Short communication

Matching effects on eating. Individual differences do make a difference!

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A B S T R A C T

Dyads composed of unacquainted females (n = 82) watched a cartoon while consuming salty aperitif snacks. The Affective Communication Test was used to measure nonverbal expressiveness. Computing intraclass correlation coefficients, the extent to which participants within dyads matched each other’s food intake was analyzed. Food intake matched highly for dyads with two expressive individuals and moderately for dyads with one expressive participant. For dyads with two unexpressive participants, there was no evidence for matching behavior. Highly expressive people seem to be able to synchronize with others and thereby allow for close matching. This is the first study to show an influence of personality on matching consumption behavior.

Introduction

The primary conclusion from the modeling literature is that a person eats more when companions eat more and less when companions eat less (Wansink, Just, & Smith, 2011). This modeling or matching effect has usually been demonstrated employing an experimental confederate instructed to eat either a large or small quantity of food. Nisbett and Storms (1974) were two of the first researchers to explore this effect, and since then many studies have replicated it (Conger, Conger, Costanzo, Wright, & Matter, 1980; Herrans, Larsen, Herman, & Engels, 2009; Polivy, Herman, Younger, & Erskine, 1979). Hunger, obesity, dieting, and social desirability have not been found to impact the modeling effect (Goldman, Herman, & Polivy, 1991; Rosenthal & Marx, 1979); therefore, researchers have concluded that the effect must be very robust (Herman & Polivy, 2005).

Researchers were only recently able to identify factors that moderate this matching effect. Specifically, Johnston (2002) demonstrated that a confederate’s physical appearance determines the occurrence of matching. When she used a normal-weight confederate, her results replicated those of earlier studies. However, employing an obese confederate inhibited matching: participants ate little ice cream regardless of the obese confederate’s level of ice cream consumption. This line of research was continued by Herrans, Larsen, Herman, and Engels (2008) and McFerran, Dahl, Fitzsimons, and Morales (2010). Together with other research (e.g., De Luca & Spigelman, 1979; Salvy, Coelho, Kieffer, & Epstein, 2007), these studies show that physical appearance strongly affects the food intake of others. Besides physical appearance, social atmosphere also seems to moderate the modeling effect (Herrans, Engels, Larsen, & Herman, 2009); and in a recent study, Brunner (2010) showed that participants refrained from modeling a normal-weight confederate when a body-weight scale was unobtrusively placed in the experimental room, as well as when verbal statements about weight gain were made.

Other researchers have attempted to find individual differences that would moderate the matching effect. For example, Rosenthal and McSweeney (1979) analyzed whether the effect is stronger in obese than in normal-weight eaters, and Rosenthal and Marx (1979) investigated dieters and non-dieters. Herman, Koenig- Nobel, Peterson, and Polivy (2005) examined differential matching by extraverts and high self-monitors. However, all attempts to identify individual differences that influence matching have failed.1

In the present study, the question of individual differences is revisited using the Affective Communication Test (ACT) developed by Friedman, Prince, Riggio, and DiMatteo (1980). The ACT is a reliable and valid measure of individual differences in expressiveness, or what is sometimes called “charisma.” Expressive persons use nonverbal cues to captivate others; however, Friedman et al. stated that “expressiveness is more closely related to exciting others than to manipulate others” (p. 348). The main way by which expressive people captivate others might be through mimicry. Mimicking is a

1 Gender differences in matching are common. Salvy, Jarrin, Paluch, Irfan, and Pliner (2007), for example, found that dyads involving at least one female matched their food intake more than dyads only involving males.
subconscious process that occurs naturally and synchronizes nonverbal communication (Condon, 1982; Erez, Misangyi, Johnson, LePine, & Halverson, 2008; Hatfield, Cacioppo, & Rapson, 1994). Cherulnik, Donley, Wiewel, and Miller (2001) found that observers showed more mimicry when watching charismatic leaders than when observing non-charismatic leaders. Therefore, it is hypothesized that dyads with at least one expressive person will match their food intake more than dyads without an expressive person. Moreover, it is hypothesized that dyads with two highly expressive individuals will match even more than dyads involving only one expressive person. Highly expressive people seem to be able to synchronize with others resulting in a close match of food intake. William Condon coined the phrase “interactional synchrony,” meaning that whenever two people interact, they will synchronize their micromovements (e.g., Condon, 1982). It seems that people who are highly expressive are especially good at synchronizing with others.

