



# When hunger does (or doesn't) increase unhealthy and healthy food consumption through food wanting: The distinctive role of impulsive approach tendencies toward healthy food



Boris Cheval <sup>a, b, c, \*</sup>, Catherine Audrin <sup>b, d</sup>, Philippe Sarrazin <sup>a</sup>, Luc Pelletier <sup>c</sup>

<sup>a</sup> Univ. Grenoble Alpes, SENS, F-38000 Grenoble, France

<sup>b</sup> Faculty of Psychology and Educational Sciences, University of Geneva, Switzerland

<sup>c</sup> School of Psychology, University of Ottawa, Canada

<sup>d</sup> Swiss Center for Affective Sciences, Geneva, Switzerland

## ARTICLE INFO

### Article history:

Received 29 October 2016

Received in revised form

14 April 2017

Accepted 24 April 2017

Available online 26 April 2017

### Keywords:

Hunger

Food wanting

Impulsive approach avoidance tendencies

Food consumption

## ABSTRACT

**Objective:** Hunger indirectly triggers unhealthy high-calorie food consumption through its positive effect on the incentive value (or “wanting”) for food. Yet, not everyone consumes unhealthy food in excess, suggesting that some individuals react differently when they are exposed to unhealthy high-calorie food, even when they are hungry. The purpose of the present study was to investigate whether individual differences in impulsive approach tendencies toward food may explain how, and for whom, hunger will influence unhealthy food consumption through its effect on food wanting. A complementary goal was to explore whether these individual differences also influence healthy food consumption.

**Methods:** Students (N = 70) completed a questionnaire measuring their hunger and food wanting. Then, they performed a manikin task designed to evaluate their impulsive approach tendencies toward unhealthy food (IAUF) and healthy food (IAHF). The main outcomes variables were the amount of sweets (i.e., unhealthy food) and raisins (i.e., healthy food) consumed during a product-testing task.

**Results:** A moderated mediation analysis revealed that the indirect effect of hunger on unhealthy consumption through food wanting was moderated by IAHF. Specifically, hunger positively predicted sweets consumption through wanting for food among individuals with a low or moderate, but not high IAHF. The moderated mediation pattern was, however, not confirmed for IAUF. Finally, results revealed a direct and positive effect of IAHF on raisins consumption.

**Conclusion:** These findings showed that IAHF play a protective role by preventing hunger to indirectly increase unhealthy food consumption through wanting for food. It confirms the importance of considering how individuals may differ in their impulsive approach tendencies toward food to better understand why some individuals will increase their unhealthy food intake when they are hungry, whereas other will not.

© 2017 Elsevier Ltd. All rights reserved.

## 1. Introduction

The increased prevalence of overweight and obese individuals is a worldwide health concern (Finucane et al., 2011; Wang, McPherson, & Marsh, 2011). While multiple factors play a role, one crucial factor is the overconsumption of unhealthy and high-calorie food. For instance, it has been found that obese people

demonstrate a preference for unhealthy food (CDC, 2013; Marks, 2015; Schrauwen & Westterterp, 2000; Skinner, Bounds, Carruth, Morris, & Ziegler, 2004) and eat more of these unhealthy energy dense food than lean people (Cutting, Fisher, Grimm-Thomas, & Birch, 1999; Ebbeling et al., 2004; Johnson & Birch, 1994). This overconsumption of unhealthy food is primarily caused by the obesogenic environment in which the opportunities to consume calorie-rich food are ubiquitous (e.g., Watson, Wiers, Hommel, Ridderinkhof, & de Wit, 2016). At the same time, despite living in this same obesogenic environment, some individuals are more successful at regulating their weight. Understanding the factors contributing or limiting the consumption of unhealthy food is thus

\* Corresponding author. Methodology and Data Analysis Laboratory, UniMail, Boulevard du Pont d'Arve 40, CH-1211 Genève 4, Switzerland.

E-mail address: [boris.cheval@unige.ch](mailto:boris.cheval@unige.ch) (B. Cheval).

important for health protection.

Food, and especially unhealthy and appetizing food items are considered as rewarding stimuli as they activate brain structures involved in attributing incentive value to environmental stimuli (DelParigi et al., 2007; Passamonti et al., 2009; Schur et al., 2009). As such, the effect of food rewards on consumption occurs because of the incentive (motivational) salience triggered by these food cues (Lawrence, Hinton, Parkinson, & Lawrence, 2012). Incentive salience, which is defined as the motivation to invest effort to obtain a reward (i.e., “wanting”), has been found to increase the attractiveness, the seeking, and the likelihood of consumption of a reward (Berridge, 2009; Berridge, Ho, Richard, & DiFeliceantonio, 2010). In addition, the incentive value of a reward is directly amplified by relevant physiological states, such as hunger (Zhang, Berridge, Tindell, Smith, & Aldridge, 2009). For instance, hunger motivates food seeking behavior and food intake (Raynor & Epstein, 2003), it motivates food purchase in a virtual supermarket (Nederkoorn, Guerrieri, Havermans, Roefs, & Jansen, 2009), and it increases the likelihood of choosing unhealthy energy dense food (Read & Van Leeuwen, 1998; Tuorila, Kramer, & Engell, 2001). Hence, these findings suggest that hunger directly magnifies the incentive value or “wanting” for food, which in turn elicits food consumption, especially of unhealthy food.

