Research Report

Effects of social influence on eating in couples, friends and strangers

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Received 11 September 2006; received in revised form 11 December 2006; accepted 15 December 2006

Abstract

Previous research indicates that both males and females eat less in the presence of a stranger of the opposite sex than in the presence of a same sex. Another literature shows that people tend to model or matching the amount eaten by others. The extent to which people are eager to inhibit their food consumption or match other’s intake is likely to vary as a function of the characteristics of the co-eater. The present study examines how males and females adjust their level of eating as a function of their familiarity with and the gender of their eating companion, using a free-eating paradigm. Findings indicated that both the familiarity between co-eaters and the participants’ gender predicted food consumption. Although unfamiliarity suppressed both men’s and women’s food intakes, the matching effect operated only when a female co-eater was involved. We conclude that the overarching motive (i.e., producing a positive impression) does not necessarily vary substantially across the various gender-familiarity combinations, but that the means or strategies (eating lightly and or matching of intake) by which the person accomplishes it and the strength of the motive vary as a function of the audience. In other words, in some social contexts self-enhancing motives can be served by restricting intake as well as through ingratiatory strategies such as attitudinal or behavioral conformity.

Keywords: Social influences; Eating; Free-eating paradigm; Impression management

Introduction

Food is obviously used to satisfy the body’s needs, but it can also serve a communicative function. What and how much you eat communicate more than your culinary preferences; it is a self-presentational statement. You are what you eat! Self-presentation, or impression management, involves regulating one’s own behavior to create a specific image for an audience (Leary & Kowalski, 1990; Leary et al., 1994; Schlenker, 1975), and eating behavior may have utility for impression management (Bock & Kanarek, 1995; Mori, Chaiken, & Pliner, 1987; Pliner & Chaiken, 1990). Conveying a positive impression through eating can manifest itself in eating lightly and through eating conformity (i.e., matching or modeling the amount eaten by someone else).

Studies on impression management through eating lightly show that some eating companions make people more eager to suppress their intake in order to convey a good impression (Mori et al., 1987; Pliner & Chaiken, 1990). These studies have looked at the amount of food people consumed when the characteristics of the eating companion were manipulated. Mori et al. (1987, Experiment 1) found that both male and female participants ate less in the presence of a desirable partner of the opposite sex than in the presence of a less desirable partner. In a second study, women whose feminine identity was threatened (i.e., because they scored “masculine” on a questionnaire) restricted their intake. Pliner and Chaiken (1990)
replicated Mori et al.’s (1987) findings and explored the reported social motives operating in interpersonal situations. They found that behaving in a socially desirable manner was an important motive for men, while being socially desirable and appearing feminine were important for women. Other research shows that women who eat minimally are viewed more positively than are women who eat a lot (Bock & Kanarek, 1995; Chaiken & Pliner, 1987). Further, it is widely assumed that people become overweight because of a lack of self-control around food (DeJong & Kleck, 1986; Puhl, Schwartz, & Brownell, 2005), and overweight people are stereotyped as lazy, self-indulgent, unattractive, lacking self-esteem, socially inept, uncooperative, and intellectually slow (Allon, 1982; DeJong, 1993; Harris, 1990; Hebl & Heatherton, 1998; Madey & Ondrus, 1999). Thus, individuals’ concern about eating too much in front of others and attempts to manage impressions by eating lightly are not totally misguided.

