



# The effects of media, self-esteem, and BMI on youth's unhealthy weight control behaviors



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## ABSTRACT

**Purpose:** Youth engage in a variety of methods to manage their weight, including unhealthy weight control behaviors (UWCBs). The purpose of this study was to examine factors associated with youth's engagement in UWCBs, including media influence, youth's BMI z-score and self-esteem.

**Methods:** Participants were 179 youth, aged 10–17, attending a primary care clinic appointment. Youth completed questionnaires assessing frequency of UWCBs, global self-worth, and perception of media influence to lose weight. BMI z-score was calculated based on height and weight measurements obtained from medical charts. The SPSS macro, PROCESS, was used to conduct moderation analyses.

**Results:** Over 40% of youth endorsed using at least one UWCB in the past year. Girls reported using more UWCBs and engaging in UWCBs more frequently than boys. For boys, media influence to lose weight was only related to UWCB frequency for those with a BMI z-score of 1.23 and above. For girls, media influence was only related to UWCB frequency for those with low to average levels of global self-worth.

**Conclusions:** Girls' and boys' use of UWCBs is impacted by different factors. Prevention efforts should consider targeting factors, such as weight status and self-esteem, which are uniquely associated with gender.

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## 1. Introduction

Attempts to lose weight are common in children and adolescents. Over 45% of youth in the United States are estimated to be currently dieting, and the prevalence has been increasing over the past 20 years (Eaton et al., 2012). Youth may attempt to manage their weight by engaging in a variety of healthy and unhealthy behaviors. Healthy weight control behaviors (HWCBs) include limiting fat intake, increasing fruit and vegetable consumption, and engaging in moderate amounts of exercise. It is estimated that as many as 85% of girls and 70% of boys engage in HWCBs (Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002). Engaging in HWCBs, such as moderate exercise and eating more fruits and vegetables, has been associated with gradual weight loss among a community sample of school-aged children (Gortmaker et al., 1999).

While some youth may utilize healthy strategies to control their weight, others engage in unhealthy weight control behaviors (UWCBs), which include skipping meals, fasting, and excessive exercise, in addition to more extreme measures, such as vomiting

and using laxatives and diet pills. Approximately 57% of girls and 33% of boys have been estimated to engage in these unhealthy weight management strategies (Neumark-Sztainer et al., 2002); however, boys and girls appear to exhibit different patterns of UWCB use. In the 2011 National Youth Risk Surveillance study, females endorsed higher rates than males of fasting; taking diet pills, powders, or liquids; and vomiting or taking laxatives to lose weight or to keep from gaining (Eaton et al., 2012). Due to lower prevalence rates of boys engaging in these behaviors, there is a dearth of research on UWCB patterns among males. UWCBs are associated with a variety of negative outcomes in both overweight and non-overweight adolescents, including further weight gain (Field, Camargo, Taylor, Berkey, & Colditz, 1999; Neumark-Sztainer et al., 2006; Stice, Schupak-Neuberg, Shaw, & Stein, 1994) and the development of eating disorders (Neumark-Sztainer et al., 2006). Additionally, UWCBs have been linked to depression (Crow, Eisenberg, Story, & Neumark-Sztainer, 2006; Doyle, le Grange, Goldschmidt, & Wilfley, 2007), poor social functioning (Doyle et al., 2007), and a greater likelihood of engaging in additional risky behaviors, such as suicide attempts, alcohol consumption, and tobacco and drug use (Crow et al., 2006; Neumark-Sztainer, Story, Dixon, & Murray, 1998).

A high number of youth engage in UWCBs (Neumark-Sztainer et al., 2002), however, potential factors related to engaging in UWCBs are in need of elucidation. Exposure to media may be a key variable related to UWCB. In a meta-analysis by Grabe, Ward, and Hyde (2008),

*Abbreviations:* UWCB, unhealthy weight control behavior; HWCB, healthy weight control behavior; BMI, body mass index.

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researchers concluded that adult females exposed to the thin-ideal body through the media were more likely to report higher body dissatisfaction and increased use of disordered eating behaviors. Similar findings among children and adolescents have been observed (Harrison & Hefner, 2008; Hogan & Strasburger, 2008; Levine & Harrison, 2009). In a review, researchers concluded that cross-sectional literature has consistently shown that watching general TV and reading fashion magazines has a negative impact on adolescent girls' body dissatisfaction and disordered eating behaviors (López-Guimerà, Levine, Sánchez-Carracedo, & Fauquet, 2010). Furthermore, prospective research has demonstrated that females who frequently read girls' magazines and listen to the radio are two times more likely to be diagnosed with an eating disorder 18 months later (Martinez-Gonzalez et al., 2003).

A majority of research in this area has been conducted using female populations, as some researchers suggest that media may play a more significant role in communicating messages about body ideals to girls compared to boys (Hargreaves & Tiggemann, 2004; Ricciardelli & McCabe, 2001). Little research has specifically focused on the effects of the media on boys' body image and subsequent eating behaviors. However, in a meta-analysis of the effects of media images on men's body-image concerns, pressure from mass media was associated with both body dissatisfaction and UWCBs such as excessive exercise (Barlett, Vowels, & Saucier, 2008). Little research has focused on specifically on the effects of media exposure in boys and adolescent males.

