

The Effect of “Thin Ideal” Television Commercials on Body Dissatisfaction and Schema Activation During Early Adolescence

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The purpose of the study was to investigate the effect of viewing televised images of female attractiveness on the body dissatisfaction of young adolescent girls and boys. Adolescents (160 females and 197 males) aged 13–15 years viewed either 20 commercials containing idealized female thin images or 20 nonappearance television commercials. Body dissatisfaction was measured before (Time 1), immediately following (Time 2), and 15 min after (Time 3) commercial viewing. Appearance-schema activation was assessed using a word-stem completion task. Girls, but not boys, who viewed the appearance commercials reported significantly higher body dissatisfaction at both Times 2 and 3 compared with the nonappearance condition. Participant age had no effect. Both girls and boys in the appearance condition reported greater schema activation, but appearance schematicity did not moderate the commercial effect. The results support the general hypothesis that televised images of attractiveness lead to increased body dissatisfaction and schema activation for girls as young as 13 years old.

KEY WORDS: mass media; thin ideal sociocultural influences; appearance schemas; body dissatisfaction.

In Western societies, the mass media are typically regarded as the single strongest transmitter of unrealistic beauty ideals, and are often held responsible for the high proportion of women and girls who are dissatisfied with their bodies (Levine and Smolak, 1996). In turn, body dissatisfaction, especially prevalent during adolescence, where a majority of girls report feeling overweight and express a desire to be thinner (Champion and Furnham, 1999), has been implicated in the development and maintenance of restrictive eating, food preoccupation, and binge eating and bulimic tendencies (Cattarin and Thompson, 1994; Stice *et al.*, 1998; Stice *et al.*, 2002; Stice and Shaw,

1994; Twamley and Davis, 1999; Wertheim *et al.*, 2001). In fact, one recent study of adolescents (Phelps *et al.*, 1999) concluded that body dissatisfaction is the “single strongest predictor” of eating disorder symptomatology.

As yet, however, only relatively few experimental studies have actually examined whether viewing media images of women who epitomize the thin ideal—characterized by their possession of “flawless skin, a thin waist, long legs, and well-developed breasts” (Groesz *et al.*, 2002, p. 2)—affects body dissatisfaction. Many of these studies, which have predominantly used adult samples, are summarized in a recent meta-analysis (Groesz *et al.*, 2002). The authors conclude that the thin ideal portrayed in the mass media elicits a “small but relatively consistent” negative effect on body dissatisfaction, particularly for certain individuals (e.g., those high on trait body dissatisfaction, or with a history of disturbed eating). One important factor found to be related to individual vulnerability was participant age. In support of the hypothesis that adolescent girls would be most vulnerable to media images (Levine and Smolak, 1996, 1998), Groesz *et al.* (2002) found the mean effect size of media

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images on body dissatisfaction was “somewhat greater” for women younger than 19 compared with older college-aged women. However, very few of the sampled studies (5 out of 26) actually included adolescent samples, despite the importance of adolescence in body image formation (Polce-Lynch *et al.*, 2001).

Illustrating the importance of the early-adolescent transition for body image, a recent longitudinal study (Rosenblum and Lewis, 1999) found that girls’ body dissatisfaction increased significantly between the ages of 13 and 15 but then remained constant until 18. Rosenblum and Lewis suggest that early adolescence (13–15 years) is when external cues (which include the media) and social feedback have their greatest impact on body image. Consistent with this suggestion, Polce-Lynch *et al.* (2001) found that 8th Grade students (aged 13–14 years) subjectively perceived the media to have a greater influence on their body image than did both younger and older students (5th and 12th grades). Further research with early adolescents in particular seems warranted because of the unique combination of physical maturation, including weight gain for girls (e.g., Ackard and Peterson, 2001), increased social emphasis on appearance (e.g., Harter, 1999), and search for identity (e.g., Erikson, 1968), that occurs during this period.

In addition to the predominant research focus on adults, nearly all studies (21 of 25) included in Groesz *et al.*’s meta-analysis used magazine images (still photographs) as experimental stimuli. Thus the impact of *televised* images of thinness has also been much less extensively investigated, which seems surprising given television’s pervasive influence (Anderson *et al.*, 2001; Arnett, 1995). Almost every Western household owns at least one television (Liebert and Sprafkin, 1988), and children, adolescents, and adults all watch an average of over 2 h television per day, peaking at around 4 h per day during early adolescence. In fact, during a single year children and adolescents spend more time watching television than any other activity except sleeping (Levine and Smolak, 1996).

