young Children

The literature explores young children's understanding and beliefs about a character when presented with a target figure who appears different i.e. fat. When exploring other concepts in which to consider ways of learning about children's (4-6 years old in this study) thinking around fatness, terminology such as stereotype or stigmatization infers strong, negative assumptions about an individual i.e. who is fat. Very young children are unlikely to have developed or formed such strong beliefs to suggest they are stereotyping peers in such a strong, negative way. This will be discussed further in the section on child development.

Stigma refers to a bodily impairment or marking that signifies shame, and brings the individual into disrepute (Weinstein, 1982). Goffman (1963) differentiated three aspects to stigmatization- Imperfections associated with personal character such as addictions, mental illness, and/or a criminal history; unsightly bodily features, such as physical deformities; and perceived stigma to be associated with a person's social impairments, such as social class, race, gender. Goffman (1963) believed that stigma was more of a characteristic of a given attribute that is accredited by society itself, not inherent in the attribute, (Weinstein, 1982).

To *stereotype* a person would be to apply a generalised rule to them which may be a 'distorted' opinion of that individual and their personality (Oxford Dictionary online, 2015). A negative attitude, an adamant negative stance towards an idea, such as 'fatness' implies that all fat people would be thought as not only aesthetically displeasing to the eye, but have no sense of responsibility or control over their life (Crandall & Biernat, 1990; Robinson, Bacon, & O'Reilly, 1993). Again, the formulation of such a concept is not possible in very young children as a result of concrete, non-moralistic thinking styles at this age.

Therefore, when considering very young children (3-7 year olds), *Perceptions* appear as a subjective concept, which is based around a more individualised form of sensory 'awareness' of something different, such as 'seeing' a fat person and finding a way to make sense of what that may mean in the child's own mind.

Some of the earlier concepts suggest a definitive ideology towards those individuals or group of people who are seen as fat. Perceived poor self-control and negative perceptions of a fat individual within western society, may well reinforce the notion that fat is bad, and that thin people are perceived as being self-disciplined and in control, less self-indulgent and lazy, compared to a fat person (Tiggemann & Rothblum, 1988).

The term FAT and young children

Obesity within the NHS is defined as a person who presents as 'overweight', excessively layered in body fat (NHS:www.nhs.uk/obesity, 2015). However, this is not always a clear definition as overweight may not clinically be classified as obese or unhealthy if someone is heavier as a result of a muscular physique or has excessive water retention. A method used to measure obesity is the Body Mass Index (BMI) which calculates a person's weight and height to give an overall score. If someone scores between 25-29.9 they are considered overweight but if someone scores over 30 or 40, they are considered obese or severely obese (NHS, 2015). The National Child Measurement Programme England (NCMP, 2013-2104) has been developed to measure the prevalence rates of those individuals seen as underweight up to those who are morbidly obese, in reception (4-5 year old children) and Year 6 (10-11 year old children) classes. This form of assessment certainly predisposes young children to an awareness of weight and what is understood by healthy and unhealthy.

Fat is considered a term to define someone who has excess ‘flab ‘or overabundance of weight (Oxford English Dictionary, 2015) and can be used to describe obesity in general terms. As overweight and obese are classified by different BMI numbers, waist measurements or other terms, using the word obesity is too specific when considering very young children and so ‘Fat or Fatness’ would be more age appropriate and generic, as this is the language very children appear to be exposed to and do use. For example, the fat controller in Thomas the tank engine; Fatty in Shaun the sheep.

The Term Very Young Children

For the purpose of this study, ‘very’ young children has been classified as children under the age of 7 years old. Studies into children’s perceptions of obesity have investigated children up to the age of 10 and 11 years, and even adolescence. However, this study will only consider those children aged between 4 and 6 years old, as studies have shown that children’s development of self beliefs and behaviours through exposure to adults is crucial in these formative years (Lanigan, 2011).