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BMI and depressive symptoms: The role of media pressures

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ABSTRACT

Obese and overweight individuals experience higher risk for depression and emotional distress. One factor that may contribute to depression in obese or overweight individuals is exposure to unrealistic images in the media. Indeed, overall media consumption is associated with body image dissatisfaction in adolescents and young adults. Despite these compelling links, prior work has not examined the mediating effect of media pressures on the link between BMI and depression. In the present study, young adults ($N = 743$) completed an online survey assessing demographic information, perceived pressure from the media to conform to a certain body standard, and symptoms of depression. Structural equation modeling analyses indicated a direct effect of BMI on media pressure, a direct effect of media pressure on depressive symptoms, and an indirect effect of BMI on depressive symptoms mediated by media pressures. Findings indicate that higher BMI levels are associated with greater depressive symptoms when there is greater perceived media pressure on body image. Results suggest the need for clinicians to assess media consumption and perceived pressure to conform to physical appearance standards in individuals who are obese or overweight as well as individuals at risk for eating disorders.

1. Introduction

Exposure to unrealistic media images and messages has been identified as a risk factor for body dissatisfaction, eating disturbances, and mental health concerns (Benowitz-Fredericks, Garcia, Massey, Vasagar, & Borzekowski, 2012; Stice & Shaw, 1994; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Indeed, media consumption is positively associated with body dissatisfaction in adolescents and young adults (Homan, McHugh, Wells, Watson, & King, 2011). Stice and Shaw (1994) found that exposing women to photos of models from popular magazines resulted in higher levels of depression and body image dissatisfaction compared to viewing photos of average size models. Media images play a role in shaping and reinforcing society's view of what the ideal physical appearance is for both women and men (Wykes & Gunter, 2005), which can lead to depressive symptoms and body dissatisfaction in individuals who feel they do not meet this ideal.

Given the relation between failure to meet perceived societal ideals and higher body dissatisfaction, it is not surprising that overweight and obesity are associated with increased risk for depressive symptoms (McElroy et al., 2004). Overweight individuals are often stigmatized (Ebneter, Latner, & O'Brien, 2011), and it is therefore not uncommon for those who are overweight or obese to manifest signs of distress, anxiety, or depression (Kelly, Daniel, Dal Grande, & Taylor, 2011). Of course, not all overweight people experience psychological concerns, and research indicates that certain risk factors, including gender (Erickson, Robinson, Haydel, & Killen, 2000), severe obesity (McElroy et al., 2004), history of dieting (Crow, Eisenberg, Story, & Neumark-Sztainer, 2006), weight perception and concern, dietary restraint (Ting, Huang, Tu, & Chien, 2012), and body image issues (Chaiton et al., 2009), each create greater risk for developing symptoms of depression and other mental health concerns. Body dissatisfaction may be especially important to examine in relation to perceived pressures from the media, which have become increasingly focused on the thin-ideal for women and muscularity for men (Leit, Pope, & Gray, 2001; Mazur, 1986).

Young adulthood, and the college setting in particular, may be a time of special importance when evaluating body image and weight. As college students become increasingly independent, they begin to make more decisions concerning their health and appearance (Gillen & Lefkowitz, 2012). Students may develop friendships or join organizations that increase the potential for unhealthy behaviors or attitudes, such as unhealthy eating or being overly concerned with looks and appearance (Gillen & Lefkowitz, 2012). Similarly, there is evidence that college women frequently compare their weight/shape to that of their peers, and these comparisons have been implicated in body dissatisfaction development and disordered eating (Fitzsimmons-Craft, 2011). Further, undergraduate men report greater body dissatisfaction compared to older men, despite having a lower BMI (Peat, Peyerl, Ferraro, & Butler, 2011). Research is warranted that examines how media pressures influence the relation between BMI and depression in this population.

1.1. Study hypotheses

The aim of the current study is to examine whether media pressures on body image mediate the relation between BMI and depressive

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symptoms. We hypothesized that media pressures on body image would mediate the relation between BMI and depressive symptoms, such that higher BMI levels would be associated with higher levels of depressive symptoms when individuals reported a greater internalization of media pressures.

2. Method

2.1. Participants and study design

Participants were undergraduate students ($N = 743$) enrolled in psychology courses at a large Mid-Atlantic university between the ages of 18 and 25 years old ($M = 18.85$, $SD = 1.41$). Most participants were women (69.5%). The racial/ethnic breakdown was as follows: Caucasian (49.3%), African American (23.4%), Asian American (14.2%), Hispanic/Latino (6.0%), other racial/ethnic category (6.6%), and Native American (0.5%). The mean BMI was 23.55 ($SD = 4.46$). A brief online survey was administered to undergraduate students enrolled in psychology classes at the university. All surveys were completed anonymously online via a password-protected, secure survey system.