Studies using televised images of thinness, although small in number, have also tended to support the conclusion that viewing such images leads to increased state body dissatisfaction (Cattarin *et al.*, 2000; Hargreaves and Tiggemann, 2002; Heinberg and Thompson, 1995; Lavine *et al.*, 1999), with one exception (Myers and Biocca, 1992). Except for Hargreaves and Tiggemann’s (2002) study of older adolescents, the participants of these experiments have all been college students, typically in their early 20s. Thus the impact of televised images of thinness during early adolescence, when both television and body image are at their most important, has not as yet been investigated.

Therefore, the purpose of the present experiment was to examine the effect of *televised* images of female thinness and attractiveness on young (13–15 years old) adolescent girls and boys. It was predicted that girls viewing commercials depicting the thin ideal (appearance commercials) would experience greater state body dissatisfaction than girls shown nonappearance commercials. Following Rosenblum and Lewis (1999), it was also tentatively predicted that 15-year-olds would be more strongly affected by television commercials compared with younger adolescents because of their increased body weight and trait body dissatisfaction.

In addition to state body dissatisfaction, we also sought to assess the activation of appearance schemas. Cognitive-processing models of body image suggest that individuals develop appearance schemas, which are learned beliefs, assumptions, and generalizations about one’s appearance and its implications (for a review, see Thompson *et al.*, 1999). These schemas, or knowledge structures about appearance, can be activated by appearance-related cues, and when activated, influence subsequent emotions and information processing (Altabe and Thompson, 1996; Cash *et al.*, 2002; Labarge *et al.*, 1998; Lavin and Cash, 2001; Markus *et al.*, 1987). Consequently, it was predicted that viewing appearance commercials, but not nonappearance commercials, would activate such appearance schemas. However, under distracter conditions where participants are asked to complete ratings of the advertisements while watching, such schema activation should be inhibited.

Although everyone possesses an appearance schema (Markus *et al.*, 1987), not all individuals possess these schemas to the same degree. In the same way that some children have more salient and elaborated gender schemas than others (Ruble and Martin, 1998; Signorella *et al.*, 1993), certain individuals who are high in appearance schematicity invest more heavily in their appearance compared with others. Such individuals should also show increased processing of, and reaction to, appearance cues. Consistent with this view, previous studies with adults have found that some people (e.g., high internalization, Cattarin *et al.*, 2000; high trait body dissatisfaction, Heinberg and Thompson, 1995) do display a heightened sensitivity to appearance-related commercials. In particular, two recent studies using visual (Hargreaves and Tiggemann, 2002) and aurally presented (Lavin and Cash, 2001) appearance-related stimuli found that women who invested strongly in their appearance (high schematicity) were especially susceptible to the negative effect of appearance information on body dissatisfaction. Therefore, it was predicted that individual differences in appearance schematicity would moderate the effect of commercial

viewing, such that appearance commercials will lead to greater body dissatisfaction for participants high in appearance schematicity compared with participants who are less strongly invested in their appearance.

METHOD

Design

The present study employed a between-subjects design, investigating the effect of commercial condition (appearance, nonappearance) and instructional set (normal viewing, distracter task) on the dependent variables of state body dissatisfaction (assessed before, immediately following, and 15 min after commercial viewing) and appearance-schema activation. Dispositional level of appearance schematicity was also tested as a moderating variable.

Participants

The participants were a sample of 357 adolescent school students (160 girls, 197 boys) from a South Australian metropolitan high school of medium to high socioeconomic status. Students were in Years 8, 9, and 10, and were aged 13 ($n = 101$), 14 ($n = 167$), or 15 years ($n = 89$). Participants were allocated to the appearance or nonappearance commercial condition by random allocation of class group ($n = 17$), and were randomly allocated to instructional set condition on an individual basis. This procedure resulted in a total of 168 participants in the appearance commercial condition (normal = 90, distracter task = 78), and 189 participants (normal = 90, distracter task = 99) in the nonappearance commercial condition.

