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## The vital links between obesity and psychopathology: the impact of stigma

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### *Primary Prevention Insights*

This is an invited article from the editorial team. The article presents a concise review of previous research examining the topic of obesity and psychopathology and how this holds important implications for practitioners, academics and policy makers.

The vital link between obesity and psychopathology: the impact of stigma to Primary Prevention Insights

**Insert abstract here: <150 words**

The increasing prevalence of obesity across the world is well documented as is the rise in psychopathological conditions. The association between obesity and psychopathology holds important implications for practitioners, academics and policy makers. Of interest is the influence of weight stigma in the development of psychopathological conditions. Thus, this article explores the link between psychopathology and obesity, in particular, the role of weight stigma in the development of psychopathology. This review also highlights the implications for assessment, treatment and research.

Keywords: Obesity; Psychopathology; Depression; Mood State; Stigma

Concise Review

## **Introduction**

Obesity is considered a major health concern for many countries across the world. Evidence has accumulated demonstrating it is multifaceted in its development and impact. The complexity of obesity is conceptualised within the Foresight Report<sup>1</sup> which recognises the interplay between an array of factors including biology, activity environment, physical activity, societal influences, food environment and food consumption of which psychopathology is entwined throughout. Indeed, there are over 100 direct and indirect variables that have been reported to influence obesity.

Obese people who have psychopathological concerns are at an increased risk of associated morbidity and premature mortality.<sup>2,3</sup> Research demonstrating the link between obesity and psychopathology have increased, where for example, a higher ratio of psychopathology has been reported in obese people compared to non-obese people.<sup>4,5</sup> Evidence suggests that obesity increases the risk of sub-clinical and clinical psychopathology.<sup>5-9</sup> This association and therefore the potential for healthcare professionals, researchers and policy makers in this area to work with obese patients who have a psychopathological condition is high and is increasing as both the prevalence of obesity and psychopathology concomitantly rise.

In recent years, weight stigma and discrimination has been highlighted as a factor influencing the relationship between obesity and psychopathology. Given the extent of weight stigma reported in previous literature,<sup>10,11</sup> it is likely to increase the prevalence of obese people with a psychopathological concern and thus, needs to be considered in future assessment, treatment and research.

## **Stigma**

A plethora of research has independently highlighted that both weight and mental health are stigmatised,<sup>2,10</sup> and that experiences of stigma occur in a variety of settings.<sup>12-14</sup> The importance of stigma and associated discrimination cannot be overestimated given reports that weight and mental health stigma may lead to poorer body image, low self-esteem, marginalisation leading to social exclusion, reduced quality of life, substance abuse, and in some cases, self-harming and suicide.<sup>2,15-17</sup> For instance, Puhl and Luedicke<sup>18</sup> reported that weight-based victimisation in boys predicted negative affect when teasing experiences occurred in the classroom or other private locations such as

the school campus. They reported that both boys and girls who reported negative affect due to weight-based victimisation were more likely to use avoidance coping strategies such as skipping gym class, as well as increased food consumption and binge eating. Puhl and Luedicke<sup>18</sup> also reported that boys were less likely than girls to respond to weight-based victimisation by engaging in healthy behaviours. There were some gender differences based on the setting where weight-based victimisation occurred. For example, there was a greater likelihood of increased food consumption and binge eating in boys who experienced weight-based victimisation in intimate settings such as the locker rooms or bathrooms. It was also reported that girls experienced a negative emotional response when weight-based victimisation occurred in the classroom and gym class.

Whilst research has demonstrated that there is a bidirectional relationship between obesity and psychopathology,<sup>19</sup> recently, weight stigma has been reported as an influential factor in the development of psychopathological concerns. For instance, when stigma is internalised, this can lead to stress and lowered self-worth. Moreover, when exposed to repeated experiences of weight stigma, this can become a chronic stressor leading to the development of psychopathological conditions.<sup>18,20</sup> Weight stigma refers to the “social devaluation and denigration of people perceived to carry excess weight and leads to prejudice, negative stereotyping and discrimination toward those people”.<sup>21</sup> Schafer and Kenneth<sup>9</sup> suggested that the link between obesity and psychopathology is due to perceived weight status and the associated internalisation of weight stigma, rather than actual weight status. Pickering et al.<sup>22</sup> reported associations between overweight and/or obese weight status and the development of severe mental health concerns including panic disorder, specific phobia, generalised anxiety disorder, and social phobia.

