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Social influence processes on adolescents' food likes and consumption: the role of parental authoritativeness and individual self-monitoring

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Social influence processes on adolescents' food likes and consumption: the role of parental authoritativeness and individual self-monitoring

Abstract

This cross-sectional study investigated how parents and friends influence adolescents' food likes and consumption. 709 adolescent-parent and 638 adolescent-friend dyads completed a questionnaire, allowing us to compare target-parent and target-friend resemblances both on food likes and consumption, while distinguishing between cultural influence and dyadic unique influence. In addition, we identified two psycho-social predictors of resemblance, namely parenting style and adolescents self-monitoring. As expected, results indicated that authoritative parenting style increased target-parent resemblance in food likes (directly) and consumption (indirectly), and self-monitoring orientation increased target-friend resemblance in food likes (directly) and consumption (indirectly). We also showed that target-friend resemblance was more culture-based than target-parent resemblance, suggesting that parental influence is more specific to the dyadic relation than is peer influence.

Keywords: food preferences, family influence, peer influence, parenting style, self-monitoring.

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Healthy eating contributes to general well-being and to preventing a number of conditions, such as diabetes, heart disease and cancer (e.g. Sofi, Cesari, Abbate, Gensini, & Casini, 2008). Eating habits adopted during childhood and adolescence are likely to be maintained into adulthood (Krebs-Smith et al., 1995), stressing the importance of a healthy diet in this period. However, international surveys (Cavadini, Siega-Riz, & Barry, 2000; Vereecken, De Henauw, & Maes, 2005) report that most adolescents do not consume the recommended amounts of fruit and vegetables, and consume instead too much "junk" foods that are high in fat, salt, and sugar. This is why it is important to reach a deeper understanding of the psycho-social factors underlying adolescents' dietary habits, with relevant implications in terms of health education programs and the prevention of both eating disorders and obesogenic behavior.

Parents and peers have been shown to influence adolescents' food attitudes and eating behavior (for recent reviews, see Guidetti & Cavazza, 2010; McClain, Chappuis, Nguyen-Rodriguez, Yaroch, & Spruijt-Metz, 2009): therefore, we should expect that adolescents food likes and consumption patterns resemble those of their parents and friends, though the degree of this resemblance may vary according to structural, personality, and psycho-social factors. The present study aims to investigate how parents and friends influence adolescents' attitudes and behavior, by assessing the degree of resemblance between adolescents' food likes and consumption and those of their parents and best friends. In addition, we explored whether two psycho-social factors, namely authoritative parenting style and individual self-monitoring, predict[1] the degree of this resemblance. This is the main original contribution of our work. In addition, we separated out the unique dyadic resemblance from the cultural influences through an innovative method in this field of research, that is removing the stereotype effect. Finally, we compared similarities with parents and friends, in relation to both liking and consumption.

Family and peer resemblance in the food domain

Parental influence on children's and adolescents' food attitudes and behavior is exerted through various processes, such as restriction of food experience (including both the selective exposure and the control on the physical, social and emotional context of eating episodes), modeling, parenting practices and styles (for a review, cf. Guidetti & Cavazza, 2010). However, studies on child–parent resemblance in food likes have found surprisingly small, albeit positive and significant, correlations (or agreement rates) in the case of children (Birch, 1980; Pliner & Loewen, 1997; Pliner & Pelchat, 1986; Ritchey & Olson, 1983; Weidner, Archer, Healy, & Matarazzo, 1985), adolescents (Logue, Logue, Uzzo, McCarty, & Smith, 1988), and young adults (Guidetti, Conner, Prestwich, & Cavazza, 2012; Pliner, 1983; Rozin, 1991; Rozin, Fallon, & Mandell, 1984; Stafleu, Van Staveren, De Graaf, Burema, & Hautvast, 1995). Paul Rozin (1991) called the low similarity between parents' and children's preferences the "family paradox", and also included in this expression the often found absence of higher correlations in mother-child and same sex dyads compared to father-child and opposite-sex dyads. As far as food consumption is concerned, a recent meta-analysis (Wang, Beydoun, Li, Liu, & Moreno, 2011) indicated a weak-to-moderate association between parents' and children's dietary intake.

On the other hand, peers have been shown to influence children's and adolescents' food attitudes and behavior through modeling and conformity to both descriptive and injunctive norms (Baker, Little, & Brownell, 2003; McClain et al., 2009). However, as in the case of parental influence, research on resemblance between children/adolescents and their friends in dietary intake, food consumption (Bruening et al., 2012; Feunekes, De Graaf, Meyboom, & Van Staveren, 1998) and food preferences (Rozin, Riklis, & Margolis, 2004) found only weak-to-moderate correlations. This is why Rozin and colleagues (Rozin, Riklis, & Margolis, 2004) extended the "family paradox" to the "preference paradox" which also includes the low resemblance found in peer dyads.

As many examples in social psychology literature have shown, when an expected association proves to be small it is often useful to investigate the conditions under which that association exists (i.e., moderation) rather than *if* it exists. This is the main purpose of our study.

Indeed, the degree of resemblance found in the different studies in the literature varies a great deal. This variation may depend on a series of potential moderators. As noted in the next section, previous research focused mainly on structural (age and gender) and in some cases food-related moderators, providing inconsistent or scant results.

