


Chicken Soup Really Is Good for the Soul: “Comfort Food” Fulfills the Need to Belong

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Abstract

Theories of social surrogacy and embodied cognition assume that cognitive associations with nonhuman stimuli can be affectively charged. In the current research, we examined whether the “comfort” of comfort foods comes from affective associations with relationships. Two experiments support the hypotheses that comfort foods are associated with relationships and alleviate loneliness. Experiment 1 found that the consumption of comfort foods automatically activates relationship-related concepts. Experiment 2 found that comfort foods buffer against belongingness threats in people who already have positive associations with relationships (i.e., are secure in attachment style). Implications for social surrogacy, need to belong, embodied cognition, and eating behavior are discussed.

Keywords

food, loneliness, social cognition

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The smell of that buttered toast simply talked to Toad, and with no uncertain voice; talked of warm kitchens, of breakfasts on bright frosty mornings, of cozy parlor firesides on winter evenings.

—Kenneth Grahame,
The Wind in the Willows (1908, p. 54)

As I ate the oysters with their strong taste of the sea and their faint metallic taste that the cold white wine washed away, leaving only the sea taste and the succulent texture, and as I drank their cold liquid from each shell and washed it down with the crisp taste of the wine, I lost the empty feeling and began to be happy, and to make plans.

—Ernest Hemingway,
A Moveable Feast (1964, p. 18)

In 1977, the phrase *comfort food* first appeared in the American vernacular to describe foods that satiate not only physical but also emotional needs (“Comfort Food,” 2010). Although the terminology was new, the idea was certainly not: Hemingway described the effects of a simple plate of oysters on his happiness and well-being while in Paris in the 1920s; plain buttered toast reminds Toad of the warmth of home in Grahame’s 1908 classic; and for centuries, countless sick children and adults have found comfort in the unadorned taste of chicken noodle soup. Previous research has demonstrated that

people often consume comfort food when they experience negative emotions (e.g., Dubé, Lebel, & Lu, 2005; Evers, Stok, & de Ridder, 2010) and as an attempt to achieve a more positive emotional state (Wansink, Cheney, & Chan, 2003). Our goal in the current research was to examine the effects of comfort food on loneliness. We propose that comfort food derives its appeal from cognitive associations with relationships and that the “comfort” of comfort food can be understood by examining its effects on loneliness.

The evidence that human beings seek to avoid loneliness and form relationships with other people is myriad, and a full review is beyond the scope of this article. Indeed, the evidence is so strong that Baumeister and Leary (1995) argued that the need to belong is a fundamental human need (see also K. D. Williams, 2007). Feelings of loneliness and a lack of social connections are psychologically and physically perilous, leading to aversive outcomes, including hurt feelings (e.g., Baumeister & Tice, 1990), lowered self-esteem (e.g., Leary, Tambor, Terdal, & Downs, 1995), depression (e.g., Ayduk, Downey, & Kim, 2001), and even physical pain (e.g., Eisenberger, Lieberman, & Williams, 2003; MacDonald & Leary, 2005).

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Recent research has found that the need to avoid loneliness sometimes leads people to seek out social surrogates, or non-human social targets (Derrick, Gabriel, & Hugenberg, 2009). Social surrogates can take many forms. Some social surrogates fulfill belongingness needs by allowing individuals to enter into other social worlds, such as the worlds of their favorite television programs (Derrick et al., 2009) or narrative stories (Mar & Oatley, 2008). In other cases, people enter into what are often referred to as one-sided or para-social relationships (Horton & Wohl, 1956), in which they derive a sense of belongingness through their “connections” with favorite television characters (Gardner & Knowles, 2008), celebrities (Derrick, Gabriel, & Tippin, 2008), and other media figures (Cohen, 2006). Finally, some social surrogates are representations of close others (e.g., photographs and letters; Gardner, Pickett, & Knowles, 2005). Thus, there is ample evidence that people seek belongingness from a variety of social surrogates when they feel lonely. We propose that comfort food can serve as a social surrogate.

