

**Using story-telling to explore communication
between parents and children about physical
difference**

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

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Abstract

Introduction: The prevalence of obesity in children is on the rise. Children who have obesity have poorer mental wellbeing and experience negativity from others. It is therefore important to consider where these attitudes come from. Concordance between parent and child attitudes in the literature suggests that parents are important in the development of children's attitudes to weight. The direct communication between parents and children has only been explored in two studies, which are outdated and have methodological limitations. The aim of this research was therefore to explore if and how, visible difference is communicated between parents and their children to better understand how weight bias is transmitted.

Method: 27 caregivers of children in reception and year one completed a story-telling task with their child. They were assigned either a healthy weight, overweight or character in a wheelchair. Further parental demographics were collected, as well as an online survey relating to attitudes to visible difference.

Results: Significant negativity was found in the way parents told the stories about the overweight character, when compared to the healthy weight or character in a wheelchair, including more negative references to physical appearance. Significantly more negative and less positive descriptions in relation to the overweight character were found. Peer interactions with the central character were significantly more negative.

Discussion: The findings suggest evidence of direct communication of negativity, specifically in relation to the overweight character, in the stories told by the parents. Although limitations due to the small sample size, future research would benefit from exploring the interactions further between parents and their children, particularly how parents respond to negativity.

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Introduction

Context

A strong emphasis is placed on outward appearance, particularly in Western society, where our physical appearance may often play a role in our first impressions of a person, even if this later changes (Rumsey & Harcourt, 2007). These basic characteristics of a person, such as gender, ethnicity, height and weight are all ways in which our appearance may differ, and therefore define us as a person. This also includes the body shape of a person. In terms of language, children are aware of different body shapes and weight, often as young as three or four, and they use this in language in order to match or categorise individuals (White, Mauro and Spindler, 1985). More specifically, children's preconceptions of others, such as displaying negative attitudes to others weight, has been found in children as young as three years old (Cramer & Steinwert, 1998).

Early studies have found that children disliked overweight peers more than those with other visible differences, such as physical disabilities (Richardson, Goodman, Hastorf and Dornbusch, 1961). Although studies have explored this weight bias within children, we know little about how these attitudes develop, or how they are acquired. In addition, it is unclear as to whether this bias is specific to overweight, or whether this is also the case for other visible differences, such as apparent in physical disabilities.

Childhood Obesity

Childhood obesity has been described as a global concern, and "one of the most serious public health challenges of the 21st century" (World Health Organisation, 2020). It would also appear, that sadly, childhood obesity is becoming

more common, particularly within England. A report from the Government's National Child Measurement Programme (NCMP) highlighted that in England, in 2019/2020, around a quarter of children in reception class (aged four to five years old) were overweight, including those with obesity or being severely obese (NHS Digital, 2020). This was found to be even higher for children in year six in which around a third of children were found to be overweight or having obesity.

Obesity prevalence has continued to rise over the last few years for reception-aged children. From 2017/2018 to 2019/2020, obesity prevalence has risen from 9.5% to 9.9%. This has also been found for children in year six, rising from 20.2% (2018/2019) to 21% in 2019/2020. In addition, in 2019/2020, 13.1% of reception-aged children were classed as overweight. Prevalence of severe obesity has also seen an increase to 2.5%. The NCMP highlighted that obesity prevalence was double for those living in the most deprived areas, compared to the least deprived areas for reception-aged children, and severe obesity prevalence was almost four times as high for those living in deprived areas, compared to the least deprived areas within the same age group.

Obesity in childhood is of particular concern due to associations with adult obesity (Biro & Wien, 2010), and the associated poor health outcomes (NHS Digital, 2020). The physical health problems associated with obesity, such as diabetes, coronary heart disease, stroke and certain cancers (World Health Organisation, 2014) are well documented and mainly develop in adulthood. However, the stigma associated with obesity can have a negative impact on children and young people's well-being and psychological health (Pont, Puhl, Cook, & Slusser, 2017). The research in this area has mainly been conducted in older children and adolescents. For example, there is an increased likelihood of developing mental

health difficulties, low self-esteem, poor body image, and disordered eating (Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Jendrzyca & Warschburger, 2016; Puhl & King, 2013; Puhl & Lessard, 2020). Puhl and King (2013) also reported that a more extreme consequence of such stigma relates to an increased risk of suicidal behaviour amongst youth and self-harm (Sutin, Robinson, Daly & Terracciano (2018). Pont et al. (2017) suggested social isolation and poorer academic outcomes were more likely to occur as a result of bullying of children with obesity.

It appears that obesity prevalence in children is on the rise and steadily increasing. Due to the associated poor health outcomes in adulthood, as well as the effects of stigma in relation to childhood obesity affecting children and young people's psychological wellbeing, physical health and academic ability, it would be important to specifically explore weight bias. What this is, and how it is measured is addressed in the following section. This will focus specifically on young children.

Stereotypes, attitudes to weight and weight bias

Paxton and Damiano (2017) discussed how people hold stereotypical attitudes about others who have particular physical characteristics. They suggested that particularly in Western societies, weight stigma has developed due to stereotypes in relation to weight and fatness. These stereotypical attitudes have been referred to by different terms within the literature, including weight stigma, anti-fat attitudes, and weight bias. In line with Paxton and Damiano (2017), the term weight bias will be used going forward in this thesis. The World Health Organisation (WHO, 2017) defined weight bias as, "the negative attitude and beliefs towards and about others, because of their weight". These attitudes and beliefs are played out in the form of stereotypes and prejudice towards people with obesity.

Puhl and Himmelstein (2018) suggested that those who face such weight bias experience negative stereotypes, prejudicial attitudes, societal devaluation and unfair treatment due to their weight. Specifically, for children this occurs overtly in the form of bullying and weight-based teasing. There has been a growing interest in understanding weight bias in the literature, particularly in relation to the age that children might become aware of such biases and when they express these. Similarly, research has been directed at how children display such biases.

Implicit and explicit bias

Research has suggested that there are different types of bias with regards to weight; namely explicit, or overt, and implicit bias (Lydecker, O'Brien & Grilo, 2018). Whilst explicit attitudes are conscious and verbalised, for example, through beliefs that an overweight person is to blame for their weight, implicit attitudes are automatic, unconscious, initial reactions, which may not be recognised by the individual. Given that implicit bias is an unconscious process, it has been suggested that these can be difficult to control when affecting our behaviour or decisions (Greenwald & Banaji, 1995). Bissell and Hays (2011) suggested that implicit attitudes may be a more indicative predictor of attitudes to weight, given the likelihood of social desirability or response bias when using self-report measures. Generally within the weight bias literature, implicit attitudes have been explored using the Implicit Associations Test (IAT), which compares reactions times for incongruent pairings and congruent pairings (Lydecker et al., 2018). The procedure involves the participant initially giving one response to two sets of items (a concept and an attribute), that are possibly associated, or congruent, such as "pleasant" words and "flower" words, and a different response to a second pair of items, such as "unpleasant" words and "insect" words. Incongruent words are then paired, such as flower and unpleasant, and insect and pleasant. It is suggested that if the

association between the concept or attitude is shared with the attribute, the faster the person performs the task. For example, if they respond more quickly when pleasant and flower words are paired, than when pleasant and insect words are paired, they have more positive associations to flowers than insects (Karpinski & Hilton, 2001). They suggested that when commonly liked concepts are paired with positive words, people are quicker to respond than when disliked words are paired with positive words.

Greenwald and Krieger (2006) described how dissociations, or differences between implicit and explicit attitudes can often emerge in attitudes towards more stigmatised groups. Furthermore, with regards to race, even when explicit attitudes have not been found, the likely disparities of racial outcomes were suggested to be more likely as a result of implicit bias. Implicit bias has also been linked to a range of discriminatory outcomes in adults, including; less employment opportunities (Bertrand & Mullainathan, 2004) and poorer quality interactions (McConnell & Leibold, 2001). It has also been suggested that they may be supported by different psychological systems, in that implicit bias is context dependent and only changes slowly after time with considerable effort or experience. In contrast, explicit bias is generally independent of context and can change quickly (Devine, Forsher, Austin, & Cox, 2012).

With regards to weight bias, both explicit and implicit weight bias have been found in parents towards children that are overweight (Lydecker, O'Brien, & Grilo, 2018). Fathers have been shown to demonstrate greater explicit bias than mothers. The assessments of implicit and explicit bias, however, were not found to be significantly correlated. They suggested that this was typical of research and may have been due to either unawareness of these attitudes, or due to the social

undesirability of expressing such negative attitudes, particularly towards overweight children. Lydecker et al. (2018) also used this evidence to suggest that it would therefore be important to explore both explicit and implicit attitudes to weight bias, given that explicit measures alone may miss potential implicit attitudes.

In addition to explicit (or overt) and implicit bias, covert bias has also been identified within the literature as another form of potentially more subtle, yet also challenging type of discrimination (King, Shapiro, Hebl, Singletary, & Turner, 2006). Research exploring covert discrimination in the workplace, suggested that covert bias was found in the form of non-verbal behaviours such as laughing, staring, pointing and rudeness (Rosenbaum, Ramirez, & Kim, 2021). In relation to overweight, King et al. (2006) also added this may be found in the form of decreased eye contact and smiling.

Given the different types of bias discussed above, it would therefore be important to consider these different types of bias going forward, given that it can be expressed and manifest in both obvious and direct ways (explicit or overt) and through more subtle, indirect forms of behaviour (covert).

Weight bias in children

The literature suggests that pre-school aged children, from the age of three upwards may display weight bias (Cramer & Steinwert, 1998). Research has found that these manifest through negative descriptions or characteristics attributed to an overweight character, and contrast with positive characteristics that are attributed to a thin or average sized character (Brylinsky & Moore, 1994; Harriger, Calogero, Witherington, & Smith, 2010; Holub, 2008).

Cramer and Steinwert (1998) found that when young children were presented with both a realistic and fantasy story, boys and girls chose the 'chubby' character as

the 'mean' character in the story, and significantly more so than the thin character. Similarly, Su and Di Santo (2012) found pre-school children were more likely to label overweight target characters as 'mean' when using a story-telling task. The children often stated physical, behavioural and emotional attributes as the reason for their choices, such as stating that the overweight character was "fatter" or "bigger". Dunkeld Turnbull, Heaslip & McLeod (2000) found that young children rated overweight characters as less pretty, uglier and that they could not run as fast.

Weight bias has been expressed and explored using a number of different methods. Line drawings have been used to explore weight bias in older children (Nabors et al., 2011) and silhouette figures have been used with younger children (Spiel, Paxton, & Yager, 2012). In the latter study, an array of figures were used ranging from 'very thin' to 'very large'. Children were asked direct questions, such as which figure they would and would not invite to their birthday party, and which they would and would least likely be friends with. Stories were also used describing a child with either positive or negative characteristics, after which the child again selected a figure. They found that children chose larger figures to represent negative characteristics compared to positive characteristics and that this increased with age (from ages three to five years).

The use of line drawings and silhouette figures may be seen as less realistic and more abstract when exploring weight bias. Some studies have therefore used dolls with children to explore weight bias (Worobey & Worobey, 2014). Worobey and Worobey (2014) used different shaped Barbie-like dolls, suggesting that within this age group, learning and knowledge is often developed via interaction with concrete objects. The dolls were the same in face, hair style and outfit, in order to reduce confounding variables, but represented three different body shapes; thin,

average and overweight. They found that the positive characteristics were most often attributed to the thin or average doll and all of the negative traits were most often attributed to the overweight doll. However, limitations of the study were the use of a female only sample, and that due to the popularity of Barbie dolls with young girls, their answers may have been based on the thin doll due to it being most like a regular Barbie they may have owned.

Harriger, Schaefer, Thompson and Cao (2019) also found greater negative attitudes to a 'curvy' barbie doll and more positive attitudes to a thinner barbie doll in young girls aged three to ten years old. The curvy doll was most commonly identified as the doll the children least wanted to play with, with most reasons given in relation to her body size. The authors suggested that future research should utilise a continuous rating scale, as opposed to a forced choice method using positive and negative adjectives so that children have more freedom in their answers and are not forced to make a decision between two, which could therefore overestimate negative evaluation. Children are otherwise forced to label one body type negatively, even if they do not fully agree with this, which would not be evident in this type of measurement of weight bias (Harrison, Rowlinson, & Hill, 2016).

However, even when using rating scales, the overweight character has often been rated the most negatively (Holub, 2008). Musher-Eizenman, Holub, Miller, Goldstein and Edwards-Leeper (2004) also found this when asking young children to place different sized figures along a scale, using a negative adjective on one end and a positive on the other. Adjective ratings for the overweight figures were still rated as the most negative, and no difference was found between the average or thin figure. The overweight figure was also chosen less as a playmate.

Looking times or preferential viewing of pictures is another alternative methodology that has been used to explore weight bias in young children (Ruffman, O'Brien, Taumoepeau, Latner, & Hunter, 2016). They found that the older infants (M=11 months) displayed bias for looking at the overweight figures, whereas the older toddlers (M=32 months) preferred looking at the average sized figures. This suggests the development of weight bias at a younger age than found in previous research. However, the number of children within each age group was small. It was also unclear, whether the looking times may instead relate to the familiarity or novelty of the figure shown.

Weight bias and other visible difference

As highlighted in other research, Charsley, Collins and Hill (2018) suggested that the methodology used would be important when exploring bias and visible difference. For example, methodologies using rank orders of 'liking' suggest preference, but do not reveal how negative these attitudes might be. Therefore, the overweight body shape would be a natural choice in which the negativity is directed. It would therefore be important to include characters with other visible differences, in order to assess whether the assumption is correct in that bias is specific to overweight.

Early research in this area incorporating a range of visible difference, although with older children, suggested that weight bias has been prevalent for some time, and that it was initially highlighted within studies on children's perception of disability (Richardson, Goodman, Hastorf and Dornbusch, 1961). Richardson et al. (1961) asked ten and eleven year olds "tell me which boy (girl) you like best" for six drawings of a child with different physical disabilities, no disability or an obese child. They found that the rank order was uniform across all sets of participants,

with the child with no disability rated first, and the drawing of the child with obesity was generally rated last. This study was later repeated using a wider age range of children from high socioeconomic backgrounds aged five to twelve years of age (Richardson, 1970). Richardson again found that all ages, aside from the youngest age group, reported that they liked the child with no disability the best and the child with obesity was one of the lowest ranked for all age ranges. Richardson (1970) reported that the anomaly in results for the youngest children could have been due to challenges in the task. This included a possibility that they did not fully understand the concept of 'liking' and that they struggled to understand or distinguish between the different physical disabilities and how they were shown, particularly through the pictures used. These challenges would be important to consider in further studies of younger children which may incorporate simpler tasks.

Sigelman, Miller and Whitworth (1986), suggested that Richardson's (1970) results may be evidence for "like me" preferences in children, in that children will prefer other children who they see as similar to themselves as opposed to those who are dissimilar. They suggested that this categorisation or "like me" and "not like me" is a result of how children attempt to not only establish their own identity, but also as a way of understanding their social world. Patterson and Bigler (2006) further suggested that this categorisation, such as by gender or race, can therefore be a way in which children form prejudice.

Other research has also supported the work of Richardson and colleagues in which the obese child was chosen as the least liked in the context of other physical difference (Bacardi-Gascón, Leon-Reyes, & Jiménez-Cruz, 2007; Sigelman, Miller, & Whitworth, 1986). It is possible that over time, these evaluations have become even more pronounced. Latner and Stunkard (2003) found that the overweight child

was ranked the least liked, however, this was even lower than had been found by Richardson et al. (1961). When looking at the difference between the most liked and the least liked, this had also increased by 40%, possibly reflecting the rise in obesity in the current climate, and therefore a rise in the stigmatisation of overweight. This was however, again using ten and eleven year olds.

The exploration of weight bias within the context of other visible difference has also been explored through other means for young children. However, research within this area for younger children is relatively sparse (Harrison et al., 2016). Across two studies, Jaffa and Ma (2014) found that when learning about new facts or physical activity, the children preferred the non-obese, physically abled informant's testimony, as opposed to the obese or physically disabled informants. However, the children's reasons for their choices did not clearly indicate that these were based on physical characteristics of the informant. In the second part of the study, the children were shown that the testimonies of the physically abled and non-obese informants were previously not reliable, whereas the obese or physically disabled informants were reliable. Following this, the children did not show a significant preference for either informant. The authors suggested that it may be that past reliability does not appear to reverse a child's bias towards an obese or physically disabled informant, but that it can challenge it.

Story books have been another way in which this has been explored with young children using characters with healthy weight, overweight and a character in a wheelchair (Harrison et al., 2016). Again they found that the methodology used was important, in that forcing choices between characters suggested children were more negative about an overweight character and the physically disabled character, than when using ratings. In general, there was more negativity towards the overweight

character than the wheelchair bound character, allowing the authors to suggest that weight bias was more prominent than disability bias within this sample of children.

Charsley et al. (2018) explored young children's perception of fatness in the context of other visible differences using a qualitative approach. This involved the children being shown characters who differed by gender, body size, physical ability, clothing and hair style. They were then asked which character was the most different from the standard character, which they would like to be friends with and self-image preferences, as well as justifications for these choices. They found that the overweight, opposite gender and the character in the wheelchair were chosen equally as different to the standard character. Overweight/ body shape was referred to significantly less than gender or being in a wheelchair when identifying differences. Only one child (out of 85) displayed strong negative weight bias, and children were more likely to reject an opposite gender character as a friend or as someone they would like to be, than the overweight character. The authors stated limitations in terms of the inferences that could be made about behaviour towards their peers from drawings of characters. It may not be therefore representative of a real-life situation in which discrimination may occur, as identified in many other methodologies exploring bias.

In summary, children as young as three display weight bias. The above research has highlighted that weight bias had been explored and measured using a number of different methods, including the use of figures or silhouettes, assigning different adjectives for different body sizes and line drawings. The research has highlighted that the methodology used is important, and when using methods such as forced choice, this can lead to children being obliged to label one body type negatively. Similarly, ranking methods do not reveal the extent of how negative the

attitudes might be. Research with older children has also revealed that when compared within the context of other visible differences, such as physical disability, overweight remains the least liked. This has also been found within younger children, however, there remains relatively little research within this area. Bias within children's disability literature will be further considered later. Given the presence of weight bias identified within children, I will next consider the acquisition of weight bias in children.

Acquisition of weight bias in children

Despite the research exploring the age a child might display weight bias and how this bias might manifest, there has been much less attention paid to the acquisition of weight bias in children. Multiple sources have been suggested as contributing to the development of weight bias (Latner, Rosewall, & Simmonds, 2007). These include the media, peers, and parents.

The Media

Within older children aged 10-13, video game use, magazine use and total media use have been found to correlate with more negative reactions to obese girls and boys (Latner et al., 2007). Stereotyping of overweight characters have been found within cartoons and children's films, (Howard et al., 2017; Klein & Shiffman, 2015), which could influence children's perception of weight bias. Although a content analysis by Herbozo, Tantleff-Dunn, Gokee-Larose and Thompson (2004) found that cultural ideals of physical attractiveness and beauty stereotypes were prevalent within children's media, this seemed to be more so within films, but relatively few books were found to promote this. Furthermore, in 64% of films characters with obesity were more likely to be described using negative traits and be disliked by others.