2.2. Measures

2.2.1. Demographics

The survey assessed the following demographic variables: gender, race/ethnicity, age, height, and weight. BMI was calculated using self-reported height and weight.

2.2.2. The Sociocultural Attitudes Toward Appearance Scale-3 (SATAQ-3, Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004)

This measure assesses sociocultural influences on body image and eating disturbances, and consists of four subscales: the internalization of media, both generally and related to athleticism; pressures; and information. However, only the pressures subscale was used in the current study as it has been previously shown to account for significantly more variance in body dissatisfaction than the other three subscales (Thompson et al., 2004). Participants rated SATAQ-3 statements on a scale from "1 – Definitely Disagree" to "5 – Definitely Agree." An example item on the pressures subscale is: "I've felt pressure from TV or magazines to have a perfect body." The subscale had high internal consistency ($\alpha = 0.92$).

2.2.3. Center for Epidemiologic Studies Depression Scale-Revised (CESD-R, Eaton, Muntaner, Smith, Tien, & Ybarra, 2004)

The CESD-R is a popular depression tool that has wide applicability in the general population (Van Dam & Earleywine, 2011). Participants rate statements on a scale from "0 – Not at all or less than 1 day" to "4 – Nearly every day for 2 weeks." An example item is: "Nothing made me happy." This measure also had high internal consistency ($\alpha = 0.94$).

2.3. Statistical analyses

All means, standard deviations, and correlational analyses were performed using SPSS version 20.0 software. Correlational analyses were used to test the associations between BMI, depressive symptoms, and media pressures. The maximum likelihood estimation method for structural equation modeling was used to test the theoretical mediation model in Mplus version 6.12. BMI and depressive symptoms were conceptualized as observed (manifest) variables. Media pressure on body image was conceptualized as a latent variable. The chi-square test, the comparative fit index (CFI), the Tucker–Lewis Index (TLI), and the root mean square error of approximation (RMSEA) were used to assess the model fit. A $p > .05$ for the chi-square test, a CFI and TLI $\geq .95$, and a RMSEA $\leq .06$ indicated a good model (Bentler, 1990; Hu & Bentler, 1999; Tucker & Lewis, 1973).

3. Results

3.1. Descriptive statistics

Pearson correlation coefficients are presented in Table 1. BMI was significantly correlated with media pressure, and media pressure was significantly correlated with depressive symptoms. However, BMI was not associated with depressive symptoms ($p = .30$).

3.2. Main analyses

The hypothesized structural equation model is presented in Fig. 1. All factor loadings between each indicator and the media pressure on body image latent variable were statistically significant and relatively high (all but one of the loadings > .75). Fit indices suggest that the hypothesized model is a good fit to the data ($\chi^2 = 72.86$, df = 26, $p < .001$; CFI = .99; TLI = .98; RMSEA = .050, 90% CI: .04 – .06). While the direct path between BMI and depressive symptoms was not statistically significant ($\beta = -.01, SE = .04, p = .74$), the other hypothesized pathways were. There was a direct effect of BMI on media pressure ($\beta = .16$, $SE = .04$, $p < .001$). There was also a direct effect of media pressure on depressive symptoms ($\beta = .32$, $SE = .04$, $p < .001$). Although there was no direct effect of BMI on depressive symptoms, there was a statistically significant indirect effect of BMI on depressive symptoms mediated by media pressure on body image ($\beta = .05, SE = .01, p < .001$). The fitted model showed that higher BMI levels are associated with greater depressive symptoms when there are higher reports of felt media pressure on body image.

4. Discussion

Results of the current study support a model whereby BMI is related to depressive symptoms, but the relation is mediated by perceived media pressure on body image. Young adults who had higher BMIs also had greater depressive symptoms only when they exhibited higher feelings of pressure from the media to look a certain way. Past research has indicated that certain characteristics, such as severe obesity (McElroy et al., 2004), weight concern, dietary restraint (Ting et al., 2012), and body image concerns (Chaiton et al., 2009) may increase the risk of developing depressive symptoms in overweight individuals. The present study demonstrates that media pressure on body image is also an important mediating risk factor.

