

COMMENTARY

The science of weight controllability: Implications and future directions for weight at work research

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In their article “Best Practices for Weight at Work Research,” Lemmon et al. (2024) assert the need for more research on the perpetuation and consequences of weight-based stigma and discrimination in workplace settings. In general, they successfully assert the need for industrial and organizational (I-O) psychologists to examine people’s interpersonal experiences of weight stigma at work and identify several useful practices for researchers starting out in this space. They review some of the theoretical underpinnings of weight bias, with a particular focus on two beliefs that are used to justify negative weight-related attitudes: (a) the belief that body weight is controllable and (b) the belief that people with larger bodies deserve weight-based mistreatment. Although the implications of these beliefs are discussed thoroughly, the authors do not make strong claims about whether body weight is controllable. They note that “controllability of weight is a complicated subject” (p. 7), suggest that there is evidence on both sides, and note that because most people believe that body weight is controllable, it is of interest to researchers studying weight at work, regardless of whether it actually is controllable.

To some, unpacking the evidence about weight controllability might seem out of scope for the intended audience; however, we argue that understanding the science behind weight loss can help to counter harmful stereotypes about people with higher weight and to dismantle practices that perpetuate stigma in the workplace. In this commentary, we give a brief overview of the empirical evidence on the efficacy of traditional behavioral approaches to weight loss (e.g., calorie restriction), summarize the literature on the physiological and psychological mechanisms that prevent sustained weight loss, and explain how these findings can be leveraged to challenge weight stigma and discrimination in workplaces. In particular, we draw attention to the issue of weight stigma in workplace wellness interventions, which is an underresearched issue that I-O psychologists are well-positioned to explore.

Is body weight controllable?

Although much remains to be learned about the determinants of human weight, one thing has been clearly, repeatedly, and undisputedly demonstrated in randomized controlled trials of diets: people can lose weight in the short term on practically any diet plan that limits their calorie intake, but most of the weight is regained over time for most individuals (for reviews, see Avenell et al., 2004; Dombrowski et al., 2014; Mann et al., 2007). One review, for example, found that across 21 studies, within 2 to 5 years of beginning the diet, participants had regained all but an average of 2.1 pounds (Tomiyama et al., 2013).

Critics sometimes argue that even maintaining one pound of weight loss is worthwhile, reasoning that if these individuals had not dieted, they would have gained significant weight in

that same time period. This assumption, however, is flatly refuted by the scientific evidence: in those same randomized trials, people in the non-dieting control groups gained, on average, just 1.2 pounds over the same follow-up period, not a significant or consequential weight gain (Tomiyama et al., 2013). Based on these systematic reviews and meta-analyses, it is reasonable to assert that body weight is not “controllable,” at least in the sense that losing a considerable amount of weight and keeping it off in the long term is the rare exception to the typical pattern of weight regain on diets.

Why weight loss is difficult to maintain

The reason sustained weight loss is so unlikely is that calorie deprivation causes multiple bodily adaptations designed to maintain homeostasis and prevent starvation, effectively working against a dieter’s efforts to limit calorie intake. For instance, calorie deprivation leads to metabolic changes that allow the body to survive on fewer calories than before, so consuming the same amount of calories that once led to weight loss will eventually stop doing so (Leibel et al., 1995), and at least one study has found that these metabolic changes remain for up to 6 years after ending the diet (Fothergill et al., 2016). Calorie deprivation also causes changes in hormone levels that lead to increased hunger and decreased fullness (see Maclean et al., 2011 for a review of hormone changes and other adaptations to calorie deprivation). In addition, it has been known at least since the 1940s that calorie deprivation leads individuals to develop an intense preoccupation with thoughts of food (Keys et al., 1950), and more recent evidence has linked it to biased attention to food cues (Stice et al., 2013).

Together, these changes—caused by calorie deprivation—make it very difficult to continue dieting and likely explain why most people are unable to continue restricting their calorie intake in the long term. Importantly, it is not the case that dieters get lazy and “fall off the wagon,” or that their willpower or self-control fails them, and indeed, according to a comprehensive meta-analysis of over 140 studies, measures of self-control only have a tiny correlation with weight ($r = .07$; Emery & Levine, 2017). Instead, failures to maintain lost weight are attributable to the body’s response to weight loss, which is to adapt in ways that promote weight regain.

