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The Contribution of Peer and Media Influences to the Development of Body Satisfaction and Self-Esteem in Young Girls: A Prospective Study

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This study aimed to prospectively examine the role of peer and media influences in the development of body satisfaction (incorporating the desire for thinness and satisfaction with appearance) in young girls, as well as the relationship between body satisfaction and self-esteem. A sample of 97 girls 5–8 years of age completed individual interviews at Time 1 and 1 year later at Time 2. Linear panel analyses found that Time 1 perception of peers' desire for thinness was temporally antecedent to girls' desire for thinness, appearance satisfaction, and self-esteem 1 year later. In addition, the watching of appearance-focused television programs was temporally antecedent to appearance satisfaction. Finally, girls' desire for thinness was found to temporally precede low self-esteem. Thus, as early as school entry, girls appear to already live in a culture in which peers and the media transmit the thin ideal in a way that negatively influences the development of body image and self-esteem.

Keywords: body satisfaction, self-esteem, young girls, peer and media influences, prospective study

Body dissatisfaction, or the desire for thinness, is so prevalent among women and adolescent girls that it is now described as a "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1985). Alarmingly, this normative discontent has recently been extended to include young girls (Phares, Steinberg, & Thompson, 2004). A number of studies have now identified a desire for thinness in 6-year-old girls (Ambrosi-Randic, 2000; Davison, Markey, & Birch, 2000; Dohnt & Tiggemann, 2004, 2005; Poudevigne, O'Connor, Laing, Wilson, Modlesky, & Lewis, 2003). Not only are these 6-year-old girls dissatisfied with their bodies, but some have also attempted to diet (Tanofsky-Kraff et al., 2004).

The question that arises from these findings is "How do children learn about the thin ideal body image and ways to achieve it as young as 6 years of age?" Sociocultural models for older populations (e.g., Stice, 1994; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999) and for preadolescent children (Ricciardelli & McCabe, 2001a; Smolak & Levine, 2001) suggest that the thin ideal is transmitted and reinforced via a number of different mechanisms, primarily parents, peers, and the media. Indeed, a large body of evidence exists documenting the relationship between such sociocultural influences and body dissatisfaction in adult and adolescent women (e.g., Stice & Whitenhon, 2002).

A number of studies have implicated the role of parents in the development of body dissatisfaction in preadolescent girls 8–12 years of age (Guiney & Furlong, 1999; Phares et al., 2004; Smolak & Levine, 2001; Smolak, Levine, & Schermer, 1999). In addition, more recent research has focused on parents, particularly mothers, as influential role models for younger girls 5–8 years of age (e.g., Davison & Birch, 2001; Fisher & Birch, 1999; Lowes & Tiggemann, 2003).

Although there is a good deal of research on both peer and media influences in preadolescents (e.g., Cusumano & Thompson, 2001; Guiney & Furlong, 1999; Harrison, 2000; Oliver & Thelen, 1996; Phares et al., 2004; Sands & Wardle, 2003; VanderWal & Thelen, 2000; Vaughan & Fouts, 2003), there has been little investigation of these relationships among younger girls. However, Dohnt and Tiggemann (2005) recently reported evidence for shared peer norms for the thin ideal among 6- and 7-year-old (but not 5-year-old) girls, highlighting the role of peers. In another study, Dohnt and Tiggemann (2006) examined media influences in a similar age group. They found that girls who looked at women's magazines (e.g., *Woman's Day*) had greater dissatisfaction with their appearance. In addition, they also found that watching music television shows and reading appearance-focused girls' magazines (e.g., *Dolly, Total Girl*) predicted dieting awareness.

The general sociocultural model assumes that media and peer influences are causal in the development of body dissatisfaction. In adolescent samples, a few longitudinal studies have identified some prospective relationships between peer (e.g., Jones, 2004) and media influences (e.g., Ricciardelli & McCabe, 2003) with body image variables, although the majority of the literature provides only cross-sectional evidence. In fact, assessing the causal role of peers and the media among younger girls who are not already saturated with peer and media exposure may provide us with a more appropriate test of the sociocultural model. Thus, in the present study we sought to use a longitudinal research design to investigate the temporal precedence (a minimal condition for a causal relationship; Menard, 1991) between peer and media influences and body satisfaction. The specific research question addressed whether peer and media influences are indeed temporally antecedent to body dissatisfaction in young girls, consistent with their postulated causal role.