### **Obesity and Mood**

Much research has highlighted clinical depression and depressive symptoms in obese children and adults of which many have cited the potential links to poor body image, anxiety, substance abuse and self-harming.<sup>23</sup> Often cited as the primary determinants of obesity; eating behaviour and physical inactivity have been associated with depression and mood state. Research has reported a bidirectional relationship between weight and mood, and associative research has demonstrated that mood state impacts food choice

and consumption. This was reflected in the DSM-IV which identifies overweight with weight gain and undereating with weight loss as diagnostic criteria for depression.<sup>24</sup> However, more recently, obesity has been removed from the DSM-V, which is suggested to be due to the incomplete understanding of the aetiology of obesity.<sup>25</sup> Thus, continued work to establish the impact of mental health phenotypes on the development of obesity is warranted.

The importance of early experiences cannot be overstated in the development of psychopathology in later life. Research has highlighted that early experiences increase the likelihood of developing depression later in life. For instance, Harris<sup>26</sup> noted that there was an increasing amount of literature that associates adversities in early childhood with long-term development of depression. Likewise, and more recently, research has reported weight discrimination among children as early as 3 years of age,<sup>27</sup> and body dissatisfaction in children as young as 6 years old.<sup>28</sup>

In the instance of successful weight loss, it should be noted that the enduring effects on wellbeing, the likely self-stigmatisation due to internalisation of weight stigma, previous stigmatising experiences, and associated psychopathology can remain and is likely to continue to have an impact on an individual. For example, Levy and Pilver<sup>29</sup> found that formerly overweight adult men and women continued to be at risk of any anxiety disorder, any depressive disorder and suicide attempts even after weight loss.

Whilst the mechanisms that explain the development of anxiety and depression due to stigma are still to be identified,<sup>27</sup> perceptions of the controllability of obesity may elucidate the underlying aspects of this process. The relationship between beliefs about the controllability of obesity and weight stigma have been reported,<sup>10</sup> and when these beliefs are internalised leading to self-stigmatisation, this is likely to have a psychological impact. It is also likely that when individuals internalise societal attitudes, they may blame themselves for weight stigma experiences rather than other people's unfair treatment.<sup>12</sup> By absorbing this perceived mistreatment into their own self-concept, individuals may experience weight-based identity threat.<sup>9,30,31</sup> This situational threat can be triggered by environmental cues, and stems from a person's belief that others see them as belonging to the social category "overweight". As this category is

attached to negative stereotypes and devaluation, experiences of social identity threat may result in increased anxiety and physiological stress reactivity.<sup>30</sup>

### **Obesity and Stress**

There is also a bidirectional relationship between depression and stress, both of which may influence obesity. For instance, individuals who are depressed are likely to experience increased stress leading to weight gain. Stress is known to influence engagement in lifestyle behaviours including healthiness of food and drink consumption and physical activity level. Similarly, stress can lead to depression resulting from major life events such as job loss, divorce and bereavement. It has also been reported that weight stigma and discrimination can contribute to the development of obesity, for example, weight discrimination has been associated with a 2.5-fold increased risk of becoming obese within 4 years.<sup>32</sup>

Physiologically, stress leading to the action of the hypothalamic pituitary adrenal (HPA) axis, may lead to the development of obesity and depression.<sup>23</sup> Elevated levels of cortisol indicating activation of the HPA axis has been reported in obese people, as well as associations between depression and abdominal body fatness.<sup>33,34</sup> For example, Tomiyama and Colleagues<sup>34</sup> reported that weight discrimination was associated with increased risk of obesity, and a significant relationship between weight stigma and markers of activation of the HPA axis and oxidative stress. They reported that weight stigma frequency was positively related to morning cortisol indices, and that consciousness of weight stigma was positively related to oxidative stress and morning cortisol levels.

When individuals are concerned about being devalued, for example because of their weight, cardiovascular stress responses increase as well as the activation of negative emotions related to stress.<sup>35</sup> Increased stress undermines physical health, for example, by activating the cardiovascular, metabolic and immune systems. It also affects executive resources such as decreases in working memory and poor performances on tasks that require executive control.<sup>30</sup> Additionally, situational cues that make concerns about weight stigma salient can lead to the disruption of the self-regulatory processes important for self-control.<sup>35</sup> Thus, individuals often respond to weight-based victimisation in ways that may be harmful to their emotional and physical health.<sup>18</sup>

