

## **The psychological consequences of inequality for food intake**

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### **Abstract**

How is inequality associated to social gradients in health such as obesity? Inconclusive findings and misunderstanding regarding the association between inequality and obesity impair attempts to reduce social gradients in obesity. In this chapter we discuss various findings from research on food choices and consumption in situations broadly associated with inequality; that is, environmental scarcity and resource competition, relative deprivation and wealth, and social class distinctions. Based on a review of social and evolutionary psychology theories, we present a model that describes a diverse set of psychological mechanisms that may underlie the effect of experienced inequality on eating behaviors. In particular, we discuss how perceptions of environmental harshness increases motivation for calories, how relative status differences can trigger negative emotions that increase caloric intake, and how food consumption can be motivated by class distinctions that are heightened under conditions of inequality. We conclude with an integration of these different findings, and propose future directions that can address current limitations in interventions aimed at reducing social inequalities in health.

*Keywords:* inequality, scarcity, relative deprivation, social class distinctions, food intake, eating behaviors, obesity

We know that more unequal societies have worse health outcomes, such as higher obesity prevalence. In recent years, researchers have explored how and for whom inequality affects food intake, and ultimately leads to weight gain. Possibly stemming from the large diversity of measures and research methods used across disciplines, the findings are somewhat contradictory.

In an attempt to organize the literature, in the present chapter, we provide an overview of (social) psychological theories and studies that attempt to explain psychological mechanisms through which conditions of inequality may impact eating behaviors. To complement the findings from psychological research, we borrow from related domains such as sociological, consumer, and public health research. We first discuss how inequality triggers perceptions of environmental harshness and resource competition that can increase desire for caloric food. We then consider how inequality increases the salience of status differences and review studies on the influence of social comparisons on eating behavior. Lastly, we discuss how inequality enhances social class distinctions that encourage food consumption based on class norms. Where possible, we explore psychological processes that can explain how and why these perceptions and experiences impact eating behavior.

Based on this review, we present a model that encompasses the diversity of psychological mechanisms that are thought to underlie the effect of experienced inequality on eating behaviors. Understanding how inequality and obesity are associated is critical, considering (a) the expected growing rates of both inequality and obesity (Breda, Webber, & Kirby, 2015; Pikkety, Saez, & Zucman, 2018), and (b) the observation that existing approaches for reducing social gradients in health have proven relatively unsuccessful or, worse, have exacerbated health inequalities (Darmon, Lacroix, Muller, & Ruffieux, 2014; Frohlich & Potvin, 2008).

### **Challenges in research on inequality and obesity**

Rising levels of inequality and obesity within developed countries have attracted interest among both public and academic communities. Research findings point to a positive association between country-level inequality and the prevalence of physical and mental conditions in those countries (Subramanian & Kawachi, 2004; Wilkinson & Pickett, 2009), including obesity (Pickett, Kelly, Brunner, Lobstein & Wilkinson, 2005). Being overweight or obese involves an abnormal or excessive accumulation of fat that increases a person's risk of developing other non-communicable diseases, like diabetes, cancer, and heart disease (WHO, 2017a). In 2016, the overweight and obesity prevalence worldwide was 13% and 39%, respectively (WHO, 2017b), and tended to be higher in countries with higher income inequality (Pickett et al., 2005).

Most reports on the association between inequality and obesity rely on country-level, cross-sectional data, comparing countries varying along inequality and examining the correlation with the obesity prevalence in these countries. The findings resulting from such analyses vary as a function of what is measured and which countries are examined. For instance, the positive association between income inequality and obesity in OECD-countries almost disappeared when the U.S. and Mexico are excluded from analyses (Su, Esqueda, Li, & Pagán, 2012). Furthermore, the association between obesity and inequality was weak compared to the association of obesity with indicators of economic insecurity (i.e., security from unemployment, illness, single-parent poverty, and poverty in old age; Offer, Pechey, & Ulijaszek, 2010). Comparisons between country-level and individual-level measures are difficult given that inequality pertains to social systems whereas socioeconomic status (SES) characterizes individuals or groups within those systems (Ellison, 2002).