Howard et al. (2017) found that when they examined 31 top grossing children's films, all these films included obesity promoting content, such as unhealthy foods and large portions. 84% of the films displayed weight-based stigma; some of which was verbal and some of which was more covert through the use of visuals and imagery. This included direct verbal insults about body size or weight. In one film, two healthy weight characters are shown together enjoying a meal, whilst a character with obesity is shown eating a burger alone in the background, whose chair then breaks. The authors suggested this was evidence for more subtle weight bias being portrayed. The researchers observed how an extension of this study would be to explore how children interpret these messages, and how stigmatising portrayals of obesity may impact on children's attitudes to weight. This would be applicable for all forms of media where weight bias is evident, but research within these areas appear to be limited.

Other research has found that weight bias in young children was also found when looking at non-human overweight cartoon figures such as aliens (Marx, Kiefner-Burmeister, Roberts, & Musher-Eizenman, 2019). The authors suggested that existing weight bias as related to human figures would therefore act as a script to previously unknown images, as the image used was designed specifically for the study. However, it was of note that the alien image was rated the most negatively overall, and the discrepancy found between the overweight and thin alien image, was smaller than that of the comparison images. The authors suggested that the results may therefore be as a result of a floor effect, as the thin alien was rated more negatively, there was less room for reduced ratings over the overweight alien. Given that weight bias was also found when looking at overweight cartoon figures, this would have implications within children's media and the portrayal of weight bias through characters.

Peers

The role of children's peers in the acquisition of weight bias in younger children is unclear. Some studies have explored the acceptance of overweight peers through peer nomination procedures with older children. They found that overweight children were less likely to receive friendship nominations, and more likely to receive dislike nominations (De La Haye, Dijkstra, Lubbers, Van Rijsewijk, & Stolk, 2017), nominated significantly less as a best friend and rated lower in peer acceptance (Zeller, Reiter-Purtill, & Ramey, 2008). Phillips and Hill (1998) also found that overweight girls were less likely to be nominated by peers as pretty, although they did not differ in terms of popularity.

Although research in younger children has explored the likelihood of inviting overweight peers to a party or who they would be friends with (Spiel et al., 2012, 2016), there has been little research exploring the actual interactions in relation to weight bias between peers.

One exception is the study by Kilmurray, Collins, Catterson and Hill (2019). They explored peer interactions for possible weight bias through a reading task between older children (aged nine to eleven years) and younger children (aged five to seven years). The pairs of children were given a book either about a healthy weight character, or a character with obesity. This contained questions to prompt discussions between the older and younger child. Although they found that the pairs of children reading about the character with obesity made significantly more negative, and fewer positive comments for story completions, they found little evidence that older children coached younger children in weight bias. The authors found some evidence for more subtle, possibly covert bias, in that there was more laughter when reading about the character with obesity compared to the healthy weight character. However, this still did not reveal any direction of transmission.

Parents

During a child's development, parents are one of the most important influencers and therefore socialising agents of the child (Harkins & Ray, 2004). Research has highlighted that the communication and sharing of attitudes and beliefs between parents and children is apparent within other areas, such as within mental health (Mueller, Callanan & Greenwood, 2015), and race and ethnicity (Hughes et al., 2006). However, much of the research within the latter area has explored socialisation through parental self-reports.

In the present context, parents undoubtedly influence their children in several different ways. For example, from direct comments, criticism and teasing, observed engagement in behaviours such as dieting and exercise (Rodgers & Chabrol, 2009) and from the observed modelling of evaluating or criticising their own bodies or others bodies (Holub, Tan, & Patel, 2011). The influence of parents on children's attitudes to weight bias will be explored in detail, specifically with regards to if and how this transmission might occur between parents and children.

Most existing research has assumed transmission by looking at, and finding concordance between, parent's attitudes and children's attitudes (Damiano et al., 2015; Holub et al., 2011; Ruffman et al., 2016; Spiel et al., 2016). These have all used slightly different approaches. Research has found an association between young boys selecting fatter figures for negative characteristics and thinner figures for positive characteristics, and their fathers displaying weight bias in questionnaire measures (Damiano et al., 2015). Maternal anti-fat attitudes, also measured through questionnaires, have been found to significantly correlate with older toddlers preferential looking at average sized figures (Ruffman et al., 2016).

Parental individual difference factors have also been used to explore concordance (Holub et al., 2011). They found that factors including authoritarian parenting, dislike of overweight children, and fear of fat were found to be related to children's weight stereotypes, with mothers' own fear of fat being found to be the best predictor of children's anti-fat attitudes. Finally, concordance has been explored via self-report body size attitude and dieting measures (Spiel et al., 2016).

Methodological challenges have been highlighted in the research above. One of the main ways in which studies have explored parental weight bias is through the use of self-report questionnaires, either directly in relation to weight bias, or exploring other factors, such as attitudes to dieting. These are at risk of social desirability, and given that people will generally not want to appear to show bias, people may be more cautious with how they respond. Another issue is that the parent and child weight bias measures used are different, and therefore it is unclear as to whether they are both actually measuring the same thing, which again limits conclusions that can be made. Despite associations being found, correlational measures were used, which therefore makes it impossible to ascertain cause and effect.

Some research has not found a concordance between parent and child weight bias (Davison & Birch, 2004; Hutchison & Müller, 2020). Although Davison and Birch (2004) did not find an association between parents' stereotypes and their daughters' stereotypes of weight bias, the girls were more likely to express negative attitudes about obesity and obese people when interactions with parents and peers focussed on body shape and weight loss. However, this study was looking at girls who were aged nine. Furthermore, Hutchison and Müller (2020), suggested

differences in weight bias measures used may account for the differences found in terms of concordance.

Although much of the research has found concordance between parent's attitudes and their children's attitudes to weight bias, these have not explicitly explored the direct transmission or communication of weight bias between parents and children, or displayed evidence for this. Before considering in detail the study by Adams et al. (1988), which is the only known study to have considered direct transmission of weight bias between parents and their children, I will consider the transmission process in more detail, together with the factors that may influence transmission of weight bias.

Social learning and socialisation

Ruffman et al. (2016) suggested evidence for socialisation, in which parents' anti fat attitudes are communicated via social learning to their children. Other researchers have also discussed how social learning theory may play a key role in how weight bias is communicated between parents and their children (Hutchinson & Müller, 2020; Spiel et al., 2016). Social learning theory would suggest that through observation, imitation and modelling, children learn through their parents (Bandura & McClelland, 1977). This can influence both their attitudes and beliefs, as well as their likelihood of engaging in certain behaviours. Klein and Shiffman (2015) therefore suggested that young people would learn about social expectations of body weight and what is seen as ideal and less acceptable, as well as the social consequences of what may happen from being overweight, from weight-related content that they hear from others.

More specifically, in relation to prejudice, Allport (1954) suggested that this occurs via two different processes by socialisation of parent to child. Firstly, by

parental prejudices being transmitted by direct gestures and words, and their beliefs and views that naturally accompany this. Secondly, that prejudice is formed by the atmosphere created by the parents. This would therefore be expected to lead to children either imitating parental prejudicial attitudes or because “parents recreate environmental circumstances in which the child forms the same attitudes his or her parents have” (Degner & Dalege, 2013, p. 1271). A meta-analysis by Degner and Dalege (2013) found that within a range of different prejudicial attitudes, children’s attitudes closely reflected the attitudes of their parents. However, they reflected on difficulties within analyses used in concluding that these were as a result of parental socialisation. For example, the use of correlation in studies may only highlight that high scores represent a shared variance as opposed to a similarity in views. They also suggested difficulties in the direction of these influences, for example, the extent to which they can be explained as parent-child influences, child-parent influences, or a mixture of both. The authors also discussed other mediating variables that may affect our understanding of parent-child influences, such as genetic factors and the impact of wider systems around the child.

Factors affecting possible transmission

Research has suggested a gender-linked model to explain why parents and children may share attitudes to weight bias. For example, a relation between mothers’ attitudes to weight and daughters’ attitudes, and a relation between fathers’ attitudes and their sons (McCabe & Ricciardelli, 2005). Spiel et al. (2016) also considered the possibility of a dual-influence model, in which both parents have an effect on their child’s attitudes, rather than either one parent alone being solely responsible. They suggested that this may be either in an additive or cumulative way.

In younger children there is evidence to support the suggestion of a gender-linked model, particularly in relation to father's attitudes and their sons (Damiano et al., 2015; Spiel et al., 2016). Damiano et al. (2015) also found support between girls and their mothers; an association was found between girls selecting positive characteristics for thinner figures and greater maternal dietary restraint, thus suggesting that parental eating behaviours may influence children's weight bias. Contrary to this, Hutchison and Müller (2020) found that one measure of father's dislike of overweight people was associated with girls who described overweight children in a more positive way. However, this was only a moderate association, and as with the previous studies of concordance, does not allow for establishing cause and effect. Some research has only included mothers in the study, and so the concordance identified cannot be distinguished between parents (Holub et al., 2011; Ruffman et al., 2016). The evidence overall is therefore limited.

It has been suggested that parental beliefs about the cause of obesity, and their own fear of fat, such as body weight concerns, are important. This is due to evidence that parental weight bias was more likely to exist if they felt the overweight person had control over their weight (Hutchison & Müller, 2020). There were no significant correlations between children's weight bias and the responses from their mother or father. Holub et al. (2011) also explored parental beliefs, specifically around personal controllability of obesity. Although they found that mother's beliefs around personal controllability for weight was related to their dislike of the overweight target, these were not found to relate to child attitudes. Mother's fear of fat was however, found to be a predictor of children's attitudes.

Other research has sought to explore weight based communication between parents and their children, and it is therefore another important area in terms of

whether this may impact on transmission of weight bias between parents and their children. These few research papers have mainly considered this in relation to older children. Davison and Birch (2004) found that nine year old girls were more likely to express negative attitudes about obesity and obese people when interactions with parents and peers focussed on body shape and weight loss. Specifically, when their mothers placed an emphasis on being thin (e.g. encouraging them to lose weight, criticising them about their weight and or restricting access to food to promote weight loss). Berge, Hanson-Bradley, Tate and Neumark-Sztainer (2016) also found that fathers negative weight-based talk was more likely to centre around specific parts of the body as a way of highlighting the need to lose weight. Mothers tended to focus on food within their comments, which led the authors to suggest that different family members may use different types of negative weight-based conversations.

Pudney, Himmelstein and Puhl (2019) found that parents' experience of weight stigma was indirectly associated with the frequency of child-centred (aged two to seventeen years) weight conversations and parental weight comments about themselves and other people. Parents' internalised weight bias was found to mediate this. Furthermore, fathers were found to engage in more conversations about weight and make more comments about other people, when compared to mothers. Although it was not explored in this study, it would be important to consider the effects of this communication on children. Limitations that relate to all the above research highlights that none of the studies have actually looked at the direct communication between parents and children, and have instead explored this through parental self-report and surveys. This therefore relies on the accuracy and truthfulness of parental reporting. Not all of the studies were exploring weight bias per se.

Another issue raised, is that perceived family criticism of body shape by children may be inaccurate, in that those who are more sensitive to such criticism may perceive things differently to what was intended (Rodgers & Chabrol, 2009). This may result in some measures of parental influence being unreliable, where perception is focused on. Despite this, it does suggest that the perception and interpretation of parent's attitudes would be important to consider in terms of how they influence their children's attitudes. However, this review was also more specifically considering the parental influence on body image disturbance and disordered eating, rather than weight bias per se.

In terms of weight bias, the only study that has reported on the direct transmission of weight bias from parents to children, and therefore will form the basis of this study, is that by Adams, Hicken and Salehi (1988). They explored the socialisation of the physical attractiveness stereotype, using semi-structured storytelling between parents and their child. They used a within-subjects design whereby parents were asked to tell three stories to their child, based on a child in a picture that was going to school for the first time. The picture was of a child either 'average' weight (and non-disabled), overweight, or physically disabled (missing a portion of their arm). Through comparisons of the verbal content of the stories, they found significant differences between the way parents talked about the characters to their child. Although parents portrayed all three types of children as having some problems, the percentage of overweight children that were presented as having major problems was 20%, compared to none of the average weight children. References were frequently made with regards to the physical features of the overweight child (31 references), compared with no references made to the physical features of the average weight, non-disabled character. Furthermore, an equal number of positive and negative descriptions were used about the overweight child,

whereas more positive than negative descriptions were used about the average weight child. Peer reactions in the stories were presented as extremely negative towards the overweight child, and they were also presented as being most negative in their self-esteem and self-concept.

In terms of the stories about the child with a disability, 67 references were made to their physical features, and 80% of the children were regarded as having major problems when going to school; both of which were higher compared to the stories about the overweight child. Parents used more positive than negative descriptions about the disabled child, which differed to the overweight child, however, peer reactions in the stories were presented as extremely negative, which was similar to the overweight child. In terms of behavioural outcomes of the stories, the disabled child was overwhelmingly successful (80%), whilst the overweight child was either unsuccessful (35%) or ambiguous (65%). The average child was presented as either successful (45%) or ambiguous (45%).

Given the results, the authors suggested that children may experience parental socialisation about physical appearance, particularly within a story-telling context, which in turn encourages their internalisation of this stereotype. This is in line with the social learning theory mentioned earlier.

The weaknesses of this study are that no demographic information, or information about the parent or child's weight or possible disability were collected, or their contact or familiarity with others who are overweight or disabled. The age of the study may have had an impact on the results, as attitudes may have changed over time, in line with current obesity prevalence rates and widespread equality and diversity policy. Similarly, parenting styles may have changed over the last 30 years and therefore the way in which parents might communicate ideas might be different. The study used a within subjects design where parents were asked to tell multiple

stories about the different characters, and so it is unclear as to whether this may have alerted them as to what the study was looking at, therefore affecting the results. The Adams et al. (1988) study also took place in a child development laboratory, and so this unnaturalistic setting may have affected the mother's stories due to them being aware of being observed. Although negativity towards the child with obesity and a disability did still emerge, it is unclear as to whether mothers may have produced further biases if they had been in a more naturalistic setting.

The research described in the previous section not only reveals the lack of research exploring the direct communication of weight bias, but also the difficulties in carrying this out. It would appear that the study by Adams et al. (1988) shows promise in terms of using a story telling method in which to explore this and therefore the ability to explore the direct communication style of parents, in which to explore weight bias. Furthermore, the methodological weaknesses highlighted in the Adams et al. (1988) study highlight areas in which this study could therefore be taken forward and improved. Given that visible difference has been previously used in studies of weight bias to explore whether bias found is just in relation to weight or visible difference per se, it would also be important to include this going forward. Therefore, the following section will consider existing research in relation to disability bias, given that this will be incorporated within the current study.

Visible difference and bias

Disability bias

Studies that have looked at disability bias in young children have been mixed in outcome. A meta-analysis found that typically developing school-aged children display negative attitudes to those with disabilities, with a preference for target children without disabilities, when compared to children with disabilities (Nowicki

& Sandieson, 2002). More recently, a study focusing solely on disability found that although typically developing young children highlighted that they would prefer to befriend a child without a disability in a visible preference task, they were not negative about the prospect of actually doing so (Huckstadt & Shutts, 2014). Furthermore, some research has found positive attitudes to those with disabilities, however, this did not reflect their reported friendships with other children with disabilities (Dyson, 2005). Other studies have found no difference in attitudes to target children with or without a physical disability for children aged four to ten (Nowicki, 2006).

Research has explored children's contact and beliefs about children with disabilities. Okagaki, Diamond, Kontos and Hestenes (1998) found that children reported that they would hypothetically be as likely to play with children with and without a disability (physical or language disability), which was also found to be the case within a school setting. They also found that children's willingness to play with a child with a disability, along with parents' beliefs about modelling interactions with children with disabilities, and parental expectations for prosocial behaviours were related to children's actual interactions with classmates with disabilities. Similarly, parents who were more likely to rank modelling involvement with children with disabilities as their preferred strategy in the parent-child stories had children who spent more time interacting with children with disabilities. It is possible that these results were found due to the idea that parents who enrolled their children in inclusive programmes were more likely to have positive attitudes to people with disabilities than parents who did not. Other research has also found children's exposure to people with disabilities to be associated with more positive attitudes to disability (Armstrong, Morris, Abraham, & Tarrant, 2017; Armstrong,

Morris, Abraham, Ukoumunne, & Tarrant, 2016; Macmillan, Tarrant, Abraham, & Morris, 2014), particularly in terms of inclusion programmes within schools.

Other research has explored acceptance and preference of target children with and without a disability through hypothetical choices of play mates (Demetriou, 2020). The majority of young children in this small scale study chose the hypothetical child in a wheelchair as a playmate, even when the type of play involved mobility. Thematic analysis highlighted preferences were mainly based around empathy and morality. Many of the children reported that the children in the wheelchairs were “sad” and “isolated”, suggesting that those in a wheelchair would be disadvantaged. The small, predominantly lower to middle socioeconomic sample of Cypriot children would therefore be limited in generalisability, and the answers given may have been as a result of social desirability.

As with research exploring young children and weight bias, difficulties have been highlighted in the way that this is measured and explored in relation to young children and their attitudes to disability (Yu, Ostrosky, & Fowler, 2012). For example, the abstract nature of talking about hypothetical peers with disabilities using dolls and pictures. It would, however, appear that children’s contact with others with disabilities is important in terms of attitudes formed, often having a positive effect on their attitudes. This area has received less attention within the obesity literature.

Acquisition and communication of disability bias

Some research, albeit scarce, has explored the role of media in terms of children’s attitudes to disability, with some finding a positive portrayal of disability as having a positive impact on children’s attitudes (Glauberman, 1980). However, within children’s television, physical disability is often rarely represented

(Cumberbatch and Negrine, 1991). This was also found more recently by Bond (2013); however, when characters with a physical disability were represented, they were often depicted as morally good, attractive and satisfied with life.

Although there is limited research exploring parental influence on children's attitudes towards disability, it could be assumed that it is similar to what has been suggested within the weight bias literature. Such that values and beliefs may be communicated within interactions with their children and others, which in turn may influence them (Hong, Kwon, & Jeon, 2014). Research exploring inclusion programmes within mainstream schools for children with disabilities has explored this further. Bricker (1995) suggested that within inclusion programs, training should aim to make adults more aware of how their words and actions can influence young children's attitudes towards those with disabilities. Furthermore, Lieber et al. (1998) suggested that some teachers endorse their positive beliefs about inclusion by teaching about individual differences, such as disabilities, and answering children's questions. The authors suggested that values and attitudes about children with disabilities can be communicated through both the tone and content of responses given to children. Research has also suggested that attitudes and beliefs can be communicated by parents to their children through how they answer questions about disability with their child (Stoneman, 1993).

Research exploring whether there is an association between parents' attitudes to disability and children's attitudes have been limited and mixed in results. Hong et al. (2014) did not find a significant association between parents' attitudes and their young children's attitudes. However, different measures and concepts of attitudes to disability were used for children and their parents. Earlier research found an association between child and parental attitudes to disability when children were

aged five and six (Katz & Chamiel, 1989) and parents' attitudes were found to be a significant predictor of children's behavioural intentions towards a hypothetical classmate with a physical disability (Roberts & Lindsell, 1997). In older children, perceptions of parental behaviour were found to be a predictor of children's attitudes to disability (Hellmich & Loeper, 2019). As with weight bias, there also appears to be limited research exploring, not only if, but how attitudes towards disability might be communicated between parent and child.

