

Wishing to be thinner: childhood origins

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**Forord**

Jeg vil først og fremst rette en stor takk til min veileder Lars Wichstrøm for tålmodig veiledning, gode råd og grundige tilbakemeldinger gjennom hele prosessen ved denne hovedoppgaven. Jeg vil også takke gode venner, og da spesielt Signe Holm Risan og Tora Thorsrud for god støtte, oppmuntrende ord og ikke minst godt selskap underveis. Til slutt vil jeg takke mine foreldre for at de alltid er der og gir meg all verdens støtte- både under oppgaveskrivingen og i livet ellers.

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### **Abstract**

Wishing to be thinner has been hypothesized to increase the risk of eating disorders. A growing amount of research has established the fact that this wish is already present in childhood, and highlights parents, peers and media as important conveyors of a socio-cultural body ideal, which may promote such a wish. This research has been limited by the use of cross-sectional data. The present study aimed to extend this research by prospectively examine the prevalence, development, stability and gender differences in an early wish to be thinner, as well as how psychosocial factors predict change in this wish from age 6 to 8 years. Data were obtained from a large community sample of 6 year olds (n= 795) and their parents, with a follow-up at age 8. Predictors included children's BMI, gender, appearance satisfaction, emotional overeating, parents' weight concern and media. The results showed that a substantial proportion of the children wished for a thinner figure, i.e. almost half of the children at age 6 and one third at age 8 whereas fewer wished for a larger figure, i.e. one in five and one in 10, respectively. Hence, a larger proportion was satisfied with their current weight at age 8 than at age 6. The wish to be thinner was stronger among girls than boys at age 6. Further, the results showed a moderate stability in the wish to be thinner.

Growth factor modeling revealed that children's BMI, emotional overeating and appearance dissatisfaction predicted an increased wish to be thinner from age 6 to 8, while gender and parents' weight concern had an indirect effect on change in this wish. Possible explanations for study findings are discussed in light of theories concerning social and cognitive development. Results suggest that prevention efforts targeting young children's body ideals as well as parents' preoccupation with weight might alleviate an early emerging wish to be thinner.

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### Wishing to be thinner: childhood origins

Eating disorders afflict a relatively small percentage of adolescents and young adults, i.e. about 0.3%- 1.0% at any given moment (Hoek, 2006). However, a much larger proportion suffers from subclinical conditions (Cotrufo, Barretta, Monteleone, & Maj, 1998), with substantial psychosocial consequences such as low self-esteem (Button, Loan, Davies, & Sonuga-Barke, 1997), depressive mood (Stice, Hayward, Cameron, Killen, & Barr Taylor, 2000), anxiety and somatic symptoms (Cotrufo et al., 1998). Available treatments for eating disorders among adults have proven effective, but only moderately so (Wilson, Grilo, & Vitousek, 2007), as are prevention efforts directed towards adolescents (Stice & Shaw, 2004). There is therefore considerable room for improvement in both therapy and prevention. Such intervention efforts should ideally be guided by knowledge on the etiology of eating problems.

Common to most eating disorders, perhaps with the exception of some cases of overeating disorder, is the fact that it starts with an episode of dieting (Polivy & Herman, 2002). The main reason for dieting is a perception of being larger than one wishes for (Wertheim, Paxton, Schutz, & Muir, 1997). Moreover, perceived BMI is only moderately associated with actual BMI (Wardle, Haase, & Steptoe, 2006). Hence, a wish for thinness in the face of normal weight or underweight has been hypothesized to be one of the underlying mechanisms and driving forces for many eating disorders, including bulimia (Stice, 2001) and anorexia nervosa (Cash & Deagle, 1997). One study found that almost half of the female sample wished to be thinner (Truby & Paxton, 2002) and another study found that 3/4 of girls wanted to be thinner, and as many as 1/8 wished they were much thinner than they perceived themselves to be (Furnham, Badmin, & Sneade, 2002). The latter finding indicates that even though the wish for thinness is prevalent, some individuals are far more affected than others. In line with this reasoning, understanding why some individuals develop a particularly strong wish for thinness whereas others do not, even when being of same weight, may add to the knowledge base concerning the etiology of eating disorders. The overarching purpose of the present research is therefore to describe the emergence of an early wish to be thinner as well as its psychosocial predictors.

**The need for studying young children.** At present research on the wish for thinness has predominantly addressed adolescents. Through this research it has become evident that in both women with and without diagnosed eating disorders, the drive for thinness seems to be a key element of body dissatisfaction (Stice, 1994). During the past decades there has been a shift in the ideal body standard to a thinner size for women. Also considering the evolving obesity epidemic (Caballero, 2007), the cultural body ideal has over the past decades become increasingly unrealistic and difficult to realize

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(Spitzer, Henderson, & Zivian, 1999). This situation has led to the desire for a thinner body being so prevalent among women that it has been identified as a “normative discontent” (Rodin, Silberstein, & Striegel-Moore, 1984). Research points to a sociocultural model as a transmitter of these cultural body standards in adult and adolescents (Stice, 1994; Thurfjell, Eliasson, Swenne, von Knorring, & Engstrom, 2006; Tiggemann & Miller, 2010), with media, parents and friends as the main sources of influence.

The childhood years are thought to lay the groundwork for self-awareness, self-conscious emotions, and self-evaluation, which will set the stage for further development of self and identity during adolescence. Thus, research on even younger children's perception than heretofore have been studied is important. Moreover, findings from adolescents and older school age children cannot simply be extrapolated downwards to young school age children. This is because of the different structure and possibly also importance of a range of risk and protective factors among adolescents and young children, e.g. the relative importance of peers versus family, cognitive capacities including hypothetical thinking with greater capacity for introspection among adolescent as opposed to young school age children (S. Jackson & Goossens, 2006), differential exposure to media (Dohnt & Tiggemann, 2006a; Hargreaves & Tiggemann, 2002), and puberty with its accompanying changes in physical appearance and body shape (Williams & Currie, 2000). Thus, research on school age children is needed. I therefore examine the early emerging wish to be thinner in a sample of children beginning when they are 6 followed up when they are 8 years old.

**Prevalence.** However, because this wish is already evident in early adolescence (Rosenblum & Lewis, 1999), some researchers have indeed moved their focus downwards in age and studied prepubertal children and even young school age children. Through this research it has been documented that young children are well aware of the cultural criteria for attractiveness (Cavior & Lombardi, 1973) and also have a wish to be thinner (Dohnt & Tiggemann, 2005; Hill & Pallin, 1998). Research conducted to assess body image concern among children often use figure drawings, where children are asked to indicate their perceived and ideal body size. Results indicate that a sizeable share of young girls desires a thinner body (28% to 55%), whereas few wish for a larger body (4% to 18%) (Ricciardelli & McCabe, 2001). Recent research reveals, moreover, that the proportion of boys wishing to be thinner (27-47%) is similar to that of girls (Ricciardelli, McCabe, Mussap, & Holt, 2009), however equal amounts of boys wish they were larger (13% to 48 %) (Ricciardelli & McCabe, 2001). This indicates that many young children have a wish to be thinner. However, rates may vary between cultures and periods and the generalizability of finding is also hampered by the fact that convenience samples have been employed.

