

Do children want skinny friends? The role of 'weight' in children's friendship preferences and inter-group attitudes

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Título: ¿Los niños quieren amigos flacos? El papel del "peso" en las preferencias de amistad y las actitudes intergrupales de los niños.

Resumen: Este estudio examinó el desarrollo de las actitudes hacia estímulos que representan a figuras de peso bajo utilizando dos medidas diferentes. En primer lugar, los niños (de 5-11 años) atribuyeron rasgos positivos y negativos a imágenes de personas de peso bajo, peso promedio y sobrepeso. En segundo lugar, se examinó la preferencia por las mismas imágenes en tres contextos diferentes (Total N=151). La tarea de atribución de rasgos mostró que el sesgo hacia el peso anuló el sesgo de género entre las niñas de todas las edades; las chicas prefirieron imágenes de peso bajo significativamente más que las de peso promedio o sobrepeso. En la tarea de preferencias, cuando tenían que elegir a un "amigo" o "a quién invitar a casa", tanto los niños como las niñas de 5 a 7 años prefirieron figuras de peso bajo.

Palabras clave: Bajo peso; niños; sesgo de peso; atribución de rasgos; complexión física.

Abstract: This study examined developmental attitudes towards underweight stimuli using two different measures. Children aged 5 - 11 firstly attributed positive and negative traits to images of *underweight*, average-weight and overweight stimuli. A second measure investigated picture preference of the same stimuli for 3 different contexts (Total N=151). The trait attribution task revealed that weight bias overrode gender bias amongst female participants of all ages; girls significantly preferred underweight images to average-weight and overweight images. In the picture preference task, preferences for the underweight stimuli were given by both male and female 5 to 7 year olds, when selecting which stimuli they would have as a 'friend' or to 'take home to play'.

Key words: Underweight; children; weight bias; trait attribution; body type.

Introduction

In modern day Western society there is a constant interest in weight, with headlines such as, "When is thin too thin?" (Wilson, 2006); and at the opposite end of the spectrum, "Children are getting fatter faster than we can say 'cheeseburger,'" (Husen, 2007). Alongside a reported prevalence of children suffering from restrictive eating disorders (Feldman, Feldman & Goodman, 1988; Kostanski & Gullone, 1999), 16.9% of boys and 16.8% of girls between the ages of 2 and 10 are now classified as obese (Batty, 2007). Recent studies have reported how children from a very young age are displaying a 'thin-ideal' or preference for thinness (Collins, 1991; Dittmar, Halliwell & Ive, 2006); additionally, anorexia is thought to effect 1 in 100 schoolchildren, with reports of the eating disorder in children of 6 years and younger (Hill, 2007). Conversely, childhood obesity is reportedly rising, and is not only a recognised health risk, but has also been found to lead to social exclusion and stigmatisation (Collins, 1991; Thiel, Alizadeh, Giel & Zipfel, 2008). With the extremities of weight becoming ever evident within Western society, we propose that children's attitudes towards weight may have altered. As such, the current research investigates children's preferences for weight in others.

Research has shown that weight is a social category that children become aware of from the age of 3, when they are able to accurately distinguish between underweight, average-weight and overweight images (e.g. Lerner & Gellert, 1969; Powlishta, Serbin, Doyle & White, 1994). Moreover, weight

prejudice has been detected amongst children at an early age (Powlishta et al, 1994). Brown (1995) describes prejudice as the "holding of derogatory social attitudes or cognitive beliefs, the expression of negative affect, or the display of hostile or discriminatory behaviour towards members of a group on account of their membership to that group" (p8). Indeed, overweight children report weight based teasing from their peers, which in turn has been associated with anxiety, depression and eating disorders in the overweight child (Krukowski et al, 2008). With increasing preferences for a thin ideal, and a rise in obesity and weight-based teasing in mind, the current research sought to identify current attitudes and preferences that school children hold towards underweight, average-weight and overweight stimuli, and to identify how these may have changed in recent years.

Previous body-type preference research

Previous body-type research reports a consistent preference among children for 'normally' weighted stimuli, and least preference for overweight stimuli (e.g. Staffieri, 1967; Latner et al, 2007). Traditionally, children's stereotypes for body-type have associated 'fatness' with negative descriptions and a healthy, or 'normal', weight with positive descriptions (Cavior & Lombardi, 1973; Kirkpatrick & Sanders, 1978; Lawson, 1980; Staffieri, 1967). For example, Staffieri (1967) asked boys aged 6 to 10 to assign personality traits to silhouettes of extreme mesomorph (muscular), endomorph (overweight) and ectomorph (underweight) body-types. The muscular silhouette was most favoured whilst the underweight and overweight silhouettes were equally unfavoured. A further study supported this finding in male and female participants from 6 to 12 years old (Kirkpatrick & Sanders, 1978). Furthermore, both the overweight and the underweight silhouettes were viewed unfavourably, but the

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overweight figure more so, suggesting that more rigid negative stereotypes for overweight stimuli exist amongst children, in comparison to stereotypes for the underweight stimuli. Contemporary research suggests that overweight stimuli continue to be perceived negatively (Klein & Shiffman, 2006; Latner et al, 2007), despite obesity amongst children increasing, where one might assume its normalisation reduces the extent of negative attitudes. Yet, overweight children still report more weight-based teasing than non-overweight children (Davison & Birch, 2002).