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The second aim of the present study was to more precisely examine the role of self-esteem in the development of young girls' body dissatisfaction. Body image concerns have been linked to numerous pathological problems, including depression, obesity, dieting, and eating disorders (e.g., Johnson & Wardle, 2005; Ricciardelli & McCabe, 2001a; Smolak, 2004). In particular, the association between self-esteem and body image concerns is well established for women and adolescent girls (e.g., Mendelson, White, & Mendelson, 1996; Wade & Cooper, 1999). Furthermore, preadolescent girls who report higher levels of body dissatisfaction and dieting also report poorer self-esteem (e.g., Folk, Pederson, & Cullari, 1993; Kelly, Ricciardelli, & Clarke, 1999; Lawrence & Thelen, 1995; McCabe & Ricciardelli, 2003; Mendelson et al., 1996; Ricciardelli & McCabe, 2001b, 2003; Smolak, 2004; Smolak & Levine, 2001). However, research investigating the specific role of self-esteem in younger children is again limited.

The actual causal direction of the relationship between body dissatisfaction and self-esteem remains unclear for all age cohorts (Tiggemann, 2005). To date, there are few longitudinal studies examining the temporal precedence of this relationship. On the one hand, Tiggemann (2005) found that adolescent girls who are heavier, perceive themselves as being overweight, and are dissatisfied with their weight might be vulnerable to developing low self-esteem. In addition, another prospective analysis by Johnson and Wardle (2005) found that body dissatisfaction significantly predicted low self-esteem among adolescents. On the other hand, a number of etiological theories identify low self-esteem as a precursor for the development of body dissatisfaction or disordered eating (e.g., Button, 1990). Thus, in this study we sought to investigate the directionality of the relationship between self-esteem and body dissatisfaction specifically in young girls.

Method

Participants

Participants were a convenience sample of 97 young girls recruited from four private schools in Adelaide, South Australia, Australia. Students attending these schools are mainly (> 95%) Caucasian and from middle- to upper-class families. Girls were initially (Time 1) part of a larger sample (N = 128 girls) for whom cross-sectional results have been reported (Dohnt & Tiggemann, 2006) and who were available for follow-up approximately 12 months later (Time 2). Thus, a retention rate of 76% was achieved. At Time 1, girls were in the first 4 years of formal primary schooling, with a mean age of 6.91 years (SD = 1.23). The majority of the girls were between 5 and 8 years old (5 years, n = 17; 6 years, n = 19; 7 years, n = 24; 8 years, n = 30; and 9 years, n = 7). At Time 2, girls were between 6 and 10 years old (mean age = 7.89 years, SD = 1.22). Attrition was largely a function of girls having left the schools or nonreturn of consent forms. No parent positively refused consent. Attrition analyses showed no difference between girls who did and did not complete the Time 2 follow-up on any of the Time 1 variables of body mass index, desire for thinness, appearance satisfaction, self-esteem, or any of the peer and media influences.

Measures

All measures were administered through individual interviews conducted by Hayley Dohnt. Each individual interview (at both Time 1 and Time 2) required approximately 15–20 min to complete. As weight and shape constitute potentially sensitive issues, all questions were carefully designed to be as innocuous as possible. Where possible, a yes–no response format was used for most measures, with the explicit provision of an "I don't know" response option as recommended by Huon, Godden, and Brown (1997). On the rare occasion that girls responded with "I don't know," their response was scored as a missing value. The same measures were completed at Time 1 and Time 2.

Body Satisfaction

Body satisfaction was assessed using two different measures: desire for thinness and appearance satisfaction. Desire for thinness assessed via figure ratings provides a cognitive measure of girls' body satisfaction (Tiggemann & Pickering, 1996), whereas the measure of appearance satisfaction was developed to provide a more global affective assessment of girls' satisfaction with their overall appearance.