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**Stability and change.** It should be appreciated that if children's wish to be thinner were transient, one would be less concerned than if such a wish proved to be rather stable, at least with respect to its potential impact on unhealthy dieting. One study of 197 5-year-old girls showed rank order consistency in girls' body dissatisfaction across 4 years, with girls reporting higher body dissatisfaction at age 6, reporting higher body dissatisfaction at age 7 ( $r = .23, p < .001$ ); and girls with greater body dissatisfaction at age 7 reporting greater body dissatisfaction at age 9 ( $r = .37, p < .001$ ). (Davison, Markey, & Birch, 2003). A range of exclusion criteria, e.g. not living with both biological parents, presence of severe food allergies or chronic medical problems affecting food intake, might have hampered the generalizability of these results. The present study therefore aims to extend these findings using a community sample that also includes young boys. Based on existing research I hypothesize that a larger proportion of the children will have a wish to be thinner as compared to wishing to be larger. I also hypothesize that more boys than girls would wish to be larger. Further, based on an assumed increasing awareness of the thin ideal as the child grows, I expect that the amount of children wishing they were thinner will increase with age, and more so among girls than among boys. I also hypothesize, based on the results of the previously mentioned study by Davison, Markey & Birch (2003), that the wish for thinness be fairly stable, in that those reporting a greater wish for thinness at the age of 6 will have a propensity to report such a wish at the age of 8.

**Potential causes.** Research highlights a sociocultural model as an important transmitter of the prevailing thin ideal, also for preadolescent children (Flannery-Schroeder & Chrisler, 1996). According to this line of thinking, children will learn the standards of beauty and the importance of attractiveness through the general social context, portrayed in the media, and through input from parents and peers (Wertheim, Paxton, & Blaney, 2009). Studies examining the psychosocial predictors of the wish for thinness have predominantly used a cross-sectional design. Bi-directional influences between putative predictors and a wish for thinness are indeed viable, i.e. perceiving oneself to be bigger than one wants to be may influence one's self-esteem negatively, but low self-esteem may result in wishing to be thinner as a remedy. Hence, longitudinal studies are needed to discern the time-order between risk factors and outcome, i.e. wishing to be thinner. Such longitudinal research is scant. However, one study have examined the contribution of peer and media influences on the development of body satisfaction and self-esteem in 5-8 year old girls over one year (Dohnt & Tiggemann, 2006b). The results showed that perceived peer desire for thinness at time 1 predicted increase in girls' own desire for thinness and decrease in appearance satisfaction and self-esteem one year later. Because the sample size was relatively small ( $n=97$ ) and one of convenience, generalization should be made with caution. As far as I can discern no study has examined the contribution of other psychosocial predictors on such young

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children's wish to be thinner in a longitudinal design.

The contribution of this study is thus to build on and extend previous findings, using prospective data to examine the early emerging wish to be thinner and how this develops in a large community sample of children. In addition I will examine the impact of psychosocial factors on change in the wish for thinness from age 6 to 8. The model detailing these psychosocial factors will be described below.

**A psychosocial model of wish for thinness.** Researchers have agreed upon a biopsychosocial approach in which physical characteristics, in conjunction with sociocultural influences, specific interpersonal experiences, and individual psychological characteristics combine to lead to the development of body image, and body dissatisfaction (Wertheim et al., 2009). Based on this view multifactorial models of contributing factors in the development of body image in children have been forwarded. One such model has been developed by Ricciardelli, McCabe, Holt & Finemore (2003), which postulate a role for media, parents and peers, in addition to biological factors (age and BMI), and psychological factors, including self-esteem and negative affect. Although the authors do not explicitly state that this model also can be applied to wish for thinness, body image concerns are closely related to wishing to be thinner (Ricciardelli & McCabe, 2001), and weight-related issues are the most prevalent among the body image concerns (Stice, 2001). I have therefore taken this model as a vantage point. However, when testing this model Ricciardelli et al. did not find self-esteem to be related to body dissatisfaction in neither girls nor boys (Ricciardelli, McCabe, Holt, & Finemore, 2003). Because other studies have shown self-esteem to be related to body dissatisfaction in both adolescent (Paxton, Eisenberg, & Neumark-Sztainer, 2006; Tiggemann, 2005) and children (Hill & Pallin, 1998; Lawrence & Thelen, 1995), such a zero finding is in need of replication before it is embraced. Physical attractiveness constitutes the domain that correlates most highly with global self-esteem, and it is hypothesized that through different mechanisms, parents, peers and media, will influence children's thoughts about their own appearance (Harter, 1999; Smolak, 2004). I will therefore examine whether appearance satisfaction may have a mediating effect between the sociocultural factors and the children's wish to be thinner. Furthermore, it has been posited that parents' modeling, individual child-feeding strategies and children's individual eating style will influence children's BMI (Faith, Scanlon, Birch, Francis, & Sherry, 2004). It has been suggested that the way parents control food in terms of what is "good" and what is "bad" differ according to their child's gender (Lowes & Tiggemann, 2003). Lowes and Tiggemann (2003) found in their study that girls perceived their parents to exert greater control over their eating behavior than boys (Lowes & Tiggemann, 2003). Gender will therefore be included in the model.

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The overall predictive model is illustrated in Figure 1. As can be seen I hypothesize that the child's gender will influence their specific eating style, which along with parents control will affect the children's BMI. BMI will further have a direct effect on children's wish for thinness in that heavier children more often will wish they were thinner. Being a girl will also have an effect on appearance satisfaction, as will both exposure to thin-ideals in the media, and parents' own weight control efforts. Appearance dissatisfaction will directly lead to a wish to be thinner. The specifics of this model are described below.

### **Appearance satisfaction**

When children have a wish to be thinner, it means they are not fully satisfied with how they view themselves and as a consequence want to change something about themselves. General self-concept or self-esteem can be seen as an overall evaluation of ones worth or value as a person. Physical appearance has been found to correlate most highly with global self-esteem, which may have to do with the great emphasis our society places on appearance at every age. It is also a feature of the physical self that is constantly on display for others attention and evaluation (Harter, 1999). If children experience dissatisfaction with their appearance it is plausible to think that they want to change some feature about the way they look in order to feel better about themselves as a person. Children cannot do much about the color of the eyes or the features of the face, but one thing that actually can be controlled and changed, is the size of the body. Thinness is highly valued in our society, and often equated with attractiveness, especially for women (Ricciardelli & McCabe, 2001). In line with reasoning, the model states that children's dissatisfaction with their appearance will lead them to wish they were thinner.

