Research

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Reference:
Friedman, C., Feldner, H., & VanPuymbrouck, L. (2022). Anti-Fat biases of occupational and physical therapy assistants. *Occupational Therapy In Health Care, 36*(1), 63-83. https://doi.org/10.1080/07380577.2021.1972380

Abstract

Fat people are highly stigmatized, and anti-fat bias is pervasive resulting in stigma, prejudice, and discrimination, including in health care. The aim of this study was to explore occupational and physical therapy assistants' anti-fat biases. We analyzed secondary weight implicit association tests from 5,671 occupational/physical therapy assistants. The overwhelming majority (82%) of occupational/physical therapy assistants were implicitly prejudiced against fat people. Interventions for occupational/physical therapy assistants' anti-fat biases are critical, especially with increasing prevalence and responsibilities of occupational/physical therapy assistants in the provision of rehabilitation services.

Keywords: anti-fat bias; fatphobia; discrimination; fat people; occupational therapy; physical therapy

Stereotypes, stigma, and discrimination based on 'normative' assumptions of the human body are pervasive throughout the world (Murray, 2008). Common tropes about fat[1] people include that they are lazy, self-indulgent, lonely, sloppy, gluttonous, unmotivated, unlikable, unattractive, asexual, incompetent, and immoral; they are also believed to lack self-control and will-power (Brewis et al., 2018; Carels & Musher-Eizenman, 2010; Daníelsdóttir et al., 2010; Miller Jr et al., 2013; Puhl et al., 2015; Puhl & Heuer, 2009; Schupp & Renner, 2011; Schwartz et al., 2006). These stereotypes are tied to beliefs that a person's weight is commonly controllable (Daníelsdóttir et al., 2010). These stereotypes and conceptualizations of fat people are also tied to prominent historical ideologies about individual responsibility, as well as beliefs that hard work always pays off (protestant work ethic), and that people get what they deserve (belief in a just world; Brewis et al., 2018; Carels & Musher-Eizenman, 2010; Daníelsdóttir et al., 2010; Patrick, 2008; Puhl et al., 2015).

Yet, a person's weight is actually determined by a complex combination of factors, including biological, social, and environmental factors (Daníelsdóttir et al., 2010). Despite the fact that their weight is not entirely in their control, fat people are highly stigmatized, and anti-fat bias is widespread and pervasive (Alperin et al., 2014; Carels & Musher-Eizenman, 2010; Daníelsdóttir et al., 2010; Puhl & Heuer, 2009). Indeed, research indicates anti-fat prejudice not only rivals prejudice towards other groups, it may actually be more prevalent (Carels & Musher-Eizenman, 2010; O'Brien et al., 2010). As Alperin and Hornsey (2014) explain, "Anti-fat attitudes are one of the last socially acceptable forms of prejudice, and fat people some of the last acceptable targets" (p. 4). Additionally, anti-fat attitudes are increasing globally, even in

[1] The word 'fat' is utilized rather than other descriptors for the reasons detailed by Fikkan and Rothblum (2012): "we prefer to use the term 'fat,' as it is descriptive, whereas the term 'overweight' implies unfavorable comparison to a normative standard and 'obese' is a medical term with its own negative connotations" (p. 577). Furthermore, Vartanian (2010) found the language 'obese people' produces stronger negative connocations than 'fat people'.

countries and cultures where fat was previously celebrated (Brewis et al., 2018; Daníelsdóttir et al., 2010; Miller Jr et al., 2013; O'Brien et al., 2010; Schwartz et al., 2006). In fact, recent research from Charlesworth and Banaji (2019) involving 4.4 million people found unlike negative attitudes towards sexual orientation, race, and skin-tone which have slowly declined over time, negative attitudes toward body-weight have actually increased.

Anti-fat bias is not only widespread, it also results in stigma, prejudice, and discrimination (Brewis et al., 2018; Puhl & Heuer, 2009). Not only are fat people often bullied, they also face a number of social disadvantages as a result of being fat (Brewis et al., 2018; Carels & Musher-Eizenman, 2010; Fikkan & Rothblum, 2012; Puhl et al., 2015; Puhl & Heuer, 2009; Puhl & King, 2013; Schupp & Renner, 2011). Discrimination fat people face is often amplified by social minority status when anti-fat bias interacts with gender, race, ethnicity, sexual orientation, and disability (Fikkan & Rothblum, 2012; Puhl et al., 2015; Tomiyama et al., 2018). For example, weight-based employment discrimination impacts fat women 16 times more often than fat men (Fikkan & Rothblum, 2012). As a result of this discrimination, fat people also have unequal access to health care and receive poorer health care (Brewis et al., 2018; Carels & Musher-Eizenman, 2010; Puhl et al., 2015; Puhl & Heuer, 2009). Anti-fat bias, including the stress as a recipient of prejudice and discrimination and internalization of negative attitudes, can lead to psychological distress, low self-esteem, poor body image, depression, anxiety, and suicidal ideation (Alperin et al., 2014; Brewis et al., 2018; Carels & Musher-Eizenman, 2010; Daníelsdóttir et al., 2010; Fikkan & Rothblum, 2012; O'Brien et al., 2010; Puhl et al., 2015; Ramos Salas et al., 2017). In fact, Schupp and Renner (2011) note “Almost half of Americans would be willing to give up a year of their life to avoid being fat, and 15% have reported they would give up 10 or more years of life” (p. 1). As a result of these experiences, research

suggests, anti-fat stigma in, and of, itself may be the driver of population level weight gain and the "obesity epidemic" (Brewis et al., 2018).