We suggest that the positive stereotypes allocated to average-weight stimuli in previous studies may no longer prevail, due to the increasing preference for thinness that has been observed in a number of children's studies (e.g. Collins, 1991; Dittmar, Halliwell, & Ive, 2006; Kostanski & Gullone, 1999; Truby & Paxton, 2002; Veron-Guidry & Williamson, 1996). For example, Dittmar et al (2006) researched 5-7 year old girls' preferences for thinness by investigating their attitudes towards body image, as influenced by the unrealistically and unhealthily proportioned Barbie doll. Girls as young as 5 displayed increased body dissatisfaction after exposure to Barbie doll images. Worryingly, this desired thinness is below the average body mass index (BMI) norm (Truby & Paxton, 2002). Additional research including boys also supports the notion of a preference for a thinner ideal self (Collins, 1991). These reports of preferences for extreme thinness support the necessity for our study to measure male and female children's attitudes and preferences towards underweight images as well as average-weight and overweight images, thus building on previous research (e.g. Powlishta et al, 1994).

Gender and age differences in weight preference

Same-gender bias is consistently displayed amongst children (e.g. Powlishta et al, 1994). Children will maintain more distance to a member of the opposite sex, in comparison to own sex, even when the different-sexed stimuli are the same weight (Lerner et al, 1975). This may be because gender is the first social category children become aware of (Powlishta et al, 1994) and therefore more strength is given to same-gender preferences than same-weight preferences. As another example, Feldman et al, (1967) reported findings of adolescent girls believing they are fat, when they were actually a healthy weight. In contrast, adolescent boys who believed they were too fat generally were. Furthermore, accuracy of body size perception has been evidenced earlier in girls than boys (Truby & Paxton, 2002), suggesting that girls may become aware of weight and the social norms associated with it sooner than boys. Moreover, girls have reported a significantly thinner ideal self, in comparison to a slightly thinner ideal-self preference found amongst male participants (Collins, 1991). Reasons for these gender differences may correlate to masculine and feminine stereotypes, as displayed through previous body-type stereotype research (e.g. Staffieri, 1967; Collins, 1991). This is supported by findings

that display children of both genders are more negative to an overweight female than an overweight male (Lerner et al, 1975; Turnbull et al, 2000).

Age has also been identified as an isolated influence on weight preferences (Kirkpatrick & Sanders, 1978); Dittmar et al (2006) note that the negative impact of Barbie on girls is not as strong at age 8 as it is at age 5. However Davison and Birch (2002) found the opposite; peer teasing and parental criticism mediated weight and self-concept at age 7 but not age 5. Furthermore, children from different age groups have been shown to vary in their stereotypical views towards different weights. Kirkpatrick and Sanders (1978) attributed a difference in weight preferences solely to participants' age, not gender, when studying 6 to 60 year olds. In comparison to the 6 to 9 year olds, the 10 to 12 year olds were not as negative about the overweight stimuli, considered the muscular stimuli to be somewhat negative, and were more positive to the underweight stimuli. Lawson (1980) observed similar body-type stereotypes for boys and girls in grades 2, 4 and 6 whereby 'average-weight' images were deemed positive and 'fat' images deemed negative. Unlike Kirkpatrick and Sanders' (1978) findings, the strength of the stereotype actually increased with age (Lawson, 1980), whereas more recent findings suggest that children's attitudes are more flexible with age, and therefore incite less prejudice as the child gets older (Powlishta et al, 1994). As children under and above the age of 7 have been found to hold differing attitudes (Aboud, 1988; Kirkpatrick & Sanders, 1978; Powlishta et al, 1994) we divided participants into 2 categories according to age. The first category included children aged 5-7.5, and the second category included children from 7.5-11 years old.

Importantly, some age and gender attitudes have been found to interact in previous studies (Truby & Paxton, 2002). For example, older children are more likely than younger children to nominate same-sex classmates positively, with girls displaying more gender bias than boys (Powlishta et al, 1994). Evidently, age and gender may influence preferences towards certain body-types (Kirkpatrick & Sanders, 1978). As such, we expected to find a strong gender bias amongst participants. Additionally, considering the aforementioned research, we expected weight preferences to be stronger amongst girls than boys.