### **Sociocultural influences**

**Parents.** Children's self-evaluations are highly influenced by their parents, in that they will use their parents as models and internalize and try to live up to their opinions, standards and views, in order to be what they sees as the right kind of person (Harter, 1999). Thus, I hypothesize that parents who are concerned about their own appearance may communicate these concerns to their children, e.g. through comments about weight and dieting, and thereby convey the importance of appearance and also standards for what is attractive. Their children may internalize these standards, increasing the risk for them to be dissatisfied with their own appearance. Several studies have highlighted the fact that parents', and especially mothers', comments about their own and others weight can be of great influence on children's thoughts about weight and appearance (Davison, Markey, & Birch, 2000; Hill & Pallin, 1998). In a study of 5 to 8 year olds, Lowes and Tiggemann (2003) found that both boys and girls' degree of body dissatisfaction were related to their perception of their mothers' body dissatisfaction, but not with their fathers' (Lowes & Tiggemann, 2003). In another study Smolak,

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Levine and Schermer (1999) reported that the mother's complaints about her own weight was related to their daughter's weight concern, but not with their son's (Smolak, Levine, & Schermer, 1999). Thelen and Cormier (1995), however, found no significant correlation between mother or father reported concern about own weight or attempts at losing weight, and those of their daughter or sons. To summarize, available findings, with notable exceptions, suggests that parents own concern about weight might be correlated with their children's weight concern and dieting behavior. Importantly, all of the above-mentioned research is cross sectional, and as far as I know, no study has examined this relationship using prospective data. Nonetheless, it seems to be sufficient grounds to include parents' weight concern in a model predicting change in children's wish to be thinner. The model states that parents' weight concern will indirectly influence children's wish to be thinner through the child's appearance satisfaction.

**Media.** Movies, television and magazines, all present an idealized picture of female attractiveness, with slender bodies as potential role models for young girls and adolescents (Henderson-King, Henderson-King, & Hoffmann, 2001). With the advances in technology, children spend increasingly more hours on various forms of screen-based media, e.g. TV, surfing the net, social media and gaming (Medietilsynet, 2014), which makes these sources important for children's learning. A 10-year review of research on the impact of media on children and adolescents suggests that children are particularly susceptible to these influences, and that messages received from these sources will be internalized, and thus influence their behavior and have an effect on their worldview (Villani, 2001). Exposure to media has been found to relate to aspects of both body dissatisfaction, including girls wishing for a thinner ideal figure, and greater dieting awareness. This has been found to be particular apparent in girls who watched more music video television (Dohnt & Tiggemann, 2006a). Exposure to teen or women's magazines has also predicted awareness of dieting (Dohnt & Tiggemann, 2006a). Quite viably media serves as a source of knowledge of the societal norms associated with the ideal thin body (Dohnt & Tiggemann, 2006a), and can lead to more appearance related conversations among friends (Clark & Tiggemann, 2006). Thus repeated exposures to these media messages may lead to appearance dissatisfaction through making the cultural beauty ideal available to the children. Media exposure will therefor be included in the model.

**Overweight and obesity.** Most body image disturbances develop because the individual's perceived body characteristics do not fit into the internalized cultural norms (Wertheim et al., 2009). Consistent with this idea, a high body mass index (BMI), which indeed deviates from the cultural beauty ideal, has been identified as a risk factor for development of body dissatisfaction, also among children (Blowers, Loxton, Grady-Flessner, Occhipinti, & Dawe, 2003; Paxton et al., 2006; Rolland,

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Farnill, & Griffiths, 1997; Schur, Sanders, & Steiner, 2000; Vander Wal & Thelen, 2000). Findings also suggest that elevated BMI is a risk factor for perceived pressure to be thin and for dieting behaviors (Stice, 2002). Importantly, higher BMI has also been related to dieting behaviors in children (Oliver & Thelen, 1996; Ricciardelli et al., 2003; Thelen & Cormier, 1995). Hence, it is essential to examine the impact of BMI on change in children's wish to be thinner.

**Eating styles.** Parents have some influence on their children's eating pattern through which food they make available, child-feeding strategies, and role modeling of appropriate eating behavior (Wardle, Carnell, & Cooke, 2005). Parents who exert a great deal of control over their child's food intake may foster a poorer ability to regulate energy intake in their children by means of reduced interoceptive awareness in the child (Scaglioni, Salvoni, & Galimberti, 2008). There are also individual differences in children's innate ability to regulate food intake (Birch & Fisher, 1998). Emotional overeating is one aspect of eating behavior that may be especially important in the present context. Emotional overeating occurs when a child eats in response to a range of negative emotions, regardless of any internal state of hunger or satiety. Such an eating style consistently predicts obesity (Blissett, Haycraft, & Farrow, 2010). Children's emotional overeating is thus expected to have a direct effect on BMI, and furthermore, elevated BMI leading to a wish to be thinner.

**Gender.** Comparatively older studies have shown that a higher share of young girls report body dissatisfaction and a wish to be thinner than boys (Lawrence & Thelen, 1995; Thelen & Cormier, 1995). A review of recent studies has, on the other hand, concluded that the proportion of boys wanting to be thinner (27%-47%) was similar to that of preadolescent girls (Ricciardelli et al., 2009). Still, considering the importance placed on female attractiveness and slimness in today's society, it is plausible to assume some gender differences in appearance satisfaction, with girls being more dissatisfied than boys in the same age. As already noted, the implied appearance dissatisfaction will further lead to a wish to be thinner.

In summary, I hypothesize that (i) more children will wish to be thinner than larger, (ii) that this wish to be thinner will be larger at 8 years than at 6 years, (iii) that more boys than girls will wish to be larger, (iv) that there would be stability in the wish to be thinner from 6 to 8 years, and finally (v) that there would be support to the model depicted in Figure 1 concerning the prediction of level and longitudinal change in the wish to be thinner. This model states that being a girl will influence the wish to be thinner through girls' lower appearance satisfaction and eating styles. Exposure to thin-ideals in the media, parents' own weight control efforts, child emotional overeating may indirectly influence the wish to be thinner through the child's appearance satisfaction and BMI.

