

Homeostasis balance, homeostasis imbalance or distinct motivational processes? Comments on Marks (2015) 'Homeostatic Theory of Obesity'

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Abstract

In his article, 'Homeostatic theory of obesity', Marks suggested that imbalances in homeostatic processes could explain weight gain and obesity. He proposes that over-consumption of high-caloric, low-nutrient and low satiating foods, combined with a stressful environment, is the origin of weight gain. Once weight gain occurs, individuals may develop body dissatisfaction and negative affect, leading to continued over-consumption, which sets in motion a system of feedback loops that leads to a *Circle of Discontent* and further weight gain. In this article, we attempt to clarify certain problematic aspects of Marks framework and identify specific directions that researchers should pursue to address these shortcomings.

Keywords

body image, eating behaviour, health promotion, theory, weight loss

Assessing the contribution

Marks' (2015) review and analysis significantly advances the understanding of the obesity epidemic by (a) identifying the factors that could be at the origin of weight gain and clarifying how they contribute to the obesity epidemic; (b) highlighting the distinction between factors that contribute to initial weight gain, as well as to the processes involved in the Circle of Discontent (CoD); (c) describing the psychological and health problems that result from weight gain and obesity and (d) proposing prevention strategies. Although we applaud the article's advancement in the field, we nevertheless see some issues that may benefit from a different perspective. Our differences with Marks largely revolve around his conceptualization of the motivational processes underlying eating regulation and the factors that could lead to successful, versus unsuccessful self-regulation. In general, we believe that Marks' model focuses almost entirely on environmental factors that may derail the internal process of homeostatic regulation, resulting in the development of obesity. Consequently, the strategies proposed to

circumvent the obesity epidemic are aimed at legislations, public policies and facilitating conditions (see also Gearhardt et al., 2012; Pomeranz and Brownell, 2012).

The notion that behaviour should be regulated by homeostasis is nearly a truism; people should be motivated to eat when they are hungry and stop when they are satiated. Unfortunately, many people find it challenging to regulate their eating behaviours and, more so, to sustain this over a long period of time. Why is this? Marks (2015) proposes that over-consumption of high-caloric, low-nutrient foods with low satiating power explains why people initially gain weight, and that the resulting body dissatisfaction and negative affect lead people to consume even more high-density foods and beverages. Once people reach that stage, they

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gain more weight, become more dissatisfied with their bodies and feel even worse about themselves. Consequently, they attempt to control their weight through different means, which aggravates the problem and leads to more weight gain and, eventually, obesity.

Although we agree with Marks that a considerable amount of research supports these processes and the association between the variables included in the CoD, this view could be problematic for several reasons: (a) it does not explain why some people exposed to the same conditions (e.g. abundance of unhealthy foods, negative life events) do not gain weight and become obese; (b) it suggests that the individual has a limited capacity to self-regulate; (c) it devotes very little attention to the psychological resources needed for long-term maintenance and (d) it emphasizes strategies to prevent obesity that do not consider individuals as active agents of their own behaviours.

We propose that an important aspect of fighting obesity is determining the psychological factors that explain why some individuals may be less susceptible to the processes described in Marks' theory and how this relates to their motivation to regulate their eating behaviours (Patrick and Williams, 2012; Pelletier et al., 2004; Teixeira et al., 2012).

Motivational orientations: autonomous versus controlled regulations

We believe that people have the potential to play an active role in the regulation of their eating behaviours, above and beyond what was proposed in Marks' model. For instance, individuals can plan their eating behaviours on a daily basis by preparing grocery lists and planning daily or weekly meals (Otis and Pelletier, 2008). They can also engage in activities that are conducive to the achievement of their goals (e.g. to be healthy) (Pelletier and Dion, 2007), that are integrated with other goals and values (e.g. improving nutrition for family members) or that are intrinsically enjoyable (e.g. making meals special family time) (Pelletier et al., 2004).

In agreement with self-determination theory (SDT; Deci and Ryan, 2000), people differ in their reasons for engaging in their nutritional choices and these reasons correspond to the level of autonomy they experience in that life domain. When someone has a more autonomous motivation orientation for a behaviour, they engage in that behaviour for the pleasure, interest and satisfaction derived from the behaviour itself; because it is consistent with other values in their self-system; and it is congruent with their values and goals (e.g. eating a plant-based diet because you view yourself as a healthy individual that is environmentally conscious). When someone has a more controlling motivation orientation for a behaviour, they perform that behaviour because of self-imposed pressures such as guilt or anxiety (Ryan

and Connell, 1989) or they want to achieve a reward or avoid a punishment (e.g. eating behaviours engaged in to avoid feeling ashamed for not eating healthy).