Research that has attempted to explore this parent and child communication has asked parents about how they interact with their children about disabilities (Yu, 2019). Although they did not find an association between parents' attitudes and children's attitudes, parents' attitudes were significantly correlated with their previous experiences of people with disabilities. Although nine parents reported that their child had asked them questions about physical disability or challenging behaviour, Yu (2019) found that only four parents responded when asked how they communicate or respond to their child about disabilities, and often their responses were short and lacking in detail.

With regards to communication of disability, other research has found that some mothers avoided their child's questions when discussing disability using reading books with parents and their children (Park & Ostrosky, 2014). Some negative comments were made by both the parent and the child in relation to having a disability; this was found more so in the low socioeconomic status (SES) group. The authors also found no correlation between the frequency of comments about disabilities by the mother or child and their attitudes, although mothers and children in the high SES group spoke more about disabilities than those in the low SES group. Mothers were aware that the study was to promote acceptance of diversity in

their children and so this may have affected how they communicated with their child about disability. The books read with the children were also not consistent between them, with some looking at different types of disability. This could have influenced how they spoke about the disability with their child. It would also be important to include fathers in future research, given that they could also influence their child's attitudes and beliefs.

The only known study to have explored the direct communication of disability between parents and children is that by Innes and Diamond (1999). The authors explored the ways that mothers talked to their preschool children about a child with physical disabilities and a child with Down Syndrome, using the same story-telling methodology as Adams et al. (1988). They also looked at the relationship between the mothers' comments and their children's ideas about disabilities. They found that mothers made significantly more comments and asked more questions about the child with physical disabilities, than the child with Down syndrome; this was also found to be the case for children during the story-telling task. The authors suggested that this may have been due the equipment in the photograph, like the wheelchair, that gave the mothers more to talk about. They also suggested that children may not have been sensitive to the differences within the photograph of the child with Down syndrome, and so there may have been more conversation if this had been a real-life situation. They found that children who made more comments about the child with a physical disability were rated by their teacher as interacting more with their peers with a disability. The coding used as part of the analysis, did not appear to specifically allow for the authors to discuss the nature of the comments made, for example, whether these were of a positive or negative nature. Completing the story-telling task at the child's school may have made the mothers more aware of what they were saying within the task, and given

that it was a within participants design, they may have been primed to what the study was about, which is a key limitation within the study, as found in the study by Adams et al. (1988). They also suggested that parents that allowed their child to make more comments during the story, may have used this to be able to shape their child's ideas and beliefs further than if they had just taken the lead in the story themselves, through their responses. However, the analysis used did not allow them to support this. Again, this study shows promise in terms of using a story-telling method to explore visible difference, however methodological limitations were highlighted.

Overall, research has found mixed results with regards to whether children show bias towards those with disabilities, as well as whether there is an association between parental and child attitudes. As with weight bias, very few studies have begun to explore how parents might communicate with their children about visible difference; specifically physical disability, aside from that by Innes and Diamond (1999).

Gaps in the literature

The above research has suggested that weight bias can be observed in young children, and that this is also the case within the research exploring weight bias in the context of other visible differences, such as physical disability (Richardson, 1970; Richardson, Goodman, Hastorf, & Dornbusch, 1961). However, research around weight bias in the context of other visible differences is sparse when considering younger children (Harrison et al., 2016). Studies exploring disability bias have been mixed in terms of attitudes found, with some finding negative attitudes (Nowicki & Sandieson, 2002), some finding no differences in terms of preferences between able bodied target children, and target children with disabilities

(Nowicki, 2006), and some preferring to befriend children without a disability, but that they were not negative about the prospect of actually doing so (Huckstadt & Shutts, 2014). This suggests, along with the weight bias literature, evidence for children having “like me” preferences in which they prefer other children that they see as similar to themselves (Sigelman et al., 1986).

Research, although limited, has begun to explore the acquisition of weight bias in young children, in which the media, peers and parents have been considered. Evidence for a socialisation process of attitudes and beliefs between parents and children has been suggested, not just in the weight bias literature (Adams et al., 1988; Hughes et al., 2006; Ruffman et al., 2016). However, most research in relation to the socialisation and therefore transmission of attitudes between parents and children has simply observed some concordance between these attitudes. A few studies have attempted to explore the communication of weight bias. However, this has not been direct communication but through self-report measures, which relies on the accounts of parents and perceptions (Pudney, Himmelstein, & Puhl, 2019).

The only known studies to have explored the direct communication between parents and their children around weight and disability so far are those by Adams et al. (1988) and Innes and Diamond (1999), albeit Innes and Diamond (1999) explored different types of disabilities. Both of these studies highlight the promise of a story-telling method, in which to explore this communication, in a more naturalistic way. Furthermore, story-telling has been identified as a means of bonding, that allows parents to transmit culturally specific roles and values to their child (Harkins and Ray, 2004). Adams et al. (1988) suggested that a story-telling method would be a way of observing the communication of stereotyped information in a discreet way, whilst also allowing for such behaviour to occur naturally, should

it exist. Story-telling is also a dynamic process between parents and children (Horst and Houston-Price, 2015), and given that Innes and Diamond (1999) found similarities between questions and comments from parents and children, it would be appropriate to explore aspects of the children's behaviour within the current study.

Given the time when the Adams et al. (1988) study was conducted, the changes in obesity prevalence rates, possible parenting styles, attitudes towards obesity and widespread equality and inclusion programmes, it would appear fitting to extend this study. Similarly, it would prove useful to address some of the methodological limitations that have been highlighted, particularly given both studies used a within participants design, and story-telling took place in laboratory settings.

The study will focus on parents of young children, in Reception and Year one, due to a number of reasons. Firstly, studies exploring weight bias in young children within the context of other visible differences are relatively sparse within this age group (Harrison et al., 2016). Furthermore, studies specifically exploring the acquisition of weight bias in young children are also rare. Finally, most importantly, given that negative attitudes to obesity have been found in children as young as three (Cramer and Steinwert, 1988), it would be important to focus on how parents communicate with their children from a young age, when biases and attitudes to difference are likely to be forming.

The aims of the present research therefore are to examine whether and how bias in relation to visible difference is communicated between parents and their children. Bias towards those with overweight or physical disability will be examined in a story-telling task, using the Adams et al. (1988) framework as a guide. Explicit (overt) bias and more subtle forms of covert bias will be considered within the

communication and interaction between parents and their children, given that it has been identified as important to explore different types of bias (Lydecker et al., 2018). Given that some research has suggested attitudes may be communicated or shaped when parents answer questions from their children during conversations (Stoneman, 1993) and allow them to make comments (Innes & Diamond, 1999), both story content and the interaction between child and parent during the story will be considered. And in line with previous research, parental attitudes to weight and disability will be explicitly explored through questionnaire assessment.

Aims of the present study

The present study aims to examine how bias in relation to visible difference is communicated between parents and their young children. This will be examined in a story-telling task between a parent and their child. It aims to address the gaps in the literature as noted above.

The primary research questions were:

1. Are there differences in the story construction, content, and telling of a story when the central character is overweight or physically disabled, compared to a non-disabled or healthy weight character?
2. Are parental characteristics such as their own attitudes towards overweight and disability related to features of their story telling?

It is hypothesised that:

- Shorter story length, reference to physical characteristics of the character, and negativity in story features will be more apparent in the stories constructed about the visibly different characters, especially so for the overweight character.

- Markers of covert bias (e.g. shorter stories, laughter) will be more apparent than overt bias (e.g. negativity in story feature).
- More negative parental attitudes to overweight/disability will be associated with greater bias.

Method

Design

The study used a between groups experimental design with three conditions (healthy weight, overweight and physically disabled).

Story-telling task

The story-telling task was informed by that developed by Adams et al. (1988). Modifications were made. In order to reduce priming, participants were asked to make up and record just one story.

Participants were assigned to one of three conditions and therefore received a picture of one character out of a possible three different characters. The character either had no visible difference (healthy weight and able bodied), or with a visible difference and depicted as either overweight or as a child in a wheelchair. These were stylised drawings of children (please see Appendix 1) that had previously been used in another study (Harrison et al., 2016) exploring weight bias. Characters were gender matched to the participant's child, with participants receiving either 'Alfie' (male) or 'Alfina' (female). Participants were randomly allocated to one of the three conditions. For females, as participant consent was gained, they were randomised in a fixed order of healthy weight character, overweight character and then character in a wheelchair. This was reversed for participants with male children.

Participants

Participants were all caregivers of children. This included 26 parents and one characterised as 'other' caregiver (childminder). Participants were 26 females (96.3%) and one male (3.7%).

Participants were recruited directly through schools and via social media. They were also recruited through parent networks and snowballing. 47 Schools were approached by the researcher, out of which three agreed to take part (Appendix 2). Parents of all children in Reception and Year one were given brief information about the study and a link to the Online Survey which included the participant information sheet detailing what the study was about, along with what was involved (Appendix 3). This also contained a consent form for participants to complete, and asked for the participants' name, their child's name, the participants' telephone number and email address, as well as their relationship to the child. Participants who were recruited via social media were given the online link to the same Participant Information Sheet, containing the consent form that was given to schools.

Ethical approval

The study was granted ethical approval by the School of Medicine Research Ethics Committee (SoMREC) on 7th July 2020 (Ref: MREC 19-054) (Appendix 4).

Measures

Demographic/ background information

Demographic and background information was collected via Online Surveys. This is an encrypted and secure data collection method which meets national standards for data protection and confidentiality. It is frequently used for University research projects across the UK.

Information was collected regarding participants' age, gender, ethnicity, height and weight, highest level of education, relationship to the child, annual

household income and whether they considered themselves to have a disability. The age of the child and the school class year was also collected. The following measures were included in the survey:

Body size rating scale

The Body Figure scale (Collins, 1991) was administered as part of the Online Survey. This pictorial scale features seven preadolescent figures of increasing body size for both males and females, ranging from 'very thin' to obese' and labelled one to seven respectively. Although this was initially developed to be used by children, within this research, participants used this to estimate the body size of their child. This may need to be interpreted with caution, as some research has found that parents often misperceive the weight of their child, such as not recognising when their child would be classified as overweight (Doolen, Alpert, & Miller, 2009; Gray et al., 2007). Participants selected from a drop down menu the number they felt that best corresponded to the number representing the body shape of their child.

Attitudes to visible difference

An adapted version of the Attitude to Disability Scale (ADS; Power et al., 2010) was used to assess attitudes to visible difference. The original scale has been found to have good psychometric properties and used to assess attitudes of a healthy sample, as well as people with an intellectual or physical disability. Cronbach's alpha demonstrated good internal consistency at 0.79 (Palad et al., 2016). Items were reworded to be relevant to assessing attitudes to those with a disability, people who are overweight, and those with depression and to create a 12-item scale. Questions around people with depression were added in to take the focus from people with obesity or people with a disability. These items were removed prior to analysis,

leaving an eight item scale. Answers on a five point rating scale ranged from one (strongly disagree) to five (strongly agree) for positively worded items, and reversed for negatively worded items. Higher scores on this measure represented more positive attitudes, and lower scores represented more negative attitudes. The minimum value possible was eight, and the highest possible value was 40. This was also explored separately for disability and weight bias questions, with each having a minimum score of four and a maximum score of 20. Participants completed this following the completion of the story-telling task in order to reduce any priming to the study. Please see Appendix 5 for Online Survey.

Procedure

Participants who provided consent were contacted by the researcher via email within 48 hours. They were sent an electronic participant information pack which contained: an information sheet detailing instructions as to how to carry out the story-telling task (Appendix 6), picture of the character they had been allocated, along with prompt pictures to be used in the story. They were also given a separate information sheet detailing how and where to record the story, and how send the audio recording depending on their type of device (Appendix 7).

The instructions recommended that the task was undertaken whilst sat side by side with the child in an evening when a child might usually be read a story. The theme of the story was 'A School Trip'. The reverse side of the instructions contained the allocated character, along with six prompt pictures. They were asked to include at least four of these in their story. The prompt pictures remained the same across all conditions. It was recommended that the pictures were visible to both the parent and the child whilst the story was being told, either by using a paper

copy or looking at them on an electronic device. Participants were asked to start by saying to their child “Is it ok if I tell you a story?”, and awaiting their reply, in order to gain assent. It was then suggested that participants could start their story with “I’m going to tell you a short story about ‘Alfie/Alfina’ who went on a school trip...”.

All participants were given the option of having the materials posted to them, of which nine requested this. Participants were offered further support at this time, either via telephone or email. Following the completion of the story-telling task and the receipt of the audio recording, participants were emailed and were recommended to delete their recording from their phones and emails. Within this email they were then sent a link to complete the final Online Survey. This involved being asked to complete demographic and background information about themselves and their child, along with completing the questionnaire about their attitudes towards visible difference. This was completed after the story-telling task, in order to reduce priming to the study. Participants had to complete both parts of the study (Online Survey as well as the story-telling task) to be included as a completer.

All participants who volunteered to take part in the study were sent up to two email reminders to complete the task, following the initial materials being sent to them. These were approximately two to three weeks apart. Schools that gave consent to take part were also asked to send out the link to the participant information sheet again, as a way of reminding any other parents that may not have signed up the first time.

Pilot study

Public involvement and service user involvement was sought from both supervisors (as parents), and friends of the research team who had children, in order to refine materials being used in the study, and to make sure these were usable and accessible. Following this, a small pilot study was undertaken using another participant with a child of the relevant age in which the study was carried out. Minor changes were made to the instructions within the study materials and on the Online Survey. For example, highlighting that the participant was required to make up a story with their child, and using a drop down box with ranges to select annual household income, as opposed to free text.

Analysis

The stories were transcribed verbatim by the researcher into Microsoft Word. They were analysed using content analysis. The stories were coded using frequencies, employing a similar framework to Adams et al. (1988). The following dimensions were coded: references to physical appearance of the central character, attributes/descriptions used by valence in relation to the central character, story theme, behavioural outcomes and peer interactions, all in relation to the central character. The duration of story length was also noted. Coding only included the narrative of the participants (parents), aside from the behavioural outcome, which in some instances incorporated the child's narrative/ reaction which gave the parent's narrative further context. In order to capture interactions between the parent and their child, the frequency of dyad laughter occurring, the story reader inviting the child to speak, and the number of the interruptions of the child were noted (Table 1). See Appendix 8 for full coding frame and examples.

All the stories were coded initially by the researcher. Three of the stories (11.1% of the sample) were independently coded by a second person in order to ascertain intercoder agreement and ensure reliability of coding. A high level of initial agreement was found, at 89.9% for the primary outcomes. Following this, coding was adapted iteratively with agreed additional descriptions for codes for transparency for future research.

The demographic information, survey data and coding of the stories were entered into IBM SPSS Statistics 26. Differences between the three conditions were explored for the overall total references to physical appearances, overall total references in relation to attributes/ descriptions, the mean length of stories and the questionnaire scores. In order to ascertain whether to use parametric or non-parametric tests, parametric assumptions were first explored. This included looking at the distribution of the data using histograms, as well as a test of normality (Shapiro Wilk) and whether there was any variance between the three conditions to ensure they had met the assumption of homogeneity of variance. See Appendix 9 for example looking at tests used for overall attributes/ descriptions of the central character. Where parametric assumptions were met, a one way independent ANOVA was used, and where parametric assumptions were not met, the non-parametric equivalent, Kruskal Wallis H tests were run, in order to explore differences.

Z-scores were used to examine differences in proportions in the story features in terms of valence (references to physical appearance and attributions/ descriptions of the central character), using pairwise comparisons, between the overweight condition and the healthy weight condition, and the overweight and the

character in a wheelchair. These were calculated using a Z score calculator ([Z Score Calculator for 2 Population Proportions \(socscistatistics.com\)](http://socscistatistics.com)).

A one way independent ANOVA was used to compared the difference in ages of the participants between the three groups. Chi-squared tests could not be performed to compare demographic variables between the three groups, as assumptions were not met; frequencities were less than five.

Correlations were used to explore relationships between parental weight bias or disability bias (using questionnaire scores) and story structure and content; specifically length of the stories and negative attributes/descriptions within the stories. Parametric assumptions were explored, and where these were met, Pearson’s correlation coefficient, were used due, and where these were not met, the non-parametric equivalent, Spearman’s correlation was used.

Table 1: Coding: Primary outcomes coded along with definitions and how these were measured; non-verbal behaviour and child behaviour defined and measured

Primary outcomes	Definition	Measurement
Reference to physical appearance of the central character	Frequency of reference to physical appearance and of obesity/ physically impaired or other physical appearance/ difference, only in relation to the central character. Subcategories: <ul style="list-style-type: none"> • Reference to/ description of item of/ clothing worn by the central character • Reference to body shape/weight of central character • Reference to body in relation to physical disability/ comment about using a wheelchair of central character 	<ul style="list-style-type: none"> • Overall frequency of references to physical appearance. • Overall frequency of references to body size/ weight. • Overall frequency of references to body in relation to physical disability/ comments about wheelchair. • Overall frequency of references to/ descriptions of clothing. • Coded as positive, negative or neutral

<p>Attributes/ descriptions by valence about the central character</p>	<p>The identification of socially desirable (positive) or undesirable (negative) attributes or descriptions (feature/ quality/ characteristic/ skills/ activity/ what the child is doing/ behaviour/ what happens to the child) in adjectives or phrases about the central character only. Specific mentions of either the character by name, or he/ she.</p> <p>Valence/ emotional tone used in descriptions of the central character</p> <ul style="list-style-type: none"> • Positive: Positive descriptions used in adjectives/ phrases about the central character. These would be socially desirable in nature and might be qualities/ skills the child possesses, specifically about what they were doing/ an activity/ what happens to the child. Positive tone used. • Negative: Negative descriptions/ attributes used in adjectives or phrases about the central character. These might be socially undesirable in some way or describing the character or their actions/ the situation/ behaviour in a negative way. Negative tone used. • Neutral: Neutral descriptions used in adjectives/ phrases about the central character. Absence of emotional tone, neither positive or negative. 	<p>Frequency of attributes/ descriptions made about the central character.</p> <ul style="list-style-type: none"> • Overall frequency of positive attributes/ descriptions of the central character • Overall frequency of the negative attributes/ descriptions of the central character • Overall frequency of the neutral attributes/ descriptions of the central character
<p>Overall theme of the story in relation to the central character</p>	<p>Do the parents present the character as having:</p> <ul style="list-style-type: none"> • No problem: character has no problems during the story • Minor problem: simple uneasiness easily overcome by the child • Major problem: great discomfort by the child, a condition if left unresolved that would be damaging to the child’s mental, social or emotional health. 	<ul style="list-style-type: none"> • Frequency of stories where children have no problem • Frequency of stories where character has minor problem • Frequency of stories where child has major problem
<p>Behavioural outcome of the central character</p>	<p>Is the behavioural outcome/ ending of the story for the central character presented as positive, negative or neutral.</p> <ul style="list-style-type: none"> • Positive: The ending of the story for the central character is described positively/ successful, e.g. the child wins an award for something they have done/ has a good time/ makes new friends/ gets to read a story to the class/ couldn’t wait to tell their parents about how good a time they had. • Negative: The ending of the story is described negatively/ unsuccessful for the central character, e.g. something bad happens to them/ they fall out with their classmates/ get sent home early for misbehaving. • Neutral: The ending of the story for the central character is neither positive or negative/ unclear (central character not referred to specifically) 	<ul style="list-style-type: none"> • Overall frequency of positive behavioural outcomes • Overall frequency of negative behavioural outcomes • Overall frequency of neutral outcomes
<p>Peer interactions</p>	<p>Peer reactions towards the central character. Also interactions between peers and the central character (e.g. mentions of playing together), specific mentions of friends/ best friends. Only specific mentions included where central character and friends mentioned. For example “they did X” was not coded, as this was more ambiguous as to who was being referred to. Interactions coded as:</p>	<ul style="list-style-type: none"> • Overall frequency of positive peer interactions • Overall frequency of negative peer interactions • Overall frequency of neutral peer interactions

	<ul style="list-style-type: none"> • Positive: Positive interaction between central character and another child, or positive reaction from peer towards central character. • Negative: Negative interaction between the central character and another child, or negative reaction from a peer towards central character • Neutral: Neutral interaction between central character and peers, or neutral reaction from peer towards central character. Mentions of friends/ best friends but no specific reaction mentioned. 	
Length/ duration of the story	The amount of time that the story the participants tells, lasts.	<ul style="list-style-type: none"> • Overall length of story (seconds)
Non-verbal/ child behaviours		
Dyadic laughter	Laughter between the parent and child during the story	<ul style="list-style-type: none"> • Frequency of laughter occurring in the story
Child interruption	The number of times the child speaks within the story, either as an interruption or invited by the parent	<ul style="list-style-type: none"> • Overall frequency of the child speaking within the story
Parents inviting the child to speak	The number of times the parent invites the child to speak, either by a question, or leaving a long pause following trying to an illicit and answer from the child.	<ul style="list-style-type: none"> • Overall frequency of the parent inviting the child to speak during the story.