## Method

### Participants and procedure

The sample in the present study is part of the Trondheim Early Secure Study (TESS) (Solheim, Wichstrom, Belsky, & Berg-Nielsen, 2013; Wichstrom et al., 2012). Every child that was born in 2003 and 2004 in Trondheim, Norway, and their parents were invited to participate in the study. The parents completed the Goodman's (1997) Strength and Difficulties Questionnaire (SDQ), and brought it with them when they met at the community well-child clinic for an ordinary health check-up for 4-year olds. Parents with insufficient skills in Norwegian were excluded from the study ( $n = 176$ ), as well as 166 families that the well-child clinics failed to ask. The health nurse at the clinic informed the parents regarding the study using procedures approved by the Regional Committee for Medical and Health Research Ethics, and written consent was obtained. To ensure oversampling of children with or likely to develop problems, the SDQ scores on the symptom subscales (emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems) were divided into four strata using the cut off ranges of 0-4 (44.2% of the population), 5-8 (29.5 % of the population), 9-11 (18.5 % of the population), 12-40 (7.8 % of the population). Using a random number generator, 38.1%, 49.1%, 71.4%, and 89.2% of children in strata 1, 2, 3, and 4, respectively, were selected to participate in the study. The parents of these 1250 children were invited to participate in a structured diagnostic interview concerning the child's mental health, with 999 of them completing the interview. The children were then accompanied with one of their parents to the university for observation and testing. Note that 85 % of the informant parents were mothers. The children and their parents were retested (T2) 2-years later at age 6 ( $n = 795$ ), and again (T3) after 2-years when the children turned 8 years ( $n = 699$ ). The sample recruitment is presented in Figure 2. Because body size estimation was included from the first retesting (T2) and onwards, I have only used data obtained from T2 and T3, when the children were 6 and 8 years, respectively. The sample comprises 51.3% girls and 48.7% boys. The occupations of the parent that reported on the child were as follows: 3.1% farmers/fishermen/unskilled workers; 22.2% skilled workers; 40.5% lower professionals; 26.3% higher professionals; and 7.8% leaders. In all 59.0% of the parents were married, 25.4% were cohabitating for longer than 6 months, whereas 1.5% were separated and 11.5% divorced. Only 1.5% had never lived together, .8% were cohabitating for less than 6 months and .3% were widowed. The educational level was fairly high with 30.8% having a university degree, 41.8% a college degree, 12.9% had some college or university education, 12.6% had finished high school, and 1.9% with no education beyond compulsory schooling.

### Measures

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**Wish to be thinner.** Children's wish to be thinner was measured through the Children's Body Image Scale (CBIS), developed by Truby and Paxton (2002). This scale consists of seven photographs of children with BMIs that are representative of the spectrum of body sizes found in the general population of boys and girls between the ages of 7 and 12 years, with body figures ranged in size from very thin (1) to obese (7) (see Appendix). Each child was asked to identify "the body figure most like your own" (perceived figure). They were then asked to "nominate the body figure you would most like to have" (ideal figure). The discrepancy between the perceived body figure and the ideal body figure was then used as a measure of body size dissatisfaction. A score of zero indicates body satisfaction, whereas a positive score indicates body dissatisfaction in the direction of wishing a larger figure, and a negative score indicates body dissatisfaction in the direction of a wish for a thinner figure. As a measure of body dissatisfaction, the perceived-ideal discrepancy measured by CBIS has been shown to have sound construct validity in 8-12-year-old children (Truby & Paxton, 2002), and good test-retest reliability (Truby & Paxton, 2008).

**Predictor. BMI.** At age 6 and 8, children's height and weight were measured. Height was measured to the nearest 0.01 cm by a digital stadiometer (235 Heightronic), and weight was measured to the nearest 0.1 kg by a digital scale (Tanita BC418MA). Body Mass Index was estimated based on the formula  $\text{kg/m}^2$ .

*Gender.* In the present study, 1 equals boys, whereas 2 equals girls.

*Appearance satisfaction.* Self-concept was measured using the Self Description Questionnaire-I (SDQ-I), developed by Marsh (1990). The SDQ is a test of self-image based on questions concerning how the participants perceive themselves and how they believe others perceive them. The answers are given on a 5-point Likert scale ranging from 1 = false to 5 = true. Studies have found both favourable reliability and validity for the SDQ-1 (Marsh, 1990). In the present study the internal consistency of the Appearance satisfaction scale was  $\alpha = .81$ .

*Parents weight concern.* Parents weight concern was assessed using the Eating Disorder Examination Questionnaire (EDE-Q) (Fairburn & Cooper, 1993), which is a 36-item self-report instrument where the score on each item indicate on how many days during the previous 28 days, particular behaviours, attitudes or emotions have occurred. Respondent's rate each item on a 7-point rating scale ranging from 0 = no days to 6 = everyday. The weight concern sub-scale comprises 5 items and has evidenced very high test-retest reliability (Luce & Crowther, 1999), as well as validity (Mond, Hay, Rodgers, Owen, & Beumont, 2004). In the present study the internal consistency of the Eating Disorder Examination Questionnaire was  $\alpha = .76$ .

*Emotional overeating.* Emotional overeating was measured using the Children's Eating

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Behavior Questionnaire (Wardle, Guthrie, Sanderson, & Rapoport, 2001). The Emotional overeating scale refers to the child eating more food during negative emotional states, e.g. "My child eats more when anxious" (Wardle et al., 2001). The subscale has been found to have good reliability (Sleddens, Kremers, & Thijs, 2008) and to be a valid measure of eating behavior in children (Carnell & Wardle, 2007). The scale evidenced good internal consistency in the present study as well,  $\alpha = .77$ .

*Media.* Children's exposure to media was measured by interviewing parents concerning how many hours the children watched particular types of television programs. The types of programs selected for this study were the ones where children were believed to be exposure to the cultural body ideal the most, namely music program and TV programs intended for older children or families. As many of these programs only run during weekends, (e.g. "Senkveld", "Idol"), only weekend watching was used.

### Results

Because the sample was screen stratified all analyses were conducted using probability weights being the inverse of the drawing probability, i.e. children high on the SDQ were weighted down and children with low SDQ scores were weighted up to arrive at unbiased population estimates. All analyses were conducted with a robust maximum likelihood estimator providing robust standard errors using Mplus 7.2. Missing data were handled with a full information maximum likelihood procedure; hence analyses are based on all available data.

As shown in Table 1, at the age of 6 almost half of the children wished for a thinner figure, whereas about 1/5 wished for a larger figure. To test the first hypothesis, that more children wished they were thinner than larger, a model where the proportion wishing to be thinner and larger were fixed to be equal was compared to a model where they were free to vary, using a Wald test to compare the difference in model fits. As it turned out, these observed proportions were significantly different at age 6 (Table 1). At the age of 8, one third of the children wished they were thinner, whereas only one in 10 wished they were larger; a significant difference as well.

As regard the second hypothesis, that the proportion wishing to be thinner should be larger at age 8 than at age 6 years, Table 1 portrays this not to be the case, perhaps the opposite, i.e. a decline from 6 to 8 years. To test whether this apparent decline was significant a model where the proportions were equal was compared to a model where they were allowed to be different. The results showed, as portrayed in Table 1, that there was indeed a significant reduction in the wish to be thinner. However, as can be seen in Table 1 as well, a larger proportion of children also wished to be larger at age 6 than at age 8. Hence, by necessity, the proportion that was satisfied with their current weight was larger at age 8 than at age 6.

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Third, I examined whether, as hypothesized, more boys than girls often wished to be heavier. As can be seen from Table 1, this was neither the case at age 6 nor at age 8. However, at age 6, more girls than boys wished for a thinner body; a gender difference that had vanished by age 8.

The fourth hypothesis, that there would be rank-order stability in the wish to be thinner was examined by inspecting the polychoric correlations between the wish to be thinner at age 6 and 8 years. As shown in Table 2 there was a moderate stability in the wish to be thinner,  $p < .001$ . This correlation was .17 for boys and .39 for girls. A test comparing model fit when these correlations were forced to be equal compared to being set free, showed that this gender difference in stability was significant only at a trend,  $Wald = 3.49$ ,  $df = 1$ ,  $p = .06$ .