Theoretical background

A number of theories exist to help determine why different age trends are observed amongst children, when making preferences towards social groups or categories. Aboud's (1988) sociocognitive theory provides a developmental explanation for children's changing attitudes. External attributes such as body size, gender and ethnicity, are used by children to classify ingroups and outgroups. Due to a child having a preference for those who are familiar, the outgroup members are rejected. This rejection of the outgroup generates prejudice towards the outgroup members, functioning

to boost the individual's self-esteem or preserve cognitive consistency (Powlishta et al, 1994). However, with age the child is able to focus on the individual properties of another person, and a reduction of prejudice can be observed. It is between these two stages, at approximately 7 years old, that a child will focus on the group qualities as being paramount to the individual, and prejudice is most likely to occur (Aboud, 1988). Thereafter, prejudice declines and attitudes become more flexible with age (Powlishta et al, 1994). Importantly, sociocognitive theory relates to age trends observed for stereotyping, whereby children aged 7 and below will harbour more rigid attitudes and stereotypes than older children; this has been supported by previous research (e.g. Kirkpatrick & Sanders, 1978).

An alternative explanation for previously observed age differences can be drawn from Social Identity Theory (SIT; Tajfel, 1974). SIT posits that individuals will group themselves based upon social comparison and a collective self-definition. Self-definition occurs by incorporating social stereotypes into the self, thus encouraging an outcome of raised self-esteem (Hogg & Vaughan, 2005). Despite the limited research on SIT regarding children and prejudice, it is apparent that very young children possess judgements consistent with adults', as such, SIT has been viewed as relevant to bias amongst children (Cavior & Lombardi, 1973; Powlishta et al, 1994). In accordance with preferences for a thinner self (Truby & Paxton, 2002), social identity theory would predict a shift in previously observed stereotypical attitudes towards different weights, whereby preference for underweight images has increased.

Recently, Social Identity Development Theory (SIDT; Nesdale, 2003) has proposed a social identity explanation for children's prejudice. Specifically, Nesdale (2003) explores ethnic prejudice, but the processes he outlines involve four sequential stages that could be relevant to children's acquisition of weight bias. The first stage (at 2-3 years old) involves beginning to respond to cues such as age and gender. The second stage is 'awareness'. SIDT implies that awareness is a perception to visual differences. Children begin to become aware of social categories, which are shaped by others' opinions and evaluations. The third stage is 'preference'. The child will learn that they are a member of a particular social group, and absorb information that consistently enhances the group they belong to, thus supporting a preference for their own group in comparison to others. Stage four, 'prejudice', suggests that rather than prejudice declining from age 7 (Aboud, 1988) it can become more apparent, cementing the change from preference for the in-group to prejudice towards the out-group. Importantly, this final stage does not occur amongst all children. According to SIDT we might expect to find stronger weight preferences or prejudice later in development.

A further theory to consider is social learning theory (SLT; Bandura & Walters, 1963), which interprets attitudes as being more stable with age. Specifically, SLT suggests that prejudice is acquired through direct learning and imitation,

commencing early in childhood. Social learning theory is presented as person-specific, whereby individuals differ in their attitudes towards others. As such, experiences of the individual could vary developmental patterns of prejudice from one child to the next. Additionally, it underlines the varying influences one may come across that could affect attitude formation differentially to another individual. Consequently, biological, socioeconomic, ethnic and cultural differences and various influences of socialisation agents (e.g. parents, teachers, media) all effect the formation of prejudice. This theory could enable understanding of the gender, age, ethnic and socioeconomic differences observed in existing research (Collins, 1991; Davison & Birch, 2002; Dittmar et al, 2006; Gardner et al, 1999). Finally, social learning theory could lend explanation as to why children's attitudes may be found to vary in different situations (Jaffe & Worobey, 2006; Lawson, 1980).

Powlishta et al (1994) highlight how different measures appear to draw out different developmental trends and as such multiple measures should be employed when measuring children's attitudes and prejudices. For example, trait attribution tasks elicit a decline in prejudice with age, whereas picture preference measures elicit an increase in prejudice with age. Upon these recommendations the present study employed 2 measures.

Existing measures of weight preference

Children's body-type stereotypes have commonly been investigated by employing trait attribution measures, whereby differently weighted stimuli (e.g. silhouettes and figure drawings) are assigned to either a positive, neutral or negative trait or description (Kirkpatrick & Sanders, 1978; Lawson, 1980; Staffieri, 1967; Turnbull et al, 2000; Powlishta et al, 1994). Silhouettes have typically represented endomorph (overweight), ectomorph (underweight) and mesomorph (muscular) figures, or average and overweight figures only. In addition, it is important to consider how stereotypes have been found to apply to body-build images but not to peers or the self (Lawson, 1980); for example, the home environment is said to shape how food and weight is experienced (Jaffe & Worobey, 2006). As individuals are open to peer teasing (Davison & Birch, 2002), prejudicial teachers (Latner et al, 2007), and increased educational focus and awareness on nutritional eating (Kostanski & Gullone, 1999), we wanted to investigate how the formation of children's attitudes varied in different environments. It is therefore important to employ multiple measures when investigating children's attitudes towards weight.