Anti-fat bias in health care

Knowledge of attitudes is important because they help us understand social interactions. Attitudes can be learned and unconscious, meaning they can also provide information about socialization and prejudice formation (Antonak & Livneh, 2000). There are two levels of attitudes: explicit attitudes and implicit attitudes (Amodio & Mendoza, 2011; Antonak & Livneh, 2000). As people may feel pressured to conceal their biases, or may be unaware they hold biased attitudes, there are concerns that explicit measures do not capture all attitudes (Amodio & Mendoza, 2011; Antonak & Livneh, 2000).

Anti-fat bias is particularly pervasive in health care with research indicating health care professionals are biased to the same degree, if not more, than the general population (Alberga et al., 2016; Brewis et al., 2018; Miller Jr et al., 2013; O'Brien et al., 2010; Puhl & Heuer, 2009; Sabin et al., 2012; Tomiyama et al., 2018). For example, when Sabin and Marini (2012) examined the attitudes of 360,000 medical doctors, they found the majority were explicitly and implicitly prejudiced against fat people. These findings not only reflect how common anti-fat biases are, but that it is socially acceptable to express these attitudes explicitly, often in the form of medical advice or treatment. However, anti-fat bias is not confined to physicians alone; research has also explored anti-fat biases amongst nurses, psychologists, dieticians, fitness professionals, rehabilitation professionals, and health care students, noting anti-fat bias among all these groups (Alberga et al., 2016; O'Brien et al., 2010; Tomiyama et al., 2018; Wise et al., 2014). Even health professionals who specialize in obesity have anti-fat bias (Daníelsdóttir et al.,

2010; Miller Jr et al., 2013; Schwartz et al., 2003; Teachman & Brownell, 2001; Tomiyama et al., 2018).

Health care professionals hold similar stereotypes of fat people to those of the general population, including that they are lazy, gluttonous, lack self-control, weak-willed, undiscplined, and noncompliant (Alberga et al., 2016; Brewis et al., 2018; Drury & Louis, 2002; Puhl & Heuer, 2009; Tomiyama et al., 2018). Fat women in particular are seen as more defensive, cold, incompetent, not likable, less educated, and less likely to benefit from provider help (Fikkan & Rothblum, 2012). Health care professional bias may be particularly problematic as it directly impacts care and service provision. For example, research has found that health care professionals rate fat people as less healthy, having poorer diet, and being less compliant *even when* the fat clients have the same exact health profiles as thin clients (Fikkan & Rothblum, 2012). As a result of these attitudes, many health care professionals have less respect for fat clients and feel they are a waste of time (Tomiyama et al., 2018).

Health care professionals' anti-fat attitudes create and contribute to health disparities for fat people (Brewis et al., 2018). In fact, health care professionals' anti-fat attitudes result in substandard access and quality of mental and physical care (Alperin et al., 2014; Brewis et al., 2018; FitzGerald & Hurst, 2017; Miller Jr et al., 2013; Ramos Salas et al., 2017). Research has found that doctors spend less time with fat patients; many professionals prefer to not deal with fat clients altogether (Alberga et al., 2016; Alperin et al., 2014; Brewis et al., 2018). Anti-fat bias can impact client-provider relationship, as well as verbal and non-verbal communication, and professionals' behaviors (Alberga et al., 2016; Miller Jr et al., 2013). Fat people receive less patient-centered care, and also are provided with less information about their health and health care (Alberga et al., 2016). Additionally, anti-fat bias often leads health care professionals to

dismiss or overlook health problems *unrelated* to weight (Alperin et al., 2014). Drury and Louis (2002) explain, "Obesity serves as a 'master status,' overshadowing other attributes. Physicians often focus on weight solely as the cause of health problems" (p. 555). As such, physicians often assume fat people's health problems are because of their weight. As a result, bias impacts professionals' treatment decisions, and they may fail to refer fat people for further testing, discourage them from seeking further care, or recommend weight loss as the primary, or only solution for health needs (Alberga et al., 2016; Brewis et al., 2018; Miller Jr et al., 2013). Although there is a dearth of empirical research on the intersection of anti-fat bias and socioeconomic status and race, Ciciurkaite and Perry (2018) found that being higher SES and White appear to buffer negative discriminatory experiences for women due to body weight. The intersectional stigmas of fat with other social minority statuses may doubly impact physician attitudes but is currently under explored and poorly understood.

