Paper

Longer-Term Implications of Responsiveness to ‘Thin-Ideal’ Television: Support for a Cumulative Hypothesis of Body Image Disturbance?

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Brief exposure to thin-ideal media images has been shown to have a small but consistent negative impact on women and girls’ body dissatisfaction. The present study aimed to examine the consequence of these small changes in body dissatisfaction for the development of body image over time. A sample of 80 adolescents (mean age = 17.2 years) completed measures of body dissatisfaction, drive for thinness, and drive for muscularity. Two years earlier they had viewed either 20 appearance-related television commercials (containing female thin ideals) or 20 non-appearance commercials as part of an experimental study. For girls, initial body dissatisfaction change in response to viewing appearance commercials at time 1 predicted subsequent body dissatisfaction and drive for thinness 2 years later, above and beyond the variance predicted by initial body dissatisfaction. Similar results were observed for boys’ drive for thinness but not for body dissatisfaction. Overall, these results are consistent with a cumulative hypothesis of media exposure and body image development. Copyright © 2003 John Wiley & Sons, Ltd and Eating Disorders Association.

INTRODUCTION

There is little doubt that mass media play a pervasive role in communicating societal ideals of attractiveness (Levine & Smolak, 1996; Owen & Laurel-Seller, 2000). Furthermore, ongoing exposure to these media-portrayed ‘unrealistic’ beauty ideals is generally thought to be one important factor responsible for the high level of body dissatisfaction and eating disturbance in Western society (e.g. Posavac,
There are two key sources of empirical evidence that suggest the media do negatively influence body image for many individuals (for a recent overview, see Irving, 2001). First, correlational research demonstrates that greater media consumption is related to higher body dissatisfaction (Abramson & Valene, 1991; Botta, 1999; Cusumano & Thompson, 1997; Field et al., 1999; Harrison, 2000, 2001; Harrison & Cantor, 1997; Levine, Smolak, & Hayden, 1994; Stice, Schupak-Neuberg, Shaw, & Stein, 1994), particularly the consumption of media high in appearance content, such as fashion magazines, television soap operas and music videos (Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Borzekowski, Robinson, & Killen, 2000; Harrison, 2001; Tiggemann & Pickering, 1996). Second, experimental studies demonstrate that brief exposure to ‘unrealistic’ beauty images as presented in fashion magazines can increase negative mood and state body dissatisfaction (for a review, see Groesz, Levine, & Murnen, 2002).

Although this evidence appears to support the media’s negative impact on body image, various methodological limitations need to be acknowledged. In particular, the causal direction of correlations between body dissatisfaction and media use remains a challenge (e.g. Tiggemann, 2002). The causal direction is clear in controlled laboratory research, but such experimental research has been criticized for its lack of ecological validity (Levine & Smolak, 1996; Stice, Spangler, & Agras, 2001) and only short-lived effects (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Certainly, it remains unclear how the small immediate changes in body dissatisfaction typically observed in the laboratory relate to the development of naturally-occurring body image over time.

One possible link between individual reactive ‘episodes’ of dissatisfaction in response to specific media images and the development of body image is that enduring attitudes, beliefs and feelings about bodies and appearance accumulate over time through repeated exposure to ideals of attractiveness in the media (e.g. Anderson et al., 2001; Levine & Smolak, 1996). For example, Tiggemann (2002) suggests that ongoing exposure to naturally-occurring idealized media images serves to continually maintain and reinforce levels of insecurity and concern about appearance, shape, and weight. Guided by this rationale, the present study sought to integrate correlational and experimental designs by examining longitudinally the relationship between immediate responses to media images and the development of body dissatisfaction over a 2-year period of time. In an earlier experimental study (Hargreaves & Tiggemann, 2002a) it was found that girls, but not boys, who viewed 20 commercials containing females who epitomize the thin ideal experienced significantly greater body dissatisfaction than girls and boys who viewed 20 commercials that did not contain these
images. A subset of those girls and boys still remaining at school from this experimental study were followed up 2 years later to trace their development of body dissatisfaction. It was reasoned that each participant’s immediate response to the commercials during the experiment was representative of their typical response to such images. Further, due to the large proportion of time adolescents spend using media types saturated with appearance-ideals (Anderson et al., 2001), it was assumed similar exposures would occur repeatedly each and every day during the intervening 2-year period. If these repeated immediate negative responses to media ideals produce a cumulative effect over time, this should be reflected in the development of increasing body image disturbance over time. Thus it was hypothesized that a stronger negative response to thin-ideal images during the experiment would predict body dissatisfaction and drive for thinness 2 years later.