Socio-demographic and food-related moderators

Studies about parent-child similarities in food likes have not directly compared children in different age groups. On the other hand, correlations obtained with different samples of children, adolescents and young adults are too discordant to draw firm conclusions. Instead, research about similarities in food consumption also considered children's age, but results were again conflicting, showing either a decrease (Hannon, Bowen, Moinpour & McLerran, 2003; Patterson, Rupp, Sallis, Atkins & Nader, 1987), an increase (De Bourdeaudhuij, 1996) or no change (see Lau, Quadrel, & Hartman, 1990; Rossow & Rise, 1994) in the degree or resemblance with age.

Similarly, research conducted to date has not clarified whether and how children's and parents' gender, and their interaction, affect the degree of association between their food liking and consumption patterns. Although Rozin (1991) included the absence of gender differences in child-parent correlations in his definition of "family paradox", the studies directly dealing with this question actually obtained heterogeneous findings, perhaps due to different methods, food types and age range examined: daughters were sometimes found more similar to their parents than sons (Burke, Beilin, & Dunbar 2001; Feunekes, Stafleu, De Graaf, & Van Staveren, 1997; Logue et al., 1998; Park, Yim, & Cho, 2004); mothers were found more similar to their children than fathers only in one study (Logue et al., 1998), while no differences were elicited in others (Burt & Hertzler, 1978; Guidetti & Cavazza, 2008; Guidetti et al., 2012; Pliner, 1983; Pliner & Pelchat, 1986; Rozin et al., 1984; Rozin, 1991; Skinner et al., 1998); and same gender dyads were found more similar than opposite gender dyads in two studies (Logue et al., 1998; Pliner, 1983), while no differences emerged in others (Guidetti & Cavazza, 2008; Guidetti et al., 2012; Pliner & Pelchat, 1986; Skinner et al., 1998; Rozin, 1991; Rozin et al., 1984).

In addition, any age and gender differences in the degree of resemblance could be due to cultural influences such as the impact of the same social norms on women or children's adoption of more adult-like habits while growing up. Therefore, it remains to be ascertained whether the potential effect of structural factors reflect differences in either mutual influence or cultural influence.

Concerning food-related moderators, children accepting a greater number of foods were found to be slightly, but not significantly, more similar to their parents than those with many dislikes (Pliner & Pelchat, 1986). The congruency between mothers' and fathers' food likes (Rozin, 1991) and intakes (Oliveria et al., 1992; Rossow & Rise, 1994) also seems to increase the observed resemblance. Contrary to expectations, parents and children eating more often together were not found to be more similar in food consumption frequency (Feunekes at al., 1998; Hannon et al., 2003), though a higher resemblance in nutrient intake emerged for parents eating at home more frequently (Oliveria et al., 1992).

In order to contribute to clarifying these inconsistent and scant results, we included in our study both male and female adolescents over a broad age-span, both fathers and mothers, and included a measure of shared eating episodes. As explained in detail below, we also separated the unique dyadic resemblance from the cultural influences.

Much less is known about the role of psycho-social factors characterizing individuals or their relationships in moderating the correlations between children and their parents and friends. Those moderators, indeed, have not yet been considered. However, the emotional climate of parent-child relationships and the individual proneness to social pressure might affect the dynamics and the output of parental and peer influence processes. Therefore, we examined the role of two potential psycho-social predictors of child-parent and friend-friend similarities, namely parenting style and adolescents' self-monitoring. Indeed, the parenting style is likely to increase children's openness to socialization and to foster parental modelling, whereas the self-monitoring orientation entails the individual vulnerability to implicit[2] expectations of significant others.

Authoritative parenting style and parental modelling

There is a growing literature about dietary and weight outcomes of different parenting practices. Parenting practices related to child nutrition include parents' behaviors aimed at limiting their children's consumption of food considered unhealthy and encouraging the intake of healthy food. These behaviors can be identified in restriction, pressure to eat and monitoring (Birch et al., 2001). Overall, both correlational (e.g., Birch & Fisher, 2000) and longitudinal (e.g., Birch, Fisher, & Davison, 2003) studies investigating the consequences of these practices in terms of children's eating behavior, food preferences and body weight, indicated that external control has counterproductive effects. However, other studies suggested that the presence of rules disciplining the access to food in families is associated with healthier diets among children (e.g., Brown, Ogden, Vögele, e Gibson, 2008) and adolescents (e.g., Karimi-Shahanjarini et al., 2012). Directing children's food choices is thus not always detrimental: the effectiveness of nutrition related parenting practices seems to depend on the way they are put to use.

For that reason, it seems useful to introduce the more general construct of parenting style. Whereas practices are specific to a certain socialization domain, parenting style describes the parent-child interaction across a wider range of situations. Parenting style can be defined as parent's general attitude toward the child, which creates the emotional climate of the parent-child relationship (Darling & Steinberg, 1993). Maccoby and Martin's (1983) typology captured parenting style as a combination of two dimensions: demandingness and responsiveness. These constructs reveal the balance between two types of demands (Baumrind, 1991): those made by society on the child (conveyed through their parents) and those made by the child on society. In other words, "demandingness refers to the parent's willingness to act as a socializing agent, whereas responsiveness refers to the parent's recognition of the child's individuality" (Darling & Steinberg, 1993, p. 492). When parents score high on both dimensions they are defined as "authoritative".