Nevertheless, not everyone consumes unhealthy food in excess or becomes overweight and obese, suggesting that individuals may react differently when they are exposed to unhealthy food, even when they are hungry. Accordingly, the indirect effect of hunger on food consumption through the increase in “wanting” for food should be conditional to certain individual differences. Recently, an increasing amount of research has suggested that individual differences in fast, automatic, and impulsive reactions toward food may determine an individual’s risk of obesity and eating disorders (e.g., Berridge et al., 2010; Passamonti et al., 2009). These impulsive reactions are emotionally driven and based on automatic associative processes that the person has acquired through learning experience. For example, through the repeated positive (or negative) affective experiences toward unhealthy food (e.g., chocolate), an associative cluster may be formed that links the positive (or negative) affect during the behavioral execution and the behavioral schema that has led to the affect (i.e., eating chocolate). Once the automatic affective association is established, a mere perceptual input, such as seeing a chocolate cake in a bakery, can automatically trigger affective evaluation that will in turn, lead to an impulsive approach (or avoidance) tendency toward the chocolate cake (Hofmann, Friese, & Wiers, 2008; Strack & Deutsch, 2004). Such impulsive tendencies should not be confused with the “trait of impulsivity” (Friese & Hofmann, 2009; Hofmann, Friese, & Strack, 2009), namely a chronic and general tendency to act on impulses in a wide range of various situations. For instance, individuals with high rather than low trait impulsivity favor immediate rewards (e.g., eating unhealthy food) while discounting more valuable delayed rewards (e.g., the benefits of eating healthy food), and act spontaneously and without thinking (Eysenck & Eysenck, 1977; Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). By contrast, “impulses” refer to specific processes that lead to a fast and primitive hedonic reaction toward a tempting stimulus, predisposing individuals to perform a particular desired action (e.g., grab a piece of chocolate) (Friese & Hofmann, 2009; Hofmann, Friese, et al., 2008).

Previous studies showed that overeaters (Brignell, Griffiths, Bradley, & Mogg, 2009; Hou et al., 2011), food cravers (Brockmeyer, Hahn, Reetz, Schmidt, & Friederich, 2015), as well as overweight and obese individuals (Havermans, Giesen, Houben, & Jansen, 2011; Kemps & Tiggemann, 2015; Mogg et al., 2012; Nijs, Muris, Euser, & Franken, 2010) demonstrated an impulsive

tendency toward unhealthy high-calorie food cues. By contrast, patients with anorexia nervosa (i.e., individuals with a strong ability to limit food intake) did not demonstrated such impulsive tendency toward food (Paslakis et al., 2016; Veenstra & de Jong, 2011), and on the contrary showed an impulsive attraction toward low-calorie food (Neimeijer, de Jong, & Roefs, 2015). In addition, studies have also shown that impulsive tendencies toward food can prospectively predict changes in body mass index over a 1-year period (Calitri, Pothos, Tapper, Brunstrom, & Rogers, 2010; Nederkoorn, Houben, Hofmann, Roefs, & Jansen, 2010), as well as a variety of eating behaviors, such as the self-reported snack food consumption (Conner, Perugini, O’Gorman, Ayres, & Prestwich, 2007), the likelihood to choose unhealthy food presented as a reward for participation in an experiment (Conner et al., 2007; Study 2; Friese, Hofmann, & Wanke, 2008; Study 1; Hollands, Prestwich, & Marteau, 2011), the purchasing of unhealthy food (Prestwich, Hurling, & Baker, 2011), and the amount of unhealthy energy dense food consumption during a product-testing task (Friese et al., 2008; Study 2; Hofmann, Gschwendner, Friese, Wiers, & Schmitt, 2008; Study 2; Nijs et al., 2010; Schumacher, Kemps, & Tiggemann, 2016). Taken together, the aforementioned studies provide compelling evidence that impulsive tendencies toward food are involved in the regulation of eating behaviors, by either prompting (i.e., impulsive predisposition toward unhealthy food) or limiting (i.e., impulsive predisposition toward healthy food) unhealthy food consumption. Accordingly, individual differences in these impulsive tendencies acquired through individual’s learning history may therefore represent a key variable to better understand and predict which individuals are more or less susceptible to over-consume appetizing but unhealthy high-calorie food.

It should be noted, that the literature presented above suggests that impulsive tendencies are relatively stable and acquired through individual’ learning experiences. However, it has been pointed out that impulsive processes are also affected by internal triggering conditions such as thirst or hunger (Aarts, Dijksterhuis, & Vries, 2001; Seibt, Häfner, & Deutsch, 2007; Strack & Deutsch, 2004). For instance, thirsty participants had a higher perceptual readiness to drinking-related stimuli (Aarts et al., 2001), and hungry participants demonstrated a stronger impulsive approach reaction toward food-related stimuli (Seibt et al., 2007). In others words, these results suggest that impulsive tendencies possess both a stable component (based on learning experiences) and a dynamic component (depending on situational internal states). In the current study, we focused more on impulsive approach (or avoidance) tendencies as representing relatively stable factor susceptible to explain individual differences in eating patterns, though we acknowledge that these processes are also likely to change in accordance with individuals’ internal needs.

### 1.1. *The present study*

The purpose of the present study was to investigate whether individual differences in impulsive approach tendencies toward food may explain how, and for whom, hunger will indirectly influence unhealthy food (i.e., sweets) consumption through its effect on food wanting. Using a manikin task (e.g., Mogg, Bradley, Field, & De Houwer, 2003), a well-validated measure of impulsive approach-avoidance tendencies (Krieglmeyer & Deutsch, 2010), we assessed both impulsive approach tendencies toward unhealthy food (IAUF) and toward healthy food (IAHF). Manikin task is based on the measurement of response time latencies in computerized tasks and is particularly well-suited to capture impulsive or automatic affective reactions toward specific stimuli. It is designed to tap into the associative structure that produces hedonic or behavioral components of an impulse, thus providing indices of the

Download English Version:

<https://daneshyari.com/en/article/5043987>

Download Persian Version:

<https://daneshyari.com/article/5043987>

[Daneshyari.com](https://daneshyari.com)