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Short communication

Modeling of food intake is moderated by salient psychological group membership ☆

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ABSTRACT

The present study demonstrates the utility of a social identity analysis of social influence in predicting eating behavior. In a laboratory experiment, female undergraduate students observed a confederate who appeared to have eaten a large or small amount of popcorn. The confederate was presented as either a fellow in-group member of a salient identity (same university) or an out-group member (another tertiary institution). Results supported the hypothesis that modeling of eating behavior only occurs for psychologically salient in-group members; there was no modeling of out-group members' eating. These data also provide clear evidence of a psychological mechanism by which the modeling of eating behavior can occur.

Introduction

Experimental laboratory research has confirmed that social influence in eating behavior is profound and robust. Individuals will model their eating on the food intake of fellow participants or confederates, mimicking choice of foods and particularly the level of food intake (Pliner & Chaiken, 1990). This modeling effect is resistant to change, and research has found that it is not moderated by weight status (Conger, Conger, Costanzo, Wright, & Matter, 1980), dietary restraint (Polivy, Herman, Younger, & Erskine, 1979) or personality characteristics (Herman, Koenig-Nobert, Peterson, & Polivy, 2005). Even participants who fasted for over 24 hours still varied their intake to conform to social cues signaling an appropriate level of food intake (Goldman, Herman, & Polivy, 1991). The dominant model to explain the modeling effect is a normative interpretation (Herman et al., 2005; Herman, Roth, & Polivy, 2003). That is, individuals are said to attend to information about appropriate eating communicated through the behavior of others.

The introduction of a social norms perspective represents a significant advance in our understanding of social influence in eating behavior. This approach easily incorporates findings indicating that food intake may increase or decrease in the presence of others by drawing attention to normative beliefs as the key mechanism of modeling (Roth, Herman, Polivy, & Pliner, 2001). A normative interpretation also reconciles empirical differences between co-eating studies (where participants eat together) and confederate studies – in both cases it is norms driving eating behavior. However, there are several contextual factors that appear to modify the modeling effect in complex ways. Current theories of norms in the eating literature are not able to explain why some models are more influential than others, or when modeling will persist in the absence of observers. Currently, we consider processes outlined in a contemporary social–psychological theory of social influence in predicting when participants will model the food intake of a stranger while eating alone.

The social identity approach posits that social influence emerges primarily, if not solely, from those perceived to be fellow in-group members; members of salient out-groups are simply not considered to be relevant bases for developing an understanding of reality (Turner, 1991). Therefore, the most important feature of a model is not whether or not they are known personally to the participant or have objectively similar characteristics (e.g. weight, gender), but whether they are perceived to be similar on relevant dimensions. Therefore, this analysis predicts that perceived shared group membership will enhance modeling because individuals regard only in-group norms as having relevance to the self.

Previous research has demonstrated the importance of shared group membership in moderating social influence. For example, in one study participants listened to a stand-up comedian with a canned laughter track that they were told was recorded with an

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in-group or out-group audience of strangers. Smiling and laughter were significantly higher when participants believed that the laughter track was recorded with an in-group audience than an out-group audience (Platow et al., 2005). Other studies have found that facial mimicry is reduced when the target and the source do not share group membership (e.g. ethnicity or religion, Bourgeois & Hess, 2008; Yabar, Johnston, Miles, & Peace, 2006). Importantly, the moderating role of group membership on influence has been observed in health domains, including experiences of stress (Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005) and pain-based arousal (Platow et al., 2007). Three articles to our knowledge have applied a social identity approach in the domain of dieting and/or weight (Balaam & Haslam, 1998; Guendelman, Cheryan, & Monin, 2011; Oyserman, Fryberg, & Yoder, 2007). However, none of these have used a behavioral dependent variable.

In the present study, we tested the prediction (based on a social identity analysis) that a norm for food intake would be influential only when participants perceive a shared in-group identity with the person communicating the norm. Toward this end, we manipulated whether a norm for food intake originated from an in-group or out-group member of a psychologically salient identity. We also varied the norm itself to be one of either relatively high intake or no food intake. The outcome measure was the amount eaten by participants themselves. We hypothesized a two-way interaction, such that participant eating would be influenced by food intake norms only when the source was an in-group member.