Common misconceptions about weight loss and controllability

One common misconception about the controllability of weight is that findings like those reviewed above are disconfirmed by the existence of people who do manage to maintain weight loss for several years. Most people can think of a family member, friend, or acquaintance who has successfully lost a large amount of weight and kept it off. However, this line of reasoning ignores the base rate of people who attempt weight loss each year—an estimated 66.7% of adults with higher weight in the U.S (Martin et al., 2018). The existence of a very small percentage of dieters who successfully “control” their weight and avoid weight regain merely shows that it is not impossible to keep weight off in the long term, but that it is highly unlikely, and people who successfully do so are in the very small minority.

Sometimes people also push back against this evidence by arguing that even if dieting is unsuccessful, engaging in physical activity can help people lose weight and keep it off. However, evidence from systematic reviews and meta-analyses of exercise interventions indicate that this is not necessarily the case (Bellicha et al., 2021). Although exercise reliably improves people’s health outcomes (Warburton & Bredin, 2017), it is unlikely to result in clinically significant weight loss (i.e., $\geq 5\%$ of baseline body weight), and it does not promote long-term weight loss maintenance (Johansson et al., 2014; Swift et al., 2014). People can lose a modest amount of weight when engaging in a regular program of physical activity ($\sim 3.3\text{--}7.7$ pounds, on average), however,

weight losses resulting from exercise are no better maintained than those resulting from calorie-restrictive dieting (Bellicha et al., 2021; Curioni & Lourenço, 2005).

Controllability narratives and the perpetuation of weight stigma at work

Despite decades of clear evidence that sustained weight loss is unattainable for the majority of people, common narratives surrounding the controllability of weight contribute to negative stereotypes about people who are presumed not to control it (i.e., those with higher weight). Thus, the belief that weight is controllable is harmful, not only because it is scientifically inaccurate, but also, and more importantly, because it is used to justify and further the oppression of people with larger bodies. To eradicate weight stigma, it is important to push back against these controllability narratives and to challenge society's constant pursuit of thinness.

One way that I-O psychologists could make meaningful progress in this space is by leveraging the evidence about weight controllability to dismantle existing practices that perpetuate weight stigma in the workplace. A clear example of this type of practice is workplace wellness programs, which are employer-based initiatives that encourage employees to engage in health promotion behaviors (e.g., being physically active) or disease prevention behaviors (e.g., getting flu shots, quitting smoking). Workplace wellness programs are common at major employers in the United States, and they are generally intended to lower a company's healthcare costs (Mattke et al., 2013). Such programs have been around for decades, and there are many different types but a major focus of many workplace wellness programs is weight loss, which is problematic for several reasons (Lewis et al., 2015). Indeed, Lemmon et al., mention the potential harm of these programs in their article (pg. 15), but we believe it is worthy of further discussion, as these programs are predicated on the belief that long-term weight loss is attainable.

Many workplace wellness programs aim to help workers lose weight by sharing diet plans or weight loss tips, conducting employee "weigh-ins," encouraging employees to participate in fitness challenges, or providing financial incentives for losing weight (Horwitz et al., 2017; Lewis et al., 2015). Not only do these programs expend resources on intervention strategies that are known to be ineffective for weight loss, they also perpetuate the false narrative that weight is under personal control, thereby increasing weight stigma (Täuber et al., 2018). In addition, they may contribute to workplace cultures that are hostile to individuals with higher weight by emphasizing that having a larger body is undesirable and creating environments in which employees feel comfortable commenting on each other's dieting and weight loss efforts. The pressure that weight-focused workplace wellness programs put on employees may even lead people to engage in unhealthy or disordered weight control behaviors (e.g., skipping meals, using laxatives, bingeing, purging). Finally, financial incentives (e.g., discounts on health insurance premiums) offered for losing weight or maintaining a certain body mass index are transparently discriminatory. Such practices serve to penalize people who fail to control their weight, which is neither equitable nor scientifically supported.

Thus, the literature on weight controllability predicts that workplace wellness programs would be likely to increase weight stigma, and anecdotal accounts support this; however, there is very little empirical research that specifically examines weight stigma in this context. We identified one study that found that workplace wellness programs increased people's views that weight is controllable and increased weight stigma and weight-based discrimination in the workplace (Täuber et al., 2018), but more research is needed on the stigma-related consequences of these programs. One fairly straightforward solution would be to reduce weight stigma by removing the focus on weight loss from workplace wellness programs entirely. Instead, programs could focus on improving health through more sustainable behavior changes, such as consuming fruits, vegetables, and whole grains; maintaining regular physical activity; and improving stress reduction and sleep habits. Making positive changes in these areas can benefit health even though

they are unlikely to result in long-term weight loss, and removing weight loss content from these interventions may also lessen the mental and physical toll that weight stigma takes on people's health and well-being (Hunger et al., 2020). Moreover, evidence suggests that exposure to weight stigma can undermine people's motivation and efforts to engage in healthy behaviors (e.g., healthy eating and physical activity; Major et al., 2014; Vartanian et al., 2018), so removing weight-related content from workplace wellness programs may also make the programs more effective for promoting healthy behavior. Weight-neutral, behavior-focused programs like these could reduce weight stigma in the workplace and improve the health of all employees, regardless of their weight or body size, which will ultimately benefit the employer's bottom line as well as the employees who work there.