Lower quality of health care in, and of, itself leads to fat people having poorer health outcomes, including an increased risk of mortality (O'Brien et al., 2010; Ramos Salas et al., 2017). Stigma does not promote weight loss, in fact, it often negatively impacts physical and mental health, and can result in weight gain and unhealthy behaviors (Alberga et al., 2016; Brewis et al., 2018; Daníelsdóttir et al., 2010; Miller Jr et al., 2013; Tomiyama et al., 2018). Moreover, bias not only effects current treatment, but also result in clients delaying or forgoing future health care, including preventative care (Alberga et al., 2016; Drury & Louis, 2002; O'Brien et al., 2010; Puhl & Heuer, 2009).

Anti-fat bias and occupational and physical therapy

Because of the prevalence of both fat people and anti-fat bias in society, anti-fat bias in health care demands closer analysis by all health provider professions (Alberga et al., 2016). The

increasing demands and complexity of health care to efficiently and effectively promote functional performance and independence in clients requires a collaborative interdisciplinary rehabilitation team (Strasser et al., 2008). These teams include nursing, social workers, occupational and physical therapists, as well as occupational and physical therapy assistants, key rehabilitation team members who are growing in numbers and responsible for direct client care (Landry et al., 2016; Lin et al., 2015). Emerging literature on anti-fat attitudes by Elboim-Gabyzon et al. (2020) found both students and certified physical therapists (n = 400) in Israel had negative but 'average' explicit (conscious) attitudes towards fat people. They also found that physical therapy students were more likely to think people could not control their weight than certified physical therapists (Elboim-Gabyzon et al., 2020). To our knowledge, no research explores implicit anti-fat biases in these professions, especially for occupational/physical therapy assistants. For these reasons, the aim of this study was to explore occupational/physical therapy assistants' anti-fat biases. This study had two research questions:

- What are occupational/physical therapy assistants' implicit attitudes towards fat people?
- How do occupational/physical therapy assistants' implicit attitudes differ depending on their characteristics and beliefs?

Methods

Design

To explore the research questions, we analyzed weight implicit association tests from 5,671 occupational/physical therapy assistants using data obtained from *Project Implicit* (Xu et al., 2014). Project Implicit a free public website (https://implicit.harvard.edu/implicit/) where people from across the world can test their implicit prejudices, including against fat people. Some

people participate because they are interested in exploring their biases, others may participate for class or work assignments, and others for additional reasons.

Participants

Between 2004 and 2020, approximately 3.22 million people participated in the weight implicit association test. Of those participants who identified their occupation and completed the weight implicit association test, 5,671 were occupational/physical therapy assistants; this was the sample for this study. The majority of participants were women (78.0%) and White (76.2%) (see table 1). The mean age of participants was 26.5 years old (*SD* = 8.8). Most participants (39.2%) identified as liberal, with fewer identifying as neutral (32.6%) or conservative (28.2%). On average participants weighed 153.4 pounds (*SD* = 36.8).

[Table 1 near here]

Measure of Implicit Weight Attitudes

Implicit association tests are one of the most prominent methods for evaluating implicit attitudes (Greenwald et al., 1998). It has also been found to be reliable and have predictive validity (Cunningham et al., 2001; Egloff et al., 2005; Greenwald et al., 2009). The implicit association test presents participants with two target-concept discriminations (e.g., Black and White) and two attribute dimensions (e.g., pleasant and unpleasant) and asks participants to categorize stimuli as belonging to the categories in different stereotype congruent and incongruent ways. The implicit association test measures reaction time to examine associations; the quicker the reaction time, the stronger the association between groups and traits (Karpinski & Hilton, 2001).

The weight implicit association test, taken by over three million people through Project Implicit alone, presents participants with the target-concept discriminations of ‘thin people’ and ‘fat people,’ with stimuli of silhouettes of thin and fat men and women (Xu et al., 2014). It

presents participants with attribute dimensions of ‘good’ and ‘bad,’ with descriptive words which fall into each category (e.g., love, peace, happy, terrible, awful, hurt) as stimuli. The implicit association test also has built in safeguards against participants selecting at random or trying to fake, with the updated scoring algorithm eliminating trials with response latencies of greater than 10,000 milliseconds or less than 300 milliseconds (Greenwald et al., 2003).

Procedure

Participants were first presented with the weight implicit association test instructions. They were instructed to push the ‘E’ key if presented stimuli belonged in the categories on the left side of the computer screen and the ‘I’ key for the right. They were told to so as quickly as possible and with the fewest errors. If participants placed stimuli on the incorrect side of the screen a red ‘X’ appeared until they corrected their choice.