Furthermore, although many of these cross-sectional studies rely on large data sets, multivariate analyses, and control for individual factors, their correlational nature makes it daring to draw causal conclusions, even more so when it comes to identifying the relevant

psychological mechanisms involved. Only recently have researchers started employing experimental methods allowing for firmer causal interpretations and assessment of underlying processes (Goudeau, Autin, & Croizet, 2017).

In these experiments, inferences about inequality are usually made by making comparisons between individuals varying in status and by measuring snapshot moments of food consumption rather than weight and/or obesity status. Participants are typically randomly allocated to experimental conditions in which the experience of relative scarcity or deprivation, or relative wealth is or is not induced. While these approaches allow for causal examination, they usually involve settings of lower ecological validity.

Nevertheless, gaining insights into the processes underlying the association between inequality and obesity could stimulate the development of successful interventions, which tend to involve reductions in financial cost, or nutrition education, and have unsubstantial effects (Capacci et al., 2012; Powell & Chaloupka, 2009). The following sections discuss research findings that may provide some answers to improve such approaches.

### **Harsh environments increase desire for calories: An evolutionary perspective**

In environments with high inequality, richer people own a relatively larger amount of the available resources. For instance, in the US, recent estimates suggest that the share of income of the bottom half of the population is 12%, whereas the share of the one percent at the top is 20% (Piketty, Saez, & Zucman, 2018). If resources are unequally distributed among individuals in society, perceptions of resource scarcity and competition can ensue (Roux, Goldsmith, & Bonezzi, 2015). According to an evolutionary psychological theory, *life-history theory*, perceptions of environmental harshness and instability attune organisms to collect as many resources as possible in order to secure survival and reproduction (Del Giudice, Gangestad, & Kaplan, 2015; Ellis, Figueredo, Brumbach, & Schlomer, 2009).

It has been suggested that resources such as status, money, and food, share a common

valuation system in terms of their allocation for growth, reproduction, and energy (Brinberg & Wood, 1983; Foa & Foa, 1974). In line with this proposition, there is evidence that a lack of money induces desire for food (Laran & Salerno, 2013; Levy & Glimcher, 2012).

Indeed, findings from experimental studies indicate that perceptions of environmental harshness increase desire for food, specifically for food that is high in calories (Bratanova, Loughnan, Klein, Claassen, & Wood, 2016; Briers & Laporte, 2013; Laran & Salerno, 2013; Swaffield & Roberts, 2015). High-calorie foods are more beneficial to survival and are perceived as more valuable in terms of energy provision, and as substitutes for monetary resources (Briers, Pandelaere, Dewitte, & Warlop, 2006; Tang, Fellows, & Dagher, 2014). To illustrate, using a within-subjects design, Swaffield and Roberts (2015) examined how reading a scenario about a harsh or safe environment altered the desirability of 30 food items across different categories: grains, dairy, fruits, vegetables, meat, poultry, and sweets. Participants reported their desire for the foods before and after reading the scenarios. The results showed that high-calorie foods became more desirable under conditions of environmental harshness but not when the environment was perceived as relatively safe.

Other studies suggest that the negative consequences of inequality are particularly high for individuals who have grown up with limited resources or in poorer environments. Experiencing harshness in developmental periods conditions behavioral patterns that are adaptive in those contexts. For instance, individuals who have grown up in more deprived neighborhoods show greater behavioral disinhibition (Paál, Carpenter, & Nettle, 2015). Exposure to harsh conditions in early-life results in increased sensitivity and responsiveness to cues signaling harshness (Griskevicius et al., 2013). This is because in stressful conditions, responses are driven by formed habits rather than reflective processes (Dallman, 2009; Schwabe & Wolf, 2009).

Research on environmental scarcity and eating behaviors has mostly focused on food

insecurity: not having adequate physical, social, or economic access to sufficient, safe and nutritious food for an active and healthy life (Dinour, Bergen & Yeh 2007). Findings indicate that experiencing food insecurity early in life is associated with dysregulated food intake later in life; for instance, eating regardless of one's energy need resulting from fear that food will be scarce in the future (Dhurandhar, 2016; Hill, Prokosch, DelPriore, Griskevicius, & Kramer, 2016; Nettle, Andrews, & Bateson, 2017).