Our two-part study aimed to build upon Powlishta et al's (1994) study, by incorporating underweight images as stimuli during a trait attribution task. Powlishta et al (1994) highlight the importance of employing multiple measures when researching children's preferences, themselves investigating children's preferences towards overweight and normal weight children by employing a trait attribution task along-

side a picture preference measure. The trait attribution task involved 12 positive (e.g. clean, polite) and 8 negative (e.g. sad, naughty) adjectives. Participants (60-159 months) were asked to assign each adjective to a picture of a normal weight or overweight child, or both. The picture preference measure involved unfamiliar drawings of a normal weight and overweight child and participants were asked who they would most like to play with. Both measures of weight preference were employed to determine the flexibility of prejudice in childhood, the trait attribution measure was specifically included to detect cognitive developmental prejudice, signified by a decline in prejudice during middle childhood (Aboud, 1988). Findings revealed that boys were more biased than girls when attributing positive traits to normal and overweight people, but that girls were more biased against overweight peers than boys for the picture preference task. However with age, equal biases were found amongst male and female participants. Thus, in accordance with cognitive developmental theory, it was found that beliefs grew more flexible with age (Powlishta et al, 1994).

More recently differently weighted figures have been accurately developed based on the body mass index (BMI) measurement and employed to investigate body-size perception and dissatisfaction amongst young children (Truby & Paxton, 2002). Truby and Paxton (2002) developed this scale by weighing and measuring boys and girls, calculating their BMI and computer generating anonymous images. The female BMI images were slightly thinner than male images, in accordance with the normal sex variation in BMI distribution for young children. Creating the measure in this way ensured it was representative of the weight of modern-day children, unlike previous silhouettes and drawings that have been employed (e.g. Staffieri, 1967). Consequently, these images portray a more realistic representation of the varying weights within child peer groups, thus providing a more accurate measure for determining children's current weight preferences towards similarly-aged peers.

The present investigation

The aim of this research was to determine whether a change in childhood weight preferences has occurred in the last few years, and whether these preferences alter in different contexts. Additionally, we wanted to observe any gender and age trends amongst participants when assigning traits and displaying preferences for pictures based on their weight, and how this may change in different contexts.

In this article two studies are described that test the hypotheses that, in accordance with self-preference studies and the emerging thin ideal identified amongst young children (e.g. Truby & Paxton, 2002; Dittmar et al, 2004), participants will prefer underweight stimuli when assigning positive and negative traits, and during a picture preference task. Additionally, in accordance with consistently detected negative stereotypes towards the overweight stimuli in previous studies (e.g. Staffieri, 1967) the overweight stimuli will be least

preferred. These attitudes towards underweight and overweight images will outline a shift in children's attitudes whereby they move away from favouring the average or 'normal' weighted stimuli (e.g. Powlishta et al, 1994) due to the presence of the underweight stimuli. We also tested developmental age differences amongst younger and older children in accordance with previous developmental trends of prejudice, whereby we predicted that younger children would hold more rigid negative attitudes towards overweight stimuli, and positive attitudes towards underweight attitudes in comparison to older children (e.g. Aboud, 1988; Powlishta et al, 1994). In addition, we hypothesised a gender bias, whereby children would prefer stimuli of their own gender, regardless of their weight due to strong own-gender preferences previously detected amongst children (Powlishta et al, 1994).

Method

Participants

A total of 151 pupils from a Primary school in Kent, England, participated in the study, including males ($N=67$) and females ($N=84$) aged 5-11 years old. Year groups 1 to 3 consisted of 5 to 7.5 year olds; year groups 4 to 6 consisted of 7.5 to 11 year olds. The pupils were predominantly middle-class, white, and British.

Measures

Two measures were administered to assess children's attitudes towards underweight, average-weight and overweight stimuli. The first was a trait attribution measure, followed by a picture preference measure. Both measures involved children selecting images adapted from Truby and Paxton's study (2002). These images consisted of 3 male and 3 female figures (most underweight, average-weight, most overweight), and were viewed by all participants (i.e. both males and females). We anticipated that incorporating images based on real body mass indices the measure would elicit a more 'real-life' response than "extreme" silhouettes (e.g. Staffieri, 1967).

Trait attribution measure

The first study involved administering a trait assignment task to measure current childhood weight preferences. As this research was not specifically concerned with stereotypes, but overall preference of weight, descriptions were assigned to images rather than images to traits; the difference being that not all descriptions were used by participants. Building on studies by Powlishta et al (1994), children were able to assign traits to an underweight image of a male and female child, which has never previously been examined through a trait assignment task.

The trait attribution measure appeared as 12 randomly ordered trait descriptions, selected from Kirkpatrick and Sanders's study (1978). The positive and negative descriptions were selected based on unambiguous, gender-neutral, and easy-to-understand criteria. Six trait descriptions were positive (happy, clean, helpful, good, polite, kind) and six were negative (rude, bad, unfriendly, sad, naughty, dirty). These descriptions were presented on a handout to older children, and on individually laminated cards to younger children.