Best practices for challenging weight controllability narratives

Based on the state of the science of weight controllability, we have two recommendations for researchers who aim to push back against weight controllability narratives and the stigma they perpetuate. First, we feel it is important for researchers to keep in mind that stigmatizing people for their weight is wrong not only because it is "incorrect" or "ineffective" (i.e., due to the lack of control people have over their weight), but also because it is a damaging expression of prejudice. Weight-based discrimination is a complex social justice issue, not simply an issue of misunderstanding the controllability of weight. Nonetheless, the evidence for the lack of controllability of weight may be leveraged to reduce engagement in workplace practices that perpetuate stigma. We recommend that when researchers use this evidence to push back against controllability narratives or to challenge stigmatizing workplace practices, they describe the research findings carefully and precisely (e.g., making it clear that sustained weight loss is not *impossible* but is highly unlikely for the vast majority of people). This may help to decrease the likelihood of being discounted or met with defensiveness by others, who may either know people who have lost weight or be hopeful that they will be able to lose weight in the future.

By making use of the knowledge that weight loss is not controllable in the long term for most people, I-O psychologists can effectively argue against the promotion of weight loss in workplace settings. This knowledge may also be useful in other types of weight-bias reduction efforts, such as in designing interventions that challenge the harmful stereotypes that people hold against individuals with higher weight. Because weight stigma is so deeply rooted in beliefs about weight controllability and the related deservedness of weight-based mistreatment, we believe that it is crucial for researchers studying weight at work to have a firm understanding of the flawed premise of weight controllability narratives.

References

- Avenell, A., Broom, J., Brown, T. J., Poobalan, A., Aucott, L., Stearns, S. C., Smith, W. C. S., Jung, R. T., Campbell, M. K., & Grant, A. M. (2004). Systematic review of the long-term effects and economic consequences of treatments for obesity and implications for health improvement. *Health Technology Assessment*, 8(21), 1–182. <https://doi.org/10.3310/HTA8210>.
- Bellicha, A., van Baak, M. A., Battista, F., Beaulieu, K., Blundell, J. E., Busetto, L., Carraça, E. V., Dicker, D., Encantado, J., Ermolao, A., Farpour-Lambert, N., Pramono, A., Woodward, E., & Oppert, J. M. (2021). Effect of exercise training on weight loss, body composition changes, and weight maintenance in adults with overweight or obesity: An overview of 12 systematic reviews and 149 studies. *Obesity Reviews*, 22(S4), e13256. <https://doi.org/10.1111/obr.13256>.
- Curioni, C., & Lourenço, P. (2005). Long-term weight loss after diet and exercise: a systematic review. *International Journal of Obesity*, 29, 1168–1174.
- Dombrowski, S. U., Knittle, K., Avenell, A., Araújo-Soares, V., & Sniechotta, F. F. (2014). Long term maintenance of weight loss with non-surgical interventions in obese adults: Systematic review and meta-analyses of randomised controlled trials. *BMJ*, 348, g2646. <https://doi.org/10.1136/bmj.g2646>.