Results suggest the need for clinicians and counselors to assess media consumption and the degree of pressure an individual feels from the media as it pertains to physical appearance, especially in young adulthood. Health providers should assess any ongoing depressive symptoms or potential for symptoms to develop. Providers should also emphasize how media images are often unrealistic (Heinberg, Thompson, & Stormer, 1995). Due to previous literature identifying media images and messages as risk factors for eating disturbances (Thompson et al., 1999), disordered eating behaviors should be assessed and healthy weight management behaviors should also be encouraged.

Table 1
Pearson correlation coefficients for relations among BMI, depressive symptoms, and media pressures on body image among young adult college students.

Variables	1	2	3
1. BMI	–	–	–
2. Depressive symptoms	.04	–	–
3. Media pressures on body image	.15**	.31**	–

Note. **p - value < .01.

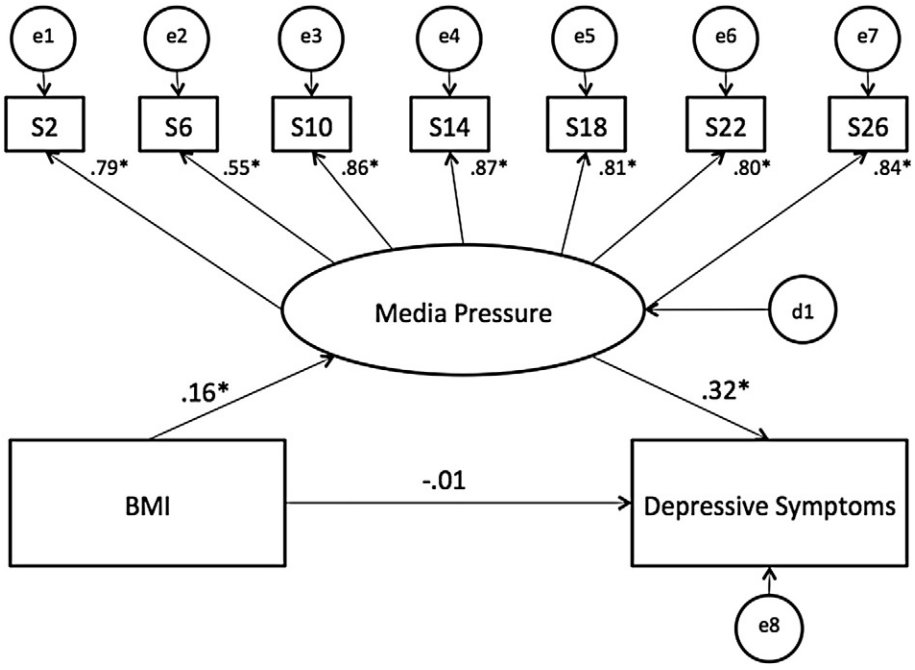

Fig. 1. Results for the structural equation model. χ^2 (26) = 72.86, p < .001. Comparative Fit Index = .99; Tucker Lewis Index = .98; Root Mean Square Error of Approximation = .050. *Note.* All coefficients are standardized. Also, *p - value < .001. *Note.* S: The Sociocultural Attitudes Toward Appearance Scale-3 (SATAQ-3) items (along with their corresponding item number) comprising the pressures subscale.

4.1. Strengths

A strength of this study includes the use of a structural equation model to test the hypothesized mediation model. Conceptualization of media pressures on body image as a latent construct eliminates measurement error. This is also the first study, to our knowledge, that has examined the mediating role of body image pressures related to the media on the relation between BMI and depressive symptoms.

4.2. Limitations and future research

Limitations of the current study include the sampling of students enrolled in psychology courses from only one university, thus limiting generalizability. Future studies should include a wider variety of college students, as well as their non-college peers. Additionally, the cross-sectional design limits interpretations of causality. Longitudinal studies are needed to examine the relation of BMI on depressive symptoms over time, and how this relates to felt media pressures on body image. Further, all measures were based on self-report, which may have resulted in biases or errors in reporting. Future research should incorporate more objective measures, such as actually measuring participants' height and weight, to reduce possible inaccuracies. Finally, the SATAQ-3 measure does not include more current forms of media, such as the Internet (e.g., YouTube, online magazines, fashion blogs), and future studies should examine media consumption and perceived pressures related to body image as it pertains to Internet media.

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Contributors

Author AJ designed the study, conducted literature searches, and collected the data. Authors AJ and EC co-wrote the manuscript. Authors DS and AJ conducted statistical analyses. Author EB wrote the abstract and provided feedback of the entire manuscript. All authors contributed to and approved the final manuscript.

Conflict of interest

All authors declare that they have no conflicts of interest.

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