Materials

State Body Dissatisfaction

After rating five mood adjectives (included to distract participants from the true purpose of the study—results not reported here), two visual analogue scales (VAS) based on those of Heinberg and Thompson (1995) were used to obtain measures of body dissatisfaction. Each scale consisted of a 10-cm line labelled from “none” to “very much,” and participants were asked to indicate how they feel “right now” on two dimensions: *Weight Dissatisfaction* and *Overall Appearance Dissatisfaction* by placing a small mark on the appropriate lines. VAS scores, which are measured to the nearest millimeter, have been previously

shown to correlate significantly with longer measures of body dissatisfaction (Heinberg and Thompson, 1995). To assess the interrater reliability of VAS in the current study, a subsample of 15% of the VAS were measured by a second independent rater. The two raters corresponded exactly on 82% of cases and were within ± 1 mm for a further 15%.

Schema Activation

Schema activation was measured by the word-stem completion task of Hargreaves and Tiggemann (2002). In this task, participants were presented with 20 three-letter word-stems that could be completed to form both appearance-related and non-appearance-related words (e.g., SLE—could be completed as *slender* or *sleep* or *sled*; PRE—could be completed as *pretty* or *present* or *pretend*; and CEL—could be completed as *cellulite* or *cell* or *celo*). The task was scored by summing the number of appearance words generated. Using a subset of 15% of the data, two independent raters coded all participant-generated words identically for 14 of the 20 word-stems. For the remaining 6 word-stems, agreement was no less than 86% ($M = 90\%$).³

Appearance Schematicity

The Appearance Schemas Inventory (ASI) measures core beliefs and assumptions about the importance, meaning, and effects of appearance in one's life (Cash, 2000; Cash and Labarge, 1996). Participants are asked to indicate their level of agreement with 14 statements (e.g., “Attractive people have it all”; “What I look like is an important part of who I am”; and “If I could look just as I wish, my life would be much happier”) on a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*), such that high scores reflect high appearance schematicity. Tests of internal consistency for the present sample showed good reliability for both female ($\alpha = 0.85$) and male adolescents ($\alpha = 0.82$).

Experimental Manipulation: Visual Stimulus Materials

The two videotapes used by Hargreaves and Tiggemann (2002) in their study of older adolescents were used in the present study. The appearance-commercial tape consisted of 20 commercials containing female actors who “epitomized societal ideals of thinness and

³A copy of the word-stem task can be obtained from the authors.

attractiveness" (Heinberg and Thompson, 1995, p. 331). In contrast, the nonappearance tape contained no such images. The two sets of commercials had been carefully matched for their "positive appeal," to ensure that both tapes were of equal interest to the viewers. Each tape was approximately 10.5 min in duration.

Procedure

The study was presented as investigating television advertising and personality. Students first completed four brief questions about their normal television viewing to establish the credibility of the cover story. They completed the precommercial VAS (Time 1) and were then shown the relevant videotape. Half watched the commercials "as if they were at home" (normal viewing), while half were asked to rate the commercials on humor, originality, and effectiveness (distracter task). This formed the manipulation of instructional set. Immediately following the videotape, the students completed the first of two postcommercial VAS (Time 2), as well as the word-stem completion task. This was followed by the Appearance Schemas Inventory and then a 5-min filler task involving commercial recall. Finally, the students completed the VAS again (Time 3), approximately 15 min after initial commercial viewing.

RESULTS

The Effect of Appearance Commercials on Body Dissatisfaction

The two measures of body dissatisfaction, Weight Dissatisfaction and Overall Appearance Dissatisfaction were highly correlated ($r = 0.81$, $p < 0.001$) and so were averaged to form a combined body dissatisfaction variable. The effect of television commercials on body dissatisfaction was then examined using a 5-way (time, commercial condition, instructional set, age, gender) mixed ANOVA.