The effect of modeling or matching effect on can be seen most clearly in studies using a conformity paradigm, in which a naïve participant eats in the presence of a confederate whose level of eating is predetermined by the experimenter. These studies have consistently found that participants eat less in the presence of a confederate who eats minimally than in the presence of one who eats a large amount (Conger, Conger, Costanzo, Wright, & Matter, 1980; Goldman, Herman, & Polivy, 1991; Nisbett & Storms, 1974; Roth, Herman, Polivy, & Pliner, 2001; Herman, Roth, & Polivy, 2003). One explanation for these findings is that people believe that by conforming they will ingratiate themselves to others; behavioral similarity will lead others to like and accept them (e.g., Sunnafrank, 1991; Sunnafrank, Ramirez, & Metts, 2004). In the language of Jones and Pittman’s (1982) model of self-presentation, matching the intake of the eating companion would have a similar ingratiating function as attitude conformity. However, most studies on eating conformity have averaged the participants’ intake and compared these levels of eating to the consumption of experimental confederates who were eating predetermined amounts of food. A more appropriate test of the matching hypothesis would involve assessing the relationship between co-eaters’ intakes (i.e., correlational analysis).

Most of the findings in the literatures on impression management and matching in eating are based on eating among strangers, so it is not known whether familiarity mediates or moderates these effects. From a self-presentation perspective, people should be more motivated to convey a good impression during their initial interactions with a stranger than with someone who they know well (Leary et al., 1994). This is consistent with findings indicating that individuals use different self-presentation strategies when conversing with different targets, relying on self-enhancement with strangers but shifting toward modesty with friends (Tice, Butler, Muraven, & Stillwell, 1995). The familiarity hypothesis is further reinforced by Clendenen, Herman, and Polivy’s (1994) finding that people ate less dessert when eating with strangers than with friends, although there was no difference in entrée consumption (déli food) between friends and strangers. Presumably, strangers were more concerned with self-enhancement (i.e., appearing socially desirable or feminine) and limited their intake of “forbidden” dessert. Evidence for the familiarity hypothesis also comes from de Castro’s findings that social facilitation of eating (people eat more in the presence of others than when they eat alone) appears to be stronger when people eat in the presence of friends and family than when they eat with strangers (de Castro, 1990, 1994).

The studies reviewed above indicate that people sometimes inhibit their food intake when eating with someone else (Mori et al., 1987; Pliner & Chaiken, 1990) and sometimes match their co-eater’s food consumption (Nisbett & Storms, 1974; Rosenthal & Marx, 1979; Rosenthal & McSweeney, 1979; Roth et al., 2001). Although, the evidence for impression management and matching (eating conformity) has come from separate literatures, we contend that it is possible for both processes to operate at the same time and to be studied simultaneously. The idea is that overarching motive (i.e., producing a positive impression) does not necessarily vary substantially, but that the means or strategies (eating lightly and or matching of intake) by which the person accomplishes it and the strength of the motive vary as a function of the audience. In some social contexts self-enhancing motives can be served by restricting intake while in others individuals may use ingratiatory strategies such as behavioral conformity (Jones & Pittman, 1982).

The present study examines how males and females adjust their level of eating as a function of their familiarity with and the gender of their eating companion, using a free-eating paradigm. In previous matching studies, because the confederates’ intake was varied only at two levels, we can conclude only that participants’ eating is elevated when the confederate eats a lot compared to when the confederate eats only a little. We cannot determine how well the subjects are “tracking” the confederate’s intake. In contrast, the free-eating paradigm allows the formulation of predictions regarding not only the amount of food consumed by the two participants, but also the relationship between co-eaters’ food intake (i.e., matching effect).

We contend that people strategically vary their level of eating with different audiences to fulfill a similar overarching motive of a positive self-presentation. Based on the impression management literature, we predicted that both males and females would eat less in the presence of a partner of the opposite sex than in the presence of a same sex co-eater (Mori et al., 1987; Pliner & Chaiken, 1990). However, we also predicted that the inhibiting effect of an opposite sex co-eater would be moderated by familiarity. Presumably, eating that takes place in the first stages of a relationship is in marked contrast with the eating that occur when partners are well acquainted with each other. Individuals interacting with well-known others are
generally assured of their affection and have less need to
use strategic self-presentation to obtain their approval
(Jellison & Gentry, 1978; Leary et al., 1994).