Fifth, and finally, in order to test the model specifying predictors of level and change in the wish to be thinner, a growth model was computed. Growth modeling is an analytic technique for modeling systematic within-person change across a series of repeated measurements and between-person differences in those changes (Grimm & Ram, 2009). This analysis gives rise to two factors, namely intercept and slope. To accommodate a growth model with only two time points the residuals in the wish to be thinner at age 6 and 8 years were both set to zero. In this study the intercept was defined as the growth starting point, i.e. age 6 years. The slope represents the yearly change in this wish. To adjust for regression toward the mean effect, the slope was regressed on the intercept. Both slope and intercept were regressed on the predictors. Hypothesized mediators were also regressed on background factors, as specified in Figure 1. Background factors and mediators, respectively, were allowed to correlate.

As can be seen from Table 2 there was an apparent, but slight decrease in the wish to be thinner. However, this change was not significant,  $M_{\text{slope}} = -.05$ ,  $n = 788$ ,  $p = .15$ . As regards gender differences, a correlational analysis using tetrachoric correlation showed that there was an association between gender and the wish to be thinner at age 6,  $r = .12$ ,  $n = 788$ ,  $p = .004$ , indicating that this wish was stronger for girls, consistent with the analyses above. However, at age 8 this gender difference had disappeared,  $r = .10$ ,  $n = 788$ ,  $p = .21$ , also consistent with the above analyses. Moreover, the change in the wish to be thinner was not different for the two genders, as shown by a non-significant path between the slope in the wish to be thinner and gender,  $\beta = .03$ ,  $n = 788$ ,  $p = .50$ .

As described above, the predictive model was tested by means of a path model within a structural equation framework. To evaluate model fit the following criteria were used: Confirmatory fit index (CFI)  $> .95$ , Tucker-Lewis index (TLI)  $> .95$ , Root Mean Square Error Of Approximation (RMSEA)  $< .05$ , and Standardized Root Mean Square Residual (SRMR)  $< .05$ . The initial model, as depicted in Figure 1, showed modest to poor fit to the data,  $\chi^2 = 27.19$ ,  $df = 10$ ,  $p = .002$ , CFI = .87, TLI = .53, RMSEA =

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.05, SRMR = .03. However, a model where the initial level of the wish to be thinner did depend on gender, confer the gender difference at age 6 above, did fit the data better according to Satorras' procedure (2000),  $\Delta\chi^2 = 18.47$ ,  $df = 1$ ,  $p = .004$ , absolute fit indices:  $\chi^2 = 18.47$ ,  $df = 9$ ,  $p = .03$ , CFI = .93, TLI = .71, RMSEA = .04, SRMR = .02. When direct paths from emotional overeating to the intercept and slope of the wish to be thinner were included, as suggested by the modification indices, the fit increased,  $\Delta\chi^2 = 8.48$ ,  $df = 2$ ,  $p < .001$ , absolute fit indices:  $\chi^2 = 10.17$ ,  $df = 7$ ,  $p = .18$ , CFI = .98, TLI = .88, RMSEA = .02. This model, trimmed from non-significant path coefficients is depicted in Figure 3, and it also fitted the data well,  $\chi^2 = 10.19$ ,  $df = 7$ ,  $p = .18$ , CFI = .98, TLI = .88, RMSEA = .02. In this model the slope and the intercept were regressed on appearance satisfaction, BMI, parents weight concern, emotional overeating, media and gender. In addition, the slope was regressed on the intercept. As can be seen the media variables were not included in the model as they did not significantly predict either intercept or slope, i.e. they were trimmed away. Emotional overeating significantly predicted BMI, which together with being a girl predicted increased initial wish to be thinner. High BMI also did forecast an increase in children's wish to be thinner. Both gender and parents' weight concern significantly predicted children's appearance satisfaction. Being a girl increased the satisfaction, whereas parents' weight concern decreased the satisfaction, in that the more concerned parents (mostly mothers) were about their own weight, the more dissatisfied the children were with their own appearance. Further, appearance satisfaction and emotional overeating significantly predict the slope, in a decreasing and increasing manner respectively.

### Discussion

Wishing to be thinner has been hypothesized to be a prominent risk factor for the development of eating disorders. A growing amount of research has documented that this wish to be thinner is already present in preadolescent children, and research has also provided findings that are in concordance with elements of a sociocultural etiological model of the wish for thinness. Unfortunately, this research has been limited by the fact that the majority of studies have used correlational data obtained from cross-sectional studies, which means we cannot separate the alleged causes from the consequences. At present we therefore know little about gender differences in the development of the wish to be thinner, the stability of this wish as well as its psychosocial determinants. The present study aimed to contribute to the growing literature of the early wish to be thinner by examining these issues using prospective data derived from a large and representative sample of 6 year olds, followed up when they were 8 years. I hypothesized that across ages more children would wish to be thinner than larger, that the wish to be thinner would be larger at 8 years than at 6 years, that more boys than girls would wish to be larger and that there would be rank-order stability in the wish to be thinner from 6 to 8 years.

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Furthermore, as regards predictors, I hypothesized that being a girl would increase the wish to be thinner through girls' lower appearance satisfaction and eating styles. Exposure to thin-ideals in the media, parents' own weight concern, child emotional overeating were hypothesized to indirectly influence the wish to be thinner through the child's appearance satisfaction and BMI.

As hypothesized, the results confirmed that a substantial number of young children wish for a thinner figure, i.e. almost half of the children at the age of 6 and one third at the age of 8, whereas fewer wished for a larger figure, i.e. one in five and one in 10, respectively. Thus, contrary to my expectations a smaller percentage wished they were thinner at age 8 than at age 6, but there was also a smaller share that wished they were larger at age 8 than at age 6. This latter finding implies that a higher proportion was satisfied with their current weight at age 8 than at age 6. The reason for this may be the increasing cognitive social skills developed from age 6 to 8 (Harter, 1999), leading to a more realistic view of the children's own body, and thus a better basis for assessing both perceived and ideal body figure. In their study Davison, Markey & Birch (2003), assessed body dissatisfaction in girls at age 5, 7 and 9, and found similar results with an overall decrease in girls' body dissatisfaction from age 5 to 9, and they suggested that this result might reflect a methodological artifact of repeated assessment across time. This argument seems not too strong, as such test effects are not reported in longitudinal studies conducted on older samples (Bearman, Presnell, Martinez, & Stice, 2006; Clark & Tiggemann, 2008; Jones, 2004).

Contrary to what was hypothesized, there was no significant gender difference in wishing for a larger figure. The only gender difference found was that the wish for thinness was stronger among girls than boys at age 6. This gender difference had disappeared at age 8. This result goes against the general consensus stating gender differences in the wish for thinness to first emerge between the ages of 8 to 10 years (Gardner, Friedman, & Jackson, 1999; Ricciardelli & McCabe, 2001; Ricciardelli et al., 2003). Recent reviews have even concluded that there is no gender difference to be found (Ricciardelli et al., 2009). Based on such results it is plausible to think that the different gender roles concerning the body ideals are already internalized at age 6, in that girls more than boys want to achieve the adult female thin ideal. However, this seems not to be the case as this gender difference had disappeared at age 8. In addition, my results showed - contrary to what was expected - that girls and boys equally often wished they were larger. This finding does not necessarily negate previous findings, indeed it may reflect a historical development in that more girls also wish for a more muscular body, as the new body trend for girls is a slim, muscular and fit body (Kane, 2012). Possibly, this trend has also reached young children.