The ANOVA, summarized in Table I, revealed a number of significant main effects (gender and time), as well as significant Gender \times Time, and Commercial \times Time interactions. However, these effects resulted from the significant 3-way Gender \times Commercial \times Time interaction, $F(2, 634) = 8.87$, $p < 0.001$. As can be seen in Fig. 1, which presents the means graphically, girls who viewed the appearance commercials experienced relatively greater body dissatisfaction compared with girls who viewed the nonappearance commercials at both Times 2 and 3, although they had not differed before commercial view-

Table I. Results for Five-Way Mixed ANOVA of Main Effects and Interactions

	<i>F</i>	<i>df</i>	<i>p</i>
Main Effects			
Time	12.63	2, 634	***
Commercial condition	1.34	1, 317	
Instructional set	<1	1, 317	
Age	<1	2, 317	
Gender	56.69	1, 317	***
Two-way interactions			
Time \times Commercial	5.56	2, 634	**
Time \times Instruct	<1	2, 634	
Time \times Age	2.18	4, 634	
Time \times Gender	3.30	2, 634	*
Commercial \times Instruct	<1	1, 317	
Commercial \times Age	<1	2, 317	
Commercial \times Gender	2.28	1, 317	
Instruct \times Age	2.23	2, 317	
Instruct \times Gender	<1	1, 317	
Age \times Gender	<1	2, 317	
Three-way interactions			
Time \times Comm \times Instruct	1.16	2, 634	
Time \times Comm \times Age	<1	4, 634	
Time \times Comm \times Gender	8.87	2, 634	***
Time \times Instruct \times Age	<1	4, 634	
Time \times Instruct \times Gender	<1	2, 634	
Time \times Age \times Gender	<1	4, 634	
Comm \times Instruct \times Age	1.28	2, 317	
Comm \times Instruct \times Gender	2.88	1, 317	
Instruct \times Age \times Gender	1.12	2, 317	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

ing at Time 1. For boys, in contrast, no differences in body dissatisfaction were observed at any time. Separate analyses for girls and boys confirmed the predicted significant Commercial \times Time interaction for girls, $F(2, 302) = 10.97$, $p < 0.001$, but not boys, $F(2, 372) < 1$, ns . There were no significant main or interaction effects involving age or instructional set (all F 's < 2.88 , ns).

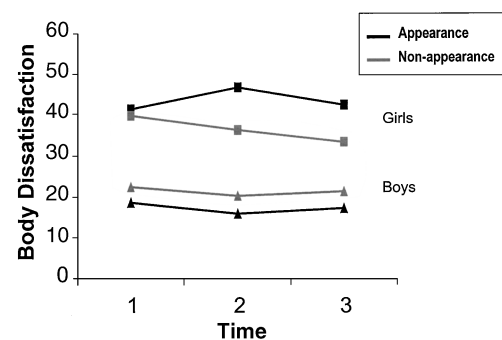


Fig. 1. Effect of television commercials on body dissatisfaction of girls and boys.

Table II. Mean (Standard Deviation in Parentheses) Number of Appearance Words Generated By Girls and Boys

	Nonappearance	Appearance	
Girls	3.16 (2.44)	4.76 (2.01)	***
Boys	2.52 (1.59)	3.20 (2.18)	*

*** $p < 0.001$; * $p < 0.05$.

The Effect of Appearance Commercials on Schema Activation

The effect of television commercials on schema activation was examined using a 4-way (commercial condition, instructional set, age, gender) ANOVA on word-stem completion scores. The ANOVA produced significant main effects of gender, $F(1, 331) = 17.76, p < 0.001$, and commercial condition $F(1, 331) = 21.43, p < 0.001$, as well as a significant Gender \times Commercial interaction, $F(1, 331) = 4.14, p < 0.05$. The mean number of appearance words generated by girls and boys in the nonappearance and appearance conditions are presented in Table II. It can be seen that participants in the appearance condition produced significantly more appearance-related words than participants in the nonappearance condition, but that the size of this difference was considerably larger for girls than boys. Again there were no significant main or interaction effects involving age or instructional set (all F 's $< 1.67, ns$).

Appearance Schematicity as a Moderating Variable

The possible moderating effect of appearance schematicity on the relationship between commercial condition and body dissatisfaction at Times 2 and 3 was examined using hierarchical regression analyses. To control for preexisting levels of body dissatisfaction, Time 1 body dissatisfaction was entered on the first step, followed by commercial condition and appearance schematicity (ASI) on the second, and their product on the third final step. An interaction is indicated when the product term offers significant additional prediction to that provided by the independent effects. In contrast to prediction, there was no significant interaction effect between commercial condition and schematicity on body dissatisfaction at either Time 2 or 3 for either girls or boys (all $F_{\text{changes}} < 2.63, ns$). However, at Step 2, ASI did predict unique variance on body dissatisfaction for girls at both Time 2 ($\beta = 0.08, p < 0.05$) and Time 3 ($\beta = 0.11, p < 0.01$), and for boys at Time 2 only ($\beta = 0.08, p < 0.05$).