According to Darling and Steinberg's (1993) integrative model, parenting styles have an indirect effect on the development of particular behaviors and traits, as they moderate the direct

effect of parenting practices and influence children's willingness to be socialized, which in turn moderates the efficacy of such practices. Research has confirmed Darling and Steinberg's (1993) model in various domain, from school achievement (Steinberg, Lamborn, Dornbusch, & Darlin, 1992) to drug use (Mounts, 2002), indicating that authoritative parenting, compared to the other styles, actually makes more effective the specific practices adopted by parents. Two studies (Kremers, Brug, De Vries, & Engels, 2003; Van der Horst et al., 2007) tested this model in the food domain and showed that adolescents who grow up with authoritative parents have the healthiest eating behavior and food related cognitions. In particular, Van der Horst and colleagues (2007) showed that the association between restrictive parenting practices and children's lower consumption of sugar-sweetened beverages was strongest when parents were perceived as highly involved and moderately strict.

Since authoritative parenting is expected to foster children's openness to socialization, extending Darling and Steinberg's (1993) model from parenting practices (which do not necessarily translate into similarities and could also have counter-productive effects) to modelling, we might expect that this parenting style makes it more likely that children imitate their parents, thus increasing child-parent resemblance in food likes and consumption. In other words, we expected that adolescents more closely resemble their parents when they are both demanding and responsive (i.e., authoritative) rather than when they are low in one or both dimensions (i.e., either authoritarian, indulgent or neglecting).

Self-monitoring and vulnerability to peer implicit influence

Self-monitoring orientation reflects individual differences in sensitivity to social norms and motivation to act in an appropriate way in every social context (Snyder, 1974). While the behavior of low self-monitors shows greater congruency with their inner feelings, high self-monitors are more attentive and receptive towards social cues and more inclined to conform their behavior to the demands of social situations (Snyder & Gangestad, 1986).

Though research failed in showing an association between self-monitoring and conformity to social pressure (Snyder, 1987; see Herman, Koenig-Nobert, Peterson, & Polivy, 2005 for a study in the food domain), some empirical evidence has suggested that this relation might depend on the type of pressure. Indeed, whereas everyone tends to follow explicit norms, irrespective of their level of self-monitoring, this trait seems to particularly affect individuals' compliance to implicit social influence (Perrine & Aloise-Young, 2004). In the food domain, a recent experimental study (Cavazza, Graziani, & Guidetti, 2011, study 2) found a link between self-monitoring and conformity to implicit social pressure on eating behavior. In this experiment, participants sat at a mock restaurant table with other people and were invited to place their orders from a fictitious menu. Results confirmed that high self-monitors (vs. low self-monitors) were more influenced both by the number of co-eaters (social facilitation, cf. de Castro, 1997) and by the specific implicit norm the group constructed about the appropriate amount to be eaten.

Extending this finding from a quantitative to a qualitative level (not only how much but also what one eats), we would expect that self-monitoring affects individuals' tendency to imitate friends' food likes and consumption patterns (because they are perceived as implicit social norms) and thus increases their similarity in food likes and consumption. As far as parents are concerned, we did not find any studies examining the role of individuals' self-monitoring in the family context and inferred that this personal orientation is not involved in family relationships. However, families do have their norms, and their members are indeed motivated to follow those norms and please the other members. Hence, though we have no reason to expect that self-monitoring would affect target-parent similarity, we neither have reason to exclude this relation. Therefore, we expected that high self-monitors more closely resemble their friends (and maybe their parents) than do low self-monitors.

The effects of shared culture and family food environment

It is worth noting that any observed similarity might be solely explainable by the broader cultural environment each dyad shares, which can influence individuals' preferences by expecting

certain attitudes and behavior to be held by certain categories of people, such as women, children or adolescents (e.g., Cavazza, Guidetti, & Butera, 2015). In order to take the cultural influence into account, Birch (1980) compared real child–parent dyads with randomly formed child–adult dyads (from the same cultural environment) and found no significant differences in the observed correlations. In the same way, Rozin and colleagues (2004) found that real pairs of university student roommates (study 1) and schoolchildren friends (study 2) were not significantly more similar in food liking ratings than random pairs. In contrast, other studies have reported that, for food preferences, children, adolescents and young adults more closely resemble their own parents (Guidetti & Cavazza, 2008; Guidetti et al., 2012; Feunekes et al., 1997; Feunekes et al., 1998; Pliner, 1983; Pliner & Pelchat, 1986) and friends (Guidetti et al., 2012) than randomly assigned adults and peers.

A different way to control for common culture influences consists in separating the dyadic unique similarity and the so-called "stereotype effect" (Kenny & Acitelli, 1994; see also Barni, Ranieri, & Scabini, 2012). This can be done by subtracting the mean response on each item (operationalizing typicality in responding) before computing the dyadic correlation across all the scale items. Dyadic correlation is the Pearson product-moment correlation between two sets of scores and is meant to tap each dyad's resemblance in terms of profiles or patterning of responses (Kenny & Winquist, 2001).