Results

Participants

In total, 75 parents/carers signed up to take part in the study. Within this, 25 participants were sent the healthy weight character, 25 were sent the overweight character, and 25 were sent the character in the wheelchair. Return rates were as follows; nine (healthy weight, 36%), seven (overweight, 28%) and 11 (wheelchair, 44%). In total 27 participants returned stories and completed the questionnaires.

The majority of the participants who participated were female ($n=26$, 96.3%; Table 2). They ranged in age from 31 to 49 years ($M= 37.6$ years, $S.D= 4.5$).

Participants were either from a White- English/ Welsh/ Scottish/ Irish background (96.3%) or Asian/ Asian British- Chinese background (3.7%). Participants' highest qualifications were GCSE's (7.4%), A Level (7.4%), Undergraduate degree (44.4%), Master's degree (14.8%), PHD (18.5%) or other higher degree (7.4%).

One participant stated that they had a disability. Children of the participants were male (40.7%) or female (59.3%), and ranged in age from four to six years ($M=4.82$, $SD= .69$). Children were either in Reception (37%) or Year One (55.6%). Two participants did not state which class their child was in. The majority of participants rated their children's body size as within the midrange ($n=25$), with two rated as below this, within the underweight end of the scale. No participants rated their child as at the overweight end of the scale. A one way independent ANOVA revealed there were no differences between the three groups in terms of mean age of the participants ($F(2, 24) = .265$, $p=.769$).

Table 2:Participant demographics

	N (%)			
	Healthy weight N=9	Overweight N=7	Wheelchair N=11	Total N=27
Gender				
Male	0 (0.0)	1 (14.3)	0 (0.0)	1 (3.7)
Female	9 (100.0)	6 (85.7)	11 (100.0)	26 (96.3)
Relationship to child				
Parent	9 (100.0)	7 (100.0)	10 (91.0)	26 (96.3)
Grandparent	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Childcarer	0 (0.0)	0 (0.0)	1(9.1)	1 (3.7)
Ethnicity				
White-English/ Welsh/ Scottish/ British	8 (88.9)	7 (100.0)	11 (100.0)	26 (96.3)
Asian/ Asian British Chinese	1(11.1)	0 (0.0)	0 (0.0)	1 (3.7)
Level of Education				
Up to A Level	1 (11.1)	3 (42.9)	0 (0.0)	4 (14.8)
Under-graduate degree	6 (66.7)	1 (14.3)	5 (45.5)	12 (44.4)
Postgraduate	2 (22.2)	3 (42.9)	6 (54.5)	11 (40.7)
Household income				
Below £30,000	1 (11.1)	0 (0.0)	0 (0.0)	1 (3.7)
£30,001- £60,000	3 (33.3)	3 (42.9)	2 (18.2)	8 (29.6)
Over £60,001	5 (55.6)	4 (57.1)	9 (81.8)	18 (66.7)

Primary outcomes

Length of story

The story was the longest for the healthy weight condition (311.56 seconds), followed by the condition with the character in a wheelchair (245.27 seconds) and then the overweight condition (239 seconds). These values refer to mean values of four to five minutes. The variances of the three conditions were not statistically different from each other, therefore they met the assumption of homogeneity of variance, however, the data was not normally distributed. A Kruskal-Wallis test found no statistically significant differences between the median story lengths between the three conditions, ($H(2) = .695, p = .707$; Table 3).

Table 3: Mean (SD) length and range (seconds) of story per condition

	Condition		
	Healthy weight N=9	Overweight N=7	Wheelchair N=11
Mean (SD)	311.56 (192.12)	239.14 (105.03)	245.27 (77.59)
Range	134-768 (634)	142-404 (262)	115-393 (278)

References to physical appearance

Reference to physical appearance was broken down into three subcategories; 1) reference to/ description of clothing, 2) reference to body weight/ shape and 3) reference to body in relation to physical disability/ comments about wheelchair. These were then coded as positive, negative or neutral comments.

Overall 31 references were made to physical appearance. The character in the wheelchair condition had the most references to physical appearance (17),

followed by the overweight condition (9) and the healthy weight condition (5). A Kruskal-Wallis test found no statistically significant differences between the three conditions for overall references to physical appearance ($H(2) = .663, p = .718$).

For the healthy weight condition, all of the references made to physical appearance were categorised as a reference to/ description of clothing. The overweight condition contained both references to clothing and reference to body weight/shape. The wheelchair condition contained references to all three subcategories; reference to clothing, body shape/weight and references to physical disability.

The overweight character received significantly more negative references to physical appearance in total, with 55.6% of the comments being negative (e.g., “So now he’d squirted ketchup all over his trousers”). The proportion of negative references was significantly greater than that observed in the story about the healthy weight character ($z = 2.08, P = .019$) or the wheelchair character ($z = 3.42, P = .0003$). Neither of the latter stories contained negative references to physical appearance.

In terms of overall positive references within the conditions, these were as follows: for the healthy weight character (20%), overweight character (22.2%) and character in a wheelchair (35.3%) (e.g., “She was told she didn’t have to wear her uniform to go on this trip, and so she chose to wear her favourite blue jumper and her favourite matching blue trainers”).

Within the subcategories, the overweight character received three negative references in relation to reference to/ description of clothing, compared to zero references in this category for either of the other characters (e.g., “Alfie bent down to look for the ball and his pants split”). Similarly, the overweight character also received two negative references in relation to body weight/ size, compared to zero

references for either of the other characters, (e.g., “Why might he not be very good? Look at him, why might he not be very good? Think about his shape, or his size”). In total, 11 references were made to the character being in a wheelchair or having a physical disability, which were either neutral or positive (e.g., I bet she's got really strong arm muscles, from pushing the wheels on her wheelchair”). See Table 4.

Table 4: Reference to physical appearance of central character, by condition

	N (%)		
	Healthy weight N=9	Overweight N=7	Wheelchair N=11
Mean number of references to physical appearance (SD)	0.56 (0.73)	1.29 (1.89)	1.55 (2.07)
Overall total for references to physical appearance	5	9	17
Total positive references	1 (20.0)	2 (22.2)	6 (35.3)
Total negative references	0 (0.0)	5* (55.6)	0 (0.0)
Total neutral references	4 (80.0)	2 (22.2)	11 (64.7)
Reference to/ description of clothing			
Total	5	7	5
Positive	1 (20.0)	2 (28.6)	1 (20.0)
Negative	0 (0.0)	3 (42.9)	0 (0.0)
Neutral	4 (80.0)	2 (28.6)	4(80.0)
Reference to body weight/shape			
Total	0	2	1
Positive	0 (0.0)	0 (0.0)	0 (0.0)

Negative	0 (0.0)	2 (100.0)	0 (0.0)
Neutral	0 (0.0)	0 (0.0)	1 (100.0)
Reference to physical disability			
Total	0	0	11
Positive	0 (0.0)	0 (0.0)	5 (45.5)
Negative	0 (0.0)	0 (0.0)	0 (0.0)
Neutral	0 (0.0)	0 (0.0)	6 (54.5)

*Significant at $p < 0.05$

Attributes/ descriptions by valence in stories

Attributes/ descriptions of the central character were coded for each of the conditions, as either positive, negative or neutral (Table 5). There were 325 references made in total: 101 references were made within the healthy weight condition, 92 comments were made in the overweight condition, and 132 were made in the wheelchair condition. Comparing the mean values, a one way independent ANOVA showed there were no statistically significant differences between the three groups for overall total attributes/descriptions by valence $F(2,24) = .219, p = .805$.

Proportionately, more negative comments were made about the overweight character (19.6%) (e.g., “She folded the paper up into the shape of an aeroplane and threw it at Alfie’s head”), than the healthy weight character or character in a wheelchair (4.0%, 1.5% respectively). Participants in the overweight condition used significantly more negative attributions/ descriptions about the central character in comments ($z = 4.66, P < .00001$) compared to both participants in the wheelchair condition, and the participants in the healthy weight condition ($z = 3.41, P = .0003$).

Across the three conditions, the frequency of comments coded as positive for healthy weight, overweight and the character in a wheelchair were 36.6%, 17.4%,

and 35.6% respectively (e.g., “Congratulations Alfina, you win first prize”). Participants in the overweight condition used significantly fewer positive attributes or descriptions of the central character ($z=2.98, P= .001$), compared to the participants in the wheelchair condition, and the participants in the healthy weight condition ($z= 2.99, P=.001$). Neutral comments made were proportionately similar across the three groups for healthy weight (59.4%), overweight (63%) and the wheelchair condition (62.9%) (e.g., “So the first thing she does is she goes on the school bus”). There were no differences between the frequency of neutral attributions/ descriptions used between the overweight condition and the healthy weight condition, or the overweight condition compared to the wheelchair condition. No differences were found between the healthy weight condition and the wheelchair condition in terms of valence.

Table 5: Reference to attributes/descriptions of central character by valence for each condition

	N (%)		
	Healthy weight N=9	Overweight N=7	Wheelchair N=11
Mean number of attributes/descriptions (SD)	11.22 (7.63)	13.14 (6.72)	11.55 (3.96)
Overall total number of attributes/descriptions	101	92	132
Positive	37 (36.6)	16* (17.4)	47 (35.6)
Negative	4 (4.0)	18* (19.6)	2 (1.5)
Neutral	60 (59.4)	58 (63.0)	83 (62.9)

*Significantly different to healthy weight and wheelchair characters at $p<0.01$

Overall theme

All stories were coded in terms of whether the central character had no problems, minor problems or major problems during the story. The overweight condition contained three stories that were coded as the central character having either minor or major problems, and one story in the wheelchair condition was coded as the central character having a minor problem. The healthy weight condition contained one story where the central character had a minor problem; with the rest being coded as having no problems (n=8; Table 6). Characters that were overweight were significantly less likely to be rated as having ‘no problem’, when compared to the character in the wheelchair ($z=1.68$, $P=.046$).

Behavioural outcome for central character

The behavioural outcome for the central character was rated for all the stories, as positive, negative or neutral (Table 6). The overweight character had the same number of negative behavioural outcomes (n=1) as the healthy weight character (n=1) (e.g., “Do you think Alfie’s going to enjoy his trip? No. No? why not? Because he might see some T-Rex’s (laughs) ohh my goodness! Oh my, well we’ll find out when he comes back off his trip...”), with none of the stories of the character in the wheelchair having a negative behavioural outcome.

The majority of the behavioural outcomes were positive for the healthy weight character (66.7%) (e.g., “Alfie said ‘that was the best school trip ever’, and off the bus they went, back to class, after having the best school trip... ever”) and the character in the wheelchair (63.6%). The overweight character’s behavioural outcomes were mainly positive (42.9%) or neutral (42.9%). Neutral behavioural outcomes for the healthy weight, overweight (e.g., “When she got home, got back to school, her mummy and her daddy came to pick her up, and she went home for her

dinner”) and the character in a wheelchair were 22.2%, 42.9% and 36.4% respectively. Z score tests revealed that none of these proportions were significantly different from each other.

Peer interactions

Peer interactions were coded within stories with either reactions or interactions of peers with the central character, such as playing together, and mentions of friends in relation to the central character. In total, 43 peer interactions were coded across the three conditions, for healthy weight (n=17), overweight (n=8) and the wheelchair condition (n=18; Table 6). A Kruskal-Wallis test showed there were no statistically significant differences between the three groups for the median number of peer reactions ($H(2) = 1.24, p = .538$).

Negative peer interactions were coded for 50% of the interactions for the overweight character (e.g., “So just as S was laughing at him, and getting everyone else to laugh at him, they all had their eyes shut because they were laughing so hard”). The proportion of negative peer interactions was significantly greater than that observed in the story about the healthy weight character ($z = 3.18, P = .0007$) and the wheelchair character ($z = 3.26, P = .0006$). No negative interactions were found in either of the other conditions.

Positive interactions were coded for the healthy weight condition (29.4%) (e.g., “Alfina and her friends all had a wonderful afternoon”), the overweight condition (12.5%) and for the character in the wheelchair condition (22.2%). The condition with the character in the wheelchair contained the most neutral peer interactions (77.8%) (e.g., “So she went and joined them and they played tennis”) followed by the healthy weight character (70.6%) and the overweight character (37.5%). The proportion of neutral peer interactions was significantly lower for the

overweight character than that observed in the story about the character in the wheelchair ($z=1.99$, $P=.023$).

Table 6: Theme, behavioural outcome and peer interactions in relation to the central character, for each condition

	N (%)		
	Healthy weight N=9	Overweight N=7	Wheelchair N=11
Theme			
No problem	8 (88.9)	4* (57.1)	10 (90.9)
Minor problem	1 (11.1)	2 (28.6)	1 (9.1)
Major problem	0 (0.0)	1 (14.3)	0 (0.0)
Behavioural Outcome			
Positive	6 (66.7)	3 (42.9)	7 (63.6)
Negative	1 (11.1)	1 (14.3)	0 (0.0)
Neutral	2 (22.2)	3 (42.9)	4 (36.4)
Peer interactions			
Mean number of peer reactions (SD)	1.89 (2.09)	1.14 (1.77)	1.64 (1.03)
Total number of peer reactions	17	8	18
Positive	5 (29.4)	1 (12.5)	4 (22.2)
Negative	0 (0.0)	4** (50.0)	0 (0.0)
Neutral	12 (70.6)	3* (37.5)	14 (77.8)

*Significantly different to wheelchair character at $p<0.05$

**Significantly different to healthy weight and wheelchair characters at $p<0.01$

Secondary outcomes

Child behaviours and non-verbal behaviours

The frequency of laughter in the dyad, frequency of times the child spoke and the number of times the participant invited the child to speak, such as through a question, were also noted for the stories (Table 7). The total frequencies of laughter across the healthy weight and overweight conditions (n=20) were the same, and slightly less within the wheelchair character. The mean number of times either participant or child laughed during the stories was 2.22 (healthy weight), 2.86 (overweight) and 1.36 (wheelchair). A Kruskal-Wallis test showed there were no statistically significant differences between the three groups ($H(2) = .159, p = .924$).

The wheelchair character had the highest frequency of the child speaking or making comments (n=134), followed by the healthy weight character (n=112) and the overweight character (n=91). The mean number of times the child spoke during the story was 12.44 (healthy weight), 13.00 (overweight) and 12.18 (wheelchair). A Kruskal-Wallis test showed there were no statistically significant differences between the three groups for the number of times the child spoke during the stories ($H(2) = .340, p = .844$).

Participants had a slightly higher frequency of inviting the child to speak during the story featuring the wheelchair character (n=91), followed by the healthy weight character (n=80) and the overweight character (n=68). The mean number of times the child was invited to speak by the caregiver was 8.89 (healthy weight), 9.71 (overweight) and 8.27 (wheelchair). A Kruskal-Wallis test showed there were no statistically significant differences between the three groups ($H(2) = .164, p = .921$).

Table 7: Non-verbal behaviour and child behaviours within the stories, by condition

	Condition		
	Healthy weight N=9	Overweight N=7	Wheelchair N=11
Mean counts of laughter (SD)	2.22 (4.60)	2.86 (6.69)	1.36 (2.80)
Frequency of laughter	20	20	15
Mean number of times child spoke (SD)	12.44 (14.35)	13.00 (13.35)	12.18 (11.07)
Total number of times child spoke	112	91	134
Mean number of times the caregiver invited the child to speak (SD)	8.89 (10.48)	9.71 (10.48)	8.27 (5.35)
Total number of times caregiver invited the child to speak	80	68	91

Parental attitudes

Attitudes to visible difference

All 27 participants completed the attitudes to visible difference questionnaire, in order to explore explicit attitudes/ bias to visible difference. Higher scores reflected more positive attitudes to visible difference. Overall, mean scores across the three conditions were similar, for healthy weight (28.00), overweight (28.57) and the wheelchair condition (29.09). These were not significantly different $F(2,24)=.304, p=.741$.

Scores were explored further with regards to questions relating to disability and to questions relating to obesity. Across all three conditions, scores relating to disability attitudes had a slightly higher mean (14.48) compared to questions relating to obesity (14.11), with higher scores again relating to a more positive attitude.

Mean scores relating to disability questions were similar across all three conditions, healthy weight (14.33), overweight (14.43) and wheelchair condition (14.64). A one way independent ANOVA showed there were no statistically significant differences between the three groups for total disability attitude scores ($F(2,24)= .103, p=.903$). Mean scores relating to obesity attitude questions were slightly lower for the healthy weight condition (13.67) compared to the overweight (14.14) and wheelchair condition (14.45). There were no statistically significant differences between the three groups for total obesity attitude scores ($F(2,24)= .404, p=.672$). See Table 8.

Table 8: Mean overall attitudes to visible difference questionnaire scores and for disability and obesity attitudes

	Condition			
	Healthy weight N=9	Overweight N=7	Wheelchair N=11	Total N=27
Mean overall questionnaire score (SD)	28.00 (3.16)	28.57 (3.82)	29.09 (2.55)	28.59 (3.03)
Range	24-32 (8)	22-34 (12)	24-32 (8)	22-34 (12)
Mean score disability (SD)	14.33 (1.80)	14.43 (1.13)	14.64 (1.50)	14.48 (1.48)
Range	12-17 (5)	13-16 (3)	12-17 (5)	12-17 (5)

Mean score obesity (SD)	13.67 (1.66)	14.14 (2.80)	14.45 (1.51)	14.11 (1.90)
Range	11-16 (5)	9-18 (9)	11-16 (5)	9-18 (9)

Weight bias

Overall, two stories out of 27 were explicit in terms of weight bias (negative comments specifically related to weight), which were both in the overweight condition (two stories out of seven in the overweight condition). For one of these participants, who was the only male participant, they also achieved the lowest score on the attitudes to visible difference questionnaire, and specifically the lowest score for attitudes to obesity. The other participant scored 31, which was above the mean score for all conditions. From their BMI values, both participants were classed as having obesity. Neither had completed any further education after finishing high school or college.