It is important to differentiate between youth's exposure to media and the media's influence on youth. Media exposure often assesses the frequency with which youth are subjected to messages about their bodies, while media influence focuses more on how these messages impact youth's attitudes and behaviors. There is a small body of literature on youth's perception of how the media influences their body image and subsequent health behaviors. Ricciardelli, McCabe, and Banfield (2000) investigated perceived media influence among 7th and 9th grade girls and boys. Results suggested both girls and boys felt that the media influenced them to alter their bodies or shapes (e.g., lose weight, gain muscle). Furthermore, a prospective study found that girls, aged 9–14, were almost two times more likely to start purging if they felt as though they needed to look like females in the media (Field et al., 1999). Investigating youth's perception of how the media influences them is important because simply being exposed to body ideals in the media does not necessarily equate to youth's awareness or internalization of these messages.

The association between media influences and UWCBs may vary depending on youth weight status and self-esteem. Propensity for youth to engage in UWCBs increases with higher weight status in both males and females, as overweight and obese youth are at a greater risk for engaging in UWCBs compared to their normal weight peers (Boutelle, Neumark-Sztainer, Story, & Resnick, 2002; Neumark-Sztainer et al., 2002; Neumark-Sztainer et al., 2006), and obese youth are more likely to endorse engaging in UWCBs compared to their overweight peers (Neumark-Sztainer et al., 2002). Several studies have demonstrated that overweight and obesity in youth are linked with excessive television watching (Institute of Medicine, 2006; Strasburger, 2011); thus, these youth may be exposed to more messages about body ideals and weight status compared to their healthy weight peers who spend less time watching television.

Furthermore, low self-esteem has been consistently linked to UWCBs in youth (Stice, Presnell, & Spangler, 2002; Tanofsky-Kraff, Faden, Yanovski, Wilfley, & Yanovski, 2005), and is a strong contributing factor in determining whether adolescents engage in dieting (Pesa, 1999). Self-esteem has also been consistently correlated with weight status, such that overweight and obese youth are more likely to have lower self-esteem compared to their healthy weight counterparts (French, Story, & Perry, 1995; Griffiths, Parsons, & Hill, 2010). Much of the literature on disordered eating and self-esteem has focused on females. However, as the awareness about the prevalence of disordered eating among males has increased, research has started to examine

the influence of gender on the relationship between disordered eating and self-esteem. Furnham, Badmin, and Sneade (2002) demonstrated that poorer self-esteem is associated with increased disordered eating attitudes and behaviors among both female and male adolescents.

Although the relationship among weight status, UWCBs, self-esteem, and media influence remains largely unknown, it is possible that the relationship between media exposure and UWCBs may disproportionately affect youth with higher weight status and lower self-esteem. In their sociocultural model of bulimia nervosa symptomatology, Stice (1994) proposed that self-esteem mediated and body mass moderated the relationship between sociocultural pressures (e.g., media) and females' internalization of the thin-ideal. These internalized ideals lead to increased body dissatisfaction. Stice posited that increased body dissatisfaction causes subsequent disordered eating and bulimia symptomatology via a dual-pathway model, (i.e., restrained eating pathway, negative affect pathway). While the literature has consistently supported this model, the moderational effects of self-esteem and weight status have not been directly evaluated in the relationship between media exposure and UWCBs.

Media influences, weight status, and self-esteem have all been identified as variables related to UWCBs in youth (Muris, Meesters, van de Blom, & Mayer, 2005), however, it remains unclear how these factors are interconnected. The current study aims to: 1) explore the relationship between media influence to lose weight and boys' and girls' engagement in a variety of UWCBs and 2) investigate whether this relationship is influenced by youth's BMI and global self-esteem. It was hypothesized that: 1) media influence to lose weight would be associated with greater frequency of UWCBs among girls and boys, 2) youth's BMI would moderate the relationship between media influence to lose weight and engagement in UWCBs, such that the relationship would only be significant for individuals with a higher BMI, and 3) youth's self-esteem would moderate the relationship between media influence to lose weight and engagement in UWCBs, such that the relationship would only be significant for individuals with lower levels of self-esteem. There were no a priori hypotheses about the differences between girls and boys.

## 2. Materials and methods

### 2.1. Participants

A total of 219 youth were recruited to participate in a larger study examining factors that influence their eating habits while attending a regularly scheduled primary care appointment in the southeastern United States. Youth were included in the study if they were 10–17 years of age, accompanied by a parent or guardian, and attending a regularly scheduled appointment. Individuals were excluded if the child was diagnosed with short stature, intellectual disability, or a psychotic disorder. Of those who were interested, 179 individuals completed all questionnaires utilized in the current study. T-tests were conducted to examine for differences in demographic variables between completers ( $n = 179$ ) and non-completers ( $n = 40$ ). T-tests revealed that individuals who completed all measures had a higher reported family income compared to those who did not complete all questionnaires. Groups did not differ on additional demographic variables.

This study and its procedures were approved by the school's institutional review board. Informed consent was obtained from youth's legal guardians. Youth gave assent to participate. Participants completed several questionnaires and were compensated with a \$5 gift card.

### 2.2. Materials

#### 2.2.1. BMI

Youth height and weight were obtained by medical staff during a routine medical exam. Height and weight from the medical record

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