In the study presented below, we adopted this second method that, to the best of our knowledge, has not previously been used in the food domain, but has a series of advantages. First, the dyadic correlation coefficient can be used as a dependent variable: this allowed us to analyze simultaneously multiple predictors that, otherwise, would be considered as moderators of the relations between the two dyad members' scores. In addition, the dyadic correlation from which the stereotype effect (i.e., the cultural influence) has been removed, has greater variance to be explained than the corresponding score including the stereotype effect. This method also allowed us to determine whether the potential age and gender differences in the similarity levels reflect either a

true variation in parental/peer influence or a change in the "typical or normative responses persons tend to give for a set of variables" (Kenny et al., 2006, p. 331).

Besides general cultural influences, family members can eat the same food either because each of them enjoy that food or simply because that food is available at home, or a mix of both reasons. It could be thus interesting to separate the resemblance deriving from the internalization of a specific pattern of food liking and that resulting from the shared exposure to the same food in the family environment. This can be done by comparing dyadic resemblance in both likes and consumption: indeed, we might expect that the shared variance between similarity in food consumption and similarity in food likes is due to the former reason, whereas the unique variance of consumption resemblance is due to the latter.

To the best of our knowledge, only two studies have directly compared participants' similarity to parents and peers simultaneously in terms of either food attitudes (Guidetti et al., 2012) or food/nutrient intake (Feunekes et al., 1998). In both cases there was found to beoverall, a greater degree of resemblance with parents than with friends. However, these studies also suggested that parental and peer influence is specific to the type of food (healthy food, usually eaten at home, with parents vs. junk food, usually eaten outside the home, with friends). In addition, Guidetti et al. (2012) showed that this specificity also pertains to the attitude measure, with parental influence exerted at an implicit level and peer influence exerted at an explicit level. However, studies comparing child-parent and friend-friend resemblance in both likes and consumption patterns are currently lacking. The present study is also aimed at filling this gap.

Overview and hypotheses

The overall purpose of the present study is to investigate how parents and friends influence adolescents' food likes and consumption patterns. To this end, we measured the degree of resemblance between adolescents' food likes and consumption and those of their parents and best friends, as a proxy of influence. We carried out our analyses to address five sub-goals. Aim 1a was to explore whether parental and peer influences are relation-specific or diffuse and deriving from

culture. We thus controlled for common culture by separating dyadic unique similarity and stereotype effect (Kenny & Acitelli, 1994; see also Velotti et al, 2015). In line with previous results (Guidetti & Cavazza, 2008; Guidetti et al., 2012; Feunekes et al., 1997; Feunekes et al., 1998; Pliner, 1983; Pliner & Pelchat, 1986), we generally expected that sharing the same culture makes dyads members more similar than they would be only because of relation-specific mutual influence. However, we also expected that both parents and friends have a specific influence on adolescents, over and above the influence of common culture. In other words, we hypothesized that dyadic correlations were lower when the stereotype effect was removed from them (HP1a), but both target-parent and target-friend unique correlations significantly differed from 0 (HP1b).

Aim 2 was to estimate the proportion of resemblance deriving from the transmission of a similar pattern of food liking and separate it from the resemblance deriving from the mere sharing of the same family food environment. To this end, we compared dyadic resemblance in food likes with that in food consumption . We expected that consumption resemblance is greater than likes resemblance for target-parent dyads, as the former should include the latter (HP2). However, whereas parents and children are exposed to the same food at home, besides sharing the same culture, the food environment friends' dyads share at school is the same other peer are exposed to. Thus, we expected that, once the cultural influence has been controlled for (i.e., the stereotype effect has been removed), the degree of resemblance between friends' likes matched their resemblance in consumption.

Aim 3 was to compare parental and peer influence, i.e., dyadic resemblance. A few previous studies (Feunekes et al., 1998; Guidetti et al., 2012) suggested that overall target-parent correlations should be higher than target-friend correlations (HP3).

Aim 4 was to investigate the role of structural and food-related predictors of this similarity, namely adolescents' age and gender, parents' and friends' gender, and frequency of shared eating episodes. We also explored whether the potential effect of structural factors reflect differences in either mutual influence or cultural influence: if the former was involved the impact of these factors

should be apparent after the stereotype effect was removed from dyadic correlations. In order to examine the possible differences in terms of participants' age and gender, we recruited a large sample of boys and girls ranging from 11 to 19 years along with either their fathers or mothers. As far as age differences are concerned, previous results were mixed and insufficient evidence is available to make a specific direction hypothesis. Regarding gender, based on the above reviewed literature, we expected that daughters were more similar to their parents than sons (HP4a), mothers were more influential than fathers (HP4b) and same-sex dyads were more similar than opposite-sex dyads for both target-parent and target-friends pairs (HP4c). Given the scant previous results concerning food-related predictors of resemblance, we also explored whether the frequency of shared eating episodes with both parents and friends increased the resemblance between their food likes and consumption patterns (HP4d).