### **Perceived weight discrimination**

It is important to note that perceived weight discrimination has also been linked to the negative outcomes identified above.<sup>36</sup> For example, Schaffer and Kenneth<sup>9</sup> found that Class I obese adults (BMI 30-34.9 kg.m<sup>2</sup>) who perceived discrimination fared worse than severely obese adults (BMI 35+ kg.m<sup>2</sup>) who did not perceive discrimination. These findings elucidate two important issues: (a) That social processes of perceived weight discrimination, and not just weight alone, are responsible for the deleterious effects of obesity on mental health and emotional distress;<sup>36</sup> and (b) that the internalisation of perceived discrimination also occurs and impacts the mental health of individuals who are not objectively overweight or obese.<sup>9,11,30</sup>

### **Exercise and healthy consumption as medicine**

The links discussed in this article highlight not only the likely development of obesity with psychopathology, but also the associative treatment that can be beneficial for people presenting with both health concerns. Whilst there is an array of treatments suggested for obesity and psychopathology independently that vary in terms of their invasiveness (e.g., surgery, pharmacological interventions), there is now a strong foundation to promote exercise and healthy food and drink consumption as medicine with previous evidence highlighting the benefits of engaging in healthy behaviours. Consequently, there are calls for physicians to promote and where appropriate prescribe exercise to patients to treat physical and mental health concerns.

Research examining the use of exercise and healthy food and drink consumption as medicine is ongoing. The importance of identifying the benefits on obesity and psychopathology given their prevalence and impact globally cannot be overestimated. What has become abundantly evident is the need for holistic interventions that consider a wide range of factors across a range of disciplines. For instance, the delivery of interventions needs to be considered given that stigma has the potential to reduce the effectiveness of interventions at all levels. The importance of supportive healthcare delivery with obese patients has been highlighted very recently, particularly with respects to motivation and adherence to primary care interventions.<sup>37</sup>

### **Conclusion**



There is a vital link between obesity and psychopathology that should be considered in the assessment, treatment and prevention of obesity. The complexity of obesity means that interventions that are discipline specific are redundant and are unlikely to lead to long term weight loss. Instead, a whole systems approach that is holistic in nature and considers the factors identified as contributing to obesity may lead to improved effectiveness. As indicated in this article and although this is only a snapshot of the link between obesity and psychopathology, this association is clearly a key factor relating to weight status that requires consideration and should be reflected within weight loss interventions. Finally, as highlighted in the article, there is increasing evidence to suggest that stigma is a key element in the development of psychopathology and that delivering non-stigmatising, supportive healthcare is of paramount importance.

## References

1. Vandenbroeck, P., Goossen, J., & Clemens, M. (2007). *Foresight. Tackling obesities: future choices – building the obesity systems map*. London: Government Office for Science.
2. Corrigan PW, Mittal D, Reaves CM, Haynes TF, Han X, Morris S, Sullivan G. Mental health stigma and primary health care decisions. *Psychiatry Res*. 2014;218:35-38.
3. World Health Organisation (2016). Obesity and overweight. <http://www.who.int/mediacentre/factsheets/fs311/en/> [last accessed 29 October 2016].
4. Erermis S, Cetin N, Tamar M, Bukusoglu N, Akdeniz F, Goksen D. Is obesity a risk factor for psychopathology among adolescents? *Pediatr Int*.2004;46:296-301.
5. Kasen S, Cohen P, Chen H, Must A. Obesity and psychopathology in women: a three decade prospective study. *Int J Obesity*.2007;32:558-566.
6. Heo M, Pietrobelli A, Fontaine KR, Sirey JA, Faith MS. Depressive mood and obesity in US adults: comparison and moderation by sex, age, and race. *Int J Obes*.2006;30:513–519.
7. Roberts RE, Duong HT. Perceived weight, not obesity, increases risk for major depression among adolescents. *J Psychiatr Res*.2013;47:1110-1117.
8. Simon GE, Von Korff M, Saunders K, Miglioretti DL, Crane PK, van Belle G et al. Association between obesity and psychiatric disorders in the US adult population. *Arch Gen Psychiatry*.2006;63:824–830.
9. Schafer MH, Kenneth FF. The stigma of obesity: Does perceived weight discrimination affect identity and physical health? *Soc Psychol Q*.2011;74(1):76-97.
10. Flint, S. W., Hudson, J., & Lavalley, D. (2015). UK adults' implicit and explicit attitudes towards obesity. *BMC Obesity*.2015;2:31.
11. Puhl RM, Heuer CA. The stigma of obesity: A review and update. *Obesity*.2009;17:941–964.
12. Clement S, Schauman O, Graham T, Maggioni F, Evans-Lacko S, Bezborodovs N, Morgan C, Rüsch N, Brown JSL, Thornicroft G. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med*.2015;45:11-27.

