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## **Economics and Human Biology**

journal homepage: www.elsevier.com/locate/ehb



## "Do I look fat?" Self-perceived body weight and labor market outcomes



Patricia K. Smith<sup>a,\*</sup>, Jay L. Zagorsky<sup>b</sup>

- a Department of Social Sciences, University of Michigan-Dearborn, 4901 Evergreen Road, Dearborn, MI, 48128, USA
- <sup>b</sup> Center for Human Resource Research, Ohio State University, 921 Chatham Lane, Suite 200, Columbus, OH, 43221, USA

#### ARTICLE INFO

Article history: Received 20 October 2017 Received in revised form 17 May 2018 Accepted 18 May 2018 Available online 28 May 2018

JEL classifications:

J30

J70 I12

Keywords: BMI Weight misperception Wages Employment

#### ABSTRACT

Research reporting that greater body weight is associated with lower wages and employment, particularly among women, focuses on how employers perceive workers. In contrast, we examine whether workers' own perceptions of body weight influence labor market outcomes. Numerous studies find that misperception of body weight influences health behaviors and health, both mental and physical. For example, anorexia nervosa involves the over-perception of weight and raises the risk of cardiovascular disease. Do the health consequences of inaccurate self-perceived weight carry through to the labor market? We use the National Longitudinal Survey of Youth 1997 (NLSY97) to investigate patterns in weight misperception and three labor market outcomes. We find little evidence that either over-perception or under-perception of weight is associated with wages, weeks worked, or the number of jobs held for women and men.

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#### 1. Introduction

The question of what determines wages has long interested workers, economists, and politicians. Early work focused on links with education and experience (Mincer, 1974). Researchers have since added variables such as skills, gender, race-ethnicity, health and beauty to the wage equation. Body weight, which signals health and is a component of beauty, has also been added so a considerable amount of research examines the role of Body Mass Index (BMI = kg/m²). This literature generally finds that BMI is negatively associated with earnings among women (Averett, 2011; Fikkan and Rothblum, 2012) and that greater body fat is associated with reduced employment for both men and women (Burkhauser and Cawley, 2008; Wada and Tekin, 2010).

The literature on BMI and labor market outcomes focuses on how employers perceive workers. Will they be productive? Will they cost more to insure? Employers' perceptions, however, may not be all that matters. A substantial share of adolescents and adults do not perceive their weight accurately (Edwards et al., 2010; Jiang et al., 2014; Sonneville et al., 2016), thus weight misperception may also play a role in wage and employment determination.

Numerous studies find that self-perceived body weight influences health behaviors and health status (e.g., Ali et al.,

2010; Atlantis and Ball, 2008; Roberts and Duong, 2013), which could affect human capital accumulation and labor market performance. Anorexia nervosa provides an extreme example. The over-perception of weight characteristic of this disorder raises the risks of cardiovascular disease, bone density loss, muscle loss, and fatigue (National Eating Disorders Association, 2018 n.d.). Anorexia nervosa impairs work capacity (Tchanturia et al., 2013) and has a relatively low recovery rate so many sufferers remain chronically ill (Steinhausen, 2002).

This paper contributes to the literature by using the National Longitudinal Survey of Youth 1997 (NLSY97) to investigate whether inaccurate self-perception of weight affects employment and earnings independent of BMI. If misperceived weight is associated with labor market outcomes then self-stigmatization, not just social stigmatization, of weight plays a role in wage determination. If there is an association, then policies to improve the accuracy of weight perceptions could improve not just health, but also labor market outcomes.

#### 2. Background

Two strands of literature underlie this study. The first is research on the association between body weight and labor market

E-mail addresses: pksmith@umich.edu (P.K. Smith), Zagorsky.1@osu.edu (J.L. Zagorsky).

<sup>\*</sup> Corresponding author.

outcomes. The second examines weight perception accuracy and the relationship between weight misperception and health.

Most studies of the association between body weight and labor market outcomes focus on wages. Reviews of this literature show that researchers have used a range of data sets, alternative measures of body fat, and a variety of strategies to identify causal patterns (Averett, 2011; Greve, 2015; Kelly, 2018). While results vary by gender, age, and race/ethnicity, the overall evidence shows that higher body weight reduces women's wages, especially among white women. Not all studies, however, find a labor market penalty for excess weight (e.g., Larose et al. (2016) and Majumder (2013) finds evidence of a wage bonus for heavier white men. Nonetheless, the majority of evidence indicates that obesity lowers women's wages (Cawley, 2015).

Some studies examine the association between obesity and employment rather than wages. These results indicate a negative association between obesity and the probability of employment for women, while the association for men is mixed (Cawley, 2000a,b; Cawley and Danziger, 2005; Devaux and Sassi, 2015; Han et al., 2009; Lindeboom et al., 2010; Morris, 2007; Tunceli et al., 2006). The mixed findings may result from differences in estimation methods used to account for the possible endogeneity of obesity.

Overall, this strand of literature indicates that body weight, particularly excess weight, influences labor outcomes via two general mechanisms: health and discrimination (Averett, 2011; Greve, 2015; Smith, 2009). Obesity increases risks to both physical and mental health, reducing human capital accumulation and labor productivity. Discrimination against heavy children and adults creates barriers to human capital accumulation, employment, and advancement in the labor market.