METHOD

Participants

Participants were 80 students (42 girls and 38 boys) from a South Australian High School who were in year 10 at time 1 and in year 12 at time 2 (follow-up). Only students in year 10 during the initial experiment (Hargreaves & Tiggemann, 2002a) were still attending school at time 2, and so asked to complete the follow-up questionnaire. The initial study was completed by 161 year 10 students (about half of this sample also completed individual difference measures in a separate session, the results of which are reported in Hargreaves & Tiggemann, 2002b). The response rate for girls was considered acceptable over a 2-year period (42 of 62), although the response rate for boys was considerably lower (38 of 99). Nevertheless, no student refused to complete the questionnaire, but rather, attrition was largely due to students leaving the school during the 2-year period. Furthermore, those students who participated in the follow-up did not differ from those who did not, on body dissatisfaction at time 1, \( t(160) < 1, p > 0.05 \). The average age of the sample at time 2 was 17.2 years (SD = 0.6), and their average Body Mass Index fell within the normal range (\( M = 21.9, \) SD = 3.1).

Procedure

Data were collected on two occasions separated by 2 years. At time 1 (August 1999), participants watched a 10-min segment of either appearance- or non-appearance-related television commercials. The appearance commercials contained female actors who epitomized
societal ideals of thinness and attractiveness, whereas the nonappearance-related commercials contained no such images. However, the two sets of commercials had been carefully matched in their level of ‘positive appeal’. Immediately before and after the commercials, the participants completed a short measure of body dissatisfaction to examine state changes. Two years later (September 2001), participants were invited to complete a follow-up questionnaire (time 2) which contained measures of drive for thinness and drive for muscularity, as well as the body dissatisfaction measure used in the initial time 1 experimental study.

**Materials**

**Body dissatisfaction**
Body dissatisfaction was measured using two visual analogue scales (VAS) on three occasions: before commercial viewing at time 1; after commercial viewing at time 1; and at 2-year follow up (time 2). On each occasion participants were asked to indicate their level of weight dissatisfaction and overall appearance dissatisfaction by placing a small mark on two 10-cm horizontal lines labelled from ‘none’ to ‘very much’. The two VAS scores, measured to the nearest mm, were then averaged to form a composite body dissatisfaction measure. VAS measures of body dissatisfaction have been shown previously to correlate significantly with longer measures of body dissatisfaction (Heinberg & Thompson, 1995).

**Media responsiveness**
The main variable of interest was media responsiveness, which refers here to the effect of brief exposure to thin ideals on body dissatisfaction. This measure was calculated as the difference between time 1 pre- and post-commercial body dissatisfaction scores, i.e. it represents change in body dissatisfaction in response to the experimental manipulation.

**Drive for thinness**
The Drive for Thinness subscale of the Eating Disorders Inventory (Garner, Olmsted, & Polivy, 1983) measures attitudinal and behavioural characteristics of eating disorders. Participants indicate how often seven statements concerning preoccupation with weight (e.g. ‘I am preoccupied with the desire to be thinner’) are true for them on a 6-point Likert scale. The internal consistency for Drive for Thinness was high in the present sample (alpha = 0.93).