Desire for thinness. Desire for thinness was measured with the girls' version of the Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998). This scale presents on an A3-sized bright-colored piece of cardboard nine young female silhouette drawings, ranging from very thin to very fat. Girls were asked, "Which girl do you think you look like?" (current figure), followed by "Which girl would you most like to look like?" (ideal figure). Girls responded by simply pointing to their choices. Desire for thinness was calculated as current minus ideal figure rating. Good test–retest reliability has been found for such figure rating scales with children as young as 6 to 7 years of age (Collins, 1991).

Appearance satisfaction. On the basis of the format of many scales used with young children (e.g., Harter & Pike's [1984] Pictorial Scale of Perceived Competence/Social Acceptance), girls' appearance satisfaction was measured by using a pictorial format. Girls were shown two pictures and told, "This girl is happy with the way she looks at the moment (Picture 1). This girl is not happy with the way she looks at the moment (Picture 2). Which girl is most like you?" Follow-up questions asked "Are you 'always' (4 points) or 'usually' happy (3 points; Picture 1) or 'usually' (2 points), or 'always' not happy (1 point; Picture 2) with the way you look?" Thus, a higher score (range = 1–4) indicated greater appearance satisfaction.

Self-Esteem

Self-esteem was measured using the well-validated Global Self-Worth Scale of the Self-Perception Profile for Children (Harter & Pike, 1984). This subscale consists of six items that assess children's perceptions of their global self. Because the majority of girls could not read at the required level, each item was read out aloud to each girl. Each item consists of two contrasting statements from which girls were asked to choose the one "most like them." For example, "Some girls are not happy with the way they do a lot of things; other girls think that the way they do things is fine." Once a statement was selected, the girls were asked to choose whether the statement was "really true" or "sort of true" of them. Each item was scored on a scale ranging from 1 to 4. Thus, total scores ranged from 4 to 24, with higher scores indicating greater perceived global self-esteem. Internal reliability was satisfactory at both Time 1 (Cronbach's α = .74) and Time 2 (Cronbach's α = .87).

Peer Influences

Three variables were used to examine peer influences: perceived peer desire for thinness, peer discussions, and imitation.

Perceived peer desire for thinness. Girls' perception of their peers' desire for thinness was measured using the Children's Figure Rating Scale (Tiggemann & Wilson-Barrett, 1998). Girls were asked to identify the figure they thought their best friend looked like and the figure they thought their best friend would like to look like. These questions were repeated for "other girls" in their class. Discrepancies were then calculated and aver-

aged to produce an overall measure of perceived peer desire for thinness. This measure has been used successfully with this age group in previous studies (Dohnt & Tiggemann, 2005, 2006).

Peer discussions. Appearance-related discussions between friends were also assessed, again using a pictorial format. Girls were shown a picture of a group of girls and informed, "These girls talk about lots of different things together." They were then asked, "Do you and your friends ever talk about: (1) the way pop stars look; (2) the way other girls in your class look, (3) clothes?" Responses were scored as *no* (0), *sometimes* (1), or *a lot* (2). Although below the generally accepted level of .70, the internal reliability was considered satisfactory for a scale with few items (Cronbach's $\alpha = .43$), as indicated by the mean interitem correlation of .20. Briggs and Cheek (1986) recommended a mean interitem correlation of between .20 and .40 for scales with few items. At Time 2, both the internal reliability (Cronbach's $\alpha = .55$) and the mean interitem correlation ($r = .30$) had increased. Nevertheless, these results should be interpreted with care.

Imitation. Using the same format, girls were asked whether they try to model or imitate others. They were asked, "These girls often try to dress and look like: (1) the women on TV or in magazines; (2) their friends. Do you ever try to dress or look like: (1) the women on TV or in magazines; (2) your friends?" Again, responses were scored *no* (0), *sometimes* (1), or *a lot* (2). Internal reliability was satisfactory at Time 1 (Cronbach's $\alpha = .65$) and Time 2 (Cronbach's $\alpha = .61$) for a measure with only two items (Briggs & Cheek, 1986).