Likewise, Hill, Rodeheffer, DelPriore, and Butterfield (2013) propose that individuals who have grown up with limited financial resources or in disadvantaged neighborhoods do not necessarily eat more or more unhealthily in general, but only when presented with cues in the environment that signal harsh conditions. These researchers randomly assigned female participants to a condition in which they experienced environmental harshness or to a control condition. For instance, in one of the environmental harshness conditions, participants had to read a newspaper article describing an increase in the homicide rate. The findings showed that for participants who experienced more stressful childhood environments, harshness cues increased desire for food and diminished desire to restrict calories and prevent weight gain. In contrast, for participants who experienced less stressful childhood environments, harshness cues diminished desire for food and increased desire to restrict calories and prevent weight gain. Desire for food, for restricting calories, or preventing weight gain did not differ between participants who had experienced less or more stressful childhood environments in the control condition.

The implication of the above findings is that perceptions of environmental harshness triggered by rising inequality may increase desire for calories, but more likely so for individuals who have grown up in disadvantaged environments (and who are also more likely to occupy disadvantaged positions in society later in life).

**Relative status comparisons trigger negative emotions that stimulate food intake**

Inequality does not only increase the distance between income or wealth levels among individuals in a society, but also affects individual perceptions of position vis-à-vis other individuals or groups (Kraus, Tan, & Tannenbaum, 2013). The higher the inequality, the higher the salience of status and class differences between individuals and groups in a society (Cheung & Lucas, 2016; Kraus, Park, & Tan, 2017).

Comparisons with higher-status individuals or groups lead to a sense of relative deprivation regarding economic, political or social resources (Festinger, 1954; Flynn, 2011). And feeling less well-off compared to others can elicit negative feelings such as resentment or shame (Bernstein & Crosby, 1980; Kim, Callan, Gheorghiu, & Matthews, 2016; Kraus & Park, 2014). Finally, negative affect can produce a desire for comfort foods: tasty foods that are high in calories, and that trigger positive affect and lower the physiological stress response (Adam & Epel, 2007; Dallman, 2009; Tomiyama, Dallman, & Epel, 2011).

Experimental studies examining experiences of lower or higher relative status, expose participants to such experiences by showing them a ladder representing relative ranks of individuals in their society (see Figure 1). To make participants experience relative deprivation they are asked to contrast themselves to people at the top of the ladder who are the “best off” in society. On the contrary, in order to make them feel relatively wealthy, they are asked to contrast themselves to people who are “the worst off” in society, positioned at the bottom of the ladder.

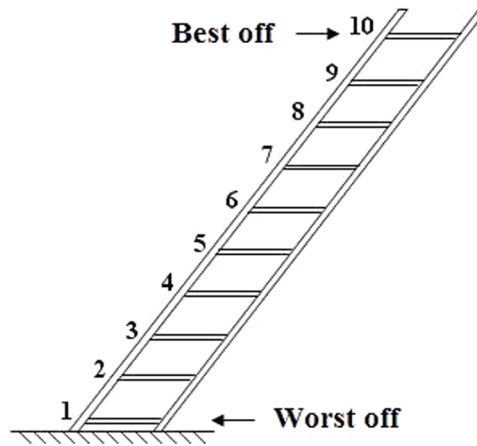


Figure 1. MacArthur scale of subjective social status used to manipulate perceptions of relative lower versus higher status. Participants are asked to compare themselves to others in society who are the best off or the worst off (Chatelard et al., 2014).

Findings from studies in which this (or a comparable) manipulation was used, all showed that relative deprivation was associated with higher caloric intake (e.g., Bratanova et al., 2016; Cheon & Hong, 2017), suggesting that experiencing a relatively lower status position leads individuals to consume more calories. These results imply that inequality makes individuals with lower status consume more calories, possibly leading to weight gain, and subsequent health gradients in obesity status.