The notion that comfort food can be a social surrogate is consistent with theories of embodied cognition and perceptual symbols. According to such theories, perceptual inputs are recorded in the sensory system of the brain, which captures information about perceived events in both the body and the environment (Barsalou, 1999). Repeated associations create covariance between sensory information and abstract concepts from the environment. When information is recalled later, conjoined bodily and environmental experience is recalled because thinking involves perceptual simulation (Schubert, 2005). For example, because social exclusion is associated with interpersonal coldness (L. E. Williams & Bargh, 2008), the experience of rejection actually makes people feel physically cold (Zhong & Leonardelli, 2008). We hypothesized that food items become comfort foods because people are repeatedly exposed to them in the presence of relational partners. In other words, because comfort foods are typically initially eaten with primary relationship partners, the perceptual experience of eating these foods is encoded along with the higher-order experience of social comfort. Therefore, the physiological experience of ingesting, or even thinking about ingesting, comfort food automatically activates the experience of psychological comfort that was initially encoded along with the food.

In summary, drawing from research on social surrogacy, eating behavior, and embodied cognition, we propose that comfort foods are social surrogates that derive their unique emotional power from their cognitive connections to existing relationships. In two experiments, we tested whether comfort foods are associated with relationships and can reduce feelings of loneliness.

Experiment 1

In Experiment 1, we tested our first hypothesis, that comfort foods are associated with relationships. Previous research has demonstrated that when a cognitive construct is activated,

associated cognitive constructs are also activated (e.g., Collins & Loftus, 1975). Thus, we had participants ingest a common comfort food in our laboratory and then measured the activation of relationship-related constructs. This experimental technique allowed us to control the properties of the food ingested: All participants in the experiment ingested the same food.

Method

Participants were 111 undergraduates (50 males, 61 females; mean age = 19.29 years, $SD = 1.54$). During a mass-testing session 4 to 6 weeks before the experiment, participants reported whether they considered chicken noodle soup to be a comfort food, using a scale from 1 (*not much at all*) to 5 (*very much*). Participants who gave chicken noodle soup a rating of 4 or 5 ($n = 58$) were classified as considering it to be a comfort food, and participants who gave chicken noodle soup a rating of 1 ($n = 53$) were classified as not considering it to be a comfort food. There were no race-based or sex-based differences in whether or not participants identified chicken noodle soup as a comfort food. Experimenters were blind to whether participants viewed the soup as a comfort food.

Upon arriving at the lab, participants were randomly assigned to either consume chicken noodle soup while alone ($n = 57$) or complete the experiment without consuming chicken noodle soup ($n = 54$). Those who ate the soup were told that they were participating in a pilot taste test and rated their enjoyment of the soup on a scale from 1 (*not much at all*) to 5 (*very much*). Thus, the experiment utilized a 2 (group: soup is a comfort food or soup is not a comfort food) \times 2 (consumption: soup eaten or not eaten) between-participants design.

Next, participants worked on a word-completion task (e.g., Gilbert & Hixon, 1991) similar to a task used in previous research (Derrick et al., 2009). They were given a list of word fragments, some of which could be completed as relationship-related words (i.e., *like*, *include*, *welcome*).¹ Other fragments could be completed as positive- and negative-affect words (e.g., *joy*, *worry*). The list also included control fragments that could not be completed as relationship-related or affect-related words (i.e., *there*, *quiet*, *end*, *sort*, *now*). After they finished the word-completion task, participants reported their current mood using the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and indicated whether they thought anything was unusual about the experimental procedures (1 = yes, 0 = no); they were then debriefed and excused.

Results and discussion

To calculate our dependent variable, cognitive accessibility of the concept of relationships, we counted the number of relationship-related word fragments that participants completed as relationship words. A two-way ANOVA on this variable revealed a significant interaction between group and consumption, $F(1, 107) = 4.48, p < .05, \eta^2 = .04$ (see Fig. 1).