Picture preference measure

In view of stereotypes being contextually influenced (e.g. Lawson, 1980) a picture preference measure was introduced to account for contextual differences of preferred weight selections. Based on a measure employed by Powlishta et al (1994) participants were instructed to select the preferred image for friendship, playing with at school, and playing with at home. The three different contexts (friend, school-play, home-play) allowed us to investigate how children's choices for differently weighted peers may be influenced contextually. For example, being someone's friend or taking someone home to play are fairly personal choices when compared to friend choices on the playground. In addition, having a friend or taking a person home to play may reflect different preferences according to social influences found at school or by peers, and those found at home by parents and siblings.

Design

This study followed a 2 (Age category: 5-7.5, 7.5-11) x 2 (Gender of participant: male, female) x 2 (Sex of image: male, female) x 3 (Weight of image: underweight, average-weight, overweight) mixed-participant design. Age and gender were between-participant factors. Sex and weight of the BMI-image were within-participant factors, as all participants, regardless of their gender, were presented with 3 male and 3 female images which they were assign trait descriptions to and selected from during the picture preference task. All participants had consent from their parents or guardian to participate.

Procedure

Materials were administered in classrooms for 7.5-11 year olds and via one to one interviews with 5-7.5 year olds. The researcher ensured each participant understood the meaning of each trait description before commencing the trait attribution task, and standard definitions were given when they did not. Previous research has referred to the weight of the image within the task; for example, "fat", "average" and "thin" (Lawson, 1980); "fat" and "normal" (Turnball et al, 2000); "fat", "in-between" and "skinny" (Collins, 1991). Possibly the negative connotations provided

by these descriptions may influence children when assigning traits, and as such the weight of images was not directly referred to in this study. Children were asked to look at the randomly ordered trait descriptions on the page. Children were given the opportunity to ask what a word said or meant if they were not sure. They were instructed to, "Look at the pictures and write down 2 words, from the first page, that best suit each picture." They were told that they could use the same words as many times as they liked for different people. All images were randomised for both age groups. This task was followed by the picture-preference measure. Pupils were shown the same 6 images presented from the trait attribution task, and were asked to "Put a number 1 next to the person you would most like to be your friend...Put a number 2 next to the person you would most like to play with on the playground...Put a number 3 next to the person you would most like to take home to play."

Results

151 pupils participated in the research. The results from 4 incomplete questionnaires were discarded. 147 results (female $N=82$, male $N=65$, 'young' $N=73$, 'old' $N=74$) were analysed. A 2 x 2 x 2 x 3 mixed design ANOVA was employed to analyse findings.

Trait assignment task

Three key findings were ascertained from the ANOVA. Firstly, a main effect for weight was found, $F(2, 145) = 11.02, p < .05$, alongside a weight and gender interaction, $F(2, 145) = 7.01, p < .05$, and a marginal interaction effect for sex (of the image) and gender (of the participant), $F(1, 146) = 3.24, p = .074$. These results revealed that the weight of the image was a decisive factor for participants when assigning positive or negative traits. Additionally, the gender of the participant effected the attribution of traits when coinciding with the weight of the image. Furthermore the sex of the image effected trait attribution when coinciding with the gender of the participant. The lack of a 3 way interaction for weight, sex and gender, ($p = .440$), suggests there is a preference for weight above gender, unlike the standard gender-bias found in previous studies (e.g. Powlishta et al, 1994). Yet the marginal interaction effect between sex of the image and gender of the participant suggests that a gender bias was displayed when presented within a weight condition. For example, girls will prefer an underweight female image to an underweight male image, but they will also prefer an underweight male image to the average-weight girl and overweight girl image (see Table 1 for descriptive statistics). The lack of an age effect suggests that girls from both age groups strongly preferred the underweight image.

Table 1: Means and standard deviations when comparing male and female participants' preferences for images (according to weight and sex of the image).

Gender of Participant	Weight of BMI-image	Sex of BMI-image	M	SD
Boy	Underweight	Girl	-.031	1.56
		Boy	.338	1.48
	Average-weight	Girl	.338	1.56
		Boy	.400	1.67
	Overweight	Girl	-.031	1.52
		Boy	.092	1.48
Girl	Underweight	Girl	1.05	1.34
		Boy	.756	1.53
	Average-weight	Girl	.439	1.54
		Boy	.342	1.72
	Overweight	Girl	-.049	1.57
		Boy	-.293	1.64

To further analyse the trait attribution measure, a composite score for positive and negative trait assignments was calculated. A maximum of 2 scores per BMI-image could be given by participants. Therefore if an image was assigned 2 positive traits, 0 negative traits would be assigned, and the composite score would be 2. If 2 negative traits were assigned and 0 positive traits, the composite score would be -2. We created a composite score of positive and negative trait attributions (bias) for each BMI-image. These were then paired and analysed, according to the gender of the participant, using t-tests. Resulting scores were only significant for girls. Specifically, the underweight image was preferred to the average-weight image, $t(81) = -2.75, p < .05$, and the overweight image, $t(81) = -5.56, p < .001$. The average-weight image was preferred to the overweight image, $t(81) = -3.25, p < .05$. These results illustrate that female participants have a strong and significant preference for underweight images in comparison to the average-weight and overweight images, regardless of the sex of the image. The same t-test for boys did not achieve statistical significance. However, descriptive statistics for boys illustrate a favourable trend towards average-weight images, as reported in Figure 1.