As reviewed above, conflicting results are found concerning the shares wishing for a thinner or larger figure, as well as the presence or absence of gender differences in the early wish to be thinner

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when children are at or below the age of 6. One possibility is that the above mentioned differences between studies are due to measurement errors, in that children at this age find it difficult to adequately understand and complete the instructions of the evaluating instrument. For example, the children may interpret the larger figures differently; some may interpret them as fat, others muscular, and even some perceiving them as more grown-up. However, errors in measurement seems unlikely, as the instrument used in the present study has shown both reliability and validity as a measure of children's body size satisfaction down to 7 years of age (Truby & Paxton, 2002, 2008). However, the hypothesis concerning measurement errors cannot be completely discarded as the reliability and validity of the instrument has not yet been established in children as young as 6 years. Though, it should be noted that mean age at the second wave was 6.6 years, thus very close the lower end of the CBIS norm.

Visuo-spatial abilities allow assessment of both size and relative size. Children show increasingly visuo-spatial competences until school years, and further improvement during the first years of school (Del Giudice et al., 2000). Around the same time, approximately when children reach the age of 7 one can see a shift from an egocentric way of thinking to more concrete-operational ways of thinking including decentration, where the child manages to take others perspectives into account and see themselves from others points of view (Harter, 1999; Lillard, 2011; Piaget, 1950). Both the developing visuo-spatial abilities and the increasing ability for self-observation at this age set the stage for self-perception and comparison with other children, which also apply to comparison of body size. In cases where children's body perception fails due to lacking visuo-spatial competences or decentration ability, their indication of own body size will show low reliability. Consequently, the discrepancy between their perceived body and ideal body will show low reliability as well. The above findings indicate that we are in the lower region of when CBIS can be reliably applied, and that some of the most immature children may have responded somewhat random on self-perception.

**Rank order stability.** As noted, the majority of previous studies has been cross-sectional. The present study thus extends the literature by showing a modest stability in the wish to be thinner between age 6 and 8. Although the results showed a significant reduction in the wish to be thinner from age 6 to 8, children reporting higher body dissatisfaction relative to the group at age 6 also reported higher body dissatisfaction at age 8. This indicates that at some point children developed a stable body ideal, which for many implies greater slimness than they have. However, a modest stability still implies a substantial amount of change in the wish to be thinner. Thus, for most children, a wish to be thinner (or have a heavier body) is not consistent during this age period, but change as they grow older. Thus, the second overarching aim of the present study, namely examining which psychosocial factors contributing to this observed intraindividual change in the wish to be thinner becomes pertinent.

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**Predictors of change.** The results showed that high BMI predicted a higher level of wishing to be thin and a further increase in this wish. The mere association between BMI and wishing to be thinner has been examined before, with similar results (Ricciardelli et al., 2003; Vander Wal & Thelen, 2000). The results also showed that BMI predicts increased wish over and beyond the initial level. In their study, Clark and Tiggemann (2008) found similar results in an older sample in that BMI was a significant predictor of decreased body esteem and increased desire for thinness, and that this effect was partially mediated by internalization of appearance ideals (Clark & Tiggemann, 2008). It is further proposed that thin ideal internalization is influenced by effects of social comparison processes (Thompson, Coover, & Stormer, 1999). As the children enters school, greater time is spent interacting and communicating with peers, which provides opportunities for increasing levels of social comparison and shared peer norms over the early years of schooling (Dohnt & Tiggemann, 2005). One explanation for BMI leading to increased wish to be thinner may thus be as follows: with increasing age the fact that a larger body deviates more from the cultural body ideal becomes more evident, and as a consequence the child wish for a thinner figure in order to meet this norm. Another explanation may be the high level of negative stereotyping girls and boys of all ages hold towards heavier children, perceiving them to be less friendly, happy, popular, attractive, but more lazy (Tiggemann & Wilson-Barrett, 1998). With increasing social comparison, children with a higher BMI may therefore show an increasing wish for a thinner figure in fear of negative stereotyping.

In line with earlier research, the results showed emotional overeating to have a direct effect on BMI (Davis, Strachan, & Berkson, 2004; Viana, Sinde, & Saxton, 2008). Interestingly, children's eating in response to negative emotions did also, unexpectedly, predict increased wish to be thinner. How can this relationship be explained? Theories indicate emotional overeating to be a result of poor emotional regulation (Evers, Marijn Stok, & de Ridder, 2010). That is, individuals experiencing negative affect without the ability to regulate these in a proper manner will use maladaptive strategies like eating in order to suppress these negative feelings. The results indicate that a higher degree of emotional overeating leads to a very modest, but significant, increase in children's wish to be thinner. Wishing to be thinner may also be seen as a strategy for regulating something unpleasant i.e. low self-esteem, being out of line with cultural norms. Possibly, poor emotion regulation skills may act as an unmeasured confounder behind the emotional overeating and wishing to be thinner relationship. Longitudinal studies adjusting for emotional regulation skills are highly needed to understand this relationship.

Results supported the proposed hypothesis that the more concerned the parents were about their own weight, the less satisfied their children were about their own weight. This is in line with the

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proposition of sociocultural theories, stating the current thin beauty ideal to be transmitted and reinforced via socio-cultural mechanisms. Parents concerned about their own weight may influence their children's body image by modeling the importance of appearance as well as which body figure is seen as attractive. Remember that the overwhelming majority of parents reporting about their own weight concern were mothers. Examples of such modeling may be mothers looking in the mirror commenting on their own figure or how their clothes make their belly look big. Other examples may be hearing their mother talk to her friends about her own or others' appearance. Parents may also make comments about their own child's body and stress the importance of restricting food intake to avoid becoming fat.