To our knowledge, no previous studies have examined whether self-perceived body weight is independently associated with labor market outcomes. Instead, the research on self-perceived weight focuses on perception accuracy and associations with health. Studies of accuracy compare respondents' perceived weight status to clinically assessed weight status based on BMI. A substantial portion of adolescents and adults misperceive their weight by this measure (e.g., Edwards et al., 2010; Jiang et al., 2014; Sonneville et al., 2016). Accuracy studies generally find that females at their medically-recommended weight are more likely than their male counterparts to perceive themselves as overweight, while men are more likely to under-assess their body weight (Chang and Christakis, 2003; Kuchler and Variyam, 2003; Mikolajczyk et al., 2010; Paeratakul et al., 2002).

Several studies report that self-perceived weight is independently associated with health outcomes (e.g., Atlantis and Ball, 2008; Roberts and Duong, 2013). Many of these studies focus on adolescence, a critical period in identity formation and human capital acquisition. Body dissatisfaction among adolescents, which may arise from both accurate and inaccurate perception of weight, raises the risk of unhealthy weight behaviors, like purging (Bucchianeri and Neumark-Sztainer, 2014; Neumark-Sztainer et al., 2006; Paxton et al., 2006). Body dissatisfaction also predicts future weight gain.

Over-perception of weight is consistently associated with an increased risk of unhealthy weight control behaviors (Eichen et al., 2012; Jiang et al., 2014; Martin et al., 2014). In addition, Sutin and Terracciano (2015) find that normal weight adolescents who misperceive themselves as overweight engage in behaviors that elevate their risk of obesity in early adulthood. Jiang et al. (2014) report that both over-perception and underperception of weight correlate to risky health behaviors in a dose-response pattern. However, Eichen et al. (2012) find that among overweight adolescents, those who under-perceive their weight are less likely to use diet pills than those who accurately perceive their weight.

Adolescent weight misperception not only influences health behaviors, it also harms mental health. It is associated with lower self-esteem (Ali et al., 2010; Paxton et al., 2006), depression (Al-Mamun et al., 2007; Blashill and Wilhelm, 2014; Isomaa et al., 2011; Neumark-Sztainer et al., 2006; Byeon, 2015; Roberts and Duong, 2013), and suicide ideation (Dave and Rashad, 2009; Eaton et al., 2005.

Among adults, over-perceiving weight is associated with an elevated risk of psychological distress (Atlantis and Ball, 2008) and the amount of weight loss desired is positively associated with the number of monthly "unhealthy days" (Muennig et al., 2008). This latter association appears stronger for women than men and stronger for Whites than Blacks and Hispanics. Finally, Lam et al. (2010) present evidence that work absenteeism is positively associated with body weight only among women who perceive themselves as obese.

In contrast, under-perceiving weight is associated with fewer unhealthy behaviors, like fasting, taking diet pills, and purging among adults (Sonneville et al., 2016). Thus, failure to perceive excess weight accurately may protect against unhealthy weight control practices. However, failure to recognize excess weight may also reduce healthy weight control behaviors, leading to continued overweight or obesity.

Overall, the extant research indicates that under- and overperception of weight by adolescents and adults is associated with reduced mental health. Weight over-perception increases the risk of unhealthy weight-control behaviors. Poorer mental health and engaging in unhealthy behaviors could impair human capital accumulation and reduce labor market outcomes.

#### 3. Theory

Excess body weight is thought to influence labor market outcomes through multiple pathways (Cawley, 2003; Greve, 2015; Smith, 2009). First, occupational sorting could occur, with the obese gravitating to certain lower-paying occupations due to either the job's physical requirements or the availability of health care (Conley and Glauber, 2005). Second, obesity's health consequences could lead to lower labor productivity (Burton et al., 1999; Cawley, 2007). Third, obesity could damage self-esteem and confidence (Crocker and Garcia, 2005), which in turn could adversely affect labor market outcomes (Goldsmith et al., 1997; Waddell, 2006). Fourth, employers may offer lower wages to the obese to offset expected higher health insurance costs (Bhattacharya and Bundorf, 2009). Finally, weight discrimination in social and educational settings and labor markets could lead to smaller social networks, lower human capital, fewer job offers, and lower wages (Puhl, 2011; Rooth, 2009).

These pathways also explain why weight misperception could lead to reduced labor market outcomes. For example, perceiving oneself as overweight can lead to unhealthy weight control behaviors and/or elevated stress, both of which can diminish physical health (Eichen et al., 2012; Martin et al., 2014; Puhl, 2011; Sutin and Terracciano, 2015). Diminished physical health can reduce labor productivity and thus employment and earnings. Furthermore, weight misperception can damage mental health, raising the risk of depression (Al-Mamun et al., 2007; Atlantis and Ball, 2008; Blashill and Wilhelm, 2014; Granberg, 2011; Roberts and Duong, 2013) and reducing self-esteem (Ali et al., 2010; Crocker and Garcia, 2005). Indeed Miller and Downey's (1999) meta-analysis finds that self-esteem is more highly correlated with self-perceived body weight than with actual body weight. Poor mental health impairs human capital accumulation (Slominski et al., 2011; Fletcher, 2010) and reduces labor outcomes ((Banerjee et al., 2017; Drago, 2011; Fletcher, 2013. Finally, failure to perceive weight correctly means a person has missed an important clue

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