Of equal interest involves the question of *why* relative deprivation leads to increased caloric intake? Many of the studies examined possible explanations for this association and found that relative deprivation negatively affects mood (Cheon & Hong, 2017), decreases feelings of power and pride (Cardel et al., 2016), and increases social anxiety (Bratanova et al., 2016), perceptions of unfairness (Sim, Lim, Forde, & Cheon, 2018), feelings of inferiority, and unpleasant affect (Sharma & Alter, 2012). However, only one of them assessed mediational pathway by a psychological measure. In this experiment by Bratanova and colleagues (2016), participants were told they would have to interact with students coming from a more deprived (relative deprivation condition), more affluent (relative wealth



condition), or equal background (control condition). They were then asked to participate in a seemingly unrelated experiment in which they were provided with snacks. The findings showed that both participants who felt relatively deprived or wealthy reported anxiety due to being looked down on (e.g., “I worry that others will look down on my possessions”) or being envied (e.g., “I worry that that other people will envy my privileged background”), respectively. These feelings of anxiety mediated the influence of discrepant relative status (versus equal status) on higher caloric intake. And this relationship, in turn, was moderated by participants’ score on a Need to Belong measure: Higher desire to fit in and be accepted by peers made participants more susceptible to caloric intake as a result of inequality-induced anxiety.

The idea that lower-status positions are associated with food intake due to anxiety or stress is not recent (for a review see Moore & Cunningham, 2012). Less research, however, has focused on how inequality triggers social anxiety in higher-status individuals (Layte & Whelan, 2014). A possible explanation is that they experience social exclusion because they are resented (Kim, Callan, Gheorghiu, & Skylar, 2018) or envied for their position (Fiske, Cuddy, Glick, & Xu, 2002; see also Fiske & Durante, [Chapter XX](#)).

Caloric intake due to status-related stress can result in weight gain, but stress also modulates metabolic pathways that make humans more likely to gain weight (Dallman, 2009; Rosmond, Dallman, & Bjorntorp, 1998). This is corroborated by findings from animal studies on social hierarchies that indicate that some species store more body fat when they experience bouts of lower status, besides an increased preference for higher-calorie foods (Arce, Michopoulos, Shepard, Ha, & Wilson, 2010; Foster, Solomon, Huhman, & Bartness, 2006).

In particular, results from two recent studies using the ladder manipulation indicate that relative status may be associated with changes in sensory perception as well as appetite-

regulating blood hormones. In one study, researchers found that participants allocated to a lower-status condition and to a control condition were able to distinguish between versions of a soy milk drink that differed in energy density, but that participants in a higher-status condition did not (Cheon, Lim, McCrickerd, Zaihan, & Forde, 2018). This suggests that at the top of the social ladder, energy may not be a priority in food selection. Findings from the other study, which consisted of a within-subjects design with experimental sessions scheduled at least one week apart, indicated that blood levels of participants who had been induced to feel relatively lower in status contained increased levels of active ghrelin (a hormone signaling hunger), as compared to a baseline measure of each participant's level (Sim, Lim, Leow, & Cheon, 2018). No change was observed for hormones indicating satiety (i.e., polypeptide and insulin). And in the control condition, blood levels did not differ between the baseline measurement and the measurement after the manipulation.

These two studies suggest that both lower and higher status may influence sensory and bodily processes. The diverging results indicate that sensory discrimination and appetite-regulating hormones work independently from each other and are possibly influenced by different characteristics of relative status.

### **Classed symbolic values of food produce social inequalities in food consumption**

An additional consequence of the increased salience of status differences under conditions of inequality is the emergence and maintenance of social classes (Kraus et al., 2013). Social classes are defined by the structural, economic or cultural components that lead to the unequal divisions and dispositions that exist within society (Crompton, 2006). In turn, social classes provide unique models for normative behavior and self-expression that are used to construct a social identity (Stephen & Townsend, 2013). The French sociologist Pierre Bourdieu (1979) was one of the first to describe how preferences for food products are shaped by differences in economic, social, and cultural capital across social classes. Since

then, the social context of food intake has attracted interest among social psychological researchers, whose results show that our social environment exerts a great influence on what we eat: We model the eating behavior of people around us (Vartanian, Spanos, Herman, & Polivy, 2015), especially those who belong to our social group (Cruwys, Bevelander, & Hermans, 2015).