Surprisingly, the results also indicated that being a girl was associated with a higher degree of appearance satisfaction, which is the opposite of what was hypothesized. The sociometer theory of self-esteem states that self-esteem serves as a direct measure of success in interpersonal relationships (Leary, Terdal, Tambor, & Downs, 1995). The theory maintains that self-esteem is responsive to one's social experiences and are attuned to traits that garner acceptance from others. As a result self-esteem will be affected by performance in domains that other values (Anthony, Holmes, & Wood, 2007). The social comparison theory (Festinger, 1954) states that those who frequently compare their appearance to others, especially to more attractive people and to cultural ideals, will be less satisfied with their own appearance. According to this theory, degree of appearance satisfaction is influenced by individual social comparison practices (Vander Wal & Thelen, 2000). It is further thought that girls are increasingly more likely as they get older to use social comparison and describe themselves more negatively than boys (Ricciardelli & McCabe, 2001). Most studies concerning appearance satisfaction have been conducted on adolescent and adult samples, with few assessing this construct in children. Hill and Pallin (1998) found in their sample of 8-year-old children that girls assessed themselves significantly lower on physical appearance than did boys. As far as I can see, no study has examined appearance satisfaction in even younger children. The results of the present study showing girls being more satisfied with their general appearance than boys at age 6 might imply girls' social comparison processes and appearance dissatisfaction to first emerge when the girls get older. Clearly more research is needed in this area. This finding is interesting in the context of girls at the same time (age 6) wish for a thinner figure. Perhaps at this age self-esteem is more attuned to other domains of relational value, and as a consequence overall appearance satisfaction is not affected by girls wishing they were thinner. In support of the hypothesis in the present study, the more satisfied the children were about their own appearance the lesser their wish to be thinner became. Possibly, with higher degree of appearance satisfaction, the motivation to become thinner decreases. It should be mentioned that this connection

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was very modest.

**Limitations.** Although the present study has many strengths, such as the use of prospective data derived from a large community sample, several limitations need to be acknowledged. First, other factors than those measured in this study are likely to play a part in the development of a wish to be thinner. Peers have been suggested to have an important influence on children's body image (Ricciardelli et al., 2009; Wertheim et al., 2009). The reason for this is that children will use social comparison, where they compare different attributes with their peers in the service of self-evaluation (Harter, 1999). In addition, children will internalize others' standards and views, which is evident in that conversations with peers about appearance related topics seems to be related to the internalization of appearance ideals and body dissatisfaction (Dohnt & Tiggemann, 2006a). Research has also indicated that children desire a thinner body size in order to be better liked by their peers (Oliver & Thelen, 1996). Peer teasing is thus probably associated with body dissatisfaction in children (Oliver & Thelen, 1996). Unfortunately, the current study did not include appearance teasing or other peer processes related to appearance. There are also likely to be individual psychological factors which may influence the wish for thinness – also in this period, such as internalization of appearance ideals, perfectionism and negative affect (Wertheim et al., 2009). These factors should be investigated using prospective research in the future. As this is the first study to identify emotional overeating to be predictive of change in the wish to be thinner, replication extensions including such factors are needed.

Second, the study only measured the wish to be thinner at two time points. As there are many developmental changes happening during childhood, longitudinal research extending into adolescence may provide a better understanding of the influence of different psychosocial factors across different stages of development. Additionally, several measures will provide more information about the stability of the wish to be thinner in children. Third, as this study was conducted in Norway with the majority being of Norwegian ethnicity, generalizability should be made with caution.

A longitudinal study has the advantage of allowing for an investigation of the temporal precedence of the different psychosocial variables to the wish to be thinner in children and thereby providing preliminary evidence about causality. However, even though the direction of change in the variables from age 6 to 8 is clear, the relations between the variables in the model at age 6 are not certain as they are measured at the same time point. This means that even if the model is specified in a temporal order, e.g. emotional overeating affecting BMI, which further affects the wish to be thinner, we cannot exclude the possibility that wishing to be thinner leads to a lower or higher BMI or that BMI affects emotional overeating. In a longitudinal study of girls aged between 9 and 20 years, Westerberg-Jacobson, Edlund & Ghaderi (2010) found that a larger proportion of girls reporting a wish to be

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thinner at the first assessment had a higher BMI 5 years later compared to girls who didn't report such a wish, although girls in this group also reported dieting efforts (Westerberg-Jacobson, Edlund, & Ghaderi, 2010). A plausible explanation for this result may be that such dieting efforts set the scene for poorer eating patterns and habits over time. Restriction of dietary intake may also lead to increased feeling of hunger and overeating, and thus a higher BMI (Westerberg-Jacobson et al., 2010). The relationship between BMI and emotional overeating may also be bidirectional (Davis, Levitan, Muglia, Bewell, & Kennedy, 2004). Conceivably, a higher BMI could lead to more frequent periods of depressed mood (Friedman, Reichmann, Costanzo, & Musante, 2002), and further the use of food to soothe a disturbed affect (Davis, Strachan, et al., 2004). Studies including repeated measures over a short time period will be needed in order to shed light on the temporal order of these variables.

**Implications for interventions.** The results of the present study suggest that children dissatisfied with their appearance at age 6 reports an increased wish to be thinner at age 8. Prevention effort should thus be implemented as early as school entry, with a focus on health and body acceptance in the children. Role play has been successfully used to engage adolescents in learning about healthy behavior (C. J. Jackson, Mullis, & Hughes, 2010), and it has also been used successful in elementary school children (Neumark-Sztainer et al., 2009). One possibility might thus be using a role play-based program focusing on enhancing appearance satisfaction through interactive activities. One example may be that children act out different conversations concerning body ideals, e.g. question the value of thinness, by acting out conversations about how the ideal body has changed during history as well as how it differs between. My results also indicate that some form of treatment program for parents may be useful because parents' weight concern were associated with appearance dissatisfaction in their children. Targeting the family environment, with a focus on healthy habits and eating styles, may also be viable with the knowledge about the role of children's BMI in body dissatisfaction and wishing to be thinner. This is important knowing that higher BMI runs in families, with children of obese parents being at greater risk of developing obesity than children of thin parents (Birch & Fisher, 1998).

In summary, the results showed a moderate stability in the wish to be thinner from age 6 to 8. Further, BMI, emotional overeating and appearance dissatisfaction predicted increased wish to be thinner, while gender and parental weight concern had an indirect influence on change in this wish. Hence prevention efforts targeting young children's body ideals as well as parents' preoccupation with weight and figure may temper an early emerging wish for thinness.

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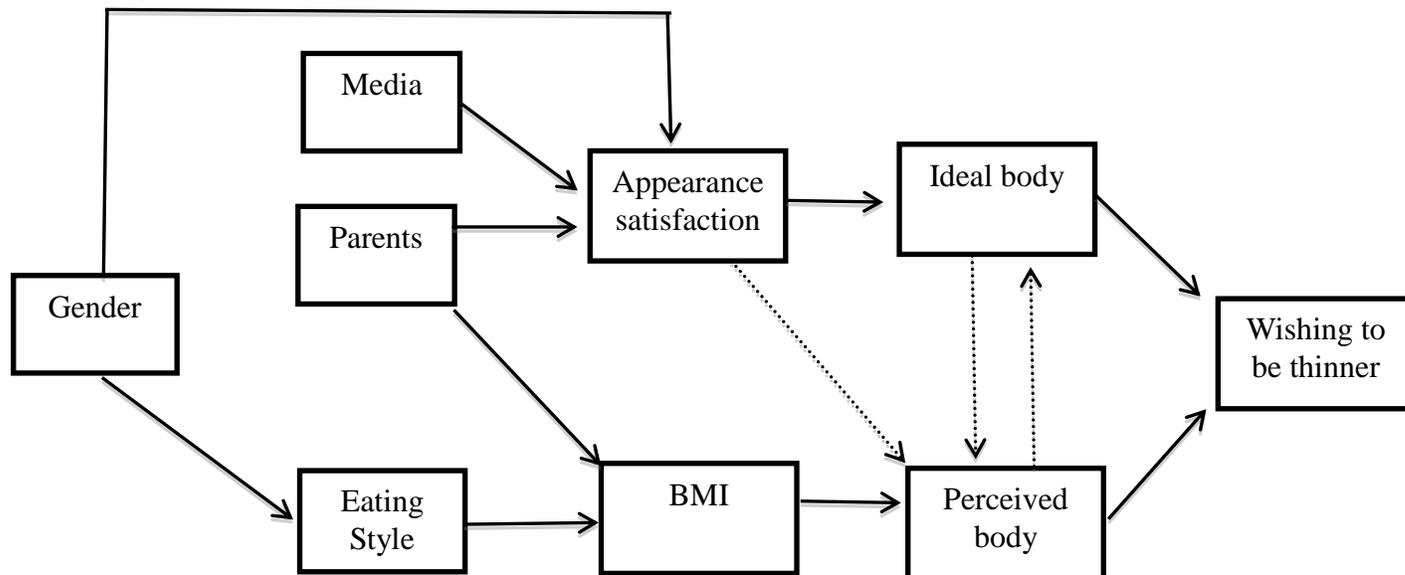