Media Influences

Television. Girls were provided with a list of 12 popular children's television shows and asked whether they watched them *a lot* (2), *sometimes* (1), or *never* (0). The list was developed from a Web site (www.oztam.com.au/html/) providing television ratings for popular children's television shows. In addition, two music video shows (*Rage, Video Hits*) were also included, as they have been demonstrated to be important for adolescent samples (Tiggemann & Pickering, 1996).

Magazines. Girls were asked a series of questions regarding magazines. First they were asked whether they looked at magazines and, if so, to name the magazines. Then they were asked whether they looked at the magazines *a lot* (2), *sometimes* (1), or *never* (0).

Appearance media exposure. The final lists of television shows and magazines at both time points were rated for appearance focus by five independent raters. All raters were provided with an excerpt of each television show and a copy of each magazine to aid in the rating process. Each television show or magazine was then rated in terms of its "appearance focus"—*no* (0), *some* (1), or a *large* (2) emphasis on appearance and the thin ideal—and then given the modal appearance rating. The mean interrater reliability was moderately high ($r = .80$ for television; $r = .84$ for magazines).

Appearance media exposure variables were then calculated by multiplying the appearance-focus rating (0, 1, or 2) for each television show or magazine by the frequency with which it was watched or looked at (0, 1, or 2). Thus, two variables were created: appearance television exposure (Time 1 and Time 2) and appearance magazine exposure (Time 1 and Time 2).

Body Mass Index

At the end of each interview, girls were individually weighed and their height was measured by Hayley Dohnt. Body mass index (BMI), as the ratio of weight (in kilograms) to height (meters) squared (Garrow & Webster, 1985), was then calculated for each girl at both time points.

At Time 1, girls' BMI ranged from 12.63 to 21.97, with an average BMI of 15.72 ($SD = 2.03$). Using age-related cutoff points for BMI (Cole, Bellizzi, Flegal, & Dietz, 2000), only 15 (15.2%) of the girls could be classified as overweight and 3 (3%) as obese. At Time 2, BMI ranged from 12.63 to 23.89 ($M = 16.36$, $SD = 2.41$), with 20 girls (20.1%) being classified as overweight and 3 (3%) as obese.

Statistical Analysis

Initially, changes over time in the variables of BMI, peer and media influences, and body satisfaction and self-esteem were examined. A multivariate analysis of variance with time as the repeated measure was performed. Subsequent follow-up univariate analyses of variance examined which individual variables changed over time. Synchronous relationships within both time points were examined by correlational analyses. Then cross-lagged correlations were conducted to evaluate whether Time 1 peer and media variables were able to predict outcome variables prospectively at Time 2 (1 year later).

Finally, to formally test temporal precedence, a series of multiple regression analyses were conducted for each of the significant cross-lagged correlations. Temporal precedence is established when a variable predicts subsequent change in another variable, that is, while controlling for initial levels of the outcome variable (Stice, 2002). Thus, each Time 1 outcome variable was entered at Step 1, followed by BMI, perceived peer desire for thinness, or appearance television exposure at Step 2, to examine whether these variables predicted the relevant Time 2 outcome variable over and above Time 1 values. Entering variables separately in this way avoids problems with multicollinearity (Stice & Whitenton, 2002). This procedure was repeated for the relationship between body satisfaction and self-esteem.

Results

Changes Over Time

Table 1 provides the means for all variables assessed at both Time 1 and Time 2, as well as test–retest correlations between Time 1 and Time 2. The correlation coefficients indicate moderate intraindividual stability over time for all variables except appearance satisfaction.

The initial multivariate analysis of variance revealed a significant interaction between time and variable, $F(8, 72) = 3.20$, $p < .01$. Follow-up univariate analyses of variance indicated significant change over time for BMI, appearance satisfaction, self-esteem, and imitation of others. Not surprisingly, girls grew significantly heavier over time as is healthy and normal. However, they also experienced a significant decrease in appearance satisfaction, self-esteem, and imitation of others, although scores on appearance satisfaction and self-esteem were quite high in absolute terms. On the other hand, girls' own desire for thinness, their perceived peer desire for thinness, peer discussions, and both appearance television and magazine exposure remained stable over time.