Method

A total of 82 female students, recruited from a mailing list, completed the task in exchange for money. The mean age of the sample was 23.3 years (SD = 5.99 years) with a mean BMI of 21.6 (SD = 2.94). Two students were appointed for each session, but care was taken during recruitment to ensure that members of a given dyad did not know each other. Sessions took place from 9 a.m. to 11 a.m. and from 3 p.m. to 5 p.m.

Participants were told that the study involved watching three 7-min “Tom & Jerry” cartoons, and that the researchers were interested in the emotions evoked by the cartoons. Participants were told they would not have to pay attention to their emotions while watching the cartoons but should just enjoy them; afterwards, they would have to answer a questionnaire. They were told that they should imagine being at home in the living room, and the researchers provided a couch and some snacks to help them feel comfortable. After these instructions, participants were seated on the couch next to each other with a bowl of salty aperitif snacks (70 g; Party-Mix from Migros) and a cup of water on each side. Thus, they noticed when the other person reached for the snacks. Once they were seated, the experimenter started the cartoons. Then, once the cartoons were over, participants were led to different tables and completed the questionnaires, including the ACT (Friedman et al., 1980). After the participants left, the experimenter took the bowls with the snacks and weighted the leftovers to calculate the amount consumed by each participant.

The original ACT developed by Friedman et al. (1980) consists of 13 items that address nonverbal expressiveness and its consequences. Examples of items are: “When I hear good dance music, I can hardly keep still,” “My laugh is soft and subdued” (reversed), and “At small parties I am the center of attention.” The complete scale can be found in Friedman et al. (1980). For the purpose of this study, six items were added (see Table 1). For the present study, there was a Cronbach’s alpha of .713 for the 13-item scale and a Cronbach’s alpha of .782 for the 19-item scale. The 19-item scale was used for additional analyses (using the original 13-item scale yielded identical results regarding statistical significance).

Results and discussion

None of the participants indicated a suspicion of the true purpose of the experiment; thus, all 41 dyads were included in the statistical analyses. Overall, a high degree of intake matching was observed: the intraclass correlation coefficient (ICC) of intake of salty aperitif snacks was .58 (p < .001). To examine the moderating effect of expressiveness, the sample was split at the median for expressiveness (thereby following the procedure of Herman et al., 2005). According to the stated hypothesis, a dyad containing two people above the median should display greater matching than a dyad with only one person above the median. The least matching should be found in a dyad with two people low in expressiveness (below the median). The ICC for dyads containing two expressive people (n = 10) was .79 (p < .001); for dyads containing only one expressive person (n = 21), the ICC was .47 (p < .05), and for dyads containing no expressive person (n = 10) there was a non-significant ICC of .09 (p = .386). The difference between these ICCs was significant for the dyads containing two expressive people and dyads containing no expressive person (z = 1.81, p < .05, one-tailed). There were no significant differences for the dyads containing two expressive people and those containing only one expressive person (z = 1.23, p = .109, one-tailed) and the dyads containing only one expressive person and those containing no expressive person (z = .94, p = .175, one-tailed). However, regarding statistical significance, one has to keep in mind the small sample sizes of the subsamples.2

To the best of the researcher’s knowledge, this is the first study to show that the matching effect of food intake is influenced by a personality construct, namely nonverbal expressiveness. Expressiveness seems to be crucial for matching, and may even be one of the underlying processes of matching behavior. Highly expressive people seem to be able to synchronize with others resulting in a close match of food intake.

Future research should investigate the robustness of the influence of expressiveness. In the present study, participants were strangers to each other, which may have made them more concerned about making a good impression (see Salvy, Jarmin et al., 2007). Would expressiveness still affect matching if participants knew each other? Another limitation is that all participants were females. Women have slightly higher ACT scores than men (Friedman et al., 1980). Therefore, it is not certain that the findings could be replicated using male participants. Other studies should leave the lab and validate the results in the field (see Hermans, Herman, Larsen, & Engels, 2010). Finally, another limitation is the lack of an eat-alone condition to establish a baseline level of consumption. Due to limited resources and a focus on relative matching rather than absolute food intake, this research was conducted without such a control group.

References


2 There were no significant relationships between matching and consumption volume.