DISCUSSION

Despite adolescence being a critical period for body image formation, previous research has largely neglected the effect of idealized televised images of female attractiveness on early adolescents. The present results show that appearance-related television commercials affect girls 13–15 years old in a similar way to older (aged 15–17 years) adolescents (Hargreaves and Tiggemann, 2002) and college-age women (aged 18 years and older) (Cattarin *et al.*, 2000; Heinberg and Thompson, 1995; Lavine *et al.*, 1999). That is, the early-adolescent girls who viewed commercials depicting the thin ideal reported relatively greater body dissatisfaction than girls in the nonappearance condition. Future research might examine the extent of such media effects in younger samples, for example prepubescent children, to identify the age at which viewing appearance ideals first has its negative impact. In contrast to girls, commercial viewing did not affect boys' body dissatisfaction. However, the images used were deliberately chosen to focus on female ideals of attractiveness. Future research might usefully investigate whether more directly self-relevant images of idealized male attractiveness might likewise affect boys and men, parallel to the process observed for girls and women.

In addition to affecting body dissatisfaction, viewing appearance commercials also led to increased schema activation as predicted, particularly for girls. Both girls and boys in the appearance condition generated more appearance words in their word-stem completion task than did boys and girls in the nonappearance condition, reflecting a heightened responsiveness to appearance-related cues. This finding demonstrates the impact of exposure to media-portrayed images of attractiveness on cognitive processes in addition to affective state, supporting the use of cognitive-processing paradigms in body image research.

However, appearance schematicity did not moderate the effect of commercials on body dissatisfaction in the present sample of 13–15-year-olds, in contrast to prediction and to related findings using older samples (Hargreaves and Tiggemann, 2002; Lavin and Cash, 2001). There are several possible explanations for this discrepancy. First, it is possible that the Appearance Schemas Inventory is not an appropriate measure for 13–15-year-old participants, as it was originally developed using college-aged samples. Second, it is possible that appearance schemas have not developed sufficiently strongly or stably by early adolescence to reliably moderate commercial effects. These explanations seem unlikely, however, since the ASI did predict unique variance in body dissatisfaction change, irrespective of commercial condition. A more likely possibility is that appearance issues may be

particularly salient for virtually all early adolescents, rendering the operation of moderating factors less prominent than during later years. Consistent with this suggestion, a comparison of mean ASI scores for the present sample of 13–15-year-old girls ($M = 2.83$) with Cash and Labarge's (1996) initial sample of college-aged women ($M = 2.58$) indicates a high level of appearance investment during early adolescence. In fact, the average appearance schematicity of adolescent girls in the present study was closer to that of the eating-disordered college students in Cash and Labarge's sample ($M = 2.99$) than to non-disordered women. Clearly further research is needed to delineate the operation of individual differences (beyond simply gender and age) in vulnerability to media effects in early adolescence. Research that examines the operation of such factors within broader cognitive (e.g., Klaczynski *et al.*, 1998) and physical (e.g., Ackard and Peterson, 2001) developmental frameworks may be especially valuable.

One important finding was that, for girls, the impact of idealized images of attractiveness on body dissatisfaction persisted for 15 min after commercial viewing. Previous experimental studies have examined only the immediate effect of media exposure, although at least two limitations to this extension of research should be acknowledged. First, it is possible that the filler task, which involved recalling the commercials shown, may have prolonged the activation of visual memory traces, perhaps enhancing the video's effect. While the repetition of thin-ideal images during normal television viewing may also sustain schematic activation, further research to examine the temporal extent of media effects should limit such possible interferences. Second, the brief, 15-min follow-up does not demonstrate the potential extent of the long-term effect. Nonetheless, this initial result shows that the negative effect of exposure to the thin ideal is not limited only to an immediate reaction, but can be maintained over at least a short period of time. On the basis of this finding, future research might usefully further examine the temporal extent of media effects on body image, and, in particular, examine the individual difference processes involved. Individual differences in the maintenance and resolution of increased state body dissatisfaction may be equally important as individual differences in its initiation. For example, it is possible that after prior exposure to images of the thin ideal, certain girls will be more vulnerable to further exposure during a designated time period. The link between the initiation, maintenance, and resolution of increased state body dissatisfaction may be relevant to our understanding of the assumed cumulative effect of exposures to media images (e.g., Anderson *et al.*, 2001) and warrants further research.