Psychological research on social identities and food intake mainly focus on disadvantaged positions related to race/ethnicity or gender (e.g., Guendelman, Cheryan, & Monin, 2011; Oyserman, Fryberg, & Yoder, 2007) but rarely consider social class. However, it is clear that identity threats associated with these disadvantaged positions are also experienced by individuals with lower socioeconomic status (Croizet & Claire, 1998; Fiske et al., 2002).

The lack of studies is surprising given that findings from other research domains indicate that social class does not only influence what we eat; our food choices shape our self- and group-identity and determine what we communicate about ourselves to others in our environment (Sato, Gittelsohn, Unsain, Roble, & Scagliusi, 2016). For instance, a consumer research study found that when men have to choose a steak in a public setting, they avoid picking the “ladies' cut” steak to keep their image of manliness intact (White & Dahl, 2006). Different motives underlie consumption as a function of social groups, for instance, the consumption of products characteristic of a particular group in order to affiliate with that group and distinguish oneself from another group (Guendelman et al., 2011; Lee & Shrum, 2012; Mead, Baumeister, Stillman, Rawn, & Vohs, 2011), or to signal one's rank in the social hierarchy (Veblen, 1899).

People generally believe that individuals from lower social classes eat more unhealthily, and this lay-belief is shared among lower-class individuals themselves (Bugge, 2011; Davidson, Kitzinger, & Hunt, 2006). In a recent study, we asked 200 US and UK

residents, with diverse socioeconomic backgrounds, to evaluate 65 food items in terms of whether they associated them as belonging to lower or higher status individuals or groups, and to rate them on scales of healthiness, caloric content, and price (Claassen, Klein, & Corneille, 2019). Evaluations of higher status were positively correlated with evaluations of healthiness,  $r(63) = 0.541$ , lower caloric content,  $r(63) = -0.400$ , and higher price,  $r(63) = 0.812$ . All correlations were statistically significant with  $p$ -values under .001. For instance, fish sticks, hotdog, and donut were perceived as lower-status unhealthy foods, and asparagus, avocado, and sushi were perceived as higher-status, healthy foods.

Findings from a study in the Netherlands showed that consumption of “superfoods” is associated with status signaling for higher-status individuals. Higher levels of income and education were related to higher consumption of spelt products, quinoa, goji berries, chia seeds, and wheatgrass (Oude Groeniger, van Lenthe, Beenackers, & Kamphuis, 2017). The associations between income, education, and consumption of these foods were attenuated when participation in cultural events (e.g., museum, theater, or concert visits) was statistically controlled for. This suggests that the consumption of these superfoods serves a similar purpose as participating in cultural events: They increase one’s cultural and symbolic status. Another illustration of a similar phenomenon is the “buying into” other culture’s food heritage by consuming exotic and culturally diverse foods that are inaccessible to lower classes (Wills, Backett-Milburn, Roberts, & Lawton, 2011); for instance, spices such as nutmeg and ginger were hard to get in the past and consuming them was reserved for the rich (van der Veen, 2003).

The above implies that identifying as a lower-class individual can lead to unhealthier food choices. The below examples illustrate how individuals of lower class may be tempted to reject healthy foods when perceived not to fit with the consumption patterns of their ingroup. In a focus group with young adolescents from communities in the UK, one of the

participants stated: "...all the healthy stuff", like "water, banana, yoghurt, cheese strings", is what geeks would bring to school "because they would want you to think they were smart and that" (Stead, McDermott, MacKintosh, & Adamson, 2011, p.1136). In contrast, participants perceived the consumption of unhealthy foods such as *Coke*© and crisps as good for their image and as a means to blend in with the crowd, especially the adolescents with lower social status. This suggests that unhealthy foods are regarded as food for the "cool kids" and are consumed as a form of rebellion against the "healthy norm" (Bugge, 2011; Johnston, Rodney, & Szabo, 2012; Oyserman, Smith, & Elmore, 2014).