Relationship between parental characteristics and story features

In order to explore whether parental characteristics such as participants own attitudes related to features of their story telling, correlations were calculated. This was only explored for the overweight and wheelchair conditions, given the focus on the visibly different conditions.

Overweight condition

Regarding participants in the overweight condition, a Pearson's correlation found no statistically significant relationship between their attitudes to obesity scores and the length of the stories that they constructed (Pearson's $r = -.45$, $p = .155$).

A Spearman's correlation found no statistically significant relationship between participant's attitude to obesity scores and negative attributes/descriptions in the stories told (*Spearman's* $r = -.46, p = .151$).

Wheelchair condition

Correlation analyses were conducted looking at the association between participant's disability attitudes and the length of the stories that they constructed. Pearson's correlation found no statistically significant relationship ($r = -.03, p = .471$). There was no significant relationship with negative attributes/descriptions in the wheelchair characters stories (*Spearman's* $r = .12, p = .368$).

Discussion

The aims of this research were to examine whether and how bias in relation to visible difference is communicated between parents and their young children. The prevalence of weight bias has been found in both young children (Cramer & Steinwert, 1998; Spiel et al., 2012; Worobey & Worobey, 2014) and parents (Damiano et al., 2015; McCabe & Ricciardelli, 2005; Ruffman et al., 2016). Weight bias was explored alongside physical disability, in order to understand whether bias is specifically in relation to weight, as opposed to other visible differences (Charsley, Collins, & Hill, 2018; Harrison et al., 2016; Latner & Stunkard, 2003; Richardson, 1970; Richardson et al., 1961). The current study aimed to address gaps in the literature by looking specifically at how parents communicate with their young children about visible difference and address some of the methodological limitations of the two other studies that have explored this (Adams et al., 1988; Innes & Diamond, 1999). Given the age of the Adams et al. (1988) study, it was important to extend this, given the possibility of attitudes to obesity and parenting changing since this work was done.

It was hypothesised that a shorter story length, more frequent reference to physical characteristics of the characters, and negativity in story features would be apparent in stories that were constructed about visibly different characters, and especially so for that of overweight character. It was also hypothesised that markers of covert bias (shorter story length and laughter of parents and children) would be more apparent than explicit bias (negativity in story features). Finally, it was hypothesised that more parental negative attitudes to overweight/disability would be associated with greater bias.

This chapter will explore the findings in relation to previous research, as well as considering strengths and limitations of the research, clinical implications, and possible future research directions.

Hypothesis one

The first research question asked whether there were differences in the story construction, content and telling of a story when the central character was overweight or physically disabled, compared to a non-disabled, healthy weight character. In relation to hypothesis one, the story featuring the overweight character had significantly more negative references to physical appearance than the character in a wheelchair or the healthy weight character. Participants used significantly more negative attributions/descriptions and significantly fewer positive attributions about the overweight character compared to the character in the other stories. Peer interactions were also proportionately more negative for the overweight character, and they were less likely to be rated as having 'no problem' in the story, compared to the character in the wheelchair. In comparison, although the character in the wheelchair received the most references to physical appearance, none of these were negative. Little negativity was found overall in relation to the character in the wheelchair, particularly with regards to peer interactions, behavioural outcomes and the overall theme of the story. The results therefore supported this hypothesis only in respect of overweight.

These findings are congruent with those of Adams et al. (1988) who also found more references to physical appearance in stories about the visibly different characters. However, more stereotypic comments were made in relation to the character with the physical disability. In the current study, although more references were made to the physical appearance of the character in the wheelchair, none of

these were negative, and they were in fact either positive or neutral in valence. The fact that more negativity was found in relation to the physical appearance of the overweight character could be due to the increase in obesity prevalence, and more negative societal attitudes to obesity since the study was conducted. Other research has supported this rise in bias against people who are overweight (Puhl and Heuer, 2009). In addition, the mean age of parents of this age group of children has risen since the Adams et al. (1988) study (29.8 years versus 37.6 years). This could therefore suggest a generational difference in bias found.

A further reason for this difference may be due to different physical disabilities used in the Adams paper compared to the present study (character missing a portion of their arm versus a character in a wheelchair). Werner, Peretz and Roth (2015) suggested that less visible disabilities have generally been found to be the most accepted, and many studies have not compared attitudes to different types of physical disability, particularly in relation to parental attitudes, which makes it difficult to make comparisons. Furthermore, it could be that whilst attitudes to obesity have increased in negativity, attitudes to disability have become less negative over time. Evidence has suggested that parents that enrolled their children in inclusion programmes within schools were more likely to have more positive attitudes to those with disabilities (Okagaki et al., 1998). It could be that now with more inclusion and equality programmes and training within workplaces this has been one reason that these attitudes may have become less negative over time.

Innes and Diamond (1999) suggested parents and their children were more likely to initially talk about equipment in relation to a disability, as it gave them more to talk about, and then considered the disability in more detail. However they did not compare two different types of disability, and valence was not explored.

In addition to physical appearance, more negativity was found in the content of the stories for some of the other primary outcomes for the overweight character, compared to both the healthy weight character and the character in the wheelchair. This might suggest that bias was not necessarily as a result of visible difference *per se*, but more specifically in the context of weight bias. This was in terms of attributes/ descriptions used, peer interactions, and the overall theme of the story. Within the weight bias literature, children have been consistently found to express more negativity and bias towards overweight characters, than towards others with visible differences or healthy weight characters (Charsley et al., 2018; Latner & Stunkard, 2003; Richardson, 1970; Richardson et al., 1961).

Critically, research exploring both of these in parents is extremely limited. Adams et al. (1988), using a parental story construction methodology found equal positive and negative descriptions for the overweight condition, but more positive than negative descriptions for healthy weight and physically disabled characters. This is similar to the current study which found a similar number of positive and negative comments for the overweight character. However, when compared to the other two conditions, these attributes/ descriptions were proportionately more negative and less positive for the overweight character. This again, could be due to a change in attitudes to obesity over time.

The lack of negativity found towards the character in the wheelchair in this study, in terms of story-telling and structure, supports the findings of Adam et al. (1988). They found more positive behavioural outcomes for the physically disabled character, despite engaging in problem solving behaviours. Contrary to the Adams study, which found overwhelmingly negative peer reactions in the stories parents constructed featuring both overweight and physically disabled children, the current

study found statistically more negative peer interactions for the overweight character than the character in the wheelchair. Innes and Diamond (1999) used a similar methodology and found that parents made more comments and asked more questions about the child in a wheelchair. However, their study was in relation to a child with Down's Syndrome and weight bias was not explored. In addition, parental responses were not coded in terms of valence, and so it was unclear as to the tone of the comments made, and therefore comparisons with the current study are difficult.

Hypothesis two

In relation to hypothesis two, covert bias (shorter stories, laughter) was not more apparent than explicit (overt) bias (negativity in story feature). There were no differences found in the length of stories that were constructed about the different characters. Although there was a slightly higher mean for the amount of laughter in the overweight stories, this was not statistically significantly different between the three groups. Significant negativity was found for the overweight character for both reference to physical appearance and in terms of attributes/ descriptions used by the participants.

Previous research within other areas, as well as within the weight bias literature have suggested that covert bias are more subtle forms of bias that could be portrayed through non-verbal and other behaviours such as laughter, less eye contact, less smiling, rudeness, staring and pointing (King et al., 2006; Rosenbaum et al., 2021). Although measured and explored slightly differently, this study does not support research that has found more evidence of covert bias, than participants being directly negative about an overweight character (overt bias) (Kilmurray, Collins, Caterson, & Hill, 2019). However, the mean amounts of laughter were slightly higher for the overweight group, but this was not statistically significantly

different between the three groups. It does however reinforce the importance of exploring different types of bias, particularly more subtle forms of bias, that may be otherwise more hidden than explicit or overt bias. Given that the stories were audio recorded, this also makes it difficult to know whether some of these more subtle forms of bias existed, particularly non-verbal behaviour, such as pointing, which would not have been detected.

One reason for the results being incongruent with our hypothesis could be in relation to what is defined as different types of bias, and the difficulties and challenges in measuring these different forms of bias. For example, although it was assumed that shorter stories may be a form of covert bias, in that participants may feel less comfortable talking about visible difference when compared to healthy weight and able bodied characters, it could also be that the participants were just not saying as much in their stories, or felt less confident in making up a story. This would therefore not necessarily be a form of covert bias, but it would be difficult to ascertain this, unless participants were directly asked. This would also require further consideration, given that people are generally concerned with not appearing to be prejudiced (Castelli, Vanzetto, Sherman, & Arcuri, 2001).

It was also assumed that the way in which the story was told (e.g. more negativity) would be evidence for overt or explicit bias, given that explicit attitudes are verbalised (Greenwald & Banaji, 1995). However, it is possible that whilst telling a story about a character, parents may also demonstrate more subtle signs of bias, such as covert bias, when talking about the character and what they were saying to their children. It would therefore be important to explore for any other signs that covert bias may have been used within the stories, for example, perhaps the way in which they answer their children's questions or respond to comments

(e.g. ignoring them). However, this again demonstrates the difficulties of unpicking and defining different types of bias and how they may be shown or portrayed. This will be considered further in possible future research below.

Hypothesis three

The final hypothesis addressed the second research question which aimed to explore whether parental characteristics, such as parental attitudes to disability or overweight were related to any biases evident in the story telling. No associations were found between the attitudes to obesity or disability scores and negativity of attributes/ descriptions used or the story length within the stories about the character in a wheelchair or the stories about the character with obesity.

Although negativity was found in other stories within the overweight condition, in the stories told by two participants within this condition there was clear evidence of weight bias, in which negative comments were made specifically in relation to weight. One of these participants was the lowest scorer on the attitudes to visible difference questionnaire, particularly in relation to obesity. Both of these participants themselves also had obesity and were amongst the lowest educated within an over-educated sample of participants. These demographics would be worth further investigation in future studies, particularly having a more varied sample of parental education level would be of interest. In comparison, no stories contained overt disability bias.

It has been suggested that prejudicial attitudes can be communicated between parents and children through words (Allport, 1954), and that particularly parental weight bias can be communicated through direct comments and criticism which may then influence children's own perception of weight bias (Holub et al., 2011; Rodgers

& Chabrol, 2009). Although previous research has claimed to have explored the transmission between parents and children, this has been through mainly self-report measures and has merely suggested a concordance (Davison & Birch, 2004; Ruffman et al., 2016). Through exploring direct communication via story-telling, this study suggests and supports that, although with small samples, weight bias is communicated through narratives between parents and their children, either via direct comments, or through negativity used when talking about or describing an overweight character. The latter is particularly important, given research within the disability literature, where Lieber et al. (1998) suggested that values and attitudes can be communicated through both tone and content of responses. Tone was found to be particularly important within this study, given the significant amounts of negativity highlighted within the stories told about the overweight character, compared to either the healthy weight or character in a wheelchair. Furthermore, this study has added to that of Innes and Diamond (1999), in that their study did not explore the tone of the comments made within the direct communication between parents and children.

Given the evidence of negativity found within this study in relation to the overweight character, and the finding of direct communication of weight bias between parents and their children, it could be seen to support the research that has discussed that social learning may play a role in that children may learn through socialisation of attitudes between parents and their children, particularly with regards to weight bias (Hutchinson & Müller, 2020; Spiel et al., 2016). It has been highlighted that children learn about social expectations of body weight and what is acceptable through weight related content that they have heard from others (Klein & Shiffman, 2015). The fact that participants are communicating negativity about overweight in the stories they have told, could therefore have had an impact on their

children's attitudes and what they see as acceptable going forward, possibly leading to weight bias. However, given these are single snapshots of interaction, transmission of weight bias cannot be concluded. It does, however, highlight the potential important role that parents have to play, in the formation of attitudes in their children.

Strengths and limitations

Strengths

The main strength of this study was that it was the first study to look specifically and in detail at parental narratives relating to weight bias through a story-telling task. No other studies specifically exploring weight bias have used this methodology. Another strength of the study was that it contrasted these narratives in relation to another type of visible difference known to reveal bias, in order to determine characteristics, such as negativity.

Weight bias was explored in a naturalistic environment, specifically taking place in the homes of participants. Previous research using a similar methodology has taken place in a pre-school laboratory or classroom (Adams et al., 1988; Innes & Diamond, 1999), in which social desirability may have occurred. Similarly, neither of these studies were designed to specifically explore weight bias.

Using a story-telling methodology addressed previous issues with exploring weight bias between parents and children. This has often previously been through parental and child self-report measures (Davison & Birch, 2004; Pudney et al., 2019), and therefore suggests concordance, as opposed to the direct communication of weight bias. It also reflected the work of Allport (1954) who suggested that prejudice occurs via socialisation, specifically through direct gestures and words, as

well as story-telling being a more discreet and natural way to explore such behaviour, if it were to occur (Adams et al., 1988). Although this study did not address issues of causality, and allow definitive conclusions with respect to this, it did allow for investigation regarding whether weight bias is communicated in interactions between parents and their children, and how this might be communicated.

In contrast to the studies of both Innes & Diamond (1999) and Adams et al. (1988), this study used a between participants design, in which each participant only received one character and told one story to their child. This aimed to reduce any priming to what the study was about, as this may have affected the results of the previous studies. Being aware of all the character representations may have given participants an idea about what was being explored, therefore allowing for them to moderate how they might have otherwise told the stories. Furthermore, in relation to both Adams et al. (1988) and Innes and Diamond (1999), this study explored the emotional tone within the participant comments in more detail, which allowed for further exploration and understanding about the comments being made in relation to the different characters. This was not done at all in the latter study, and only as far as whether attributes were socially desirable or undesirable within the Adams et al. (1988) study.

Collecting the questionnaire data via Online Surveys at the end of data collection may have controlled for some social desirability when specifically answering questions about weight bias and disability bias. This was also to ensure that participants were not primed as to what the study was about, prior to having completed the story-telling task, as this may also have affected the way in which they told their story.

Finally, having a second coder within the data analysis ensured coding reliability and intercoder agreement. This also allowed for the coding to be adapted iteratively, with agreed descriptions for codes in order to ascertain transparency for future research.

Limitations

One of the main limitations of the study was the sample size, particularly since the key group of focus, the overweight condition, had the smallest number of participants. The overweight condition had the poorest return rate (28%) given that equal numbers of characters were given out. This may in itself have been due to participant's reluctance to construct a story about an overweight character, for feeling less comfortable in doing so, or even possible negative views already held about overweight or obesity.

Recruiting through schools became difficult during the COVID-19 pandemic due to closures and work pressures within schools. Recruitment therefore relied on mainly snowballing from participants who had already completed the study, and through social media. The use of an opportunity sample and snowballing may therefore reduce the generalisability of the study. The majority of participants that took part were White British, had a high overall household income and were generally well educated. This again limits the generalisability of the study, despite having initially attempted to minimise this by approaching schools from different geographical areas and therefore affluence. The mentioned demographics may also have had an impact on the results found. Particularly since higher levels of obesity has often been associated with low socioeconomic status (Puhl & Brownell, 2003), and low parental education (Doolen et al., 2009). The participants who consented to taking part may have also been more invested and interested in exploring their

understanding of visible difference, potentially meaning that again this was not a representative sample that took part.

Although being able to complete the stories at home and in their own time would have made this more naturalistic and convenient for participants, this may have also been a limitation in that participants may have been more likely to forget to complete the task, and therefore not end up taking part, despite being sent reminders. This may have also been as a result of participant's confidence or skills in making up a story with their child, possibly with those feeling less confident opting out of the task. In order to mitigate this, participants were all offered further support, either via telephone or email in order to complete the task. Participants may have also carried out the task slightly differently, for example, with the instructions or the pictures of the characters, in that some may have used this on their phones/tablets and others may have printed this out. It was not clear which participants chose these different options, or how this may have affected the results found.

Another limitation of the study was that the researcher was not always blind to conditions when conducting the data analysis, despite trying to be as blind as possible. This was not always possible when specific mentions to the character were made, such as the character being in a wheelchair. This may have therefore affected the way in which stories were coded. For example, where comments may have been more ambiguous in tone, if the researcher was aware of it being said in relation to a character with a visible difference, they may have been more likely to assume the comment was said in the context of negativity.

Methodological challenges have been identified when exploring bias within the children's literature, with one of the main challenges being around the way in which it is often explored may not be representative as to situations in which bias or

discrimination may occur in real life. This study also highlights difficulties with this, in that although negativity has been found, it is unclear how this might be related to actual behaviour.

Recommendations for future research

Given that this study aimed to extend the two previous studies exploring the communication of visible difference, and to improve on some of the methodological issues identified (Adams et al., 1988; Innes & Diamond, 1999), it would be useful to repeat the study, whilst accounting for some of the limitations identified. For example, a larger sample size would allow further analyses around the presence of weight bias. In addition, a more generalisable sample, with a wider variety of participant demographics, such as socioeconomic status, and educational background, would be helpful in order to explore further whether there are demographic differences in how people might communicate visible difference with their children. Pudney, Himmelstein and Puhl (2019) suggested that fathers were more likely to engage in more conversations about weight and make more comments about other people, compared to mothers. It would be interesting to explore this further and see if this would also be the case within this type of study, especially given that only one father took part in the present study. This might be further explored through comparing stories told by mothers and fathers.

As previously mentioned, people are generally not explicit in terms of verbalising their attitudes or wanting to appear prejudiced (Castelli et al., 2001). It could therefore be beneficial to continue to look for further evidence of covert types of bias that may be more subtle, alongside the bias within the story narrative itself. Previous studies have identified possible covert weight bias through child laughter at the overweight character (Kilmurray et al., 2019). Given that the present study used

audio recordings, it was not always possible to distinguish who the laughter was coming from, or what this might have been in relation to. Video recordings would make use for being able to explore more subtle vocalisations or behaviours that are not necessarily captured or evident through audio recordings. This would also allow for the study to remain conducted in the participants home, preserving the naturalistic environment, which would be hopefully less likely to allow social desirability to take place.

It may also be useful to be able to explore children's comments further and how parents may respond to these. Previous research has suggested that parents and children make more comments, and ask more questions about children with a physical disability (Innes & Diamond, 1999). It would be interesting to see if this is also the case when compared to an overweight character, and particularly how parents respond to any child negativity; whether this would be reciprocated or moderated by the parent. Similarly, it has been suggested (although specific to teachers) that positive beliefs can be communicated to young children through asking questions (Lieber et al., 1998) and through the content of responses given to children, and how questions are answered (Stoneman, 1993). It would therefore be useful to further explore these interactions of communication of weight bias between parents and children. This could be through using a similar method to that of Kilmurray et al. (2019). For example, instead, giving the parents a story that has already been started about a character (either healthy weight, overweight or a character in a wheelchair) and then giving the parents the opportunity to say what happens next, and answering specific questions, in which both the parent and child can be involved. This may give more opportunity for the child to pose questions, and for the researcher to observe how these are answered by the parent or how they respond to comments made by the child. This would still have the benefit of being

able to explore parental narratives through story-telling, but also potentially the ability to observe more interactions between the parent and child.

In order to explore actual transmission of attitudes between parents and children further, a more longitudinal study may need to be undertaken, in order to see whether there is evidence for children's own bias to change in the context of sustained negativity about weight. It might be that a similar task to the task mentioned above may be repeated at certain time points, with a particular interest in those stories where negativity had been communicated by parents. However, this would also need to control for other possible influences of bias, such as peers or the media, which would be difficult, in order to conclude that parents had been the sole influencers.