Although girls' own desire for thinness remained stable over time, a substantial proportion of the girls desired to be thinner at both time points (Time 1, 40.2%; Time 2, 43.3%). At Time 1, the difference between age groups (5-, 6-, 7-, 8-, and 9-year-olds) in desire for thinness was significant, $\chi^2(8, N = 97) = 20.56$, $p < .001$, resulting from the fact that the majority (58.8%) of 5-year-old girls actually desired to be larger, compared with 16.3% of 6- to 9-year-old girls. However, by Time 2, 1 year later, only 29.4% of these now 6-year-old girls desired to be larger, and the difference between age groups was no longer significant, $\chi^2(8, N = 97) = 12.68$, $p > .05$.

Table 1
Mean Scores, t Values, and Test–Retest Correlations for Peer and Media Influences and Outcome Variables

Variables and influences	Time 1	Time 2	*t*	*r*
Body mass index	15.72	16.36	4.10***	.78**
Outcome variables				
Desire for thinness	0.24	0.38	0.91	.34**
Appearance satisfaction	3.40	3.21	2.21*	.12
Self-esteem	20.15	19.46	2.02*	.41**
Peer influences				
Perceived peer desire for thinness	0.19	0.42	1.79	.28*
Peer discussions	1.36	1.41	0.34	.34**
Imitation	0.71	0.50	2.11*	.36**
Media influences				
Appearance television	6.08	6.19	0.29	.69**
Appearance magazines	1.34	1.50	0.70	.23*

* $p < .05$. ** $p < .01$. *** $p < .001$.

Correlations Within Time

The top half of Table 2 presents the correlations between BMI and peer and media variables with desire for thinness, appearance satisfaction, and self-esteem at Time 1. Heavier girls had a greater desire to be thinner. Girls who perceived that their peers desired a thinner ideal body were also more likely to desire a thinner ideal body themselves.

As can be seen from the bottom half of Table 2, there were more significant relationships at Time 2. Again, heavier girls desired a thinner figure and in addition were also less satisfied with their appearance. For the peer influence variables, perceived peer desire for thinness was significantly correlated with girls' own desire for thinness and their self-esteem. Furthermore, girls who engaged in more peer discussions with their friends and imitated others more often had lower appearance satisfaction. Those girls who more frequently imitated others also had lower self-esteem. For the media variables, appearance television exposure was negatively related to appearance satisfaction. Those girls who watched more appearance-focused television programs had lower appearance satisfaction.

Correlations Across Time

Table 3 presents the cross-lagged correlations between Time 1 peer and media variables and Time 2 outcome variables. It can be seen that having a higher BMI at Time 1 predicted girls' desire for thinness at Time 2. In addition, perceived peer desire for thinness at Time 1 offered significant prediction of girls' own desire for thinness, appearance satisfaction, and self-esteem 1 year later.

Table 2
Correlations Between Peer and Media Influences and Outcome Measures at Time 1 and Time 2

Influences	Desire for thinness	Appearance satisfaction	Self-esteem
	Time 1		
Body mass index	.35**	−.16	−.14
Peer influences			
Perceived peer desire for thinness	.43**	−.03	−.12
Discussions	−.04	−.01	.05
Imitation	−.10	−.01	.03
Media influences			
Appearance television	−.01	.09	.10
Appearance magazines	−.06	.01	−.05
	Time 2		
Body mass index	.44**	−.23*	−.16
Peer influences			
Perceived peer desire for thinness	.40**	−.12	−.26*
Discussions	.05	−.23*	−.13
Imitation	−.07	−.24*	−.23*
Media influences			
Appearance television	−.08	−.24*	.01
Appearance magazines	−.16	−.05	.16

* $p < .05$. ** $p < .01$.

Table 3
Correlations Between Time 1 Peer and Media Variables and Time 2 Outcome Variables

	Time 2		
Time 1	Desire for thinness	Appearance satisfaction	Self-esteem
Body mass index	.35**	−.17	−.04
Peer influences			
Perceived peer desire for thinness	.39**	−.33**	−.31**
Discussions	−.06	−.14	−.01
Imitation	.11	−.07	−.10
Media influences			
Appearance television	−.05	−.23*	.01
Appearance magazines	−.10	.03	.10

* $p < .05$. ** $p < .01$.