Finally, aim 5, the more novel and important aspect of our study,was to examined the role of two psycho-social predictors, namely authoritative parenting style and adolescents' self-monitoring orientation. Since liking has emerged as the main predictor of food consumption (e.g., Birch, 1979; Contento, Michela, & Goldberg, 1988; Contento, Williams, Michela, & Franklin 2006; Wardle, 1993), we expected that authoritative parenting style and adolescents' self-monitoring affect resemblance in consumption through resemblance in liking. In other words, authoritative parenting (as perceived by children) should, and adolescents' self-monitoring could, increase target-parent resemblance in food consumption through target-parent resemblance in food liking (HP5a). In addition, adolescents' self-monitoring should increase target-friend resemblance in food consumption through target-friend resemblance in food liking (HP5b).

In summary, the present study introduces three original aspects not explored in previous research on food likes and consumption resemblance: 1) psycho-social predictors of similarity, i.e., parenting style and self-monitoring; 2) comparison of liking similarity with consumption similarity (testing if the former mediates the relationship between the psycho-social predictors and the latter);

3) an analysis of dyadic correlations (as dependent variables) removing from them the stereotype effect, in order to control for common culture influences.

Method

Participants and procedure

Adolescent participants were recruited in two middle (age range 11-14 years) and three high schools (age range 14-19 years) in a medium sized town in Northern Italy. Once the school principals and the parents gave permission for data collection, 1688 (51.2% male) students were informed about the study topic, gave their informed consent to participate and filled in a self-administered online questionnaire at school, one class at a time, in the presence of a researcher. These students were asked to get one of their parents to complete a related questionnaire. They were randomly assigned to one of two conditions: half of them were asked that their mother complete the questionnaire and half that their father complete it (81.4% of mothers and 51.7% of fathers followed this instruction; the other parent was allowed to complete the questionnaire if the target parent was unable to). Parents could fill in either a paper and pencil (66.6% chose this option) or an online questionnaire (33.4%). 1084 parents (65% mothers) accepted to take part in the study (response rate 64.2%). We also asked target participants to indicate up to three best friends attending the same school.

In order to pair each adolescent with her/his parent and with her/his best friend, we asked all participants to enter their own ID code and those of the other members of the triad (parents and friends for adolescent participants and child for parents). In constructing the friends' dyads we avoided repeating the same pairs: in other words, if two friends nominated each other that pair was counted just once. This is why we asked for three best friends: in fact, we paired each target participant with the first best friend indicated and then the second and the third when a dyad was already included in the data file.

Many participants entered incorrect codes, thus we failed in matching several dyads, so the final sample constituted a total of 638 target-parent-friend triads plus 71 target-parent dyads. Target

participants were 316 boys and 324 girls (69 did not report their gender) aged 11-19 years (M = 14.2, SD = 2.30). Parents were 258 fathers and 451 mothers aged 29-68 years (M = 45.15, SD = 5.62); 51.7% of parents had a senior high-school leaving accreditation (age 18-19), 37.7% completed the junior high-school (age 13-14) and 14.1% had a university-level degree.

Both students' and parents' questionnaires included a section on food likes and habitual consumption and a socio-demographic section. Students' questionnaire also contained a section about psycho-social predictors of resemblance.

Measures

Food liking rating. As in previous studies on food liking (e.g., Logue et al., 1988; Pliner, 1983; Rozin et al., 2004), participants rated 23 food items on a Likert scale ranging from 1 = *extremely disliked* to 7 = *extremely liked*, plus a "?" response option labelled *never tried* (recoded as missing value).

Food consumption rating. Participants reported their habitual consumption of the same 23 food items on a Likert scale ranging from 1 = *very rarely* to 7 = *very often*[3], plus a "?" response option labelled *don't know what it is* (recoded as missing value). As the foods list was heterogeneous, asking the specific frequency of consumption in terms of times eaten per day or week or month would have meant changing the response scale for each food and choosing a predetermined time lapse which could have been not suitable to capture the actual consumption of everyone. Therefore, we used a more relative and subjective response scale in order to make the rating of different foods more comparable and to reduce the length of the questionnaires and make it easier to complete.

In order to select the 23 food items included in the questionnaire, we conducted a pilot study, drawing on previously collected data (Guidetti & Cavazza, 2008; Turrini, Saba, Perrone, Cialfa, & D'Amicis, 2001). Eighty-two adolescents aged 10-20 years (M = 15.62; SD = 2.35) rated 64 food items on the same liking and consumption scales used in the main study. These 64 food items were selected using the following criteria suggested by previous research (Burt & Hetzler,

1978; Contento et al., 1988; Hannon et al., 2003; Logue et al., 1988; Patterson et al., 1988; Pliner, 1983; Pliner & Pelchat, 1986; Rozin et al., 1984; Rozin & Millman, 1987; Worsley, Baghurst, Worsley, Coonan, & Peters, 1984): (a) being representative of the main food groups identified by dieticians and of adolescents' classification schemata (Guidetti, Cavazza, & Graziani, 2014); (b) being common enough to have been presumably tasted at least once by every participant, likely to be served to children and adolescents and easily available (Turrini et al., 2001); (c) being various in type and preparation (single foods, mixed foods and condiments); (d) being specific foods and not generic categories (e.g. full fat milk in lieu of milk) in order to avoid ambiguity; (e) being considered in other studies about determinants of food likes and preferences; (f) including some foods identified in previous literature as worthy of further study, namely foods with a strong flavor, foods that could be perceived as strange or disgusting, and foods for which a relatively high degree of resemblance has been previously observed; (g) being food with a high/low sodium and fat content vs. fruit and vegetables; fast food vs. healthy food.

From this first list, we selected the 23 food items with the highest variability (variation coefficient) in liking and consumption rating among our pilot participants, which is a further parameter suggested in the above cited literature. They were white chocolate, marmalade, whole-wheat bread, cheese flavored crisps, ketchup, full fat milk, white light yogurt, horsemeat, salami, liver pate, mussels, anchovies, black olives, lentils, onion, mushrooms, marrow, lettuce, cauliflower, banana, kiwi, raisins, and spicy food[4]. The selected foods were comparable to lists used in previous studies (e.g. Pliner & Pelchat, 1986; Rozin et al., 1984) and an analysis of the responses showed that adolescent participants had tasted (42% tasted all, 23% tasted all but 1, and 15% tasted all but 2) or at least know (63% know every food and 27% know all but 1) the foods.

Dependent measures: dyadic correlations

Our dependent variables are measures of the resemblance between each target participant and both her/his parent and best friend. For both liking and consumption, we computed a target-parent and a target-friend dyadic correlation across the 23 food items. In order to appraise the

dyadic unique similarities, we removed that part of resemblance that stems from the belonging of dyad members to the same cultural environment, i.e., the stereotype effect. Given gender and age differences in food preferences and habits (e.g., Nu, MacLeod, & Barthelemy, 1996; Wardle et al., 2004), we subtracted from each response the mean response of the group that participants belong to (either mothers, fathers, male or female 11-13 years old preadolescents, 14-16 years old middle adolescents or 17-19 years old late adolescents). Then we computed four dyadic correlations (**target-parent liking, target-parent consumption, target-friend liking** and **target-friend consumption**) across the 23 food items using both these scores **excluding the stereotype effect** and the unadjusted responses **including the stereotype effect**. The former coefficients were used for investigating the role of psycho-social, food-related and socio-demographic predictors, the latter were used as comparison terms and in relation to socio-demographic predictors, in order to test whether the potential age and gender variation in resemblance depends on either cultural influence or true dyadic reciprocal influence.

Food-related predictors of resemblance

Frequency of shared eating episodes. Participants were asked to report how often, in a typical week, they eat with father, mother and best friends for the main meals (breakfast, lunch and dinner) and also tea break. They answered on a 5-point scale where 1 = *never*, 2 = *1-2 out of 7*, 3 = *3-4 days out of 7*, 4 = *5-6 days out of seven*, 5 = *every day*. We computed a total score for each eating partner as the mean of the four eating episodes. We used the score concerning the parent who took part in the study in the subsequent analysis.

Psycho-social predictors of resemblance

Authoritative parenting style (as perceived by children). Target participants completed twice (one time for the father and one for the mother, the order was counterbalanced) the Italian translation of the Demandingness and Emotional Responsiveness subscales of the Parenting Style Inventory-II (Darling & Toyokawa, 1997). Response options range from 1 = *absolutely false* to 5 = *absolutely true*. Each subscale includes 5 items, e.g., “My mother/father points out ways I could do

better" assessing Demandingness and "My mother/father spends time just talking to me" assessing Responsiveness. An exploratory factor analysis on the 10 items highlighted two factors explaining 48.1% and 44.2% of variance, for fathers and mothers respectively. However, the factors did not correspond to Demandingness and Responsiveness, as elicited in Darling and Toyokawa's (1997) paper. Indeed, 3 out of 5 items aimed at measuring demandingness actually concern punishment ("If I don't behave myself, my mother will punish me", "My mother really lets me get away with things" and "When I do something wrong, my mother does not punish me" reversed scored): these 3 items constituted the second factor in our data. Actually, parents can be demanding in many ways and punishment is only one of these ways (probably the less authoritative)[5]. Research on parenting style often dichotomizes the sample on these two dimensions and crosses them to identify the four parenting styles: parents scoring high (e.g., above the median or the middle-point of the scale) in both responsiveness and demandingness are defined as authoritative. Other studies (e.g.,Van der Horst et al., 2007), instead, use the continuous dimensions in their analyses. The results of the factor analysis prevented us from computing a responsiveness and a demandingness scores and defining the parenting styles by crossing the two dimensions. Therefore, we did not consider the "punishment" factor in our analyses and computed two authoritative parenting indexes, one referring to mother ($\alpha = .66$) and one referring to father ($\alpha = .71$), as the mean of the remaining 7 items (5 intended to tap Responsiveness and 2 intended to tap Demandingness). We used the score concerning the parent who took part in the study in the subsequent analysis.

Target self-monitoring. Target participants completed a shortened Italian version of the Junior Self-Monitoring Scale (JSMS) by Graziano, Leone, Musser, and Lautenschlager (1987). This is the Self-Monitoring scale used most with children and adolescents. This scale measures the construct dimensions tapped by the adult Self-Monitoring scale (Snyder, 1974), but the items were rephrased to be consistent with children's and adolescents' experience. Howells and Fishfader (1995) suggested that this scale reliability can be improved by removing 4 items. For the sake of brevity, we further selected 14 items ($\alpha = .64$) from this 20-items version, based on two criteria: we

dropped the items with the lowest item-total correlations and factor loadings found in previous studies (Graziano et al., 1987; Howells & Fishfader, 1995) and the items with a content more related to self-disclosure than to self-monitoring construct (e.g., "There are many things I would only tell to a few of my friends") or potentially producing a ceiling effect (e.g., "When I'm with my friends I act different than I do with my parents"). Respondents answered to a 5-point scale ranging from 1 = *not at all descriptive of me* to 5 = *very descriptive of me*.