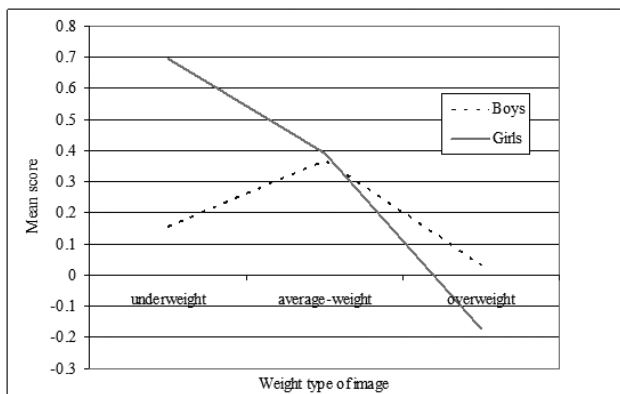


Figure 1: A comparison of means for the gender-weight interaction

Picture preference task

To determine whether participants displayed gender bias towards each image, we conducted chi squared analysis on each picture preference scenario (Who would you most like to be friends with? Who would you most like to play with on the playground? Who would you most like to take home to play?) To determine weight preferences we conducted ANOVA.

The chosen image for 'friend'

A gender bias was present when choosing the gender of the BMI image that participants most wanted to be their friend ($\chi^2(1, 147) = 96.81, p = .000$).

When selecting a friend according to the BMI image weight, participant gender ($F(1, 146) = 6.48, p = .012$) and age ($F(1, 146) = 11.06, p = .001$) were significant. Specifically, the underweight image was preferred by 58.5% of male and 73.2% of female participants, making the underweight BMI image the most preferred image for participants to be friends with. Furthermore, 78% of young participants preferred the underweight image, in comparison to 55.4% of older participants. Overall, a clear gender bias was displayed towards the preferred BMI image to be friends with, and an underweight BMI image preference was displayed by male and female participants. This weight preference was strongest amongst younger participants.

Analysis for preference of image to play with on playground

A gender bias was present when choosing the sex of the BMI image that participants most wanted to play with on the playground ($\chi^2(2, 147) = 96.8, p < .001$).

Gender and age-group of participants were not significant when selecting an image to play with on the playground, according to its weight. Means for this interaction display no age difference amongst girls for preference of the underweight image. However, younger boys preferred the underweight images and older boys displayed a stronger preference for average weight images (see Table 2). However overall 62% of boys and 55% of girls preferred the underweight image.

Table 2: Means and standard deviations for the preference of BMI image by weight when playing on the playground

	Young age group	Older age group
Boys	1.4 (.61)	1.6 (.76)
Girls	1.48 (.55)	1.48 (.55)

Analysis for preference of image to take home to play

A gender bias was present for participants, when choosing the gender of the BMI image they most wanted to take

home to play ($\chi^2(2, 147) = 95.94, p < .001$). Additionally, a preference according to age ($F(1, 146) = .174, p < .001$) was present when selecting the preferred gender of the image whereby young and old age groups displayed equal gender bias. ANOVA conducted on participants' preferences for the BMI image according to weight revealed no age or gender effects. However an overall underweight preference for both age groups remained (young = 61.6%, old = 59.5%). Means revealed that boys have a similar preference across body types when selecting the weight of the image they would want to take home to play, whereas younger girls have a preference for overweight images in comparison to older girls (see Table 3).

Table 3: Means and standard deviations for preference of BMI image by weight, to take home to play.

	Young age group	Older age group
Boys	1.48 (.76)	1.53 (.67)
Girls	1.63 (.81)	1.43 (.62)

In sum, a clear gender bias was displayed across all picture preference conditions. Additionally, underweight images were consistently preferred by both genders in all preference conditions, with some age differences being observed. Specifically, younger participants displayed a stronger preference for being friends with the underweight image than older participants. When selecting a friend to play with at home, younger and female participants were more likely to choose the underweight image. Girls consistently preferred underweight images to play with on the playground, regardless of age groups, however younger boys preferred underweight images slightly more than older boys. Aside from taking an image home to play, the remaining 2 conditions revealed a highest underweight preference, followed by an average-weight preference, and least preference for overweight images.