Thus, girls who perceived that their friends desired a thinner body at Time 1 themselves desired thinner bodies, were less satisfied with their bodies, and had lower self-esteem at Time 2. Appearance television exposure was the only other Time 1 sociocultural variable to offer significant prediction at Time 2. Girls who watched more appearance-focused television at Time 1 had lower appearance satisfaction at Time 2. Peer discussions, imitation, and appearance magazine exposure at Time 1 were not significantly related to any Time 2 outcome variable.

Examination of Temporal Precedence

Table 4 displays the beta, ΔR^2, and ΔF values for both Step 1 and Step 2 predictors from the series of multiple regression analyses conducted to test temporal precedence between BMI, peer and media influences, and body satisfaction and self-esteem. It can be seen that Time 1 peer desire for thinness was a significant predictor of change in desire for thinness, appearance satisfaction, and self-esteem. The beta values indicated that those girls who initially thought their peers would desire a thinner ideal body subsequently themselves desired to be thinner, were less satisfied with their appearance, and had lower self-esteem. Heavier girls at Time 1 were also relatively more dissatisfied with their bodies at Time 2. Finally, initial appearance television exposure was a significant predictor of decrease in appearance satisfaction.

Relationship Between Body Satisfaction and Self-Esteem

As the two measures of body satisfaction (desire for thinness and appearance satisfaction) were not significantly related at Time 1, $r(97) = .03$, $p > .05$, or Time 2, $r(97) = -.14$, $p > .05$), we conducted separate analyses for these variables. Table 5 presents the synchronous (within-time) and cross-lagged (across-time) correlations between self-esteem and the body satisfaction variables of desire for thinness and appearance satisfaction, and self-esteem.

At Time 1, only appearance satisfaction was positively correlated with self-esteem. At Time 2, desire for thinness was negatively correlated with self-esteem, and appearance satisfaction was positively correlated with self-esteem. The cross-lagged relationships indicated that Time 1 desire for thinness and appearance satisfaction were both significantly related to self-esteem 1 year later (Time 2), with girls who desired thinner ideal bodies or who were less satisfied with their appearance demonstrating lower self-esteem. The reverse relationship was significant only for ap-

Table 4
Hierarchical Regression Results Indicating Predictors of Each Time 2 Outcome Variable

Variable	β	ΔR^2	ΔF
Desire for thinness			
Step 1: Desire for thinness	.34**	.11	12.04**
Step 2a: Body mass index	.27*	.06	7.19**
Step 2b: Perceived peer desire for thinness	.27*	.06	6.12*
Step 2c: Appearance television exposure	−.05	.002	0.23
Appearance satisfaction			
Step 1: Appearance satisfaction	.12	.01	1.38
Step 2a: Body mass index	−.16	.02	2.39
Step 2b: Perceived peer desire for thinness	−.32**	.11	9.79**
Step 2c: Appearance television exposure	−.24*	.06	5.85*
Self-esteem			
Step 1: Self-esteem	.41***	.17***	20.20***
Step 2a: Body mass index	.01	.000	0.02
Step 2b: Perceived peer desire for thinness	−.27*	.07	7.83*
Step 2c: Appearance television exposure	−.03	.001	0.10

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
Correlations Between Time 1 and Time 2 Body Satisfaction Variables and Self-Esteem

	Self-esteem	
Body satisfaction variables	Time 1	Time 2
Time 1		
Desire for thinness	−.001	−.24*
Appearance satisfaction	.46**	.21*
Time 2		
Desire for thinness	−.07	−.22*
Appearance satisfaction	.22*	.55**

* $p < .05$. ** $p < .01$.

pearance satisfaction and self-esteem, in that Time 1 self-esteem predicted Time 2 appearance satisfaction.