One further limitation of the present study, shared by all previous studies of media effects on body dissatisfaction, is that the experimental manipulation of media exposure does not correspond precisely with naturally occurring television viewing. In reality, commercials are interspersed with programs, rather than occurring in one block, and viewers are able to choose which programs they view. Nevertheless, the present study demonstrates that one brief exposure to 20 images of the thin female ideal (of only about 10-min duration) can result in increased body dissatisfaction, and maintain a negative effect for at least 15 min after the exposure. Such exposure is far less than that experienced in just one night of typical viewing, where approximately 30 commercials are screened each and every hour (Young Media Australia, 2002), many of which contain images of the thin ideal (Downs and Harrison, 1985). Further, the obtained parallel effect of appearance commercials on appearance-schema activation suggests that a schema perspective may provide a useful theoretical framework for understanding the cognitive, as well as affective, processes involved.

REFERENCES

- Ackard, D. M., and Peterson, C. B. (2001). Association between puberty and disordered eating, body image, and other psychological variables. *Int. J. Eat. Disord.* 29: 187–194.
- Altabe, M., and Thompson, J. K. (1996). Body image: A cognitive self-schema construct? *Cogn. Ther. Res.* 20: 171–193.
- Anderson, D. R., Huston, A. C., Schmitt, K. L., Linebarger, D. L., and Wright, J. C. (2001). Early childhood television viewing and adolescent behaviour: The recontact study. *Monogr. Soc. Res. Child Dev.* 66: 1–146.
- Arnett, J. J. (1995). 'Adolescents' uses of media for self-socialization. *J. Youth Adolesc.* 24: 519–532.
- Cash, T. F. (2000). *Users' Manuals for the Multidimensional Body-Self Relations Questionnaire and the Appearance Schemas Inventory.* www.body-images.com.
- Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., and Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the body image states scale. *Eat. Disord.: J. Treat. Prev.* 10: 103–113.
- Cash, T. F., and Labarge, A. S. (1996). Development of the appearance schemas inventory: A new cognitive body image assessment. *Cogn. Ther. Res.* 20: 37–50.
- Cattarin, J., and Thompson, J. K. (1994). A three-year longitudinal study of body image and eating disturbance in adolescent females. *Eat. Disord.: J. Treat. Prev.* 2: 114–125.
- Cattarin, J. A., Thompson, J. K., Thomas, C., and Williams, R. (2000). Body image, mood, and televised images of attractiveness: The role of social comparison. *J. Soc. Clin. Psychol.* 19: 220–239.
- Champion, H., and Furnham, A. (1999). The effect of the media on body satisfaction in adolescent girls. *Eur. Eat. Disord. Rev.* 7: 213–228.
- Downs, A. C., and Harrison, S. K. (1985). Embarrassing age spots or just plain ugly? Physical attractiveness stereotyping as an instrument of sexism on American television commercials. *Sex Roles* 13: 9–19.
- Erikson, E. H. (1968). *Identity, Youth, and Crisis.* Faber, London.
- Groesz, L. M., Levine, M. P., and Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *Int. J. Eat. Disord.* 31: 1–16.