Practical and clinical implications

This study was particularly important given the current rise in obesity prevalence within young children (NHS Digital, 2020) and the rise in weight bias towards people who are overweight (Puhl & Heuer, 2009). The prevalence of weight bias in young children (Cramer & Steinwert, 1998) and the psychological impact of weight bias on children has been well documented. For example, the increased likelihood of developing mental health difficulties, low self-esteem, poor body image, and disordered eating (Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Jendryca & Warschburger, 2016; Puhl & King, 2013; Puhl & Lessard, 2020). Developing a better understanding of the acquisition of weight bias in young children is therefore particularly important.

The acquisition of weight bias has been particularly under researched, and although attempts have been made to explore some areas, this has been limited.

Research and psychological theory would suggest that parents are of particular importance when it comes to socialising children, and that social learning theory may play a critical role within this (Hutchison & Müller, 2020; Spiel et al., 2016). Given the negativity found in relation to story content for the overweight character, even when compared to another visible difference, such as physical disability, suggests that exploring the communication of weight bias between parents and their children is important. This is particularly important with regards to child development, and considering how attitudes and views may be formed.

This would therefore highlight the importance of parents being aware of how things they communicate may be internalised by their child. Although it would be useful to continue acceptance of diversity with children in schools and anti-bullying programmes in children in this age group, it would also appear important to be able to target and educate parents further, as to the impact of their own attitudes and biases, and how these may in turn affect their children. This could be through wider initiatives around healthy eating. It could also be through continuing initiatives such as equality and inclusion training or training around unconscious bias, already found within some workplaces.

Conclusions

This study aimed to examine whether and how bias in relation to visible difference is communicated between parents and their young children. Evidence of weight bias was found to be communicated in the stories that parents constructed for their children, through specific negative comments in relation weight in two stories, and from general overall negativity used in the content of the stories within the overweight condition. This study suggested that the bias found was specific to weight bias, rather than bias to visible difference per se. This was particularly

evident in the negativity found within the stories that were constructed about the overweight character. This is important due to the rise in childhood obesity and therefore increasingly negative attitudes to obesity, as well as the well documented psychological impact of children experiencing weight bias. Given that this study highlighted that weight bias is communicated between parents and their children, it would be important to explore this further. For example, through further research exploring the interaction between parents and their children when story-telling, particularly in terms of children's comments and how parents respond to these. Furthermore, it indicates a need for interventions to be targeted towards parents in terms of reducing stigma and in bias targeted towards those with obesity.

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Appendix 1: Characters



Appendix 2: Letter to headteacher



UNIVERSITY OF LEEDS

Division of Psychological and Social
Medicine
Institute of Health Sciences
University of Leeds
Level 10, Worsley Building
Clarendon Way
Leeds
LS2 9NL
Tel: 0113 343 2734

Dear [Headteacher],

I am a graduate psychologist currently working on my Doctorate in Clinical Psychology at the University of Leeds. As part of the training, I am completing my research thesis which explores the communication of visible difference between parents and their children. This will be explored principally through a story telling task by parents that is done at home. This research will help me to develop an understanding of how and at what age children start to think about others with visible differences.

I would like to undertake this project with parents of children in your school, namely those parents who have children in Reception and Year One. A summary of the proposed study protocol can be found overleaf.

I am hoping to include parents of children from a number of different Primary schools and would be most grateful for the opportunity to discuss the study further with you. I shall email/ring you within the next two weeks to ask whether it would be possible to discuss this with you further. Alternatively, please contact me via email on umcba@leeds.ac.uk or one of my supervisors, Professor Andrew Hill, or Dr Gemma Traviss-Turner, on the telephone number or address above.

Yours sincerely,

Charlotte-Louise Baker

Psychologist in Clinical Training

Summary of research study protocol

Parents of children in Reception and Year One will be contacted and provided with an online link to a participant information sheet that contains details about the study and a consent form, which they will be asked to complete online. Following agreed participation, a further information pack will be emailed to parents, detailing the specific task to complete within their home and how to do this. This will involve them completing a story telling task. To do this, they will receive a picture of a character, along with a possible six other pictures they can use. Parents will be asked to tell their child a short story (ideally 3-4 minutes) about a character going on a school trip, which they will be asked to audio record on their phones. They will then be required to email this to me. Following this, they will be emailed a short questionnaire to complete online about their attitudes to visible difference and some demographic information. This should take 5-10 minutes.

Appendix 3: Participant Information Sheet and consent form

Leeds Institute of Health Sciences
Faculty of Medicine and Health
Level 10, Worsley Building
University of Leeds
Clarendon Way
Leeds, LS2 9NL
www.leeds.ac.uk/lih

Dear Parent/ Guardian,

My name is Charlotte Baker and I am currently studying for a doctoral degree in Clinical Psychology at the University of Leeds. I am conducting a research project looking at young children's understanding of visible differences in others.

I am asking parents of children in Reception and Year 1 to get involved in this project. I hope to include around 60 parents from different primary schools. This letter gives you some information about the research to see if you would be willing to take part.

What is the purpose of the project?

I am examining young children's understanding of visible difference in others through the communication between parents and their children. This will be done through a story telling task and questionnaires completed by yourself. This research will help me to develop an understanding of how and at what age children start to think about others with visible differences.

What will I be asked to do?

You will be asked to make up a story about a character who is going on a school trip and read this with your child. You will receive a prompt sheet, which will include a picture of the character, along with six other pictures that can be included in the story. The story will be audio-recorded on your smart phone, and then emailed to me. Instructions will be provided on how to do this. I will then email a questionnaire for you to complete. It will ask for some background information about you and your child and will take no more than 10 minutes to complete. This will be emailed to you using the email address you provide on the consent form.

What else do I need to know?

All data from the study will be stored securely on the Universities shared drive and kept anonymous (identified only by a number) and confidential. Recordings will be used only for analysis and will be deleted after transcription. Extracts of quotes may be used when writing up the project and for publication, however, all information will remain anonymous and confidential. Please note that there is some risk of the audio recordings being vulnerable to being accessed by other parties (e.g. hacking),

either whilst in your emails or the researchers. As soon as you have confirmation of receipt from the researcher, please delete your recording from your phone, and from the sent folder on your email. The university guidelines on the use of personal data will be adhered to <https://dataprotection.leeds.ac.uk/research-participant-privacy-notice/>

Where and when will the study take place?

The research will take place at a time of convenience for you, in your own home. I will not be present. Ideally the story should be told in the evening, and preferably as your child's bedtime story.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be asked to sign the enclosed consent form. You can choose not to participate or to withdraw your story or survey at any time prior to the data being analysed, there will be no negative consequences. Please inform the researcher via details below. It is anticipated that analysis will be around December 2020.

What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will add to our understanding of young children and visible difference. I also hope this will be an enjoyable story to read with your child!

I have some more questions; how can I contact you?

I am happy to answer any further questions you may have. You can contact me or my supervisors using the details below. Thank you for taking the time to read this letter. If you are happy to take part, please complete the consent on the following page. I will then telephone you to provide further information.

Clinical Psychology Training Programme, Institute of Health Sciences, Level 10,
Worsley Building, University of Leeds, Clarendon Way, Leeds, LS2 9NL. 0113 343
2736 umcba@leeds.ac.uk

Supervisors: Prof. Andrew Hill/ Dr Gemma Traviss-Turner, Institute of Health
Sciences, Level 10, Worsley Building, University of Leeds, Clarendon Way, Leeds,
LS2 9NL. 0113 343 2734
A.J.Hill@leeds.ac.uk G.Traviss@leeds.ac.uk

Yours sincerely,

Charlotte-Louise Baker
Psychologist in Clinical Training

Ethical approval has been sought from the University of Leeds School of Medicine
Research Ethics Committee, project reference SoMREC 19-054.

Page 2: Consent form

I give consent to take part in a research project about children’s understanding of visible difference in others. I also give consent for my child to take part in this. I give consent to be contacted by email and telephone. I am aware that I can withdraw my data (story or survey) at any time, up until analysis takes place (around October 2020). I am aware that if quotations are used, anonymity will be preserved.

Name.....

Date

Telephone number.....

Email address.....

Name of child.....

Relationship to child.....

Page 3:

Thank you for agreeing to take part in my study. I will be in contact with you soon.

Charlotte Baker, Psychologist in Clinical Training

Appendix 4: Ethical approval

From: Rachel De Souza [Medicine] <R.E.DeSouza@leeds.ac.uk>

Sent: 04 June 2020 17:40

To: Charlotte-Louise Baker <umcba@leeds.ac.uk>

Cc: Gemma Traviss-Turner <G.Traviss@leeds.ac.uk>; Medicine and Health Univ Ethics Review <FMHUniEthics@leeds.ac.uk>

Subject: RE: MREC 19-054 Study Approval

Dear Charlotte-Louise

MREC 19-054 - Understanding how visible difference between people is communicated between parents and children

NB: All approvals/comments are subject to compliance with current University of Leeds and UK Government advice regarding the Covid-19 pandemic.

I am pleased to inform you that the above research ethics application has been reviewed by the School of Medicine Research Ethics Committee (SoMREC) Committee and on behalf of the Chair, I can confirm a favourable ethical opinion based on the documentation received at date of this email.

Please retain this email as evidence of approval in your study file.

Please notify the committee if you intend to make any amendments to the original research as submitted and approved to date. This includes recruitment methodology; all changes must receive ethical approval prior to implementation. Please see <https://leeds365.sharepoint.com/sites/ResearchandInnovationService/SitePages/Amendments.aspx> or contact the Research Ethics Administrator for further information (FMHUniEthics@leeds.ac.uk) if required.

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, risk assessments 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. I hope the study goes well.