Nevertheless, when given the opportunity to do so, individuals with lower status may aspire to increase their perceived status by consuming particular foods. An experimental manipulation of relative deprivation led participants in that condition to prefer candy bars that were scarce but not candy bars that were available in abundance (Sharma & Alter, 2012). Product scarcity signals expensiveness (Lynn, 1989). Other studies have shown that identifying with lower-status groups increases the desire for higher-status goods (Mazzocco, Rucker, Galinsky, & Anderson, 2012), and for meals that include meat (Chan & Zlatevska, 2019), in order to increase one's perceived social status.

However, when inequality is high, social class boundaries are tightened and social mobility, the extent to which individuals can move from one social class to another, decreases (Day & Fiske, [Chapter XX](#); Wang, Jetten, & Steffens, [Chapter, XX](#)). This (perceived) stability of social class boundaries maintains the classed norms regarding healthy diets (as well as body sizes), which tend to be unhealthier among lower social classes (Fikkan & Rothblum, 2012; Godly & McLaren, 2010). Although individuals with lower status are aware of the differences between healthy and unhealthy foods, a healthy diet needs to become congruent with their lower-class identity for them to engage in behaviors promoting healthier food choices (Oyserman et al., 2014; Stephens, Markus, & Fryberg, 2012).

The existing research on classed food choices is limited, however, and focuses on specific groups. This restricts the generalizability of the findings to other social and cultural groups within and between societies. Moreover, the studies only allow for analysis of observed behaviors regarding food choices in service of social affiliation or distinction. Examination of the underlying motives and psychological processes could, for instance, provide information on whether social distinction by higher-status individuals is motivated by the fear of losing status (see Scheepers & Ellemers, **Chapter XX**), or whether freedom to choose instills the fear of making the wrong choice (Bauman, 1988; Warde, 1994). This would entail that the constriction of social classes due to increasing inequality can also be detrimental to the health of higher-class individuals, albeit for different reasons than for individuals of lower class.

Future research could examine processes related to independent and interdependent social orientations, provided that these orientations are associated with tendencies to affiliate with others or to distinguish the self from them (Sweet, 2011; van der Veen, 2003), and are affected by societal inequality (Loughnan et al., 2011; Sánchez-Rodríguez, Willis, & Rodríguez-Bailón, 2017) as well as individual social status (Kraus, Piff, & Keltner, 2011; Stephens, Markus, & Townsend, 2007; Woolley & Fishbach, 2016).

### **A proposed model of associations between inequality and eating behaviors**

The reviewed literature indicates that under conditions of higher inequality, the available resources in society are (perceived as) accumulating at the top of the social rank, signaling scarcity and competition for resources. In addition, inequality makes status differences between individuals and groups in society more salient, which activates social comparisons that can lead to negative emotions, higher stress, or negative self-perceptions. Furthermore, when the distance between different social groups increases, it becomes harder for individuals to transition from one group to the other. The reviewed literature indicates that

the psychological processes resulting from these status differences can negatively impact eating behaviors; for instance, by increasing one’s physical and psychological desire for calories, or by encouraging the selection of foods contingent on social class norms. Figure 2 provides an overview of the discussed mechanisms.

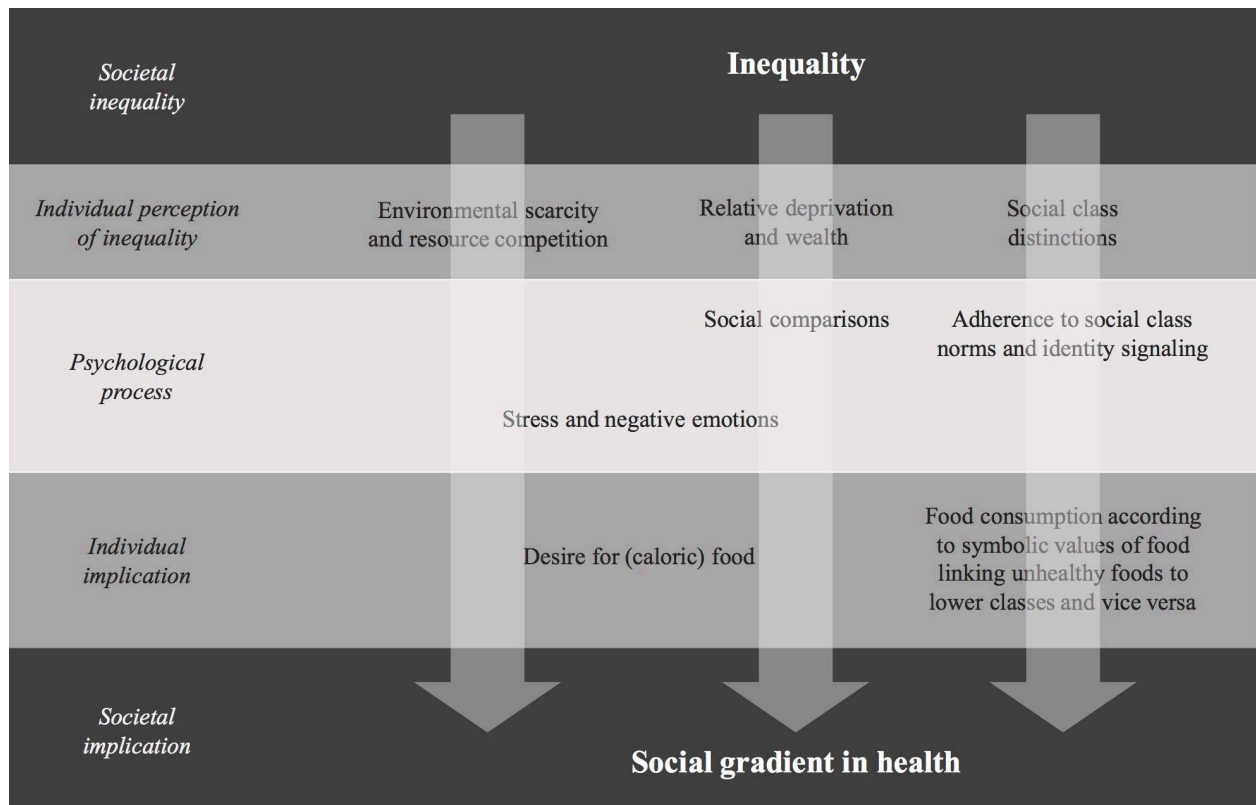


Figure 2. Proposed model illustrating how inequality may be related to health through its influence on perceptions, emotions, and behaviors in a social context.

The influence of inequality on the different psychological processes ascribed to environmental harshness, relative status differences, and increased social class salience, are not mutually exclusive. Although they theoretically describe different behavioral patterns, it is possible that they are driven by similar processes. In particular, negative emotions or increased stress levels could be underlying mechanisms linking inequality-related perceptions with increased caloric intake. The findings from the reviewed experimental studies suggest that both environmental harshness and negative social comparisons are associated with more

negative affect or higher stress levels. This is consistent with studies that recorded cardiovascular reactivity similar to that in response to environmental threat, in participants who made upward social comparisons (Mendes, Blascovich, Major, & Seery, 2001), or who were placed in disadvantaged positions compared to an opponent in a game (Cardel et al., 2016).

In addition, other findings indicate that engaging in social distinction under the burden of low material resources and low social mobility can be stressful and can deplete cognitive resources (Johnson, Richeson, & Finkel, 2011; Sweet, 2011). Linda Tirado in her autobiographical essay on poverty, *Hand to Mouth* (2014), described failed attempts of climbing the social ladder: “*We have learned not to try too hard to be middle-class. It never works out well and always makes you feel worse for having tried and failed yet again. Better not to try. It makes more sense to get food that you know will be palatable and cheap and that keeps well. Junk food is a pleasure that we are allowed to have; why would we give that up? We have very few of them.*” These observations corroborate findings on decision-making under conditions of poverty, which suggest that increased stress-levels can trigger motivation to obtain calories or can decrease cognitive capacity to, for instance, resist tempting foods (Haushofer & Fehr, 2014; Shah, Mullainathan, & Shafir, 2012; Spears, 2011).

However, in a series of experiments we found that relative income position can overcome the detrimental influence of low absolute income on impulsivity (Claassen, Corneille, & Klein, 2019). More specifically, participants with lower absolute incomes were less likely to delay gratification of monetary and food rewards than participants with higher incomes, but they behaved equally impulsive as richer participants when they engaged in a downward social comparison. This suggests that relative position may matter most in determining behaviors associated with health promotion, and that decreasing inequality could ultimately improve the health of lower-status individuals.