The weight implicit association test presents participants with seven blocks (rounds) of categorization tasks. During the first practice block, which lasts 20 trials, the participants *only* sort the target-concept discriminations with ‘thin people’ on one side of the screen and ‘fat people’ on the other. The second practice block is similar; ‘good’ is presented on one side of the screen and ‘bad’ on the other for 20 trials. For blocks three (20 trials) and four (40 trials) the target-concept discriminations and the attribute dimensions are both presented on the screen at the same time. For example, ‘thin people’ and ‘bad’ may be on the left with ‘fat people’ and ‘good’ on the right. The computer system randomizes if they are presented with stereotype consistent or inconsistent items during these blocks. Block five (40 trials) is then a practice block where only good and bad are presented on opposite sides of the screens. This allows participants to become familiar with the switched location of these two attribute dimensions. Block six (20 trials) and seven (40 trials) are then very similar to blocks three and four except if they received

the stereotype inconsistent layout in those blocks they will receive the stereotype consistent ones in blocks six and seven and vice versa. After completing the weight implicit association test, participants answered questions about their demographics and beliefs about weight.

Analysis

SPSS 27 (IBM, Armonk, NY) was used for all analysis. Implicit attitudes on the weight implicit association test were calculated using Greenwald et al.'s (2003) updated implicit association test scoring protocol. *D* scores were produced for each participant based on their response latencies in stereotype consistent and stereotype inconsistent blocks. Scores are reported the strength of preference for thin or fat people. In general, they may range from -2.0 to 2.0. Scores of -0.14 to 0.14 reveal no preference for thin or fat people, scores of 0.15 to 0.34 a slight preference for thin people, 0.35 to 0.64 a moderate preference, and 0.65 or greater a strong preference (Greenwald et al., 2003). Negative values of the same ranges reveal preferences for fat people. Analysis of occupational/physical therapy assistants' implicit attitudes towards fat people was conducted using descriptive statistics of the weight implicit association test as well as a one-way *t*-test to examine the distribution and spread of occupational/physical therapy assistants' implicit fat attitudes.

Analysis of how occupational/physical therapy assistants' implicit attitudes differ depending on their characteristics and beliefs was conducted using a linear regression model to determine if there were statistically different weight implicit association test scores based on participant demographics as well as their beliefs about weight. Demographic variables used to determine group differences included: age, gender, race, political orientation, and weight. Belief variables used a 5-point Likert rating response for the following questions:

- How important is your weight to your sense of who you are? (Not at all important, slightly important, moderately important, very important, or extremely important);
- How easy or difficult would it be for you to lose 5 to 10 pounds if you wanted to? (very difficult, moderately difficult, somewhat difficult, somewhat easy, moderately easy, or very easy);
- How much control do you have over your weight? (no control, a little control, some control, a lot of control, or complete control); and,
- How much control do people have over their weight? (no control, a little control, some control, a lot of control, or complete control)

Results

Attitudes towards fat people

The weight implicit association test scores ranged from -1.67 (strong preference for fat people) to 1.56 (strong preference for thin people). Occupational/physical therapy assistants' average score on the weight implicit association test was 0.50 (SD = 0.40), which indicates moderate preference of thin people. A one-way t-test revealed this score was significantly different from 0 (t (5670) = 95.16, $p < .001$, Cohen's d = 1.26), indicating implicit bias for thin people. Cronbach's alpha was 0.70. Findings revealed the overwhelming majority of occupational/physical therapy assistants (82.4%) preferred thin people, 6.2% preferred fat people, and 11.3% had no preference (figure 1).

[Figure 1 near here]

Regarding beliefs about weight, most occupational/physical therapy assistants considered weight as moderately (32.2%) or very important (30.6%) to their sense of self (table 1). Slightly more than half of occupational/physical therapy assistants (51.4%) considered it easy for them to

lose weight, while 48.6% considered it hard. Almost two-thirds of occupational/physical therapy assistants thought they had a lot or complete control over their weight. However, only slightly more than half of occupational/physical therapy assistants though other people had a lot or complete control over their weight.

Correlates of anti-fat attitudes

Occupational/physical therapy assistants' implicit attitudes differed depending on their characteristics and beliefs according to the linear regression model, F (34, 3526) = 6.00, $p <$ 0.001, $R^2 = 0.06$. The following variables were significant: age; gender; race; weight; importance of weight to sense of self; and, control over own weight (table 2).

[Table 2 near here]

Controlling for all other variables, the older the occupational/physical therapy assistant, the higher their implicit anti-fat bias is expected to be. For example, a 25-year-old occupational/physical therapy assistant is expected to have an anti-fat bias of 0.55, while a 50-year-old occupational/physical therapy assistant is expected to have an anti-fat bias of 0.63. Women occupational/physical therapy assistants had lower anti-fat bias (0.42) compared to men (0.48). White occupational/physical therapy assistants had higher anti-fat bias (0.48) than Black occupational/physical therapy assistants (0.37). The more the occupational/physical therapy assistant weighed, the less their anti-fat bias was expected to be, with bias estimated to decrease by 0.001 for every 1 pound they weigh. For example, controlling for all other variables, an occupational/physical therapy assistant that weighs 100 pounds is expected to have an anti-fat bias of 0.35, an occupational/physical therapy assistant that weighs 150 pounds a bias of 0.28, an occupational/physical therapy assistant that weighs 200 pounds a bias of 0.22, and so on. There was not a significant relationship between anti-fat bias and political orientation.