Best wishes

Rachel

On behalf of Dr Naomi Quinton, co-Chair, SoMREC

~~~~~

**Rachel de Souza, Lead Research Ethics & Governance Administrator**, The Secretariat, Room 9.29, Level 9, Worsley Building, Clarendon Way, University of Leeds, LS2 9NL, Tel: 0113 3431642, [r.e.desouza@leeds.ac.uk](mailto:r.e.desouza@leeds.ac.uk)

## **Appendix 5: Online Survey**

### **Page 1: Background Information**

Taking part in the study also involves answering a few background questions about yourself, and your child, and your thoughts about visible difference. This should take 5-10 minutes to complete. You can follow your progress through the bar at the top of each page.

Remember that you can stop taking part in this study at any time. There will be no negative consequences to this. Please let me know if you know longer wish to take part and I will remove all your details from the study.

If you have any questions or comments, please contact me using the details below.

Thank you very much for your time and help.

Charlotte-Louise Baker

umcba@leeds.ac.uk

Trainee Clinical Psychologist and Researcher at the Institute of Health Sciences,  
University of Leeds, Level 10, Worsley Building, Clarendon Way, Leeds, LS2 9NL

### **Page 2: About you and your child**

1. What is your name? We will only use this to match this survey with your story. We will delete this when we store the survey information.
2. How old are you? (to the nearest year)
3. What is your relationship to the child?  
  
Parent  
Grandparent  
Other
4. Are you:  
  
Male  
Female
5. What is your current height in centimetres? (e.g. 167)
6. What is your current weight in kilograms? (e.g. 107)

7. What is your highest level of education?

GCSE's  
AS Level (college)  
A Level (College)  
Undergraduate degree  
Masters degree  
PHD  
Other

8. What is your ethnicity?

White- English/ Welsh/ Scottish/ Northern Irish/ British  
White- Irish  
White- Gypsy or Irish Traveller  
White- any other White background  
Mixed/ Multiple ethnic groups- White and Black Caribbean  
Mixed/ Multiple ethnic groups- White and Black African  
Mixed/ Multiple ethnic groups White and Asian  
Mixed/ Multiple ethnic groups- Any other Mixed/ Multiple ethnic  
backgrounds  
Asian/ Asian British- Indian  
Asian/ Asian British- Pakistani  
Asian/ Asian British- Bangladeshi  
Asian/ Asian British- Chinese  
Asian/ Asian British- Any other Asian background  
Black/ African/ Caribbean/ Black British- African  
Black/ African/ Caribbean/ Black British- Caribbean  
Black/ African/ Caribbean/ Black British- any other Black/ African/  
Caribbean background  
Other ethnic group- Arab  
Other ethnic group- Any other ethnic group

9. What is your annual household income?

Below £10,000  
£10,001- £20,000  
£20,001- £30,000  
£30,001-£40,000  
£40,001-£50,000  
£50,001-£60,000  
£60,001-£70,000  
£70,001- £80,000  
£80,001-£90,000  
£90,001-£100,000  
£100,000 +

10. Do you consider yourself to have a disability?

Yes

No

**Page 3: Your child**

11. Is your child:

Male

Female

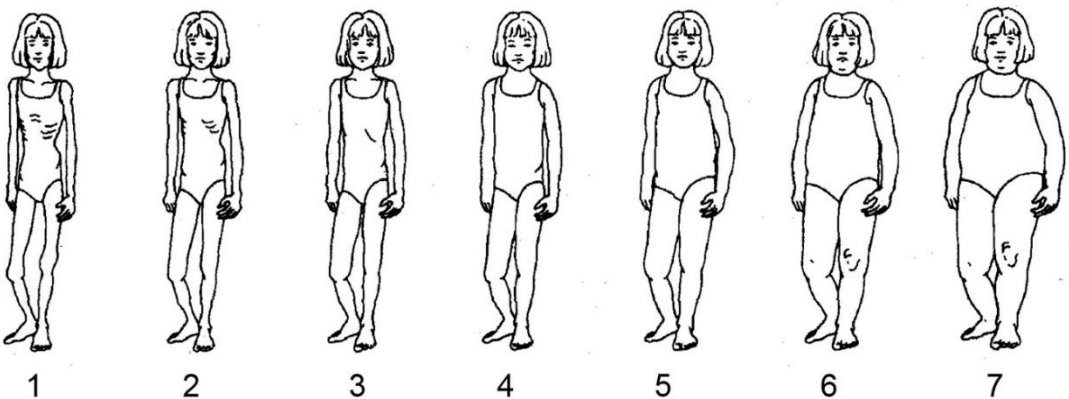
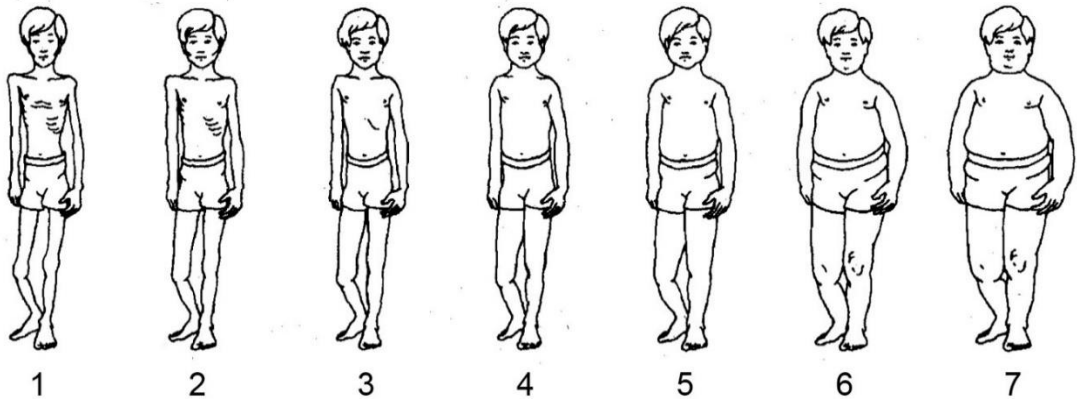
12. How old is your child? (years and months)

13. What year is your child in?

Reception

Year One

14. Please indicate using the scales above and their corresponding numbers, as accurately as possible the body shape of your child



**Page 4: Survey**

Please decide how much you agree or disagree with the following statements, by indicating your answer

People with a disability are a burden on society

People with obesity are easier to take advantage of (exploit or treat badly) compared with other people

People with depression have less to look forward to than others

Some people achieve more because of their obesity (e.g. they are more successful)

People with depression are a burden on society

Some people achieve more because of their disability (e.g. they are more successful)

People with a disability have less to look forward to than others

People with depression are easier to take advantage of (exploit or treat badly) compared with other people

People with obesity are a burden on society

Some people achieve more because of their depression (e.g. they are more successful)

People with obesity have less to look forward to than others

People with a disability are easier to take advantage of (exploit or treat badly) compared with other people

**Page 5: Thank you very much for taking part in this research**

Main researcher: Charlotte-Louise Baker (Doctorate in Clinical Psychology)

Supervisors: Professor Andrew Hill and Dr Gemma Traviss-Turner

Leeds Institute of Health Sciences, Level 10 Worsley Building, University of Leeds, Clarendon Way, Leeds, LS2 9NL

If you have any questions about the research please contact:

umcba@leeds.ac.uk

## Appendix 6: Participant Instructions

Alfina goes on a school trip... Please include **at least** four of these pictures in your story





### **Step by step guide for parents/ guardians**

*Please complete in the evening with your child, preferably as a bedtime story*

1. Please find on the reverse the character and the pictures to use in your story.
2. Please read the document “recording my story”. Once you are happy with this, and you have tried a practise test to ensure it is working, please go to step 3.
3. Sit side by side with your child with your phone next to you, and turn this paper to the reverse side, so you and your child can both see all the pictures.
4. Begin recording on your phone.
5. Please make up a story with your child about the character overleaf (Alfina) who is going on a school trip. Please use **at least four** of the other pictures in your story. **Please say to your child, “is it ok if I tell you a story?”** (please ensure they respond).
6. You might want to start your story, “I’m going to tell you a short story about Alfina who went on a school trip...” Most stories would usually last 3-4 minutes, but it can be as long as you would like.
7. Once finished, stop recording and email me the story (follow instructions on “recording my story”).
8. Once I have received this, I will email you a link to some questionnaires. These should not take more than 20 minutes to complete. You may also want to delete the recording from your phone and from the sent items on your email following receipt of these.

**Thank you for your help!**

## Appendix 7: Audio recording instructions

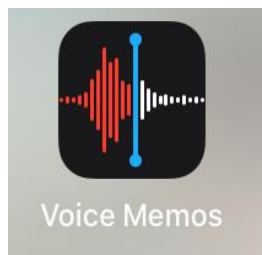
### Recording your story

#### Before you start:

- Please ensure that the volume is turned up high on your phone and you keep your phone next to you whilst you tell the story.
- Have a practise run with the app to make sure that you understand how to record, that it is working and that it is loud enough.

#### For iPhone:

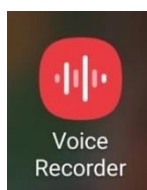
- On your smart phone you should have an application titled 'voice memos'. It might be in your 'utilities' folder. The app should look like this:



- Open the app. You will now see a red button at the bottom of the screen, this is what you will press to start the recording.
- When you are ready to start telling your story, press the red button. It will begin to time the recording and the button will turn into a circle with a red square in the middle. Begin your story.
- Once you have finished your story, tap the same button (circle with a red square). This will stop the recording.
- Your recording will now appear on your screen. Underneath this, there will be a number of different symbols, click on the one that has three dots next to each other.
- You will then see an option, 'share', click on this.
- Click on the mail option.
- This should open an email template with your recording in it (please ensure these are linked to your phone).
- Type in the 'To' box: [umcba@leeds.ac.uk](mailto:umcba@leeds.ac.uk) and click send.
- You will shortly receive an email confirming the receipt of your story.

#### For Samsung:

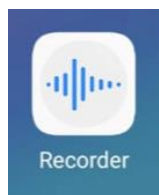
- On your smart phone you should have an application titled 'voice recorder'. The app should look something like this:



- Open the app. You will now see a red button at the bottom of the screen, this is what you will press to start the recording.
- When you are ready to start telling your story, press the red circle button. It will begin to time the recording. Begin your story.
- Once you have finished your story, tap the square button. This will stop the recording.
- It will then prompt you to save the recording, you might want to call it “story” and then click on save.
- You will then need to click on your recording, this might begin playing your story again.
- Click on the three vertical dots in the top right-hand corner.
- You will then see an option, ‘share’, click on this.
- Click on the mail option.
- This should open an email template with your recording in it (please ensure your emails are linked to your phone).
- Type in the ‘To’ box: [umcba@leeds.ac.uk](mailto:umcba@leeds.ac.uk) and click send.
- You will shortly receive an email confirming the receipt of your story.

### **For Huawei:**

- On your smart phone you should have an application titled ‘Recorder’. The app should look like this:



- Open the app. You will now see a red button at the bottom of the screen, this is what you will press to start the recording.
- When you are ready to start telling your story, press the red button. It will begin to time the recording and the button will turn into a circle with a red square in the middle. Begin your story.
- Once you have finished your story, tap the same button (circle with a red square). This will stop the recording.
- Your recording will now appear on your screen. You may need to reopen the recording by clicking on it. On the top right hand corner you will see 3 vertical dots, click on this.
- You will then see an option, ‘share’, click on this.
- Click on the email/gmail option.
- This should open an email template with your recording in it (please ensure these are linked to your phone).
- Type in the ‘To’ box: [umcba@leeds.ac.uk](mailto:umcba@leeds.ac.uk) and click send.
- You will shortly receive an email confirming the receipt of your story.

## Appendix 8: Coding frame and example quotes

### Primary outcomes

**Reference to physical appearance:** Frequency of reference to physical appearance and of obesity/ physically impaired or other physical difference/ appearance of the central character only.

### Reference to/ description of item of/ clothing worn by the central character

#### Positive

“She was told she didn’t have to wear her uniform to go on this trip, so she chose to wear her favourite blue jumper and her favourite matching blue trainers”

“but I like his trainers”

“But today is a special day, he gets to have a school trip so he gets to wear home clothes”

“She even saw a blue one, and blue is her favourite colour, you can see by the clothes that she’s got on, she’s got all blue clothes on”

#### Negative

“so now he’d squirted ketchup all over his trousers”

“Alfie has... split his trousers... “

“Alfie bent down to look for the ball and (sound effect) his pants split”

#### Neutral

“You think she’ll wear blue do you”

“I wonder what colour school uniform she’s going to wear”

“Luckily, he carried a bottle of ketchup, in his left jeans pocket”

“**Why does she have those?** Why does she have the dangles on her top? **Yeh.** It’ just the sort of top she’s got on isn’t it”

“So this is Alfie here, and he has a blue and white shirt on”

“Maybe they pull the hood in a little bit, so she can tie it up so theres not a gap at the top. Do you reckon? “

“And do you think, Alfie normally wears a school uniform? “

“So this is Alfie here, and he has a blue and white shirt on”.

“This is her here, can you describe what she looks like?”

“And hair bobbles. Jumper”

“Shoes and leggings, she’s all set then”

### Reference to body shape/ weight of central character

#### Positive

#### Negative

“not very good, why might he not be very good? Look at him, why might he not be very good? Think about his shape, or his size”

“he might not be able to swim as well”

#### Neutral

“What year do you think that she looks like she’d be in?”

### Reference to body in relation to physical disability/ comment about using a wheelchair of central character

#### Positive

“I bet she's got really strong arm muscles, from pushing the wheels on her wheelchair”

“You can play tennis in a wheelchair, you'd just have to do it a little bit different”

“I don't think Alfina would mind walking all the way home though because she's got her wheelchair, so she's got a pair of wheels”

“Alfie looked down, looked down at the wheels of his wheelchair, and there was a butterfly, just sat, on the corner of the wheel of his wheelchair!”

“Ok, well people can still play tennis in a wheelchair. They'd have to have practised because it's harder, so it might be a bit harder”.

### Negative

#### Neutral

“You'd have to do one arm wheeling around, chasing the ball, and the other you'd be trying to whack it”

“Once upon a time, there was a girl in a wheelchair”

“He had to be wheeled on to the bus because he was in a wheelchair”

“A girl... **in a... in** a wheelchair, who was, at school and they were talking about tennis! “

“But I wonder, if he got onto the bus and he'd have to have a little ramp because he's in a wheelchair”

“And Alfina was sat in her wheelchair, and she could see all the butterflies, and all the colours”

“Do you think that would stop her being able to join them?”

**Positive, negative or neutral attributes or descriptions:** The identification of socially desirable (positive) or undesirable (negative) attributes or descriptions (feature/ quality/ characteristic/ skills/ activity/ what the child is doing/ behaviour/ what happens to the child) in adjectives or phrases about the central character only. Specific mentions of either the character by name, or he/ she.

Positive descriptions used in adjectives/ phrases about the central character. These would be socially desirable in nature and might be qualities/ skills the child possesses, specifically about what they were doing/ an activity/ what happens to the child. Positive tone used.

“She was very excited”

“Her highlight was spotting the beautifully coloured butterflies which flew freely around the enclosure”

“She got to see lots of different animals and plants which usually thrive in the warm climate”

“She was told she didn't have to wear her uniform to go on this trip, so she chose to wear her favourite blue jumper and her favourite matching blue trainers”

“She's going to see lots of butterflies there, lots of different, beautiful coloured butterflies”.

“Lots of small butterflies, um, big butterflies, different colors, different shapes, different sizes, and they're going to be fluttering around her as she's going around tropical world having a look”

“I think she might be really good at tennis”.

“I bet she's got really strong arm muscles, from pushing the wheels on her wheelchair. **Mhmm**. You think so? I think so”

“I don't think Alfina would mind walking all the way home though because she's got her wheelchair, so she's got a pair of wheels”.

“And she stares at it in wonder and it flies off again, and she thinks to herself ‘ I wonder if the butterfly thought I was a flower”.

“They watch them fluttering around, and one lands on Alfina's arm!”

“Alfina got to school that morning, feeling very excited, as she and her friends were off on a school trip”

“She saw the butterfly fluttering past her face and it landed on a leaf next to her”.

“She was amazed”.

“I've chosen my favourite!” she said.

“They went into the butterfly house and Alfina looked around her in amazement”

“Alfina drew a beautiful picture of the butterfly and took it in to school the next day”

“Alfina sat with her friends and ate her lunch”

“Congratulations Alfina, you win first prize”.

“Alfina went up to the front of the class and got a certificate and the teacher shook her hand”

“She was so proud of herself , she couldn't wait to get home that night and tell her parents”

“Now my favourite picture is Alfina's picture of the beautiful spotted butterfly”

“She enjoyed her lunch, and it was time for a quick game of tennis afterwards”

“wow, look at those beautiful butterflies” she said, “look at that one, orange with spots! It's so pretty!”.

“She was really excited when she got to school, because she saw there was a school bus that was going to take them on their school trip”

“Alfina said “it was the best day ever!”

“When Alfina woke up again, she was already back at the school, and her mummy and daddy picked her up and gave her big kisses, and warm cuddles, and asked her how her day was”

“Alfina and her friends all had a brilliant time going through the gardens, looking for the pretty flowers and the beautiful butterflies”

“She excitedly went on the bus and sat next to her friend and they were really happy on the journey to their school trip”

“Alfina and her friends all had a wonderful afternoon”

“When she was asleep on the bus, she had wonderful dreams of butterflies, tennis rackets, and yummy sandwiches”

“Alfina goes on a school trip, and she needs a packed lunch, with lots of yummy things in, and a water bottle, and she needs a clipboard to make notes about what she sees on the school trip”

“And the teacher said “did you enjoy the school trip?” and Alfina said “yes it was ok” and then when they asked what her favourite part of the story was... for the school trip... they said “it was lunch time!”

“And she really enjoyed lunch time because she got to sit with her friends and have a chat and they didn't have to do any school work”

“She has fun going on the school bus on her trip, with all of her school friends”

“Alfina said she quite liked seeing the beautiful butterfly, fluttering around”

“Alfie really likes going to school and he likes learning, and he likes listening to his teachers”

“But one of the things he likes best about going to school, is sitting on the big, yellow bus”

“Alfie, likes to have a nice conversation with the driver about whether or not, it’s going to be a nice day”

“Alfie likes it best when it’s nice and sunny”

“and on this particular day, when his teacher was reading the story to him, it was a beautiful sunny day”

“So Alfina woke up early one morning, and she had a very excited feeling in her tummy, because, she was going on a school trip that day to Wimbledon, to watch the tennis with her classmates”

“Alfina loved tennis, so she was very excited”

“So she unpeeled the orange, and then, the most magical thing happened”

“Out of nowhere, a beautiful butterfly came and landed on her orange! “

“Alfina couldn’t wait to tell her mummy all about it”

“Ohh and Alfina felt so special, and all the children gathered round to look”

“Alfina was paired with her best friend, so she was very excited”

“And as soon as the lunch came out, actually the sun came out too and Alfina opened her lunchbox, and saw that her mum had packed her a lovely orange”

“With no teachers, and no other pupils... and he was very happy. For ever and ever”

“And then he... had all the school to himself, he decorated it in balloons, bought lots and lots of fruit shoots for his friends and they had a big party”

“write what though, what might he write? [He might write... he found a giraffe](#). Oh he found a giraffe, oh that’s good”

“Wowww, but it’s not going to be like any ordinary school trip, oh no no no, but he does go on a super cool... bus to go on his trip”

“Alfie said “that was the best school trip ever”, and off the bus they went, back to class, after having the best school trip... ever”

“Alfie’s mum had picked... had packed him the best packed lunch ever, that had all of Alfie’s favourite things in it”

“ And Alfie and C said “this is going to be the best school trip ever”

“And Alfie said “C, this is great, I wish we could stay here forever!”

“Alfie learnt something new that day”

“ Alfie, and all his super cool school friends went on the bus to go on the school trip...”

“And do you think, Alfie normally wears a school uniform? [No](#). But today is a special day, he gets to have a school trip so he gets to wear home clothes”

“So Alfina, gets on the school bus, with all her friends, and they make their way to the local park, and when they get there, Alfina’s coming off the school bus, and guess what she sees? A beautiful butterfly!”

“Alfina, is so excited to be going on the school bus to go to the park, all the wonderful things that they can do there”

“They all gather up beside the benches, and Alfina sits at the end of one, and her and all her friends all have a delicious packed lunch together”

“I think Alfina had a wonderful day when they got there”

“Oh yeh... maybe she likes blue and pink then, just like you and your sister”

“And when she gets on the bus, she sits beside her best friend called I. And they’re so excited...”

“She grabs her packed lunch, she grabs her friend I, and she says “I want to sit beside you on the bus, is that ok?” and I says “of course!”

“And they go into school, and they’re so excited, because guess what they’re going on today?”

“And J (Alfina), is super duper excited that she’ll be able to go with her friends from her class”

“So J went to pick her tennis because Alfina’s new name is J isn’t it, so J went to pick a new tennis racket, there was a rainbow coloured tennis racket, there was an green tennis racket, there was an orange tennis racket, but guess what colour she chose? **Blue**. A blue one, because that’s her favourite”

“do you think she’s got a favourite colour? **Blue**. Blue, I think so yeh”

“look at what colour her packed lunch is in? **blue**. Blue! Must be her favourite colour”

“And do you know what Jess said at the end of her school trip? “I’d like to go on this school trip again, because it was so... much... fun”

“But she said “oh, I love butterflies, lets go and tell our teacher” and her teacher was called Mrs M, “we’ll go and tell Mrs M that the butterfly landed on my nose”

“Guess who won the game? J (Alfina). J won the game”

“Alfina is going on a school trip today, she is very excited”

“Alfina loves the bus”

“Alfina doesn’t want the day to end, but soon it is time to go back on the bus, and go back to school”

“Alfina loves to play on the merry go round”

“ And what she did, she went to school that morning, and she remembered to take her special packed lunch that she was going to eat when she got to Astley Hall”

“And she got on the special coach that was going to take her there will all her friends”

“And Alfina was so excited, that she wanted to take her mummy and daddy back to Astley Hall at the weekend! Because she’d had such a good day”

“And do you know what Alfie’s favourite animal was? **No**. It had a really long neck... **a giraffe**. A giraffe... his favourite animal was a giraffe”

“Alfie was so excited, and all of his friends were so excited too”

“And he was very pleased with that, but after lunch, they decided that they wanted to do something else, so they had a look at the map, and they saw that there was a butterfly enclosure”

“Alfie looked down, looked down at the wheels of his wheelchair, and there was a butterfly, just sat, on the corner of the wheel of his wheelchair! Just looking at him!”

“Alfie told his mummy and daddy all about the lovely things that he had seen that day, including the monkeys, and his beautiful butterfly, butterfee”

“That’s a beautiful name, maybe we can call Alfie’s butterfly, butterfee?”

“And Alfie looked down, at the beautiful butterfly, and it was just the most amazing colours, so it was red and orange...”

“Alfie went through his lunch box, and ooh he had a lovely orange, and he had a nice sandwich, and some carrots, and some celery, which he dip dip dipped into some dip dip that his mummy had put in for him”

“Alfina opened her lunch box to find that she had... **an orange**... and some... **carrots and some cucumber**. It tasted yummy”

“Alfina liked tennis, very much”

“Off she goes, she shouts “bye bye” to everyone else in her house and her mummy and daddy say “bye bye Alfina, have a great day”

“She got home, she rang the doorbell and opened the door and said “mummy, daddy, I’m back!” (gasps) and they all had a big cuddle and a big kiss”

“And Alfina says “yeh I’ll do some writing” and she’s quite good at writing because she’s learned her alphabet and how to write letters, a bit like you”

“Alfina said “I’ve never played tennis before” , but she was pretty quick at learning how to play it”



“And the teacher said “well done Alfina, come and take a seat” and they all trundled back to school”

“And Alfina was sat in her wheelchair, and she could see all the butterflies, and all the colours”

“She even saw a blue one, and blue is her favourite colour, you can see by the clothes that she’s got on, she’s got all blue clothes on”