To further examine these findings and test for temporal precedence, we again conducted hierarchical regressions. Initially, Time 2 self-esteem was the outcome variable. Time 1 self-esteem was entered at Step 1 of the regression equation, followed at Step 2 by Time 1 desire for thinness in the first regression equation and Time 1 appearance satisfaction in the second. We found that Time 1 desire for thinness significantly predicted decrease in self-esteem ($\beta = -.24$, $\Delta R^2 = .06$), $\Delta F(1, 94) = 7.17$, $p < .01$, whereas Time 1 appearance satisfaction did not significantly predict change in self-esteem ($\beta = .02$, $\Delta R^2 = .00$), $\Delta F(1, 94) < 1$, $p > .05$. In sum, Time 1 desire for thinness was temporally antecedent to self-esteem 1 year later. Hierarchical regressions testing the reverse relationships revealed that Time 1 self-esteem did not significantly predict change in desire for thinness ($\beta = -.07$, $\Delta R^2 = .004$), $\Delta F(1, 94) < 1$, $p > .05$, or in appearance satisfaction ($\beta = .21$, $\Delta R^2 = .04$), $\Delta F(1, 94) < 1$, $p > .05$.

Discussion

The aim of this study was to examine the contribution of peer and media influences to the development of body satisfaction and self-esteem in young girls over a 1-year time period. A considerable proportion of the girls desired to be thinner at both time points (Time 1, 40.2%; Time 2, 43.3%). These proportions replicate those found in a similar age group (Dohnt & Tiggemann, 2005) and in preadolescent girls (e.g., Ricciardelli & McCabe, 2001a). Thus, the desire for thinness is now sufficiently prevalent in young girls to warrant Phares and colleagues' (2004) proposition that the "normative discontent," originally postulated for women and adolescent girls (Rodin et al., 1985), is now applicable to young girls. Nevertheless, it should be noted that although girls desired to be thinner, overall they were largely satisfied with their current appearance. These two aspects were not correlated. It may be that desire for thinness represents a cognitive construct, which does not translate into affective consequences (overall appearance satisfaction) until later in development.

The specific aim of this study, however, was to examine the role of peer and media influences on body satisfaction and self-esteem development. At present, the majority of the research on peer and media influences on body image has been with older populations and is largely cross-sectional in nature. This study provided replication of several of these already established relationships. First, at Time 2 we found that girls who engaged in more appearance-related discussions and imitation of others had lower appearance satisfaction. These findings are similar to those found with adolescents and preadolescents (e.g., Lieberman, Gauvin, Bukowski, & White, 2001; VanderWal & Thelen, 2000; Vincent & McCabe, 2000). The lack of significant relationships at Time 1 suggests that as girls progress through the early years of schooling, the impact of peer discussions and imitation of others appears to become increasingly associated with negative implications. In addition, girls' perception of their peers' desire for thinness was significantly related to their own desire for thinness at both time points. This finding provides further support for Dohnt and Tiggemann's (2005) speculation of the existence of peer norms for the thin body ideal among young girls, as is the case for adolescent girls (Levine, Smolak, Moodey, Shuman, & Hessen, 1994; Lieberman et al., 2001; Paxton, Schutz, Wertheim, & Muir, 1999).

Second, we found that girls who watched television shows with an appearance emphasis, such as *Friends* or *Rage*, were less satisfied with their appearance. Shows such as soap operas and music television clips that present women as thin and attractive, and sometimes provocatively dressed, have also been correlated with body dissatisfaction and disordered eating in adolescents (Borzekowski, Robinson, & Killen, 2000; Tiggemann & Pickering, 1996). Our results are consistent with studies of preadolescents identifying correlational links between television exposure and body image variables (Harrison, 2000; Jones, Vigfusdottir, & Lee, 2004). In contrast, exposure to appearance-focused magazines was not related to body satisfaction in this study, perhaps because most girls were too young to be able to read.

The major aim of this study, however, was to examine the prospective contribution of peer and media influences to the development of body satisfaction and self-esteem in a longitudinal research design. Linear panel analyses showed that Time 1 perceived peer desire for thinness predicted increase in girls' own desire for thinness and decreases in appearance satisfaction and self-esteem 1 year later. Thus, we can conclude that perceived peer desire for thinness is temporally antecedent to body satisfaction and self-esteem. Although peer influences have recently been causally linked to body image concerns in adolescents (Jones, 2004), this study extends these findings to a much younger population. In addition, we found that appearance television exposure predicted decrease in appearance satisfaction over 1 year. In sum, consistent with findings by Dohnt and Tiggemann (2006), it is now clear that children, too, live in a culture in which the media are a salient source of appearance information.