Method

Participants and design

Participants were randomly assigned to one condition of a 2 (in-group/out-group model) by 2 (no eating norm/high eating norm) between-subjects design, plus control. In the control condition, participants were not explicitly provided with an eating norm. One-hundred and thirty female Australian National University (ANU) students (M = 19.77 years old, SD = 3.83) voluntarily participated.[1] Participants were not eligible to participate if they indicated a personal or cultural reason for not eating popcorn or had ever attended the Canberra Institute of Technology (CIT; the out-group). Participants were recruited through on-campus advertising or approached directly on campus. First-year psychology students were offered course credit for their participation; others received AUD$10. The research was approved by the ANU Human Research Ethics Committee.

Materials and procedure

Experimental manipulation

The experiment was introduced as research comparing judgements of ANU promotional videos made by ANU and CIT students (in reality, only ANU students were recruited). These identities were chosen specifically to test the social identity premise that shared group membership will moderate social influence even for groups that do not have norms about eating. The ANU student identity is relatively content-free with regards to an existing norm for food intake (unlike, for example, the categories "women" or "obese"; Murnen & Smolak, 1997; Puhl & Brownell, 2001).

Popcorn was provided to participants ostensibly to make them feel "more relaxed" while watching the promotional videos. Participants' ANU identity was made salient through: (1) various visual and verbal cues, including the attire of the experimenter, location of the experiment and the logo on the consent form and (2) participants' initial completion of a 14-item ANU social identification scale (e.g. "I am glad to be an ANU student", 1 = "Strongly Disagree", 7 = "Strongly Agree."). Item responses are averaged such that a score of 4 represents moderate identification with ANU students. This scale has established reliability (α = .80 in this experiment) and validity with a wide range of social groups (Leach et al., 2008).

Participants were then led into a cubicle with a computer to watch the promotional videos. A confederate who appeared to be another student completing the same experiment was then encountered. The confederate, who was wearing a jumper visibly branded with either the ANU or CIT logo, stated which institution she was studying at and commented on how much popcorn she had eaten (i.e., "I ate all of that popcorn!" or "I didn't eat any of that popcorn!" depending on the condition). The participants' attention was also drawn to the confederate's popcorn container, which was either full or almost empty. Nine different confederates were used throughout this experiment, all of whom were university-aged women with body mass indices (BMI) in low normal range. The confederate left the room and the experimenter provided the participant with a full popcorn container (900 mL, approximately 50 g net). The participants were then left alone to view the three promotional videos.[2] In the control condition, no confederate was encountered.

Participant questionnaire

Following the completion of the promotional videos, the popcorn container was taken from the participant and weighed immediately in another room. The participant then completed the computer-administered questionnaire. Consistent with the cover story, three questions addressed the participant's attitudes toward the videos (e.g. "Which promotional video did you enjoy the most?"). Participants were then asked about the relative status of the two institutions; "I think ANU students are a higher-status group than CIT students." (1 = "Strongly Disagree", 7 = "Strongly Agree"). We then measured individual differences in preference for popcorn by asking, "How much do you like popcorn in general?" (1 = "Like a lot," 5 = "Dislike a lot").

Participants then completed the first manipulation check: "When you came into this small room, did you see another participant who was just finishing the study?" ("Yes", "No"). Participants who answered "Yes" were directed to the following two further manipulation checks. The food intake norm manipulation was assessed by asking participants to, "Think back to when you saw the previous participant. How much popcorn do you think was left in their popcorn cup?" Response options were seven pictures of popcorn cups, ranging from almost empty to completely full. The check on the group-membership manipulation was assessed by asking participants to, "Think back to when you saw the previous participant. What institution do you think they were studying at?" The two response options were pictures of each institution's logo.

Finally, participants completed the Restrained Eating Scale (Herman & Polivy, 1980). This is a ten-item, reliable (α = .80 in this experiment) and validated inventory that assesses individual differences in dietary restraint (i.e., chronic efforts to restrict food intake). It has a range of 0–35, with scores of 15 or higher typically considered to represent a "restrained" eating pattern.

[1] Only female participants were used for three reasons: (i) this is standard practice in the literature for laboratory studies of food intake, (ii) eating pathology primarily affects women, compelling a similar focus in research and (iii) we only had access to female confederates.

[2] Participants watched three video clips promoting the Australian National University, for a total of 15 min. The first focused on the university's environmental credentials. The second was an interview with the new Vice-Chancellor, in which he emphasized various achievements of the university and goals for the future. The third clip promoted various clubs and societies within the university.