“Now it looks like she’s got a very healthy packed lunch there, she’s got sandwiches, and an orange... and she’s got a carrot.. uh huh... and what’s one of these? That’s... cucumber? Cucumber and some... celery... yeh. And a bottle of water”

Negative descriptions/ attributes used in adjectives or phrases about the central character. These might be socially undesirable in some way or describing the character or their actions/ the situation/ behaviour in a negative way. Negative tone used.

“She gobbled up all her food and drank lots of water”

“but, he realised he’d forgot it on the yellow school bus. So he had to run all the way back to get his lunch”

“And the teacher, Mr J said “Alfie! Stop thinking! And start cutting the corn out of the floor, Were going to be stuck here now for 12 days”

” But Alfie thought, “wait a minute, I didn’t want a school trip to pick corn, because that’s something healthy to eat... I wanted to find a burger bar”

“oh noooo!” he thought. It wasn’t the ketchup in his left pocket, it was the fake blood from vampire, from Halloween”

“The ketchup was in his right pocket, so now he’d squirted ketchup all over his trousers, and all over his corn, was blood from Halloween. But he ate it anyway”

“Alfie bent down to look for the ball and (blows raspberry) his pants split. “ohh nooo” he said”

“And then she folded the paper up into the shape of an aeroplane and threw it at Alfie’s head”

“Alfie has put fake blood on his corn today, Alfie has... split his trousers... Alfie has played terrible at tennis... Alfie swore (dad laughs, child laughs) Alfie pooped... (child laughs)... on the school bus”

“Alfie read it and he started to cry... and then he felt quite sad because she’d wrote nasty things about him”

“then Alfie turns and says “It’s me... big bad Alfie wolf”

“And then, he jumped up, are pigs actually meat? Pigs are meat yes. Like human? Well to Alfie, they were all meat”

“So just as S was laughing at him, and getting everyone else to laugh at him, they all had there eyes shut because they were laughing so hard, and all of a sudden they heard (dad howls)”

“He ate them all up, and spat out the bones into a pile, and then when he was going human again, in the middle of the night, he set all the bones on fire, and made a nice campfire”

“12 days?!” Alfie said, “but I’m starving!”

“And Alfie in general, is a big failure”

“And how good do you think Alfie might be at swimming? (silence) not very good”

“Why might he not be very good? Look at him, why might he not be very good?

Think about his shape, or his size”

“he might not be able to swim as well”

“Do you think Alfie’s going to enjoy his trip? **No**. No? why not? **Because he might see some T-Rex’s** (laughs) ohh my goodness! Oh my, well we’ll find out when he comes back off his trip”

“did you throw a reindeer back at Alfie? **I threw a reindeer**. You threw a reindeer back at Alfie? That’s not tennis! (child laughs)”

“And she went “oh!” she got such a fright”

“and Alfie, was a bit bored”

“Alfina couldn’t find her... water bottle”

*Neutral descriptions used in adjectives/ phrases about the central character.  
Absence of emotional tone, neither positive or negative*

“She tucked into her packed lunch that her mummy had made her and it included eating a sandwich, some cucumber, and carrot sticks, an orange and some water”

“After the tour of tropical world she and her classmates sat outside in the gardens to have a spot of lunch”

“She and her 29 classmates set off on this trip in this orange school bus”

“So this little girl, Alfina, is going on a school trip and she's going on a school trip today and she's going to go to Tropical world”

“And when she gets to Tropical World, she’s going to see... the butterflies”

“So she's going on a school trip with M, Miss M and her other friends from school”

“I wonder what colour school uniform she's going to wear. **She’s going to wear blue**. You think she’s going to wear blue do you”

“She's going to go on the school trip with her teacher, Mrs.... **M**, Ms. M? Miss M, her teacher”

“The teacher's going to ask her to do some writing and she might ask her something about the life cycle of a butterfly”

“Do you think you could tell her about the lifestyle of a butterfly? **Yeh**”

“And while she's on her school trip, she's going to need her packed lunch”

“And I think after she’s had her pack up, they might down to the tennis courts, and have a game of tennis”

“I wonder what she'd have inside her packed lunch? **She’ll have an apple... some water, some crisps and a sandwich**. Any fruit? Or vegetables? **Erm I said apple, water, sandwich and crisps...** oh you did sorry . Sounds like a good one!”

“I wonder where she's going to eat her pack up? **Ummm**. Do you think she might have it, she might have it at the bandstand? **No**. Near tropical world”

“So, when she's finished the tennis, the game of tennis, they might go have another little look around Tropical world”

“And when she's on her school trip, she's got to take a pen and some paper, and a clip board with her and she's going to do some writing”

“The day before it, her teacher tells her all the things that she might need to take with her, and put in her packed lunch”

“She’s going to go on a school trip, on the school bus”

“And then the school trip is over, and she gets back on the school bus, and goes back to school and her mum picks her up from school and takes her home”

“When she arrives at school all ready to get on the school bus and go on her day trip, the teacher ticks off their names one by one on a clipboard”

“So, this is Alfina”

“She goes home that night, and tells her mum all about what the teacher wrote on the board that needed to be in her packed lunch”

“The teacher told them to bring water, some fruit, a sandwich and some snacks, and that’s what her mum packs for her in her lunch box”

“There’s Alfina”

“She had sandwiches, carrots sticks, celery sticks, an orange and a bottle of water”

“She watched as it closed and opened it’s wings”

“Still Alfina hadn’t chosen her favourite animal”

“Here is Alfina, and she’s going to go on a school trip”

“Her mummy and her daddy made sure that she had a packed lunch ready for her when she was due to go that morning, and they put in a sandwich and a carrot sticks, some celery and an orange and a bottle of water for her”

“The bus left back towards the school, and Alfina fell asleep”

“Alfina and her school friends decided they would like to play tennis”

“Once they had done their treasure hunt, they then had their lunch, and Alfina sat with her friends”

“That’s Alfie, there isn’t anything underneath and that’s Alfie”

“There he is, that’s Alfie”

“And she sees somebody playing tennis, and she sees butterflies fluttering around”

“**Why does she have those?** Why does she have the dangles on her top? **Yeh.** It’s just the sort of top she’s got on isn’t it”

“A girl... **in a... in** a wheelchair, who was, at school and they were talking about tennis!”

“Do you think, Alfina goes on a school trip, and it’s to go and play tennis? Do you think she has to play tennis? **But I thought she couldn’t play tennis in a wheelchair?** You can play tennis in a wheelchair, you’d just have to do it a little bit different. **How?** You’d have to do one arm wheeling around, chasing the ball, and the other you’d be trying to whack it”

“Maybe they pull the hood in a little bit, so she can tie it up so theres not a gap at the top”

“And her mummy had done her packed lunch, and she’d got a sandwich, and some carrots, and some cucumber, and an orange. And under the orange in her packed lunch, she also had a little biscuit as well. And she had a water bottle”

“Alfie goes on a school trip”

“What do you think he goes on a school trip on?”

“I think he’s going on a school trip to see... some butterflies”

“**I think, he’s going to go and see...** a teacher”

“Alfie goes on a school trip on a yellow school bus, to see some butterflies, with his teacher”

“But, when he gets there, he starts playing tennis.... With some of the other children”

“So you think he starts writing down, so after hes played tennis, he starts writing down what he’s seen”

“So he’s seen some butterflies and I think he saw.... A frog... **I think he saw... a squirrel?** A squirrel, good one, what else? **Birds!** (shock) good, Birds!”

“Alfie sat down to have his lunch”

“And then when he was having dinner, what did he have in his blue lunch box to eat? **A sandwich?** A sandwich. **Carrots?** Carrots. **Erm** water... **cucumber!** Cucumber, good. Some water... **an orange and water**”

“so Alfie then had to sit down and listen to his... who’s that? **Teacher?** Listen to his teacher, and she was telling him all about the other types of animals that he might see”

“it was time for Alfie to go home, so he went back on to the yellow school bus, and went all the way back to school”

“And off Alfie went with his mummy, and his daddy”

**Overall theme of the story:** do the parents present the character as having ‘no problem’, ‘minor problem’ (simple uneasiness easily overcome by the child) or ‘major problem’ (great discomfort by the child, a condition if left unresolved that would be damaging to the child’s mental, social or emotional health)

No problem- the character does not display any difficulties within the stories.  
Generally, story remains positive/ neutral

Goes on a school trip to tropical world, see butterflies, have lunch, play tennis

Goes on a trip to tropical world, see some animals, have lunch, play tennis

Go to a butterfly farm, have a good time, one lands on Alfina

Went to the zoo, saw lots of animals, drew a picture and won first prize

Went on a school trip, did a treasure hunt, played tennis

Went on a wildlife trip to the countryside, recording animals seen, went past a farm

Go on trip, have fun, have fun with friends, talk about lunch being their favourite part

Went to class, teacher read them story, sat with best friends, enjoyed talking to the bus driver

Go to watch a tennis match at Wimbledon, rain halts play for a bit, sun comes back out and finish watching tennis, butterfly lands on her orange

Went on a school trip, took packed lunch, told teacher what they had done

Go on a school trip back in time, see pirates playing tennis. Had a great time

Went on a school trip, played tennis, ticked off things they saw.

Goes on school trip to the countryside, naming animals with certain letters

Goes to the park, has lunch with her friends, sees a butterfly

Goes on a school trip with her class, play tennis with her friends, butterfly lands on her nose

Go to the butterfly house with school, draw a picture of a butterfly

Goes on a school trip to a new leisure centre, stops off at the park on the way. Has a go playing tennis after watching some swimming and diving

Go on a school trip to Astley Hall, go on tour round the house and gardens

Went on a trip to the safari park, and went to the butterfly enclosure

Went on a school bus, sang some songs, did some maths

Went on a trip, made some notes, went to an insect zoo

Went to a butterfly house, saw some butterflies, played tennis with her friends

Minor problem: The central character displays some difficulties whilst on the school trip. Simple uneasiness easily overcome by the child

Not good at swimming due to his size

Went on a school trip, left lunchbox on the bus, had to run back and get it

Goes on a trip, plays tennis with his friend. Gets a reindeer thrown at him

Lost her water bottle. Found it and ran back to the bus just in time before it went

Major problem: The central character has a major problem during the story. Great discomfort experienced by the child, which if left unresolved would be damaging to the child’s mental, social or emotional health

Puts fake blood over corn and trousers, rips his trousers, girl made cruel notes about him and threw paper plane at his head, laughed at by other children

**Behavioural outcome:** Is the behavioural outcome/ ending of the story for the central character presented as positive, negative or neutral

*Positive* The ending of the story for the central character is described positively, for example, the child wins an award for something they have done (a picture)/ has a good time/ makes new friends/ gets to read a story to the class/ couldn't wait to tell their parents about how good a time they had

“Congratulations Alfina, you win first prize”. Alfina went up to the front of the class and got a certificate and the teacher shook her hand. She was so proud of herself, she couldn't wait to get home that night and tell her parents”

“When she was asleep on the bus, she had wonderful dreams of butterflies, tennis rackets, and yummy sandwiches. When Alfina woke up again, she was already back at the school, and her mummy and daddy picked her up and gave her big kisses, and warm cuddles, and asked her how her day was. Alfina said “it was the best day ever!”

“and on this particular day, when his teacher was reading the story to him, it was a beautiful sunny day”

“What a special day it had been. And after they'd had their lunch, they watched the tennis, they got back on the coach and drove back, and Alfina couldn't wait to tell her mummy all about it”

“And then he... had all the school to himself, he decorated it in balloons, bought lots and lots of fruit shoots for his friends and they had a big party. With no teachers, and no other pupils... and he was very happy. For ever and ever”

“so he's been to the zoo now, he's got back on the bus. **Gone back to school.** And hes gone back to school, and what do you think he'll tell his teacher? **He'll tell his teacher we had a lovely time, lets go home**”

“Alfie said “that was the best school trip ever”, and off the bus they went, back to class, after having the best school trip... ever. The end... “

“I think Alfina had a wonderful day when they got there”

“we'll go and tell Mrs M that the butterfly landed on my nose” And do you know what J (Alfina) said at the end of her school trip? “I'd like to go on this school trip again, because it was so... much... fun”

“Ok, so do you think Alfina's had a good trip? **Yes.** And how do they get home? **Take the bus!** all get back in the bus, and then the teacher takes... **the register... do the afternoon register.** And that way they don't leave anyone behind in the butterfly house. And then they go back to school”

“Alfina doesn't want the day to end, but soon it is time to go back on the bus, and go back to school”

“And Alfina was so excited, that she wanted to take her mummy and daddy back to Astley Hall at the weekend! Because she'd had such a good day”

“And then they went home, and Alfie told his mummy and daddy all about the lovely things that he had seen that day, including the monkeys, and his beautiful butterfly, butterfee. The end”

“ And what do you think Alfie's friends did on the school trip, do you think they played with him? **Yep. Done!** You're done? Ok, alright were done. Thank you”

“They go and get the car going, and they have a wonderful trip. **Yep!** And then they come home, and they have their tea, snuggle into bed, and have a really nice rest because they’ve had a busy day”

“So Mrs H shouted all of the children to come back, and she took the register, and then they all got back on the bus, and came back to school... (parent laughs), where there mums and dads, were waiting for them. Do you think that Alfina would have had a good school trip? **Yeh!** Yeh? Had a lot of fun? **Yeh, ok**”

Negative the ending of the story is described negatively/ as unsuccessful for the central character. E.g. the child fell out with their classmates/ gets sent home early for misbehaving.

“do you think Alfie played tennis, or do you think they just went to watch tennis? **I think they just watched tennis, and then, and then found a left lunch box on the on the floor, and then they saw a school bus going past.** Do you think they said “wait for us, wait for us, that’s our school bus to go home!” **yes, yeh.** Oh goodness me. **That’s all of my story**”

“Do you think Alfie’s going to enjoy his trip? **No.** No? why not? **Because he might see some T-Rex’s** (laughs) ohh my goodness! Oh my, well we’ll find out when he comes back off his trip”

Neutral as to the ending of the story. Neither positive or negative. No particular positive or negative behavioural outcomes mentioned specifically in relation to the character. Central characters not mentioned or referred to as so outcome unclear.

“Since the weather was so lovely and sunny Mrs G decided to let the children play some tennis at the nearby tennis courts before they set off back to school”

“They go back on the school bus. I don't think Alfina would mind walking all the way home though because she’s got her wheelchair, so she’s got a pair of wheels”

“And then the school trip is over, and she gets back on the school bus, and goes back to school and her mum picks her up from school and takes her home”

“ They went past a farm... **bunnies?** Bunnies? they saw some bunnies. They went past a farm, what might they have seen at the farm? **Umm donkeys?** Yeh donkeys, sheep, cows, they even saw a bull. So they wrote a really long list of all the different animals that they saw”

“Do you think, Alfina goes on a school trip, and it’s to go and play tennis? Do you think she has to play tennis? **But I thought she couldn’t play tennis in a wheelchair?** You can play tennis in a wheelchair, you’d just have to do it a little bit different. **How?** You’d have to do one arm wheeling around, chasing the ball, and the other you’d be trying to whack it”

“And then, it was time for Alfie to go home, so he went back on to the yellow school bus, and went all the way back to school. Then, it was home time want it? So, what do teachers say at home time? **It’s home time!** It’s home time. And off Alfie went with his mummy, and his daddy”

“so they’d seen people playing tennis, they’d seen butterflies, in the butterfly house. And the teacher said “well done”

“So, once they’d finished, (child laughing) once they’d finished playing tennis, where do you think they’d go? Did they fancy going for a walk? Stop, you need to stop, calm down, and listen. (child laughing) Right, you’re not stopping and you’re not calming down. Stop! Are you going to sit nicely? Sit nicely please. Throw that at me one more time. Stop”

“when she got home, got back to school, her mummy and her... **daddy...** came to... pick her up. Up. And she went home, for her... dinner”



**Peer interactions:** Peer reactions towards the central character. Also interactions between peers and the central character (e.g. mentions of playing together), specific mentions of friends/ best friends. Only specific mentions included where central character and friends mentioned. For example “they did X” was not coded, as this was more ambiguous as to who was being referred to

*Positive: Positive interaction between central character and another child, or positive reaction from peer towards central character.*

“Alfina and her friends all had a brilliant time”

“She excitedly went on the bus and sat next to her friend and they were really happy on the journey to their school trip”

“Alfina and her friends all had a wonderful afternoon”

“She has fun going on the school bus on her trip, with all of her school friends”

“She really enjoyed lunch time because she got to sit with her friends and have a chat and they didn’t have to do any school work”

“before they could get on the bus and she also wrote, who was going to be with whos pairs so Alfina was paired with her best friend, so she was very excited”

“And Alfie said “C, this is great, I wish we could stay here forever!”

“Alfina sits at the end of one, and her and all her friends all have a delicious packed lunch together”

“she says “I want to sit beside you on the bus, is that ok?” and I says “of course!”

“Alfie was so excited, and all of his friends were so excited too”

*Negative: Negative interaction between the central character and another child, or negative reaction from a peer towards central character.*

“And then she folded the paper up into the shape of an aeroplane and threw it at Alfie’s head”

“And Alfie in general, is a big failure, but I like his trainers” and that’s what Suzie wrote”

“She had a little pencil, like this, and she was writing down, saying... you know, “Alfie has put fake blood on his corn today, Alfie has... split his trousers... Alfie has played terrible at tennis... Alfie swore (dad laughs, child laughs) Alfie pooped... (child laughs)... on the school bus (child laughs)”

“So just as S was laughing at him, and getting everyone else to laugh at him, they all had their eyes shut because they were laughing so hard”

*Neutral: Neutral interaction between central character and peers, or neutral reaction from peer towards central character. Mentions of friends/ best friends but no specific reaction mentioned*

“So she’s going on a school trip with M, Miss M and her other friends from school”

“She and her friends were off on a school trip”

“Alfina sat with her friends and ate her lunch”

“Alfina sat with her friends”

“Alfina and her school friends decided they would like to play tennis. So they went into groups of two, and played tennis together”

“He starts playing tennis... With some of the other children”

“Well the teacher wanted to read a story to Alfie and his class friends...”

“When Alfie was in class, he had to sit next to, two of his friends”

“His friends were called T and S”

“He had all the school to himself, he decorated it in balloons, bought lots and lots of fruit shoots for his friends and they had a big party”

“Alfie, and all his super cool school friends went on the bus to go on the school trip...”

“Alfie sat beside his best friend, C”

“So Alfina, gets on the school bus, with all her friends”

“Alfie, and his friend L, are going to play tennis”

“Alfie, hit it to his friend L, and L hit it back”

“She sits beside her best friend called I”

“And J (Alfina), is super duper excited that she’ll be able to go with her friends from her class”

“So J (Alfina) goes on the school bus, with her best friend I”

“And she got on the special coach that was going to take her there with all her friends”

“Alfie decided that he and his friend J definitely wanted to go and see the butterfly enclosure”

“And what do you think Alfie’s friends did on the school trip, do you think they played with him?”

“Alfina and her friends got back onto the bus and started to drive back home”

“And her friend said “don’t worry, I think it’s got your name on, doesn’t it, it’s got a name sticker”

“So Alfina and her friends, all get on the yellow school bus, and off they go”

“and then Alfina and her friends joined in”

“She meets all her friends in her class”

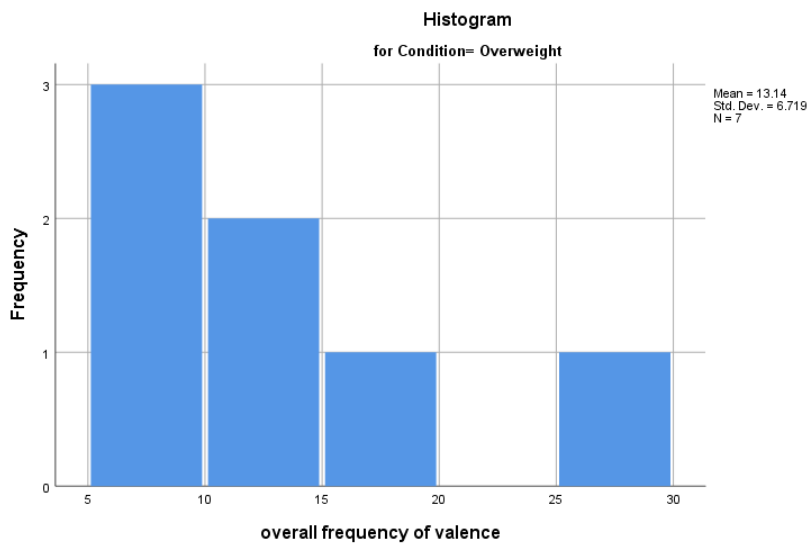
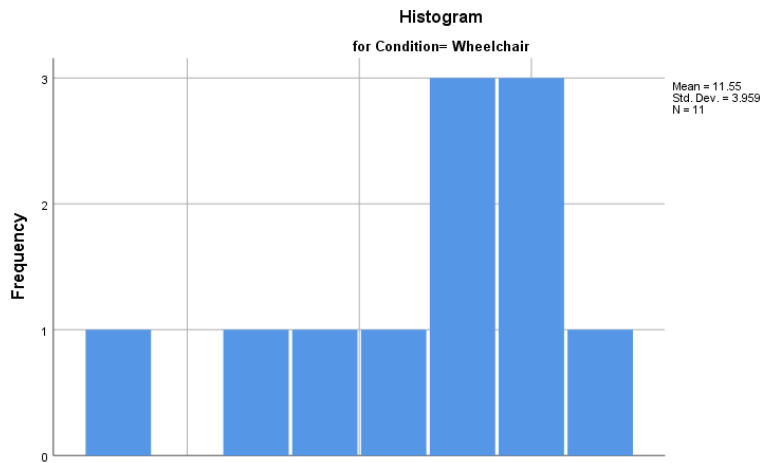
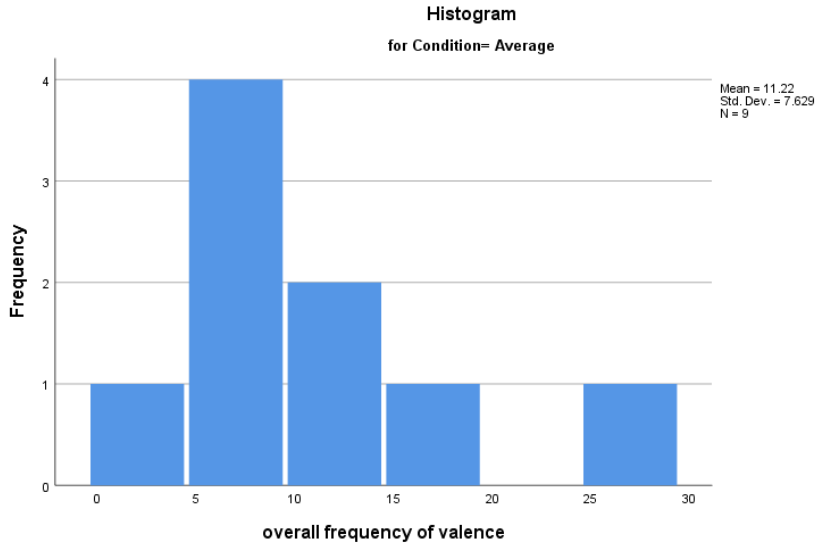
“and she sat with her best friend, J”

“J and J are her best friends”

“So she went and joined them and they played tennis”



## Appendix 9: Tests of normality and homogeneity of variances



### Test of Homogeneity of Variances

|                              |                                      | Levene    |     |        |      |
|------------------------------|--------------------------------------|-----------|-----|--------|------|
|                              |                                      | Statistic | df1 | df2    | Sig. |
| overall frequency of valence | Based on Mean                        | 1.416     | 2   | 24     | .262 |
|                              | Based on Median                      | .871      | 2   | 24     | .431 |
|                              | Based on Median and with adjusted df | .871      | 2   | 18.343 | .435 |
|                              | Based on trimmed mean                | 1.314     | 2   | 24     | .287 |

### Tests of Normality

|                              | Which condition | Kolmogorov-Smirnov <sup>a</sup> |    |       | Shapiro-Wilk |    |      |
|------------------------------|-----------------|---------------------------------|----|-------|--------------|----|------|
|                              |                 | Statistic                       | df | Sig.  | Statistic    | df | Sig. |
| overall frequency of valence | Average         | .186                            | 9  | .200* | .903         | 9  | .269 |
|                              | Overweight      | .197                            | 7  | .200* | .898         | 7  | .316 |
|                              | Wheelchair      | .182                            | 11 | .200* | .938         | 11 | .492 |

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction