The Effect of Temperature Cues on Food Intake

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Emerging literature points to, but lacks evidence, on effects of temperature exposure – heating versus air conditioning - on food intake. This study addresses that void by illustrating that people who feel cold indeed eat more. Moreover, we show that exposure to cold primes is already sufficient to activate this behavior.

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EXTENDED ABSTRACT
According to the World Health Organization Global InfoBase, today in the United States, almost 67% of the people are overweight and about 34% are obese. Although food marketing practices and (institution-driven) reductions in physical activity are believed to be the two most important causes of obesity (Keith et al. 2006), emerging literature points to potential harmful effects of artificially manipulating temperature by heating or air-conditioning on food intake because it interferes with our physiological system. For instance, Johnson et al. (2011) reasoned that with increased heating the ambient temperature, less energy is needed to maintain core body temperature resulting in higher rates of obesity. Herman (1993) argued that exposures to lower ambient temperatures by means of air-conditioning can induce a heightened food intake because our physiological systems asks for energy resources to keep the core body temperature sufficiently high.

In sum, emerging literature points to a potential connection between ambient temperature and expanding waistlines, but direct evidence is lacking. Moreover, the relationship between temperature has typically been explained by is physiological processes. We agree that such process can affect food intake when people are exposed to coldness or warmth for longer periods of time, like when troops are stationed in the tropics as opposed in cold areas (Johnson and Kark 1947). Yet, we believe more psychological processes are at work when people are exposed to cold or warm temperatures for a shorter period of time, such as for instance people entering an air-conditioned restaurant and/or receiving an iced drink when seated. Our research aims to test this assumption. More specifically, we put forward that merely activating the concept of coldness is enough to induce people to eat more compared to when activation the concept of warmth. In this research, it is argued that “temperature primes” – even independent of actual ambient temperature – have the potential to affect eating behaviors.

According to behavior priming literature, cognitively priming environmental cues automatically activates the goals associated with these cues, which in turn solicits corresponding behaviors. The activation and execution of these goals require no conscious awareness or regulation (Bargh et al. 2001; Chartrand and Bargh 1996; Bargh 1990). Given that actual coldness (warmth) embodies the goal of increasing (decreasing) food intake to avoid hypothermia; these findings thus suggest that cognitively priming coldness (warmth) may automatically lead to an increased (decreased) need for food calories. Taken together, the main hypothesis of the current research is that merely activating the coldness concept will lead to higher food intake, compared to merely activating the warmth concept. In three studies we provide evidence for this hypothesis.

In a first study, we want to show first that cold primes lead to desire for energy or calories. To measure desire for calories, we will rely on a basic estimation distortion process to assess the extent to which a person values calories (Tajfel 1957). According to Bruner and Goodman (1947) coins tend to be judged as larger than gray discs of the same size, and children with a lower socioeconomic status overestimate the size of coins more than do children with a higher socioeconomic status. Deprived smokers similarly judge the length of a cigarette as longer than do nondeprived smokers (Brendl, Markman, and Messner 2003). These and other studies demonstrate that objects, such as meals or caloric content, appear larger when valued more. Indeed, the results of this study indicated that participants cued with coldness estimated the caloric content of food higher than people cued with warmth.

The second study aimed to provide evidence for this claim by investigation the effect of coldness vs. warmth cues on real consumption amount. Specifically, the results of study 2 illustrated that people cued with coldness ate significantly more compared to those cued with warmth.

If our findings of study 1 and 2 are really driven by coldness cues activating the goal of increasing food intake to avoid hypothermia, then we should also find that that warmth cues should result in an increased desire for more fluids to avoid hyperthermia. This was tested in the study 3. We indeed found that participants cued with coldness wanted significantly more food compared to those cued with warmth, but wanted significantly less fluids.

In sum, our research provides evidence that physiological cues that trigger eating (like temperature) also have the ability to affect food intake in a psychological way: ‘temperature primes’ – even independent of actual ambient temperature – have the potential to affect eating behaviors. As such, this research opens the debate to what extent short exposures to cold/warm temperatures, such as people entering an air-conditioned restaurant or attending a cocktail party with no air-conditioning, physiologically really are in need for more/less energy to keep up their body temperature. In fact our research indicates that people’s reaction to order and/or consume more/less (caloric) food under such circumstances, may also be driven by a psychological need rather than a biological one.

REFERENCES

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