Consistent with a self-presentational account of eating
conformity, we predicted that individuals would match the
amount eaten by their partner, resulting in a positive
correlation between the amounts eaten by the two. We also
predicted a stronger effect of matching among strangers
than among acquainted co-eaters because of the greater
importance of ingratiating when eating with a stranger
than when eating with someone who knows one well (Jones
& Pittman, 1982). Empirically this should translate into
higher correlations between co-eaters’ intakes in dyads
composed of strangers than in the corresponding ac-
quainted dyads. Finally, we predicted that the more
affiliative and supportive nature of women’s interpersonal
interactions would promote greater eating conformity in
dyads involving at least one female (i.e., greater relation-
ship between co-eaters’ intake) (Eagly, 1978; Wood,
Christensen, Hebl, & Rothgerber, 1997). Women may
conform more than men, because they take greater
responsibility for establishing and maintaining positive
interpersonal bonds (Eagly, 1978, 1983, 1987), while men’s
greater drive for independence and distinctiveness
(Baumeister & Sommer, 1997; Cross & Madison, 1997)
leans itself to non-conformity with regard to eating.

Method

Overview and design

The design used in this experiment was a 2 × 3 factorial
design with familiarity (familiar vs. strangers) and dyads’
gender composition (both females, both males, mixed) as
between-subject factors. The design generated six experi-
mental conditions: opposite-sex romantic partners, oppo-
site-sex strangers, female friends, female strangers, male
friends and male strangers. Under the pretext of a study on
patterns of interaction among friends, couples and
strangers, participants were asked to converse in dyads
about a non-threatening topic (i.e., enjoyable activities) for
ten minutes. With the rationale of making the situation
more relaxed and similar to everyday-life conversations,
participants were casually offered pre-weighed bowls of
snack foods (cookies and crackers). The main variable of
interest was the total amount of snack in grams consumed
by participants.

Participants

Participants were 173 women and 137 men recruited
through the psychology undergraduate subject pool,
through an advertisement posted on a bulletin board
devoted to the recruitment of paid participants in experi-
ments, through word of mouth, or through direct approach
by the experimenters in public places around the campus.
Students recruited through the subject pool received a
course credit for their participation; all other participants
received a 10-$ compensation. At the time of recruitment,
participants were told that the study assayed patterns of
interaction among friends, couples and strangers and were
informed that they would be conversing for 10 min with
their romantic partner, a friend or a stranger, depending on
the condition. All participants were asked to bring a friend
or their romantic partner for the experimental session. The
individuals accompanying the participants (friend, roman-
tic partner) were also compensated (i.e., course credit if
they were students and 10-$ compensation if they were
not). On the day of the experiment, participants were
randomly paired with their friend or partner or with a
stranger. Dyads of strangers were composed of participants
who were paired with the partner/friend of another
participant who had come for the same session. At the
time of recruitment, participants were told that food
consumption could impact on moods and that for this
reason they were required to abstain from eating 2 h before
their experimental session. Adherence to this recommenda-
tion was assessed upon their arrival to the laboratory.
Participants who did not comply with this requirement
were rescheduled. All experimental sessions were con-
ducted between 1000 and 1800 h. Table 1 displays the
participants’ mean ages and weights across conditions.
Female friends had known each other for an average of
2.96 years, male friends for 4.16 years and romantic
partners for 2.75 years.

Procedure

After consent procedures, participants were instructed to
discuss activities that they enjoyed doing with either their

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<td>Mean ages and body weights across conditions (SD)</td>
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<table>
<thead>
<tr>
<th>Unfamiliar</th>
<th>Familiar</th>
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<tr>
<td>Same sex</td>
<td>Opposite sex</td>
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<td>Female</td>
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<tr>
<td>19 (1.11)</td>
<td>20 (4.25)</td>
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<td>132 (26.8)</td>
<td>158.6 (31.08)</td>
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Note: Participants (males and females separately) did not differ in terms of body weight across conditions.
friends or with their romantic partner depending on the person they had brought with them. For example, participants who came with their friends were asked to talk about activities they enjoyed doing with their friends. Eating was therefore “incidental” to what was described and the study did not involve working on a task, which might have influenced the amount participants eat (e.g., a forced tasting task).

On the pretext of making the atmosphere more convivial, participants were casually offered bowls copiously filled with crackers and cookies. So that it would be possible to assess the intake of each participant independently, each received a separate set of bowls. They were casually told that they could eat as much or as little as they wanted while conversing. These pre-weighed bowls of snack foods were positioned so that participants had access only to their own bowls without being able to reach their partner’s bowls. Each participant had access to three small bowls of snacks (described below). Participants were sitting side by side at a table but their chairs were positioned to face each other. A tape recorder was placed on the table and participants were told that they would be left alone for the discussion but that their conversation would be recorded. Post-experiment interviews indicated that participants were naïve to the real purpose of the experiment and were unaware that their snack consumption would be recorded.

Since the purpose of the study did not involve analyzing the participants’ dialogues, the recorded conversations were erased after each session. Before leaving the room, the experimenter informed the participants that she would knock on the door at the end of the 10 min conversation period. After exactly 10 min, the experimenter returned to the experimental room and turned off the tape recorder. The participants were asked to end their conversation, the snacks were removed and participants were asked to complete a questionnaire package about their daily habits, behaviors, preferences and perceptions. Questionnaires were administered and height and weight measurements were obtained at the end of the session so that these measurements would not influence the eating data. Participants were then debriefed about the real purpose of the experiment and were told that their snack consumption would be recorded. Post-experiment interviews indicated that participants were naïve to the real purpose of the experiment and were unaware that their snack consumption would be recorded.

The amounts of food provided were intentionally large so that participants could eat as much as they wanted without finishing all the food provided.

**Results**

**Data analysis**

In this study, we were interested in two aspects of participants’ food intake: (1) the average levels of food consumption and (2) the relationship between co-eaters’ food intakes. Before proceeding to the main analyses, we assessed whether there was any difference of body weight across conditions, given that such difference would impact on the results; there were not (p = .28). We also compared female friends, male friends and couples in terms of how long the participants in these dyads had known each other. The results of the ANOVA revealed no significant difference across these conditions.

**Amount of food consumed**

When the observations are non-independent, it is necessary to treat the dyad rather than the individual as the unit of analysis (Kenny, 1995; Kenny & Judd, 1986). One participant’s intake is influenced by the partner’s intake and has to be considered in relation to other participant’s consumption. This mutual influence violates the assumption of independence between observations required for analysis of variance. Random-effects models (also called multilevel, hierarchical linear or mixed models) provide a useful approach to account for interdependence in two-person relationships (Gibbons & Hedeker, 1994; Hedeker & Gibbons, 1994; Hedeker, Gibbons, & Flay, 1994). These models make it possible to assess the effects due to the individual while controlling for the variance due to the other member of the dyad. This is determined by the covariances among the regression coefficients and can be characterized by a covariance function (Hedeker & Gibbons, 1996). The outcomes at the individual level are modeled taking into consideration the dependence of a participant’s data on the other individual’s data (Hedeker, 2003). Participants’ snack intakes were analyzed using SYSTAT Software (Systat, 2004). Based on our hypotheses, familiarity, partner’s gender, participant’s gender and interactions between these variables were entered as fixed effects into the models as predictors of participants’ snack intake.