Figure 1. Initial predictive model



# WISH FOR THINNESS IN CHILDREN

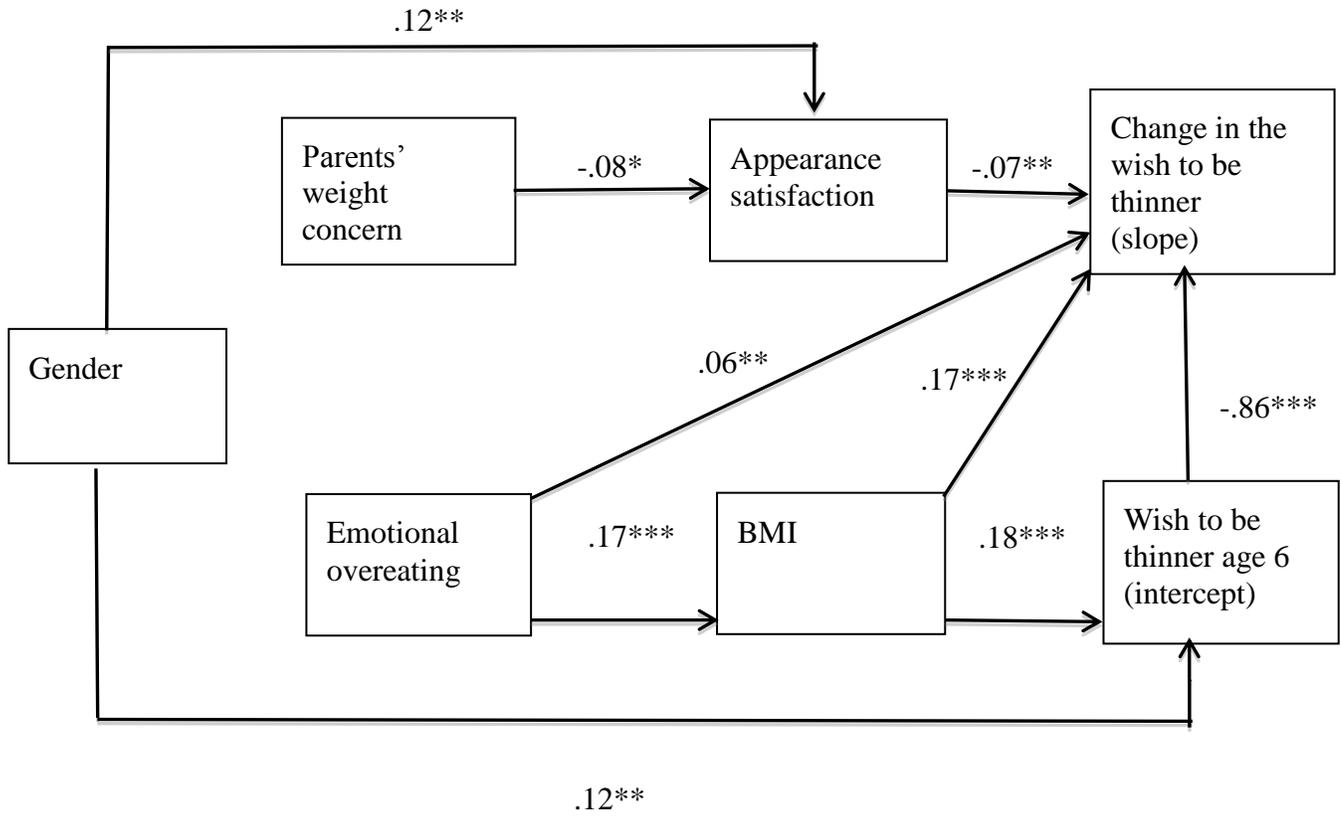


Figure 3. Modified predictive model

## WISH FOR THINNESS IN CHILDREN

Table 1

*Percentage of children wishing to be thinner, thicker, and of same weight at age 6 and 8 according to gender*

	Total	Boys	Girls	Gender difference - Wald	Difference between 6 years and 8 years - Wald
6 years					
Thinner	45.6	39.0	52.0	10.77***	
Same weight	33.8	41.1	26.6		
Heavier	20.6	19.9	21.4	.23	
<i>Wald thinner vs heavier</i>	65.57***	20.85***	45.90***		
8 years					
Thinner	34.7	31.1	38.2	3.20	18.74***
Same weight	55.8	59.9	51.8		
Heavier	9.5	9.0	10.0	.17	35.18***
<i>Wald thinner vs heavier</i>	96.87***	39.56***	57.72***		

## WISH FOR THINNESS IN CHILDREN

Table 2

*Sample descriptives for study variables*

Study variable	Mean	SD
Wishing to be thinner– age 6	0.46	0.68
Wishing to be thinner– age 8	0.37	0.94
Parents weight concern	2.12	1.13
Music TV programs	1.89	0.31
TV programs for older children or families	1.64	0.48
Emotional overeating	1.43	0.44
Appearance satisfaction	34.13	5.70
BMI	15.60	1.50

WISH FOR THINNESS IN CHILDREN

Table 3

*Correlation between study variables*

Measure	1	2	3	4	5	6	7	8	9
1. Wishing to be thinner- age 6									
2. Wishing to be thinner- age 8	.21								
3. Gender	.12	.04							
4. Parents' Weight Concern	.06	.08	.02						
5. Music TV programs	.00	-.07	.02	-.05					
6. TV programs for older children or families	-.00	.04	-.07	-.05	-.02				
7. Emotional overeating	.06	.17	.07	.06	.02	-.10			
8. Appearance satisfaction	.06	-.11	.12	-.07	-.02	.01	.02		
9. BMI	.18	.34	-.00	.04	-.00	-.04	-.17	-.00	