- Emery, R. L., & Levine, M. D.** (2017). Questionnaire and behavioral task measures of impulsivity are differentially associated with body mass index: A comprehensive meta-analysis. *Psychological Bulletin*, *143*(8), 868–902. <https://doi.org/10.1037/BUL0000105>.
- Fothergill, E., Guo, J., Howard, L., Kerns, J. C., Knuth, N. D., Brychta, R., Chen, K. Y., Skarulis, M. C., Walter, M., Walter, P. J., & Hall, K. D.** (2016). Persistent metabolic adaptation 6 years after, The Biggest Loser, competition. *Obesity*, *24*(8), 1612–1619. <https://doi.org/10.1002/OBY.21538>.
- Horwitz, J. R., Kelly, B. D., & DiNardo, J. E.** (2017). Wellness incentives in the workplace: Cost savings through cost shifting to unhealthy workers. *Health Affairs*, *32*(3), 468–476. <https://doi.org/10.1377/HLTHAFF.2012.0683>.
- Hunger, J. M., Smith, J. P., & Tomiyama, A. J.** (2020). An evidence-based rationale for adopting weight-inclusive health policy. *Social Issues and Policy Review*, *14*(1), 73–107. <https://doi.org/10.1111/SIPR.12062>.
- Johansson, K., Neovius, M., & Hemmingsson, E.** (2014). Effects of anti-obesity drugs, diet, and exercise on weight-loss maintenance after a very-low-calorie diet or low-calorie diet: A systematic review and meta-analysis of randomized controlled trials. *American Journal of Clinical Nutrition*, *99*(1), 14. <https://doi.org/10.3945/AJCN.113.070052>.
- Keys, A., Brožek, J., Henschel, A., Mickelsen, O., & Taylor, H. L.** (1950). *The biology of human starvation*. University of Minnesota Press.
- Leibel, R. L., Rosenbaum, M., & Hirsch, J.** (1995). Changes in energy expenditure resulting from altered body weight. *New England Journal of Medicine*, *332*(10), 621–628. <https://doi.org/10.1056/NEJM199503093321001>.
- Lehmann, G., Jensen, J. M., & Kuljanin, G.** (2024). Best practices for weight at work research. *Industrial and Organizational Psychology*, *17*(1), 85–105. <https://doi.org/10.1017/IOP.2023.50>.
- Lewis, A., Khanna, V., & Montrose, S.** (2015). Employers should disband employee weight control programs. *American Journal of Managed Care*, *21*(2), e91–e94.
- Maclean, P. S., Bergouignan, A., Cornier, M.-A., & Jackman, M. R.** (2011). Biology's response to dieting: The impetus for weight regain. *American Journal of Physiology Regulatory, Integrative, and Comparative Physiology*, *301*(3), R581–600. <https://doi.org/10.1152/ajpregu.00755.2010>.
- Major, B., Hunger, J. M., Bunyan, D. P., & Miller, C. T.** (2014). The ironic effects of weight stigma. *Journal of Experimental Social Psychology*, *51*, 74–80. <https://doi.org/10.1016/j.jesp.2013.11.009>.
- Mann, T., Tomiyama, A. J., Westling, E., Lew, A.-M., Samuels, B., & Chatman, J.** (2007). Medicare's search for effective obesity treatments: diets are not the answer. *American Psychologist*, *62*(3), 220–233. <https://doi.org/10.1037/0003-066X.62.3.220>.
- Martin, C. B., Herrick, K. A., Sarafrazi, N., & Ogden, C. L.** (2018). *Attempts to lose weight among adults in the United States, 2013–2016*. National Center for Health Statistics.
- Mattke, S., Schnyer, C., & Busum, K. R. Van** (2013). A review of the U.S. workplace wellness market. *Rand Health Quarterly*, *2*(4), 7.
- Stice, E., Burger, K., & Yokum, S.** (2013). Caloric deprivation increases responsivity of attention and reward brain regions to intake, anticipated intake, and images of palatable foods. *NeuroImage*, *67*, 322–330. <https://doi.org/10.1016/j.neuroimage.2012.11.028>.
- Swift, D. L., Johannsen, N. M., Lavie, C. J., Earnest, C. P., & Church, T. S.** (2014). The role of exercise and physical activity in weight loss and maintenance. *Progress in Cardiovascular Diseases*, *56*(4), 441. <https://doi.org/10.1016/J.PCAD.2013.09.012>.
- Täuber, S., Mulder, L. B., & Flint, S. W.** (2018). The impact of workplace health promotion programs emphasizing individual responsibility on weight stigma and discrimination. *Frontiers in Psychology*, *9*, 414476. <https://doi.org/10.3389/FPSYG.2018.02206/BIBTEX>.
- Tomiyama, A. J., Ahlstrom, B., & Mann, T.** (2013). Long-term effects of dieting: Is weight loss related to health? *Social and Personality Psychology Compass*, *7*(12), 861–877. <https://doi.org/10.1111/spc3.12076>.
- Vartanian, L. R., Pinkus, R. T., & Smyth, J. M.** (2018). Experiences of weight stigma in everyday life: Implications for health motivation. *Stigma and Health*, *3*(2), 85–92. <https://doi.org/10.1037/sah0000077>.
- Warburton, D. E. R., & Bredin, S. S. D.** (2017). Health benefits of physical activity: a systematic review of current systematic reviews. *Current Opinion in Cardiology*, *32*(5), 541–556. <https://doi.org/10.1097/HCO.0000000000000437>.