Regarding beliefs, controlling for all other variables, compared to occupational/physical therapy assistant who believed their weight was not at all important to their sense of self (0.48), occupational/physical therapy assistant that rated weight as very important and extremely important to their sense of self had higher anti-fat bias (implicit of 0.56 for both levels of importance) than. Occupational/physical therapy assistants who felt they had no control over their weight had less anti-fat bias (0.48) than occupational/physical therapy assistants who felt they had a little control (0.64), some control (0.62), a lot of control (0.67), and complete control (0.66). There was no significant difference in occupational/physical therapy assistants anti-fat bias depending on what occupational/physical therapy assistants thought about *other* people's locus of control over their weight, or how difficult it was for occupational/physical therapy assistants themselves to lose weight.

Discussion

The overwhelming majority (82%) of occupational/physical therapy assistants were implicitly prejudiced against fat people, with more than two-thirds of participants having moderate to strong implicit anti-fat bias. Given the significant amount of literature that exists documenting anti-fat bias among the general population and other health care professionals (Brewis et al., 2018; Carels & Musher-Eizenman, 2010; Fikkan & Rothblum, 2012; Puhl et al., 2015; Puhl & Heuer, 2009; Puhl & King, 2013; Schupp & Renner, 2011), it is not surprising that the results of this study indicate that occupational/physical therapy assistants were also predominantly biased against fat people. However, this does not mean occupational/physical therapy assistants' attitudes are any less problematic. With increasing prevalence and responsibilities of occupational/physical therapy assistants in the provision of rehabilitation services, understanding these attitudes is critical to developing and implementing bias mitigation strategies and

ultimately improving patient-centered care experiences of fat people (Landry et al., 2016; Lin et al., 2015; Strasser et al., 2008).

There were a number of factors which were associated with higher levels of anti-fat bias. For example, women had lower rates of anti-fat bias than men in this study. Additionally, male occupational/physical therapy assistants were more likely to think they had complete control over their weight than women occupational/physical therapy assistants, while women occupational/physical therapy assistants were more likely to find it more difficult to lose weight than men occupational/physical therapy assistants. Social pressures and expectations related to body image, internalized anti-fat bias, and differing approaches to empathy are possible causes for lower anti-fat bias scores in women (Elran-Barak & Bar-Anan, 2018; Jiang et al., 2017; Sattler et al., 2018; Strings, 2019). Factors of age, and race also significantly impact anti-fat bias. In regard to age, older occupational/physical therapy assistants had higher rates of bias. White occupational/physical therapy assistants also had higher rates of bias than Black occupational/physical therapy assistants. These trends are reflected in other literature demonstrating higher implicit anti-fat bias among White people than other races (Sabin et al., 2012). However, gender interaction may be a factor, since another study that examined racial/ethnic differences in anti-fat bias among women reported no significant differences between White and Black women's implicit bias (Hart et al., 2016). Because the occupational/physical therapy assistant profession is comprised by a majority of women (American Occupational Therapy Association, 2019; American Physical Therapy Association, 2020), both social pressures and body image expectations may influence therapeutic relationships toward fat clients and subsequently impact quality of care.

When occupational/physical therapy assistants expressed beliefs about not having control over their own weight, lower rates of implicit bias resulted, but they had high levels of prejudice regardless of if they thought *others* had control over their weight or not. In essence, participants appeared to have more empathy for their own relative control, and less empathy related to others' relative control. Not only do fat people deserve equal and unbiased health care regardless of if they can control their weight or not, empathy is key to creating a trusting therapeutic relationship. However, empathy levels in students and professionals vary, with some literature describing a decrease in empathy throughout professional rehabilitation education and lower rates of empathy in rehabilitation professions compared with those in social work, psychiatry, or pediatric medicine (Bayliss & Strunk, 2015; Brown et al., 2010; Starr et al., 2020). Because empathy is also lower toward fat people to begin with, this could further negatively impact rehabilitation outcomes and the occupational/physical therapy assistant-client relationship (Pories & Rose, 2017; Rincon-Subtirelu, 2017). Further, the scope of behaviors resulting from decreased empathy and implicit bias toward fat people may range from subtle microagressions, such as less frequent positive facial expressions or eye contact, to increased physical distancing to withholding treatment recommendations, making this a critical issue to face in occupational/physical therapy assistant education and professional standard-making (Rincon-Subtirelu, 2017; Teachman & Brownell, 2001). These findings also suggest that attempting to use empathy or locus of control-focused intervention strategies to improve occupational/physical therapy assistant anti-fat attitudes in rehabilitation practice could fail, since ideas and beliefs about control and bias are complex, and not applied consistently or globally.

Further, occupational/physical therapy assistants' beliefs indicate that weight is an important factor of their sense of self, which also contributed to increased anti-fat bias scores.