Fig. 1 illustrates participants’ mean snack consumption across conditions. A random regression analysis performed with consumption as the dependent variable revealed a main effect of familiarity, \( F(1, 153) = 15.80, p < .001 \), a main effect of participant gender \( F(1, 153) = 11.53, \)
Differences of least square means indicated that male friends \((M = 70.14)\) ate more than male strangers \((M = 30.92)\), \(t(153) = -3.73, p < .001\), and females eating with a same-sex stranger \((M = 23.06)\), \(t(153) = -4.36, p < .001\). Male friends also ate more than both males \((M = 30.83)\), \(t(153) = -3.58, p < .001\) and females eating with an opposite sex stranger \((M = 16.92)\), \(t(153) = -4.85, p < .001\) and more than males \((M = 43.87)\), \(t(153) = -2.65, p < .01\) and females \((M = 44.08)\), \(t(153) = -2.62, p < .001\) eating with their significant other. In other words, male friends ate more than all other participants. Females eating with their significant others ate more than females eating with male strangers, \(t(153) = -2.12, p < .05\), and with male strangers, \(t(153) = -2.68, p < .01\).

The proportion of participants, who ate nothing, referred to as “non-eaters”, in the couples group was 10%; whereas as in the opposite sex strangers condition, 30% ate nothing. In the friends conditions, non-eaters ranged from 1% to 10% for males and females friends, respectively. In the opposite-sex strangers group, 10% for males and 40% for the females did not eat. When the non-eaters were removed from the analyses, the results were substantially the same.

**Relationship among co-eaters’ intakes**

The second question of interest was whether co-eaters’ familiarity and the dyads’ gender composition would moderate the intake matching reported in previous studies. The assessment of relationships between two measures via Pearson correlations applies only to situations where members of a dyad are distinguishable (i.e. one unequivocally belongs to the X group and the other unequivocally belongs to the Y group). When the designation of members of a pair is arbitrary (i.e., when there is no way to disentangle variability due to specific individual), intraclass correlation coefficients (ICC) provide accurate estimations of the magnitude of the relationships between variables (Griffin & Gonzalez, 1995; Shrout & Fleiss, 1979). ICCs were calculated for undistinguishable dyads (i.e., same-sex dyads), while Pearson correlations coefficients were calculated for distinguishable dyads (i.e., opposite-sex dyads). ICCs for dyads are interpreted in the same fashion as Pearson correlations (Kenny, Kashy, & Cook, 2006). Therefore, intradyadic similarity was indexed by the Intraclass and Pearson correlation coefficients. The ICCs were measured with the SPSS 12.0 “reliability” procedure (SPSS, 2003), using a one-way random model (Howell, 2000).

\(p < .001\), and a familiarity by partner gender interaction, \(F(1, 153) = 6.44, p < .05.\) Differences of least square means indicated that male friends \((M = 70.14)\) ate more than male strangers \((M = 30.92)\), \(t(153) = -3.73, p < .001\), female friends \((M = 31.16)\), \(t(153) = -4.21, p < .001\), and female strangers \((M = 23.06)\), \(t(153) = -4.36, p < .001\). Male friends also ate more than both males \((M = 30.83)\), \(t(153) = -3.58, p < .001\) and females eating with an opposite sex stranger \((M = 16.92)\), \(t(153) = -4.85, p < .001\) and more than males \((M = 43.87)\), \(t(153) = -2.65, p < .01\) and females \((M = 44.08)\), \(t(153) = -2.62, p < .001\) eating with their significant other. In other words, male friends ate more than all other participants. Females eating with their significant others ate more than females eating with male strangers, \(t(153) = -2.12, p < .05\), and with male strangers, \(t(153) = -2.68, p < .01\).

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**Relationship among co-eaters’ intakes**

The second question of interest was whether co-eaters’ familiarity and the dyads’ gender composition would moderate the intake matching reported in previous studies.
Table 2 displays the correlation coefficients between the co-eaters’ consumption. The relationships between the co-eaters’ intakes were used as indexes of social influence. The degree of intake matching was high in all dyads with the exception of the relationships found in dyads composed of male strangers and male friends. All intradyadic correlations of intake were statistically significant with the exception of the ICCs in the two types of male-only dyads (male friends and male strangers). Comparison of all the ICCs generated indicated that the dyads composed of male strangers significantly differed from all the other dyads with the exception of the correlation of intake in pairs of male friends. Male friends’ matching of intake significantly differed from the ICC observed in dyads composed of male strangers (Z = 2.78, p < .01) and marginally differed from the correlation found in couples (Z = −1.91, p = .056).