Discussion

Key findings

Our key findings highlight the importance of weight-type to children when assigning positive and negative traits to differently weighted stimuli. Specifically we found that, regardless of age group, girls significantly preferred underweight images to average or overweight images. In addition, a marginal interaction was found between the 'gender' of the participant and 'sex' of the image. As hypothesised, all participants tended to assign more positive traits to their own gender group; however this was not as strong as the weight bias displayed by female participants. Although girls favoured the underweight female image to the underweight male image, they displayed stronger preference for the underweight male image in comparison to the average and overweight female images. However, despite girls' underweight image preference being stronger than same-gender preference, the finding of a within-weight gender bias during the trait attribution

task (i.e. underweight girl preferred by girls to underweight boy; average-weight girl preferred by girls to average-weight boy etc) was supported by the consistent gender bias displayed for the picture-preference measure. In addition, although age was not a significant factor when assigning trait descriptions, it was a decisive weight-influenced factor when participants completed the picture preference task for the context of 'friend'.

A clear underweight preference

A main effect for weight was presented amongst findings for the trait assignment task, illustrating the importance of weight when children make positive and negative judgements about others, as implied by previous research (Powlishta et al, 1994; Staffieri, 1967). In both the trait measure and the picture-preference measure girls displayed a significant preference for the underweight image overall, preferring the average-weight image less and the overweight image least. This finding supports the hypothesis for an overall underweight preference for girls, as suggested by the notion of a thin-ideal (Dittmar et al, 2007; Truby & Paxton, 2002; Lerner et al, 1975). These results also extend Powlishta et al's (1994) research; by including an underweight image we gain further insight into the extent of preference and bias towards different body-types.

Boys of all ages displayed a trend towards average-weight image preference in the trait attribution task, with less preference for underweight images and least for overweight images. This difference was not predicted but it does concur with past stereotype findings whereby 'mesomorph' (or 'muscular') images are generally preferred by boys (Kirkpatrick & Sanders, 1978; Staffieri, 1967). In the absence of a mesomorph (muscular) figure the average-weight image may be viewed most positively by boys. However, this notion does not correspond with the finding that more positive traits were assigned to average-weight girls in comparison to overweight boys during the trait assignment task, or with the predicted underweight preference observed in the picture-preference measure from male and female participants (Kirkpatrick & Sanders, 1978; Lawson, 1980). Despite underweight images being preferred by both genders in the picture-preference measure, many more girls did prefer the underweight image than boys within this measure. A possible reason for the gender discrepancy could be that separate weight-related values are exerted upon boys and girls, and these are consequently reflected in their preferences for weight (Latner et al, 2007; Dittmar et al, 2006). This is supported by research that reveals how thin-ideals are not held as strongly by boys as girls (Collins, 1991; Truby & Paxton, 2002). As such, the lack of weight significance for the trait attribution measure suggests that boys do not hold as rigid attitudes towards images, based on weight, in comparison to girls. Possibly, the concept of 'weight' is not as important to boys as it is to girls. In contrast, male and female participants revealed an underweight preference during the picture-

preference task, thus reiterating the importance of including multiple measures when investigating childhood bias (Powlishta et al, 1994). A discrepancy between findings for boys across both measures may be down to the measure employed. Specifically, the trait assignment task could be considered more detached from everyday life in comparison to selecting images in the picture preference measure. This detachment may prevent stronger internalised representations of the self from being observed (Dittmar et al, 2006; Lerner et al, 1975). However this does not explain why the same pattern of findings was not observed for girls, reasserting the possibility that boys simply do not hold as rigid attitudes to weight as girls.

The hypothesis of least preference for the overweight image was supported. Across all measures, genders and age-groups, this image was the least preferred suggesting that negative overweight stereotypes remain to be held by children (Kostanski & Gullone, 1999; Latner et al, 2007; Staffieri, 1967). However we found that overweight images were not solely assigned negative descriptions during the trait measure, as has been found in previous studies (Kirkpatrick & Sanders, 1978; Staffieri, 1967). It is possible that, in line with rising obesity amongst children, increased familiarity of overweight others may have encouraged less negativity towards them. However the increase in positive attitudes towards thinness has maintained the overall distinct gap for most preference towards underweight stimuli, and least for overweight stimuli. As observed in previous research (e.g. Lerner et al, 1975; Turnball et al, 2000) girls were more negative towards the overweight image than boys, with the exception of one area; the home condition of the picture preference measure. For this condition no effects of gender or age of the participant were found when participants selected the preferred weight stimuli to take home. However, a trend for younger girls to prefer the overweight image in comparison to older girls was detected. This suggests that home-based attitudes or norms could influence children's weight preferences, yet older children appear to be more rigid in their weight preferences within the home condition, than younger children.