Another question of interest in inequality research concerns who is most affected by inequality: individuals at the bottom of the social ladder, or those at the top? The findings on environmental harshness suggest that inequality can worsen the social gradients in food intake due to lower-status individuals desiring caloric foods. This is corroborated by a recent analysis showing that inequality is only associated with unhappiness and psychological health for individuals who experience financial scarcity (Sommet, Morselli, & Spini, 2018). This emphasizes the double burden of being poor in an unequal society: Poverty in both absolute and relative terms is detrimental to health.

Furthermore, the findings on social class distinctions also suggest that inequality affects the health of lower-status individuals. Classed symbolic values of food ascribe unhealthier foods to lower classes. Not only does this generate social gradients in health, but these gradients themselves feed back into the inequality cycle by maintaining inequalities in diet patterns and weight status.

Yet, the findings on relative comparisons suggest that both the poor and rich may be affected by inequality: It increases the identity salience of the poor and rich and the tension resulting from wealth differences. Anxiety from social comparisons can provoke an increase in calorie consumption as a coping-mechanism for both lower- and higher- status individuals (Bratanova et al., 2016). This resonates with research showing that identity threats lead to food intake and weight gain (Vartanian & Porter, 2006), given that both the poor and rich are stigmatized and subject of stereotype threat (Fiske et al., 2002; Fiske & Durante, Chapter XX). The idea that inequality increases anxiety for both lower- and higher-status individuals is corroborated by a multi-level study whose findings showed that the income-anxiety gradient was the same across all countries no matter their level of inequality, but that absolute levels of reported anxiety were higher in more unequal countries (Layte & Whelan, 2014).

## **Conclusion**

The findings discussed in this chapter suggest explanations for why current interventions and policies aimed at decreasing social gradients in health may benefit from inclusion of a psychological perspective (Callan, Kim, & Matthews, 2015; Claassen, Klein, Bratanova, Claes, & Corneille, 2018). These interventions typically focus on reducing financial or educational inequalities. Nevertheless, even if healthy foods were as accessible to low- and high-status individuals, signs of environmental harshness due to unequal income distributions would still trigger desire for calories. And even if income distributions were equated between the poor and rich, the sociocultural contexts of classed behavior patterns would still remain embedded in society and would still signal class distinctions between individuals (see also the *inequality maintenance model of social class* proposed by Piff, Kraus, & Keltner, 2018).

Although the findings from experimental studies advance our understanding of the association between inequality and food intake, the downside is that their reliability and generalizability can be called into question: Many studies do not report effect sizes, and when reported, they are small. So are sample sizes for individual studies, which tend to use homogenous highly educated (student) samples. Future studies examining the influence of inequality on food intake should include participants varying in SES. Additionally, replications across different countries and laboratories would decrease the chance of inferring conclusions from false positives (Simmons, Nelson, & Simonsohn, 2011).

Contributors to the literature propose including relative indicators of SES, for instance subjective SES, when assessing societal inequalities. In addition, the authors of a recent narrative review emphasize the importance of considering adaptive responses and developmental factors (e.g., responses to environmental threat or childhood SES; Caldwell & Sayer, 2018). We believe that it is also important to include symbolic markers of wealth or status, or social class, since these indicators capture unique variance in health inequality

(Markus & Stephens, 2017). In country-level analyses, social mobility could be used as an indicator of the level of stratification of a society. Lastly, whereas many studies focus on the negative influence of inequality on the well-being of the poor, there is reason to believe that inequality can also have detrimental effects on the more advantaged individuals in a society. Capitalizing on this last finding could mobilize resources towards studying and diminishing societal inequalities.

The present review emphasizes that the relation between inequality and the consumption of unhealthier or caloric foods does not only derive from poor nutritional knowledge, lack of access to healthier foods or the actual financial cost of these foods. It is also a function of social psychological mechanisms that impinge on perceptions of status and competition in one's surroundings as well as the symbolic value of food (e.g., as a marker of identity). Any attempt to address this important public health problem would benefit from taking these aspects into account.

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