Data analyses

For all the analyses, we used z-trasformed dyadic correlations, but reported the untransformed scores in order to simplify findings interpretation. We ran paired-sample t-tests in order to compare dyadic correlations including and excluding the stereotype effect (HP1a), and one-sample t-tests to check whether dyadic correlations were significantly different from 0 after removing the stereotype effect (HP1b). In order to separate the proportion of resemblance deriving from the transmission of a similar pattern of food liking from that deriving from the mere exposure to the same food at home, we inspected the correlations among likes and consumption correlation coefficients and the shared variance between the two. We then ran two repeated measures ANOVAs with the four z-transformed dyadic correlations as factor, both with and without the stereotype effect, for comparing resemblance at liking and consumption level (HP2) and resemblance with parents and friends (HP3).

With the purpose of investigating the effects of structural, food-related and psycho-social predictors on both unique and culturally influenced dyadic resemblance, we first looked at the correlations between the dyadic correlations and age, shared eating episodes (HP4d), authoritative parenting and adolescents' self-monitoring. We also performed a two-way ANOVA on the eight z-transformed dyadic correlations, entering target participant's gender and that of the other pair member as factors (HP4a, HP4b, and HP4c).

In order to test our two main hypotheses, we tested two indirect effects models where the expected psycho-social factors predict consumption resemblance through liking resemblance (HP5a

and HP5b). We used PROCESS, the SPSS macro provided by Hayes (2013), testing two models 4 (which estimate mediation or indirect effect) and using 5,000 bootstrap resamples. We controlled for structural and food-related predictors associated with the dependent variables.

Results

Descriptives and comparisons

Table 1 reports the descriptive statistics and Table 2 the correlations between dependent variables and predictors. Paired-sample t-tests, performed on z-transformed scores, showed that each average dyadic correlation excluding the stereotype effect (i.e., the cultural influence) was significantly lower than the corresponding measure including the stereotype effect, $t(707) = 9.13$, $p < .001$ for target-parent likes; $t(708) = 12.50$, $p < .001$ for target-parent consumption; $t(638) = 28.48$, $p < .001$ for target-friend likes; and $t(637) = 31.76$, $p < .001$ for target-friend consumption. This indicates that, as predicted (HP1a), sharing the same culture makes members of dyads more similar than they would be only because of relation-specific mutual influence, particularly for friend dyads. Nonetheless, the mean coefficients tapping the unique dyadic similarities were still significantly greater than zero, $t(708) = 15.03$, $p < .001$ for target-parent likes; $t(708) = 20.94$, $p < .001$ for target-parent consumption; $t(639) = 2.89$, $p = .004$ for target-friend likes; and $t(638) = 3.19$, $p = .002$ for target-friend consumption, suggesting that, as expected (HP4b), the unique dyadic influence does have a role in making food liking and behavior alike(HP4b). This role is considerably different for parental and peer resemblance: Indeed, adjusting for stereotype effect reduced the target-parent resemblance of 29-32%, while target-friend resemblance was reduced of 84-85%. However, although target-friends dyadic correlations were very close to zero on average, they varied considerably, as shown by the coefficients of variations reported in the Table 1.

In order to separate the resemblance deriving from the internalization of a specific pattern of food liking and that resulting from the shared exposure to the same foods in the family environment, we looked at the correlation between target-parent dyadic correlations in food likes and consumption ($r = .51$). This suggests that the 26% of variance in dyadic resemblance was due to

the adoption of similar liking patterns, whereas the 74% stemmed from other factors, such as the sharing of the same food environment at home.

As far as parents-friends and likes-consumption comparisons are concerned, results of the repeated measures ANOVAs showed significant differences both among the measures including the stereotype effect, $F(3, 634) = 27.26$, $p < .001$, and among the measures excluding it, $F(3, 635) = 15.26$, $p < .001$. Pairwise comparisons (Bonferroni adjustment for multiple comparisons; see Table 1) showed that target participants' mean resemblances with parents and friends were equal when including the stereotype effect ($.19 \leq r_{mean} \leq .20$), except for the average target-parent consumption dyadic correlation which was the highest ($r_{mean} = .28$), probably due to greater exposure to the same food at home. When the stereotype effect was removed, the average target-parent consumption dyadic correlation remained the highest ($r_{mean} = .20$), while both target-friend mean dyadic correlations, ($r_{mean} = .03$) were equal and significantly lower than target-parent mean likes dyadic correlation ($r_{mean} = .13$), $t(647) = 8.33$, $p < .001$ for target-friend likes; and $t(645) = 7.93$, $p < .001$ for target-friend consumption. These findings confirmed that cultural influences have a stronger impact on friends' resemblance than on target-parent resemblance. Hypothesis HP2 was thus supported: whereas target participants were more similar to their parents in terms of consumption than likes, the dyadic correlations with friends were identical. This is due to the fact that, whereas family members experience a particular food environment at home, there is not a correspondent micro-environment specifically affecting friends' pairs, besides peer general culture. In addition, the comparison between target-parent and target-friend resemblance partially supported HP3, showing that the specific parental influence is stronger than the specific influence of the best friend, even if the general peer influence is equal at a liking level.