People who have an autonomous orientation, versus a controlled orientation, assume greater responsibility for their actions because they have personally endorsed their course. Autonomously motivated behaviours are better maintained because they are either inherently enjoyable or are well internalized into the person's sense of self (Ryan and Deci, 2006). In relation to eating, autonomously motivated eating behaviours lead to better regulation of eating and weight management (Pelletier et al., 2004) and more sustained regulation over time (Guertin et al., 2015). In sum, we believe that the form of regulation portrayed by Marks (2015) corresponds to controlled regulations and although the model could explain why some people fail to regulate their eating behaviours, it falls short when trying to explain why some people succeed and, most importantly, how this pattern could be prevented and even reversed.

Processes leading to self-regulation failure and obesity, and to successful self-regulation and healthy weight management

Like several other researchers before him (Dittmar, 2005; Levine and Harrison, 2004; Polivy and Herman, 2004), Marks (2015) suggests that body image, sociocultural pressures about body image and the internalization of the 'thin-ideal' represent risk factors for body dissatisfaction and lead to several eating-related problems (Levine and Piran, 2004; Stice, 2002). Pelletier and Dion (2007) have examined how SDT could contribute to our understanding of the associations between these risk factors by examining how motivation at two different levels (life in general and in the context of eating) could explain why some people differ in their responses to sociocultural pressures and messages related to body image. Their results suggest that an autonomous motivation orientation at the general level can help people protect against pressures related to body image and endorsement of society's beliefs about thinness and obesity and has a direct influence on their motivation towards eating behaviour. Specifically, autonomous motivation at the general level is positively associated with autonomous motivation for healthy eating behaviour, which leads to increased healthy eating, and negatively associated with controlled motivation of eating behaviours, which is associated with dysfunctional and unhealthy eating.

Overall, these results suggest that a general autonomous motivation orientation may serve as a buffer against sociocultural pressures and messages of thinness and promote autonomous motivation towards healthy eating, which is in accordance with one's own integrated values, instead of a

response to external controlling forces. As a contrast, it appears that body dissatisfaction resulting from pressures about body image and endorsement of society's beliefs about thinness and obesity may be more closely associated with controlled motivation towards eating behaviours, which may explain its relation with eating pathology. Thus, the more people are autonomous in their life in general and, as well as towards their eating, the less likely they are to perceive sociocultural messages about body image as a source of *pressure*, but instead, as information that they are free to use or dismiss.

Preventing the obesity epidemic: further research refinements and directions

Although we agree with the four prevention strategies proposed by Marks (2015), we fail to see how they could lead to behaviour change and, more importantly, to sustained self-motivation for health behaviours. Environmental changes such as those proposed by Marks may be slow to implement, can be very expensive and could be stalled by industries with competing interests (Pomeranz and Brownell, 2012). Therefore, it might be important to develop strategies that emphasize self-regulatory processes that help individuals become active agents in their own behaviours in the pursuit of healthy and sustained eating behaviour changes.

A critical point is that both individual-based and population-based initiatives to fight obesity should be guided by information campaigns to promote healthy eating which apply sound theory-based motivational principles. For instance, providing people with strategic messages is often perceived as an important step to motivate people to change a specific behaviour. One systematic approach that could be used to facilitate behaviour change consists in tailoring persuasive messages in function of the processes that underlie behaviour change (i.e. detecting a problem, deciding on a course of action and implementing a behaviour) and framing persuasive messages in terms of whether they serve autonomous (health, well-being, personal growth) or controlling (physical appearance and appealing to others) goals. Regarding message framing, research suggests that when a goal is framed as a function of autonomous motives, relative to controlling motives, it should lead to more engagement in an activity, more persistence over time and its effects should generalize to health-related behaviours (Pelletier and Sharp, 2008).

Conclusion

In summary, although we commend Marks for the contributions to the obesity literature, we highlight three points that should be considered when attempting to explain and propose solutions for the obesity epidemic.

1. Greater emphasis should be placed on the role the individual plays in regulating their own eating behaviours, with less responsibility attributed to external sources, in order to facilitate feelings of self-control and accountability.
2. A substantial base of research has indicated that there are multiple forms of motivation that differ in their degree of internalization and result in very different outcomes, with autonomous motives leading to desirable outcomes, and controlled or amotivated motives resulting in less desirable consequences.
3. Instead of simply de-valoring the thin-ideal, messages about eating should be designed to highlight autonomous goals and motives (e.g. pleasure, health, personal development or family time) in order to facilitate sustained changes in eating behaviours.

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