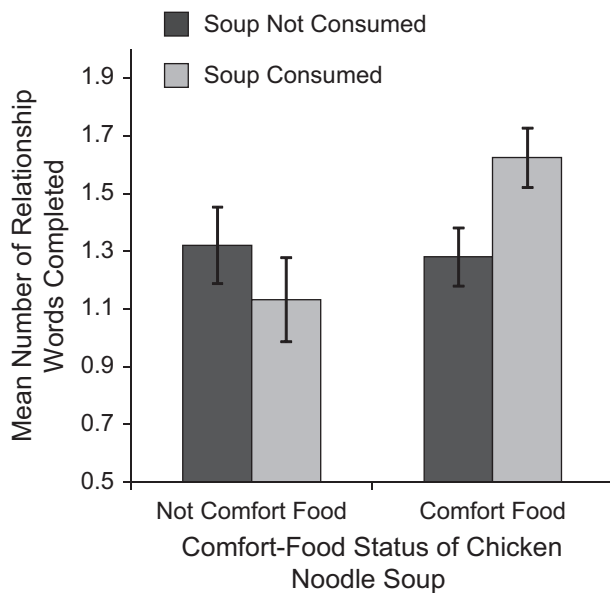


Fig. 1. Number of word fragments completed as relationship-related words in Experiment 1 as a function of whether participants considered chicken noodle soup to be a comfort food and whether they consumed the soup. Error bars represent standard errors.

Among participants for whom chicken noodle soup was a comfort food, those who had consumed it completed more relationship-related words ($M = 1.60$, $SD = 0.56$) than did those who had not consumed it ($M = 1.29$, $SD = 0.53$), $t(56) = -2.18$, $p < .05$, $d = 0.57$. However, among participants for whom chicken noodle soup was not a comfort food, there were no differences in the number of relationship words completed between those who had consumed the soup ($M = 1.11$, $SD = 0.75$) and those who had not ($M = 1.31$, $SD = 0.68$), $t(51) = 1.00$, $p = .32$, $d = 0.28$. Thus, participants given a chance to consume their comfort food showed increased cognitive activation of relationship-related words.

Subsequent analyses provided evidence of discriminant validity for our results. In an analysis of covariance (ANCOVA) that included the number of fragments completed as positive- and negative-affect words, self-reported positive and negative affect, and participant's suspicion about the procedure, the interaction of group and consumption was still nearly significant, $F(1, 102) = 3.71$, $p = .057$, $\eta^2 = .04$. Furthermore, the effect of eating chicken soup on participants who considered it to be a comfort food was still significant when these controls were included in the analysis, $F(1, 51) = 4.87$, $p < .05$, $\eta^2 = .09$. In addition, an ANCOVA among participants who ate the soup revealed that enjoyment of the soup did not reduce the effect of the initial two-way interaction, $F(1, 48) = 7.38$, $p < .01$, $\eta^2 = .13$. Thus, the interactive effect was specific to relationship-related words and was not a by-product of a general positivity effect.

In summary, Experiment 1 supported the hypothesis that comfort food is cognitively associated with relationships. Participants who perceived chicken noodle soup as a comfort food and ingested it demonstrated greater accessibility of

relationship-related constructs than did those who did not ingest it. This was true even though participants ingested the soup alone, in an unfamiliar laboratory setting.

Experiment 2

In Experiment 2, we tested our second hypothesis, that comfort food can reduce feelings of loneliness, by priming a belongingness threat, allowing some participants the opportunity to think of their favorite comfort food, and then measuring loneliness. We predicted that thinking about comfort food would reduce the effects of the relationship threat on loneliness.

Because a belongingness threat was induced, we also measured attachment style. Previous research has found that threats to belongingness activate the otherwise-dormant attachment system (Mikulincer, Birnbaum, Woddis, & Nachmias, 2000; Mikulincer & Shaver, 2007). Therefore, participants who were primed with the belongingness threat should have experienced activation of the attachment system (Gabriel, Kawakami, Bartak, Kang, & Mann, 2010). Securely attached individuals have generally positive cognitive associations with relationships, whereas people who are insecurely attached have more mixed and often negative cognitive associations with relationships (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994). Thus, we expected that the activation of the attachment system would have different effects on securely attached participants than it would on insecurely attached participants. Specifically, we expected that thinking about comfort food would buffer loneliness only for participants with a secure attachment style, because comfort food would not have the same positive cognitive associations among participants with an insecure attachment style.

Method

Participants were 110 undergraduates (62 males, 48 females; mean age = 19.47 years, $SD = 1.61$). The experiment employed a 2 (attachment style: secure or insecure) \times 2 (belongingness condition: threat or control) \times 2 (food experience: comfort food or new food) design.

Upon arriving at the lab, participants completed Bartholomew and Horowitz's (1991) Attachment Scale by indicating which of four paragraphs most accurately described their general relationship style. The four paragraphs corresponded to the secure, dismissive, preoccupied, and fearful attachment styles. We induced a belongingness threat in some participants ($n = 54$) by having them write for 6 min about a fight with a close other (belongingness-threat condition; Gabriel et al., 2010; Murray, Derrick, Leder, & Holmes, 2008); participants in the control condition listed items in their residence for 6 min ($n = 56$). Next, participants were instructed to write about either the experience of eating a comfort food ($n = 56$) or the experience of trying a new food ($n = 54$). They were given as long as they wanted to write about the food experience.²

The essays on food experiences were later coded by two research assistants who were blind to condition. Discrepancies between the coders were resolved by discussion until an agreement was reached. Food-experience essays were coded for several variables, including type of food (i.e., meal, snack, dessert, or other); whether the participant indicated that the food was his or her favorite food, a family tradition, a cultural tradition, something eaten for a holiday, something eaten for a significant family event, a part of his or her past, or a reminder of home (0 = no, 1 = yes); whether close others were mentioned (0 = no, 1 = yes) and how many close others were mentioned; if the food is salty, sweet, or healthy (0 = no, 1 = yes); and the temperature at which the food is served (0 = cold, 1 = room temperature, 2 = hot).³

After they completed the essays, participants reported their current feelings of loneliness using a state version of the 20-item UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). They responded to items such as "Right now I feel like there's no one I can turn to," using a scale from 1 (*not at all true*) to 5 (*extremely true*). After they reported their feelings of loneliness, participants indicated their current mood using the PANAS, were probed for suspicion about the study procedures (1 = yes, 0 = no), debriefed, and excused.

Results and discussion

Coding of the food-experience essays indicated that, compared with new foods ($M = .07$, $SD = .11$), comfort foods were more likely to be identified as a favorite food, a family tradition, a cultural tradition, something eaten for a holiday, something eaten for a significant family event, a part of the participant's past, or a reminder of home ($M = .14$, $SD = .17$), $t(56) = -2.48$, $p < .05$, $d = 0.49$.

For the primary analysis, participants were categorized as secure ($n = 51$) or insecure (all insecure attachment styles: dismissive, preoccupied, and fearful; $n = 59$), on the basis of their responses to the Attachment Scale (Bartholomew & Horowitz, 1991). A three-way ANOVA predicting current feelings of loneliness revealed a significant interaction of attachment style, belongingness condition, and food experience, $F(1, 102) = 7.18$, $p < .01$, $\eta^2 = .07$. To probe this interaction, we conducted separate two-way ANOVAs among participants in the control condition and participants in the belongingness-threat condition. For participants in the control condition, the two-way interaction of attachment style and food experience (writing about comfort food or new food) was not significant, $F(1, 52) = 2.38$, $p = .13$, $\eta^2 = .04$. However, for participants in the belongingness-threat condition, the two-way interaction of attachment style and food experience was significant, $F(1, 50) = 5.38$, $p < .05$, $\eta^2 = .10$ (see Fig. 2). Subsequent analyses revealed that securely attached participants who wrote about a fight with a close other experienced less loneliness if they were given the opportunity to write about their comfort food than if they wrote about a new food, $t(25) = 2.25$, $p < .05$, $d = 0.88$. The contrast for insecurely attached participants was not significant, $t(25) = -1.17$, $p = .25$, $d = 0.46$.

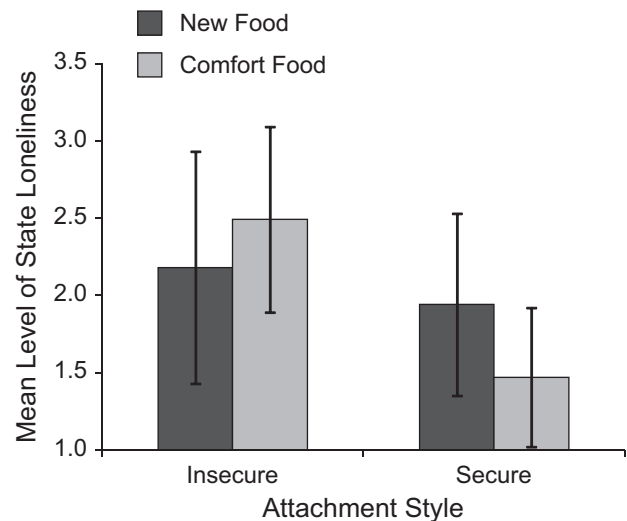


Fig. 2. Feelings of loneliness in the belongingness-threat condition of Experiment 2 as a function of attachment style and food experience (comfort food vs. new food). Error bars represent standard errors.

Thus, as we hypothesized, among individuals who were securely attached (and had positive cognitive associations with relationships), writing about comfort foods reduced the effects of a belongingness threat on loneliness. However, among insecurely attached participants, writing about comfort foods had no effect on loneliness. An ANCOVA revealed that these results remained significant when we controlled for self-reported positive and negative affect and participants' suspicion about the procedures, $F(1, 98) = 5.21$, $p < .05$, $\eta^2 = .05$. In addition, coding of the food-experience essays revealed that participants who wrote about a new food ($M = .57$, $SD = .50$) were more likely to mention a close other than were those who wrote about a comfort food ($M = .35$, $SD = .48$), $t(104) = 2.34$, $p < .05$, $d = 0.45$. Participants who wrote about a new food also mentioned more close others in their essays ($M = .94$, $SD = .88$) than did those who wrote about a comfort food ($M = .41$, $SD = .83$), $t(56) = 2.58$, $p < .05$, $d = 0.62$. Thus, the social benefits provided by comfort food were likely a product of the built association between comfort food and relationships, and were not merely due to participants' writing about friends and family members.

General Discussion

When people turn to food and they're not physically hungry, it means that they're using food for something else besides satisfying the needs of the body. They're using it for a different kind of hunger—an emotional hunger, a psychological hunger, or a spiritual hunger.

—Geneen Roth (in Hughes & Hughes, 2007)

As suggested in this quotation from Roth, people turn to food not only when they are hungry, but also when they desire

comfort. We hypothesized that the emotional power of comfort food comes from its connection with relationships and is realized in its propensity to reduce feelings of loneliness. Experiment 1 showed that participants who viewed chicken noodle soup as a comfort food and ingested chicken noodle soup had greater accessibility of relationship-related constructs than did participants who did not ingest the soup. In Experiment 2, participants who were securely attached (and thus had positive cognitive associations with relationships) were able to use comfort food to reduce the effects of a belongingness threat on feelings of loneliness.

Alternative explanations

A skeptical reader might suggest that the appeal of comfort food is due to its effects on mood in general, rather than its ability to reduce loneliness. However, the results of both of our experiments suggest a pivotal role of loneliness. In Experiment 1, relationship-specific words were activated by eating a comfort food, and this pattern was found even when we controlled for the effects of both positive and negative mood and for the cognitive accessibility of affectively positive and negative words. Also, in Experiment 2, only participants who had positive cognitive associations with relationships benefited from the activation of comfort foods in the face of a belongingness threat.

A second possible concern is that the association between comfort food and belongingness might be attributable to the selection of particular foods as comfort foods. Perhaps some foods, because of their physical or chemical properties (e.g., warmth, texture, and sugar or fat content), are more or less likely than others to affect feelings of belonging. However, in Experiment 1, all participants ate the same chicken noodle soup, and only those who perceived it to be a comfort food experienced heightened activation of belongingness. In addition, coding of participants' essays about comfort foods and new foods in Experiment 2 revealed that these kinds of foods did not differ in type (i.e., meal food, snack food, or dessert), saltiness, sweetness, overall healthfulness, or temperature at which they are served. Thus, the data support the contention that the emotional power of comfort food comes from its connection with relationships and is realized in its propensity to reduce feelings of loneliness.

Comfort food, the need to belong, and social surrogacy

The current findings add to and expand on existing research on social surrogates as vessels for fulfilling the need to belong. Our results are consistent with past research showing that people use nonhuman targets as a means to feel social connection and reduce loneliness. Furthermore, the current experiments are the first to demonstrate that a type of food (i.e., comfort food) can serve as a social surrogate. Thus, social surrogates are not just novel social worlds (Derrick et al., 2009; Mar & Oatley, 2008),

connections to fictional characters or celebrities (Cohen, 2006; Derrick et al., 2008; Gardner & Knowles, 2008), or representations of actual close others (Gardner et al., 2005), but can also be seemingly neutral objects that have previously been associated with relationships. Thus, this research suggests that any object has the potential to become a social surrogate if it is successfully associated with a real relationship.

It is also worth noting that the effects of comfort food as a social surrogate may be particularly potent among the college-aged sample used in the current research. Indeed, many individuals in this age group are away from home for the first time, and during occasions of stress or isolation, comfort food may serve as a stable reminder of family or other relational ties. Future research should examine whether comfort food is as strong a social surrogate among an older sample.

Comfort foods and embodied cognition

Much of the initial research on embodied cognition was inspired by the use of metaphor in common expressions: For example, an icy stare is not literally icy, but it can produce physical coldness (Zhong & Leonardelli, 2008). These metaphors become the lens through which people view and experience the world around them (Bargh, 2006). The current research provides another example of a metaphor come to life: comfort food providing actual psychological comfort. Our findings are highly consistent with the view of embodied cognition that bodily states are encoded along with higher-order cognitions. In this case, the bodily experience of ingesting a particular food is encoded along with the cognitive experience of social connection. Later on, experiencing or merely thinking about the bodily experience of eating comfort food is enough to activate the related higher-order experience of social connection.

Balcetis and Cole (2010) have recently advocated for the examination of ways in which bodily states can provide information to help individuals accomplish goals. Our studies provide a unique contribution to this mission by demonstrating that the effects of embodied cognition can fulfill basic needs. Participants in our experiments were able to activate a sense of social connection, a fundamental human need, by eating or thinking about a particular food. Thus, our research underscores the importance of understanding the implications of embodied cognition; through embedded associations, otherwise neutral objects can fulfill important psychological roles.

Comfort foods and emotional eating

Satiating belongingness needs by consuming comfort food may be riskier than using some other social surrogates, as it may lead to overeating or unhealthy eating behavior (although coding of the food-experience essays from Experiment 2 did not reveal differences in healthfulness between comfort foods and new foods). Our findings provide a new perspective on why negative emotions (e.g., sadness, anger, and anxiety) are

often associated with the increased consumption of food (e.g., Arnow, Kenardy, & Agras, 1995; Herman & Polivy, 1975) and thus expand what is known about emotional eating. Perhaps emotions other than loneliness or the causes of other emotions produce a sense of loneliness and isolation, and, in response, people may increase their consumption of comfort food to alleviate or cope with these feelings (cf. Dubé et al., 2005). The potential for loneliness to mediate the effects of other emotions on eating behavior would be an interesting focus for future research.

Conclusion: Chicken Soup Really Is Good for the Soul

A move away from home, a fight with a close friend, a breakup with a romantic partner, and many other circumstances can leave one feeling alone and isolated. When these things occur, the “embrace” of a familiar food can be particularly alluring. The current research suggests that the “comfort” inherent in a comfort food has real, significant, and consequential psychological roots. Our examination of the psychological function of comfort food contributes to the understanding of eating behavior, social surrogacy, embodied cognition, loneliness, and the fundamental need to belong.

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Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Notes

1. In a pilot study conducted to identify relationship-related words, 45 participants rated a series of words on a scale from 1 (*nothing at all to do with good relationships*) to 7 (*a big part of a good relationship*). The three words selected as relationship-related words were rated as highly associated with relationships ($M = 6.00$, $SD = 0.88$, mode = 7).
2. Duration of time spent writing about the food experience did not differ between the comfort-food and new-food conditions.
3. Full coding results and other results from Experiments 1 and 2 are not reported because of space considerations. These results are available on request from the first author.

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