This individual importance may reflect social pressures, as well as the historic focus of healthcare professions on medical model approaches to weight that stigmatize fat people (Jessen-Winge et al., 2020). In addition, occupational/physical therapy assistants who weighed less had more bias, and the more that weight was important to occupational/physical therapy assistants' sense of self, the more bias they had. While there is little to no literature describing the prevalence of fat among occupational/physical therapy assistants, one study found nurses were more likely to be fat compared to other health care professionals but less likely compared to unregistered care staff (Kyle et al., 2017); however, the authors caution that race, educational attainment, education, manual occupations, and other interactions (e.g., gender) were unexplored but likely impact this relationship. Moreover, there is a focus on bodily normativity in the rehabilitation field, thus it is not surprising to find that weight plays an important role in sense of self for occupational/physical therapy assistants (Pizzi & Richards, 2017). However, it remains unclear whether anti-fat bias leads to weight becoming an important factor in self-concept of occupational/physical therapy assistants, or whether weight as a component of self-concept leads to anti-fat bias. Nonetheless, existing evidence demonstrates that appearance-related comparisons are positively related to both explicit and implicit anti-fat attitudes (O'Brien et al., 2010). Literature also demonstrates that at the individual level, people with higher Body Mass Index (BMI) tend to have less implicit anti-fat bias, whereas countries made up of a large percentage of individuals with high BMI tend to have greater aggregate rates of implicit anti-fat bias (Marini et al., 2013). It is important to recognize, however, that standard measures such as BMI have also been critiqued as a biased mode of approximating health or wellness, since these standards have been normed primarily on White men, were designed to be a population measure not an individual measure, do not reflect relative health or wellness levels irrespective of body

size, and were originally conceptualized by eugenicists, such as Adolf Quetelet, in supporting their notion of the 'ideal' human form (Evans & Colls, 2009; Guthman, 2009; Gutin, 2018; McCullough & Hardin, 2013; Warin et al., 2008). In fact, Nichols (2020) argues that the medicalization of BMI has been a result of neoliberal social processes, which have served to further undermine minoritized populations, such as women of color and of low socioeconomic status, as targets for social intervention.

The results of this study align with previous work that anti-fat bias is a pervasive issue among the general population, including occupational/physical therapy assistant rehabilitation professionals. What is less clear is how this bias may be addressed during therapy assistant educational programs and in clinical practice. Anti-fat bias can be addressed in departmental or institutional policies and procedures, such as ensuring the availability of appropriately sized equipment such as gait belts, wheelchairs, and blood pressure cuffs, or refraining from providing unsolicited advice about weight loss (Pearl, 2018). While these changes may improve health care experiences of fat people, these changes alone will not alter the prejudice and discrimination they face due to the biases of their clinicians. Some literature reports improvement in anti-fat bias following exposure to personal narratives by fat people that challenge stereotypes and those that focus on the fat rights movement and Health at Every Size (Bacon, 2010), rather than personal responsibility; additional beneficial strategies have included role playing to practice inclusive engagement, use of fat 'standardized patients' for clinical simulation, and education about anti-fat bias (Frederick et al., 2016; Pearl, 2018; Pearl & Puhl, 2016; Phelan et al., 2015). However, these strategies have been shown to largely target explicit bias without having a direct impact on implicit bias. For occupational/physical therapy assistant education, explicit discussions of language, better understanding of the historical underpinnings of the 'ideal' body, and training

on empathy, motivational interviewing, and patient-centered communication may play a role in reducing implicit bias (Dietz et al., 2014; Pearl & Puhl, 2016). Using the implicit association test as a tool to promote individual awareness of bias can be a bridge for both educators and clinical supervisors in facilitating discussion and a catalyst for critical reflection (Sukhera et al., 2019). Additionally, clinical supervisors should initiate team discussion on the existence of anti-fat bias and the impact it can have on clinical decision making to increase occupational/physical therapy assistants' awareness and understanding, as well as ensuring that clinic spaces are accessible and equipped appropriately for fat clients. Training activities for both students and licensed practitioners could also involve content or guest speakers from the Health at Every Size or Body Positivity movements (Bacon, 2010; Lazuka et al., 2020; Penney & Kirk, 2015; Wittels & Mansfield, 2021). Further research is needed to understand potential solutions and training activities that impact both explicit and implicit anti-fat bias and draw attention to its intersection with other minoritized identities, especially as it relates to therapeutic relationships between fat people and occupational/physical therapy assistants.

Limitations

When interpreting these findings, it should be noted that people volunteered to participate in the weight implicit association test and, therefore, there is a chance of selection bias. This was an analysis of secondary data; as such we could not add additional variables or ask participants additional questions. For example, the answer choices about occupation lumped occupational/physical therapy assistants together and they could not be separated. Moreover, registered occupational and physical therapists were lumped in with the category "health care – diagnosis and treating practitioners" and therefore our study is limited to therapist assistants. It should also be noted that we did not explore interactions across different variables. These

limitations are due in part to the data set available through Project Implicit, however, provide valuable information for preparing and executing more rigorous future studies related to the current work. Finally, it should be noted the analysis of correlates predicted a low level (6%) of variance.