**Drive for muscularity**
As there is evidence that dissatisfaction with muscle tone is becoming increasingly prevalent for males (Thompson et al., 1999), perhaps as a
result of an increased use of male ideal figures in commercial media (Pope, Olivardia, Borowiecki, & Cohane, 2001), a measure of drive for muscularity was also included. The Drive for Muscularity scale was adapted from the Drive for Thinness subscale to assess the equivalent attitudinal and behavioural dimensions, but with regard to muscle (e.g. ‘I am terrified of gaining weight’ was re-worded to ‘I am terrified of looking like I am not strong’). In the present sample, internal consistency was high for this new measure (alpha = 0.86).

RESULTS

Media responsiveness and subsequent body dissatisfaction

A series of correlations was conducted to examine the relationship between media responsiveness to appearance and non-appearance commercials (time 1) and time 2 measures of body dissatisfaction, drive for thinness, and drive for muscularity. For girls, responsiveness to appearance commercials, but not non-appearance commercials, was significantly related to subsequent time 2 body dissatisfaction ($r = 0.64$, $p < 0.001$) and drive for thinness ($r = 0.67$, $p < 0.01$). Responsiveness to appearance commercials was also related to drive for thinness in boys ($r = 0.44$, $p < 0.05$), while body dissatisfaction approached significance ($r = 0.37$, $p < 0.10$). Media responsiveness was not related to drive for muscularity for girls or boys.

Prediction of body dissatisfaction over time

A series of regression analyses was conducted to formally test the hypothesis that media responsiveness to appearance commercials (but not non-appearance commercials) will predict subsequent body dissatisfaction, drive for thinness and drive for muscularity. To control for initial body dissatisfaction, time 1 body dissatisfaction was entered on step 1, followed by gender, commercial condition (appearance, non-appearance) and media responsiveness on step 2, followed by the two-way product terms on step 3, and the three-way product term on step 4. The results of these analyses for body dissatisfaction, drive for thinness, and drive for muscularity are summarized in Table 1. It can be seen that the main effects produced significant effects for body dissatisfaction, $R^2_{\text{change}} = 0.23$, $F_{\text{change}}(3, 72) = 12.28$, $p < 0.001$, and drive for thinness, $R^2_{\text{change}} = 0.32$, $F_{\text{change}}(3, 74) = 15.32$, $p < 0.001$, but not for drive for muscularity $R^2_{\text{change}} = 0.04$, $F_{\text{change}}(3, 74) = 1.11$, n.s. However, these main effects need to be interpreted in the light of the significant higher order interactions. In particular, the three-way gender $\times$ commercial
condition × media response interaction predicted significant unique variance for time 2 body dissatisfaction, $R^2_{\text{change}} = 0.06$, $F_{\text{change}}(1, 68) = 9.94$, $p < 0.01$, and drive for thinness, $R^2_{\text{change}} = 0.04$, $F_{\text{change}}(1, 70) = 6.80$, $p < 0.05$. To interpret the meaning of the significant three-way interactions, further analyses for body dissatisfaction and drive for thinness were conducted for girls and boys in the appearance and non-appearance conditions separately.

**Regression analyses for girls**

The results for the final regression analyses are summarised in Table 2. In separate analyses for girls in the appearance and non-appearance conditions, time 1 body dissatisfaction was entered on step 1, followed by media responsiveness on step 2. As predicted, media responsiveness predicted significant unique variance for time 2 body dissatisfaction, $R^2_{\text{change}} = 0.39$, $F_{\text{change}}(1, 19) = 13.90$, $p < 0.001$, and drive for thinness, $R^2_{\text{change}} = 0.44$, $F_{\text{change}}(1, 20) = 16.46$, $p < 0.001$, beyond time 1 body
Regression analyses for boys

A similar set of regression analyses was conducted for boys. As for girls, media responsiveness after viewing appearance commercials predicted drive for thinness beyond the variance predicted by time 1 body dissatisfaction, $R^2_{\text{change}} = 0.20$, $F_{\text{change}}(1, 18) = 5.66$, $p < 0.05$, but not after viewing non-appearance commercials $R^2_{\text{change}} = 0.20$, $F_{\text{change}}(1, 13) = 5.66$, $p = 0.09$. However, this result should be interpreted with caution.