- Hargreaves, D. A., and Tiggemann, M. (2002). The effect of television commercials on mood and body dissatisfaction: The role of appearance-schema activation. *J. Soc. Clin. Psychol.* 21: 328–349.
- Harter, S. (1999). *The Construction of the Self: A Developmental Perspective*. Guilford, New York.
- Heinberg, L. J., and Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *J. Soc. Clin. Psychol.* 14: 325–338.
- Klaczynski, P. A., Fauth, J. M., and Swanger, A. (1998). Adolescent identity: Rational vs. experiential processing, formal operations, and critical thinking beliefs. *J. Youth Adolesc.* 27: 185–207.
- Labarge, A. S., Cash, T. F., and Brown, T. A. (1998). Use of a modified Stroop task to examine appearance-schematic processing in college women. *Cogn. Ther. Res.* 22: 179–190.
- Lavin, M. A., and Cash, T. F. (2001). Effects of exposure to information about appearance stereotyping and discrimination on women's body images. *Int. J. Eat. Disord.* 29: 51–58.
- Lavine, H., Sweeney, D., and Wagner, S. H. (1999). Depicting women as sex objects in television advertising: Effects on body dissatisfaction. *Pers. Soc. Psychol. Bull.* 25: 1049–1058.
- Levine, M. P., and Smolak, L. (1996). Media as a context for the development of disordered eating. In Smolak, L., Levine, M. P., and Striegel-Moore, R. (eds.), *The Developmental Psychopathology of Eating Disorders: Implications for Research, Prevention and Treatment*. Erlbaum, Mahwah, NJ, pp. 233–257.
- Levine, M. P., and Smolak, L. (1998). The mass media and disordered eating: Implications for primary prevention. In Vandereycken, W., and Noordenbos, G. (eds.), *The Prevention of Eating Disorders. Studies in Eating Disorders: An International Series*. New York University Press, New York, pp. 23–56.
- Liebert, R. M., and Sprafkin, J. (1988). *The Early Window: Effects of Television on Children and Youth* (3rd edn.). Pergamon, New York.
- Markus, H., Hamill, R., and Sentis, K. P. (1987). Thinking fat: Self-schemas for body weight and the processing of weight relevant information. *J. Appl. Soc. Psychol.* 17: 50–71.
- Myers, P. N., and Biocca, F. A. (1992). The elastic body image: The effect of television advertising and programming on body image distortions in young women. *J. Commun.* 42: 108–133.
- Phelps, L., Johnston, L. S., and Augustyniak, K. (1999). Prevention of eating disorders: Identification of predictor variables. *Eat. Disord.: J. Treat. Prev.* 7: 99–108.
- Polce-Lynch, M., Myers, B. J., Kliewer, W., and Kilmartin, C. (2001). Adolescent self-esteem and gender: Exploring relations to sexual harassment, body image, media influence, and emotional expression. *J. Youth Adolesc.* 30: 225–244.
- Rosenblum, G. D., and Lewis, M. (1999). The relations among body image, physical attractiveness, and body mass in adolescence. *Child Dev.* 70: 50–64.
- Ruble, D. N., and Martin, C. L., (1998). Gender development. In Damon, W. (Series ed.), and Eisenberg, N. (Vol. ed.), *Handbook of Child Psychology: Vol. 3. Social, Emotional, and Personality Development*. Wiley, New York, pp. 933–1016.
- Signorella, M. L., Bigler, R. S., and Liben, L. S. (1993). Developmental differences in children's gender schemata about others: A meta-analytic review. *Dev. Rev.* 7: 147–183.
- Stice, E., Killen, J. D., Hayward, C., and Taylor, C. B. (1998). Age of onset for binge eating and purging during late adolescence: A 4-year survival analysis. *J. Abnorm. Psychol.* 107: 671–675.
- Stice, E., Presnell, K., and Spangler, D. (2002). Risk factors for binge eating onset in adolescent girls: A 2-year prospective investigation. *Health Psychol.* 21: 131–138.
- Stice, E., and Shaw, H. E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. *J. Soc. Clin. Psychol.* 17: 129–149.
- Thompson, J. K., Heinberg, L. J., Altabe, M., and Tantleff-Dunn, S. (1999). *Exacting Beauty: Theory, Assessment, and Treatment of Body Image Disturbance*. American Psychological Association, Washington, DC, pp. 271–310.
- Twamley, E. W., and Davis, M. C. (1999). The sociocultural model of eating disturbance in young women: The effects of personality attributes and family environment. *J. Soc. Clin. Psychol.* 18: 467–489.
- Wertheim, E. H., Koerner, J., and Paxton, S. J. (2001). Longitudinal predictors of restrictive eating and bulimic tendencies in three different age groups of adolescent girls. *J. Youth Adolesc.* 30: 69–81.
- Young Media Australia. (2002). Advertising: An overview. Retrieved July 7, 2002, from http://www.youngmedia.org.au/mediachildren/03_01_ads_overview.htm.