Conclusion

Within the current health care climate, professionals in the rehabilitation fields are urgently working to meet the growing demands in rehabilitation, which includes the growth of therapy assistants performing one-on-one interventions with clients on a regular basis. Despite this trend, the anti-fat attitudes of therapy assistants have never been examined. Our findings suggest occupational/physical therapy assistants have significant anti-fat implicit biases. This is a troubling problem that very likely impacts the occupational/physical therapy assistant-client relationship. Results from this study demand that educators and health care administrators recognize the impact these attitudes can have on the therapeutic relationship as well as how they might impact the rehabilitation outcomes and quality of life of fat clients.

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Table 1
Demographics of Sample (n = 5,671)

Variable	%	n	M	SD
Age (*n* = 5,402)			26.5	8.8
Weight (lbs; *n* = 5,502)			153.4	36.8
Gender (*n* = 5,646)				
Woman	78.0%	4,403		
Man	21.8%	1,233		
Another identity	0.2%	10		
Race (*n* = 5,387)				
White	76.2%	4,106		
Asian	5.3%	287		
Latinx	5.0%	272		
Black	4.0%	214		
Native Hawaiian or other Pacific Islander	1.3%	69		
American Indian/Alaska Native	0.3%	17		
Other	1.0%	54		
Multiracial	6.8%	368		
Political orientation/identity (*n* = 5,581)				
Strongly conservative	3.1%	174		
Moderately conservative	13.0%	726		
Slightly conservative	12.1%	676		
Neutral	32.6%	1,818		
Slightly liberal	12.5%	697		
Moderately liberal	19.9%	1,113		
Strongly liberal	6.8%	377		
How important is your weight to your sense of who you are? (*n* = 4,418)				
Not at all important	4.7%	209		
Slightly important	22.8%	1,009		
Moderately important	32.2%	1,421		
Very important	30.6%	1,351		
Extremely important	9.7%	428		
How easy or difficult would it be for you to lose 5 to 10 pounds if you wanted to? (*n* = 5,133)				
Very easy	9.0%	462		
Moderately easy	17.6%	902		
Somewhat easy	24.8%	1,272		
Somewhat difficult	29.4%	1,507		
Moderately difficult	13.9%	714		
Very difficult	5.4%	276		
How much control do you have over your weight? (*n* = 5,163)				
No control	1.3%	65		
A little control	7.8%	402		
Some control	31.6%	1,631		

A lot of control	45.8%	2,364
Complete control	13.8%	711
How much control do people have over their weight? (*n* = 5,160)		
No control	1.5%	77
A little control	5.9%	302
Some control	41.6%	2,146
A lot of control	44.7%	2,307
Complete control	6.4%	328

Table 2

Correlates of Anti-Fat Biases of Occupational/Physical Therapy Assistants

Variable	*B (95% CI)*	*SE*	*β*	*t*
Constant	0.48 (0.28 - 0.68)	0.10		4.68***
Age	0.003 (0.002 - 0.005)	0.001	0.07	3.88***
Gender (ref: man)				
Woman	-0.06 (-0.09 - -0.02)	0.02	-0.06	-3.09**
Another identity	-0.09 (-0.35 - 0.17)	0.13	-0.01	-0.67
Race (ref: White)				
Asian	-0.05 (-0.11 - 0.003)	0.03	-0.03	-1.86
Latinx	0.01 (-0.05 - 0.06)	0.03	0.01	0.30
Black	-0.11 (-0.18 - -0.04)	0.04	-0.05	-3.13**
Native Hawaiian or other Pacific Islander	0.001 (-0.11 - 0.12)	0.06	0.0004	0.03
American Indian/Alaska Native	0.05 (-0.24 - 0.34)	0.15	0.01	0.33
Other	-0.05 (-0.20 - 0.10)	0.08	-0.01	-0.69
Multiracial	-0.02 (-0.07 - 0.03)	0.03	-0.01	-0.77
Weight (lbs)	-0.001 (-0.002 - -0.001)	0.0002	-0.10	-5.30***
Political orientation (ref: strongly conservative)				
Moderately conservative	0.02 (-0.06 - 0.10)	0.04	0.02	0.56
slightly conservative	-0.05 (-0.13 - 0.03)	0.04	-0.05	-1.32
neutral	-0.01 (-0.08 - 0.07)	0.04	-0.01	-0.21
slightly liberal	0.00001 (-0.08 - 0.08)	0.04	0.00	0.00
moderately liberal	-0.06 (-0.13 - 0.02)	0.04	-0.06	-1.42
strongly liberal	-0.07 (-0.15 - 0.02)	0.04	-0.04	-1.47
How important is your weight to your sense of who you are? (ref: not at all important)				
Slightly important	0.003 (-0.06 - 0.07)	0.03	0.003	0.09
Moderately important	0.04 (-0.02 - 0.10)	0.03	0.05	1.21
Very important	0.08 (0.02 - 0.14)	0.03	0.09	2.45*
Extremely important	0.09 (0.01 - 0.16)	0.04	0.06	2.33*
How easy or difficult would it be for you to lose 5 to 10 pounds if you wanted to? (ref: very difficult)				
Moderately difficult	-0.01 (-0.06 - 0.05)	0.03	-0.01	-0.34
Somewhat difficult	0.02 (-0.04 - 0.07)	0.03	0.02	0.56
Somewhat easy	-0.005 (-0.06 - 0.05)	0.03	-0.01	-0.17
Moderately easy	-0.01 (-0.07 - 0.05)	0.03	-0.01	-0.43
Very easy	-0.01 (-0.08 - 0.07)	0.04	-0.005	-0.22
How much control do you have over your weight? (ref: no control)				
A little control	0.16 (0.03 - 0.30)	0.07	0.11	2.34*
Some control	0.14 (0.01 - 0.27)	0.07	0.17	2.12*
A lot of control	0.20 (0.06 - 0.33)	0.07	0.25	2.93**
Complete control	0.18 (0.05 - 0.31)	0.07	0.15	2.63**
How much control do people have over their weight? (ref: no control)				