Table 2. Media responsiveness after viewing appearance or non-appearance commercials as a 2-year predictor of body dissatisfaction/drive for thinness

<table>
<thead>
<tr>
<th>Criterion (time 2)</th>
<th>Predictor (time 1)</th>
<th>$R^2$</th>
<th>$R^2_{\text{change}}$</th>
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<tbody>
<tr>
<td><strong>Girls</strong></td>
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<tr>
<td>Body Dissatisfaction (T2)</td>
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</tr>
<tr>
<td>Appearance commercials</td>
<td>Body Dissatisfaction (T1)</td>
<td>0.25</td>
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<td></td>
<td>Media Response (T1)</td>
<td>0.47</td>
<td>0.39***</td>
<td>0.62***</td>
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<tr>
<td>Non-appearance commercials</td>
<td>Body Dissatisfaction (T1)</td>
<td>0.57</td>
<td>0.01</td>
<td>-0.08</td>
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<tr>
<td></td>
<td>Media Response (T1)</td>
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<tr>
<td>Drive for Thinness (T2)</td>
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<tr>
<td>Appearance commercials</td>
<td>Body Dissatisfaction (T1)</td>
<td>0.47</td>
<td>0.44***</td>
<td>0.66***</td>
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<td>Media Response (T1)</td>
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<tr>
<td>Non-appearance commercials</td>
<td>Body Dissatisfaction (T1)</td>
<td>0.57</td>
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<td>Media Response (T1)</td>
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<td><strong>Boys</strong></td>
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<tr>
<td>Body Dissatisfaction (T2)</td>
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<tr>
<td>Appearance commercials</td>
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<td></td>
<td>Media Response (T1)</td>
<td>0.41</td>
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<td>0.38</td>
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<td>Non-appearance commercials</td>
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<td>0.18</td>
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<td>Media Response (T1)</td>
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<td>Drive for Thinness (T2)</td>
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<td>Appearance commercials</td>
<td>Body Dissatisfaction (T1)</td>
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<td></td>
<td>Media Response (T1)</td>
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<td>Non-appearance commercials</td>
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<td>0.20</td>
<td>-0.47</td>
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<td></td>
<td>Media Response (T1)</td>
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***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; $p < 0.06$. 

dissatisfaction for girls in the appearance condition, but not for girls in the non-appearance condition. Figure 1 depicts the regression lines between media responsiveness and body dissatisfaction and drive for thinness for the appearance- and non-appearance-related commercial groups. It can be seen that both time 2 body dissatisfaction and drive for thinness increased with increasing media responsiveness, but only after viewing appearance-related commercials. Thus the regression confirms the interpretation of the correlations, but with time 1 body dissatisfaction controlled.
due to fewer boys in the non-appearance group. For body dissatisfaction, media responsiveness approached significance for boys in both the appearance, $R^2_{\text{change}} = 0.14$, $F_{\text{change}}(1, 18) = 4.34$, $p < 0.06$, and non-appearance conditions, $R^2_{\text{change}} = 0.18$, $F_{\text{change}}(1, 13) = 4.34$, $p < 0.06$. Figure 1 depicts the relationship between media responsiveness and body dissatisfaction/drive for thinness for the appearance and non-appearance commercial groups. It can be seen that boys’ time 2 drive for thinness tended to increase with increasing media responsiveness after viewing appearance-related commercials and time 2 body dissatisfaction tended to increase irrespective of commercial condition. However, clearly these increases are nowhere as large as for the girls, as indicated by the slopes of the regression lines.