13. Flint SW, Čadek M, Codreanu SC, Ivić V, Zomer C, Gomoiu A. Obesity discrimination in employment recruitment: 'You're not Hired!' *Front Psychol.*2016;7:647.
14. Flint SW, Reale S. Weight stigma in frequent exercisers: overt, demeaning and condescending. *J Health Psychol.*2016;Online First.
15. Lozano L, McKenna J, Careless D, Pringle AR, Sparkes A. 'Sorry mate, you're probably a bit fat to be able to do any of this': Men's experiences of weight stigma and its implications. *Int J Mens Health.*2016;15:Online First.
16. Puhl RM, Brownell KD. Confronting and coping with weight stigma: An investigation of overweight and obese adults. *Obesity.*2006;14:1802–1815.
17. Vartanian LR, Novak SA. Internalized societal attitudes moderate the impact of weight stigma on avoidance of exercise. *Obesity.*2011;19(4):757–762.
18. Collins J, Meng C, Eng A. Psychological impact of severe obesity. *Curr Obes Rep.*2016; Online First.
19. Puhl RM, Luedicke J. Weight-based victimization among adolescents in the school setting: Emotional reactions and coping behaviors. *J Youth Adolesc.*2012;41(1):27-40.
20. Schafer MH, Ferraro KF. "The Stigma of Obesity: Does Perceived Weight Discrimination Affect Identity and Physical Health?" *Soc Psychol Q.*2011;74(1):76–97.
21. Tomiyama JA. Weight stigma is stressful. A review of evidence for the Cyclic Obesity/Weight-Based Stigma Model. *Appetite.*2014;82:8-15.
22. Pickering RP, Goldstein RB, Hasin DS. Temporal relationships between overweight and obesity and DSM-IV substance use, mood, and anxiety disorders: results from a prospective study, the National epidemiologic surgery on alcohol and related conditions. *J Clin Psychiatry.*2011;72(11):414-421.
23. Stunkard AJ, Faith MS, Allison KC. Depression and obesity. *Biol Psychol.*2003;54: 330-337.
24. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision.* Washington, DC: American Psychiatric Association.2000.
25. Marcus MD, Wildes J. Obesity in DSM-5. *Psychiatr Ann.*2012;42: 431-435.
26. Harris T. Recent developments in understanding the psychosocial aspects of depression. *Br Med Bull.*2001;57:17–32.

27. Taylor VH, Forhan M, Vigod SN, McIntyre RS, Morrison KM. The impact of obesity on quality of life. *Best Pract Res Clin Endocrinol Metab.*2013;27:139-146.
28. Harriger JA, Thompson JK. Psychological consequences of obesity: weigh bias and body image in overweight and obese youth. *Int Rev Psychiatr.*2012;24:247-253.
29. Levy BR, Pilver CE. Residual stigma: psychological distress among formerly overweight. *Soc Sci Med.*2012;75: 297-309.
30. Major B, Hunger JM, Bunyan DP, Miller CT. The ironic effects of weight stigma. *J Exp Soc Psychol.*2014;51:74-80.
31. Shapiro JR. Different groups, different threats: A multi-threat approach to the experience of stereotype threats. *Pers Soc Psychol Bull.*2011;37(4):464-480.
32. Sutin AR, Terracciano A. Perceived weight discrimination and obesity. *PLoS ONE.* 2013;8(7):e70048.
33. Pou KM, Massaro JM, Hoffmann U, Vasan RS, Maurovich-Horvat P, Larson MG, Fox CS. Visceral and subcutaneous adipose tissue volumes are cross-sectionally related to markers of inflammation and oxidative stress: The Framingham heart study. *Circulation.*2007;116:1234–1241.
34. Tomiyama JA, Epel ES, McClatchey TM., Poelke G, Kemeny ME, McCoy SK, Daubenmier J. Associations of weight stigma with cortisol and oxidative stress independent of adiposity. *Health Psychol.*2014;33:862-862.
35. Major B, Eliezer D, Rieck H. The psychological weight of weight stigma. *Soc Psychol Pers Sci.*2012;3:651–658.
36. Puhl RM, King KM. Weight discrimination and bullying. *Best Pract Res Clin Endocrinol Metab.*2013;27:117-127.
37. Aveyard P, Lewis A, Tearne S, Hood K, Christian-Brown A, Adab P, et al. Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial. *Lancet.*2016;Online First.

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