A little control	-0.06 (-0.18 - 0.06)	0.06	-0.04	-1.00
Some control	-0.05 (-0.16 - 0.05)	0.05	-0.07	-0.97
A lot of control	0.02 (-0.09 - 0.12)	0.05	0.02	0.32
Complete control	0.08 (-0.03 - 0.20)	0.06	0.05	1.39

Note. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$. β = standardized beta.

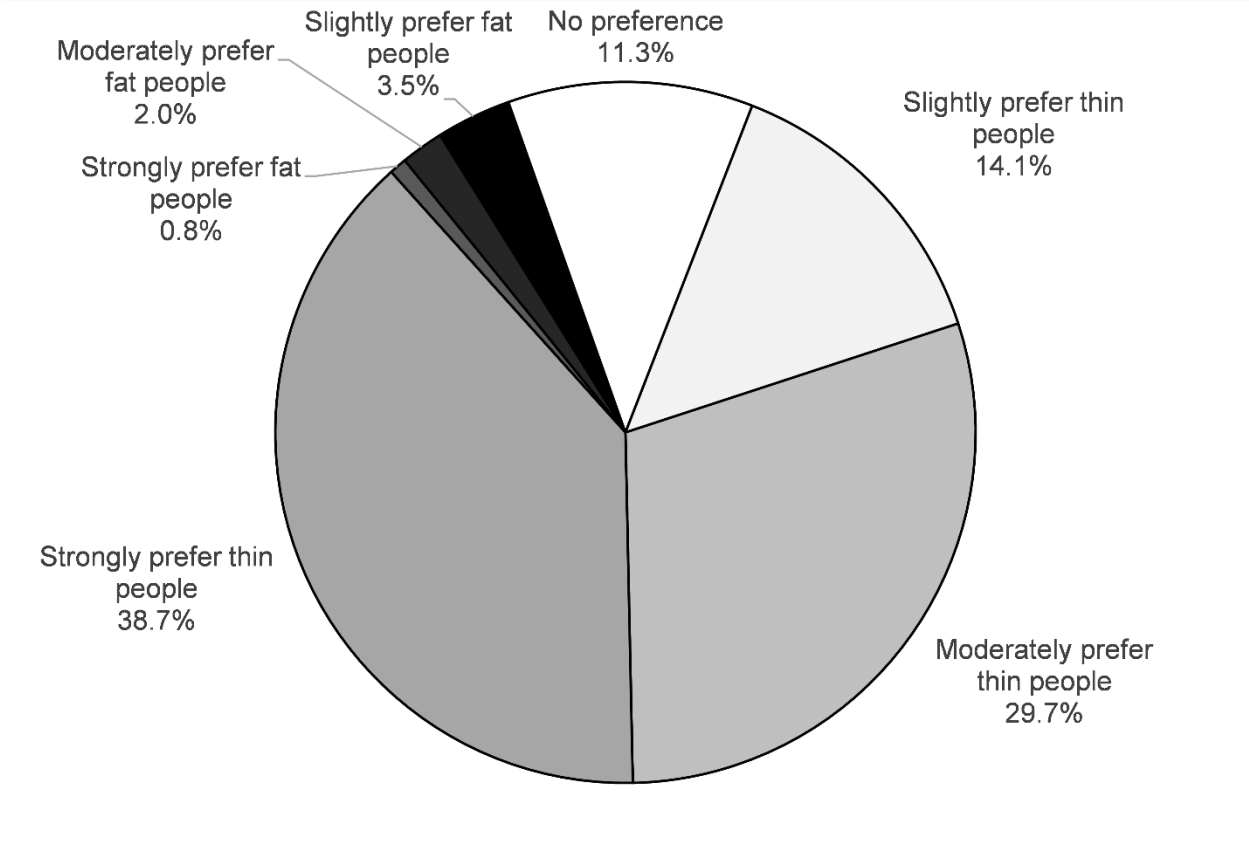

Figure 1. Implicit attitudes of occupational/physical therapy assistants