The second aim of the present study was to examine the nature of the relationship between self-esteem and body satisfaction. Extending correlational findings with preadolescent children (e.g., Folk et al., 1993; Kelly et al., 1999), girls who desired a thinner ideal figure and were dissatisfied with their current appearance at Time 1 or Time 2 had lower self-esteem at Time 2. Hierarchical regression analyses confirmed that it was desire for thinness, not appearance satisfaction, that significantly predicted decrease in self-esteem. This partially supports findings in adolescent girls that body dissatisfaction was a significant predictor of low self-esteem (Johnson & Wardle, 2005). Furthermore, the reverse relationship did not hold. In the present sample of young girls, self-esteem did not predict desire for thinness or appearance satisfaction, supporting recent conclusions in adolescent populations (Shaw, Stice, &

Springer, 2004; Tiggemann, 2005). Thus, the present study adds to the small body of literature on the directionality of relationships between body satisfaction and self-esteem, confirming that desire for thinness is a temporal antecedent of subsequent low self-esteem in young girls.

These results have important implications. The findings support previous sociocultural models postulated for older populations (e.g., Stice, 1994; Thompson et al., 1999) and for preadolescent children (Ricciardelli & McCabe, 2001a; Smolak & Levine, 2001). However, given the increasing evidence for the development of a desire for thinness among girls as young as 6 years of age (e.g., Davison et al., 2000), it seems essential that research aim to develop appropriate sociocultural models in relation to younger children.

The present research can also help inform prevention and intervention efforts, which now clearly need to be targeted as early as school entry when beliefs about weight and shape are less consolidated. It is clear that these prevention and intervention efforts should educate children, parents, and teachers on the role of peer and media influences on body satisfaction and self-esteem. Programs designed to reduce peer influences or teach media literacy could also be developed at an age-appropriate level. Finally, the present study found that girls who desire to be thinner have subsequent lower self-esteem. Therefore, programs should aim to bolster self-esteem in young children, perhaps by emphasizing other aspects of self than appearance. More generally, the results show the powerful influence of peers and the media, and hence these sources could be used to promote positive body ideals.

Like all research, the results should be interpreted in light of several limitations. First, the sample size was relatively small. However, this is perhaps inevitable when children need to be individually interviewed at both time points, and it is perhaps why investigations of preliterate children are lacking. Second, the sample was one of convenience and likely not representative of the population at large. Thus, generalizations should be made with caution. Third, as there are few measures available for assessing body image concerns in such young children, it was necessary to adapt measures previously used with older children or to design new measures. For example, appearance satisfaction was measured using a single-item scale, scores on which were not significantly correlated between Time 1 and Time 2. This may reflect the scale's assessment of the whole appearance, including, for example, girls' satisfaction with their current hairstyle. It is vital that the psychometric properties of appropriate measures be established for use with young children. Fourth, although peer and media influences are highlighted in the current study, this does not deny the importance of other influences (e.g., parents) at this age. Furthermore, other mediating influences, such as internalization of the thin ideal, or autonomy, have been linked to sociocultural models in older populations (Thompson et al., 1999) and in preadolescents (Smolak & Levine, 2001) and thus warrant investigation in the future. Finally, as this study is the first to identify the causal relationships between peer and media influences and body satisfaction and self-esteem in young girls, replication is essential.

Despite these limitations, to our knowledge this is the first study to examine longitudinally the contribution of peer and media influences to the development of body satisfaction and self-esteem in young girls. Importantly, this study offers evidence for both forms of sociocultural influence as temporally antecedent to body satisfaction development. In addition, the desire for thinness was temporally antecedent to low self-esteem in young girls. Thus, this study highlights that young girls also live in an appearance-focused environment in which the thin ideal body image is transmitted through multiple sources such as peers and the media. Alarmingly, the resulting desire for the thin ideal appears to already be having a negative impact on young girls' developing self-esteem.

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