Discussion

This study examined how males and females adjust their level of eating as a function of their familiarity with their co-eater and the dyads’ gender composition, using a free-eating paradigm. The two variables of interest were the amount of snack-food the participants ate and the degree of intake matching among eating companions.

The results pertaining to the amount of food consumed indicated that both male and female participants who were eating with familiar co-eaters ate more than male and female participants eating in the presence of unfamiliar eating companions. However, these results were qualified by the gender of the partner. Females in the couple condition ate more than females in all other conditions, while male friends ate significantly more than the males in all other conditions. The effect of familiarity on food consumption is consistent with findings indicating that social facilitation of eating may be stronger among friends and relatives than among strangers and stronger among men than among women (de Castro, 1994).

As expected, participants’ gender had an effect on the level of matching. The matching data indicated that the overall degree of intake relationship was high in all dyads involving at least one female. In contrast, the ICCs in dyads involving only males (i.e., male strangers and male friends) did not reach statistical significance. This is consistent with the studies on sex-related differences in social interactions and conformity described earlier (Boyatzis, Chazan, & Ting, 1993; Davis & Franzoi, 1991; DePaulo, Epstein, & Wyer, 1993; Exline, 1972) on which we based our prediction. These studies have found that women are more likely than men to consider their partner’s perspective in order to anticipate the partner’s needs and reactions and are better at adjusting to situational factors to foster affiliation (Pollak Levine & Feldman, 1997). Assuming that self-presentation through eating operates in the same way, females may have adjusted their level of intake to ingratiate themselves, appear likeable, or cement a bond of acquaintance. In this view matching of eating would have the social function of fostering group cohesion and enhancing amicability. Conversely, men’s drive for distinctiveness (Baumeister & Sommer, 1997; Cross & Madson, 1997) may have lent itself to non-conformity with regard to eating. In other words, men might have monitored accurately how much their eating companions were eating, but used this information to distinguish or separate themselves from others rather than to foster similarity.

Contrary to our hypothesis, the partners’ familiarity did not significantly influence matching. The matching of intake in dyads of strangers did not differ from the matching in dyads of acquainted co-eaters. Our failure to obtain a familiarity effect in the matching data is puzzling given that we did obtain a familiarity effect in amounts eaten. We are unable to explain this at the moment and can only suggest that it is possible that the depth of the relationship influences the amount of matching on eating. In this study, this variable was not assessed beyond examining the duration of the relationships between friends and between partners. Although these dyads did not differ significantly in terms of how long the partners had known each other, it is possible that differences in terms of the depth of the relationships moderate the effects of social influences on snack consumption and their intake matching.

Since social conditions often act by increasing the amount of time at meals (de Castro, 1994; Pliner, Bell, Hirsch, & Kinchla, 2006), the restriction that the session was always 10 min long probably affected the results. This time limitation was useful for experimental control, but it limited the interpretation of the findings. Similarly, although there were significant differences in food intake as a function of familiarity and participant gender, the overall food intake was rather low (e.g. females eating with male strangers). The time constraint imposed on eating probably explains, at least partly, low food consumption. Future studies might benefit from using a similar paradigm to look at meal, rather than snack intake.

Future research ought to explore the social motives accounting for differences between men and women with regard to matching of eating. Even if women are somewhat more willing to match others’ intake when it seems that conformity is useful to develop or cement a bond (Eagly, 1978), there might be a threshold that they are not ready to cross because their own personal values and desires conflict with their inclination to adapt to the situation. And further research should examine the moderating/mediating effects of depth and/or duration of relationship on the kinds of behaviors studied here.

References