Picture-preference condition differences

As predicted, but differentially to the trait task, both genders significantly preferred the underweight image overall for each picture preference condition (friend/ playground/house). This is possibly as each context (home, school and friends) encompass similar norms and values to each other. Despite family, friends and educators not all conforming to the thin-ideal through their own body-types, the overt encouragement for it may still remain; a notion supported by existing research (Keery et al, 2005; Klein & Shiffman, 2006; Latner et al, 2007). However, when comparing the picture-preference conditions, some variation in preference is apparent. Within the friend condition, a stronger preference for underweight images was displayed

by girls and the younger group of participants. This could be due to the personal nature of a friend in comparison to a play-mate. Play-mates may seem more temporary, whereas a friend may be selected on a more long-term basis. Additionally, almost twice as many girls to boys preferred the underweight image as a friend, yet both similarly preferred the underweight image to play with at home or on the playground. As girls' thin-ideals are stronger than boys' (Collins, 1991), the thin-ideal could be internalised and revealed when choosing friends, based on how the individual would like themselves to be. This in turn could suggest the importance for the 'friend' to reflect girls' thin values regardless of the weight of the individual girl (Davison & Birch, 2002). This lends support to the trait assignment findings, whereby girls' attitudes towards weight are more rigid than boys'.

Within the friend condition, equal gender-preferences were observed for the average-weight image. It is possible that children may be more aware of the importance of being nutritionally healthy at an older age (Kostanski & Gullone, 1999), but their underweight preferences accumulatively override this awareness. When analysing average-weight image preference, we found that more girls wanted to play with the average-weight image at home and on the playground than boys. The girls also preferred to play with the average-weight image, at home or on the playground, more than having them as a friend. This outcome could be interpreted as influential of environmental or context-specific norms; such that girls may prefer to have a friend who conforms to their thin-ideal, whereas a playmate could be considered more temporary than a friend. As such the incorporation of a thin-ideal when selecting a temporary playmate is perhaps not as important to the individual.

Within the friend and playground conditions, even though the overweight image was preferred least overall, it was preferred more by boys than girls. There were similar gender-preferences for taking home the overweight stimuli, which were stronger than the preferences for the playground and friend measure. Possibly, the presence of overweight family members may encourage children to bring home overweight peers to play, as overweight familiarity would be more salient.

Age

Trait assignment results displayed, somewhat controversially, strong underweight preferences by girls across both age-groups. In addition, girls' preferences according to age only varied for the picture preference measure when asked, 'Who would you most like to be friends with?' Here, younger participants preferred the underweight image in comparison to older participants. No age differences were detected when participants selected the weight of the preferred image in the playground and home conditions of the picture preference measure; underweight images were preferred overall. The strength of the underweight image preference across age groups for both measures indicates how

strongly children prefer an underweight image in comparison to average and overweight images. Possibly, this overt display of preference for underweight images could reflect emerging social norms for the thin ideal (e.g. Collins, 1991).

As such, the hypothesis for age-related weight preferences was not supported overall and results did not comply with previous trait attribution study observations of a decline in prejudice (e.g. Powlisha et al, 1994). Therefore it is difficult to interpret the results according to sociocognitive theory (Aboud, 1988). In accordance with this theory, age differences would be observed across all measures, by a decline in prejudice with age. It is also difficult to draw support from SIDT due to a lack of age differences among girls, and the presence of gender differences. This could be as the SIDT phases are derived from the development of ethnic prejudice, and therefore may not directly relate to weight. Instead, the observed age differences correspond better with a social learning theory or social identity theory (Bandura & Walters, 1963; Tajfel, 1974), whereby environment and attitudes of others influence weight preferences amongst children.

Although underweight images were predominantly chosen to play with on the playground, take home or have as a friend, regardless of gender and age; the age-group of the participant was a significant factor when selecting the weight of the preferred image for the friend condition. The playground and house conditions may not have received the same age-influences as they are less personal in comparison to selecting an individual for friendship. The difference observed amongst age preferences could be due to socially desirable responses. However this would assume that older children, in comparison to younger children, would be found to prefer overweight images in each condition, suggesting that we would find more average-weight preference

amongst older participants, which was not the case. Possibly, the inconsistency in age group preference for the picture preferences measure could be explained by external influences overriding the preference for overweight-stimuli as 'friends'. The context may therefore be responsible for the picture preference findings. These external influences may relate to peers and family and the corresponding weight 'norm' for the relative environment. However, to eliminate the possibility of socially desirable responses we would suggest further investigation that utilise additional measures, namely more implicit measures of bias, which have rarely been used amongst children and could identify automatic attitudes, outside of conscious attention (Rutland, 2003).

Conclusion

We conclude that young girls, aged 5-11, exhibit more positive attitudes towards unhealthy, underweight images, and negative attitudes towards overweight stimuli. This underweight preference is so strong that it overrides positive assignment of traits according to gender bias. The attribution of these positive traits to underweight images is displayed across the age-group, contrasting with expectations of sociocognitive theory (Aboud, 1988). These preferences were supported by an additional picture preference measure, whereby young girls and boys revealed significant preferences for underweight stimuli when selecting a stimulus they would like to be friends with, play with on the playground, and take home to play. The weaker preference for underweight stimuli displayed by boys in comparison to girls suggests that girls hold stronger weight bias than boys, but supports the notion that boys are moving towards this preference too (Collins, 1991).

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