**DISCUSSION**

Experimental research has consistently demonstrated that brief exposure to thin-ideal media messages leads to small changes in body dissatisfaction for some individuals. Here it was suggested that these
reactive ‘episodes’ of dissatisfaction may accumulate over time leading
to the development of longer-term body image disturbance. The results
of the present small longitudinal study are consistent with this
cumulative hypothesis. The results for girls are clear. Specifically, those
girls who were most strongly negatively affected by viewing appear-
ance-related commercials at age 15 years felt more dissatisfied with their
bodies and expressed greater drive for thinness 2 years later. The drive
for thinness result suggests that thin-ideal media may be associated with
the development of self-regulatory weight-control behaviours, as well as
with the related subjective feelings of dissatisfaction.

These provocative findings extend previous experimental manipula-
tions of typically one brief media exposure, by considering the possible
developmental influence of many similar exposures on body image. Experimen-
tal studies to date have been criticized for their lack of
ecological validity (Irving, 2001; Levine & Smolak, 1996; Stice et al.,
2001), and we do not argue that our one single experimental
manipulation was causal in the development of the observed increase
in body dissatisfaction among adolescents over time. Rather, however,
we do argue that the short-lived changes in body image observed in the
laboratory capture a single snapshot of adolescents’ daily media
experiences, many of which may be unavoidable. In other words,
responsiveness to media messages observed in the laboratory may
represent a marker for vulnerability to sociocultural pressures to be
thin. Even though the impact of any one brief media exposure on mood
and body image may be small and of questionable long-term
importance, the present results are consistent with the suggestion that
over time, the effects of many such small changes may cumulate to
actually elevate body image disturbance.

The meaning of the results observed here for boys is less clear. Unlike
girls, boys’ time 2 body dissatisfaction was not related to time 1 media
responsiveness, although as for girls, responsiveness to appearance
commercials did predict boys’ drive for thinness. Certainly these results
must be interpreted in light of the commercials chosen for the
experimental study. In particular, the appearance-related commercials
were selected for their depiction of actors who epitomized women’s,
rather than men’s, appearance ideals. Thus it is not certain to which
aspects of the commercials boys were responding. Given the increasing
prevalence of body dissatisfaction among men and boys (Cohane &
Pope, 2001; Thompson et al., 1999), further research might usefully
examine whether responsiveness to images of male attractiveness better
predicts later body dissatisfaction and drive for muscularity for boys,
parallel to the way in which responsiveness to female ideal images
predicted later dissatisfaction and drive for thinness for girls.
One limitation of the present study was its small sample size, and further research is clearly needed to replicate these findings with larger samples. Furthermore, one unanswered question here is what determines initial media responsiveness. Many experimental studies have reported individual differences in sensitivity to media messages, e.g. thin-ideal internalization (Cattarin, Thompson, Thomas, & Williams, 2000; Heinberg & Thompson, 1995), appearance schemas (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002; Lavin & Cash, 2001), trait body dissatisfaction (Posavac, Posavac, & Posavac, 1998), self-monitoring (Henderson-King & Henderson-King, 1997), and eating disorder symptomatology (Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1999), and some prospective research has linked such individual difference factors to the ongoing development of body image concern (Byely, Archibald, Graber, & Brooks-Gunn, 2000; Hargreaves & Tiggemann, 2002b; Stice, 2001). It seems plausible, then, that media responsiveness may mediate the relationship between such person factors and later body dissatisfaction. That is, normally-occurring media exposure provides a plausible mechanism by which vulnerable individuals become increasingly dissatisfied. Understanding the development of this predisposing vulnerability (or resilience) to media images is crucial to aetiological models of body image disturbance.

Despite its small sample size and unanswered questions, the present study has made a significant contribution by demonstrating that the small negative impact of media images is important, not necessarily causally, but in relation to the longer term development of body image disturbance. In particular, we suggest that immediate media responsiveness as observed in the laboratory may represent a mechanism linking ongoing media exposure and the development of body dissatisfaction over time as reported in correlational research. In so doing, the results here affirm the ecological validity and continued value of experimental designs for the investigation of the media’s impact on body image.

REFERENCES