Socio-demographic and food-related predictors

Target participants' age was significantly and positively associated only with target-parent consumption dyadic correlation including stereotype effect, but not with the same dyadic correlation without the stereotype effect. We also ran a one-way analysis of variance on both types

of dyadic correlations (z-trasformed scores), with target participants' age class (preadolescence 11-13 years, middle adolescence 14-16 years, and late adolescence 17-19 years) as factor, for inspecting the possibility of a non-linear relation between age and resemblance. Again, the only significant age difference was for target-parent consumption dyadic correlation including stereotype effect, which increased with age, $F(2,708) = 5.16$, $p = .006$ $\eta^2_p = .01$. This suggests that, growing up, children progressively adopt eating habits that are more similar to those of their parents, but this happens because they make more adult-like food choices rather than because they specifically imitate their own parents.

As far as gender differences are concerned, the two-way ANOVAs with target participant's and either parent's or friend's gender as factors showed that the main effect of target participants' gender on target-parents consumption dyadic correlation was the only significant finding, when the stereotype effect was not removed: daughters ($r_{mean} = .32$, $SD = .25$) were found significantly more similar to their parents than sons ($r_{mean} = .24$, $SD = .25$), $F(1, 636) = 16.11$, $p < .001$, $\eta^2_p = .02$. This effect seems to be only partially due to the shared culture, since it remained significant when the stereotype effect was removed, $F(1,636) = 5.20$, $p = .023$, $\eta^2_p = .01$ (daughters' $r_{mean} = .22$, $SD = .25$; sons' $r_{mean} = .18$, $SD = .23$), thus supporting hypothesis HP4a at the consumption level. Examining the other dyadic correlations without the stereotype effect, only one additional significant difference emerged: as predicted (HP4b), mothers' liking ratings ($r_{mean} = .15$, $SD = .23$) appeared more similar to those of their children than fathers' ratings ($r_{mean} = .11$, $SD = .22$), $F(1,636) = 4.94$, $p = .027$, $\eta^2_p = .01$. Contrary to expectations (HP4c), none of the interaction terms emerged as significant and target-friend dyadic correlation were unaffected by gender, neither with nor without stereotype effect[6]. These findings indicate that daughters' (vs. sons') behaviors were more similar to those of their parents', and mothers' (vs. fathers') likes were more similar to those of their children.

As shown in Table 2, the frequency of shared eating episodes with parents and friends was not associated with dyadic correlations (thus contradicting HP4d), with the exception of target-

friend consumption stereotyped correlation which became lower as target participants ate more often with parents.

Psycho-social predictors

As expected (see Table 2), authoritative parenting was significantly and positively correlated with target-parent likes dyadic correlations, both with and without the stereotype effect, and target participants self-monitoring was significantly and positively correlated with target-friend likes dyadic correlations, both with and without the stereotype effect, but not with any of the target-parent dyadic correlations (thus we did not enter this predictor in the target-parent model). In addition, though the hypothesized predictors were not directly associated with the dyadic correlations in consumption, there might be an indirect relation, through resemblance in likes.

Therefore, we tested two two-step indirect effects models predicting target-parent and target-friend consumption dyadic correlations without stereotype: in the first, authoritative parenting predicts target-parent likes dyadic correlation which in turn predicts target-parent consumption dyadic correlation; in the second, target participants' self-monitoring predicts target-friend likes dyadic correlation which in turn predicts target-friend consumption dyadic correlation. As daughters' (vs. sons') consumption ratings were found more similar to those of their parents, and mothers' (vs. fathers') liking ratings were found more similar to those of their children's, we controlled for both target participants' and parents' gender in the first model.

Results confirmed hypothesis HP5a, showing that authoritative parenting style was positively associated with target-parent food likes dyadic correlation, $\beta = .10$, $t(704) = 2.54$, $p = .011$ ($R^2 = .01$, $F(3, 705) = 3.36$, $p = .018$) which in turn was positively associated with target-parent consumption dyadic correlation, $\beta = .51$, $t(703) = 15.83$, $p < .001$ ($R^2 = .27$, $F(4, 704) = 64.75$, $p < .001$), controlling for children's and parents' gender. In addition, authoritative parenting showed a small but significant indirect effect = .02, *SE* = .01, *LLCI* = .006, *ULCI* = .042 on consumption dyadic correlation. This finding supports hypothesis HP5a, showing that authoritative parenting was

positively associated with target-parent resemblance in terms of both liking (directly) and consumption (indirectly).

Furthermore, as expected (HP5b), target participants' self-monitoring orientation was positively associated with target-friend dyadic correlation in food likes, $\beta = .12$, $t(626) = 2.97$, $p = .003$ ($R^2 = .01$, $F(1, 627) = 8.84$, $p = .003$), which in turn was positively associated with target-friend dyadic correlation in consumption, $\beta = .51$, $t(623) = 14.52$, $p < .001$ ($R^2 = .25$, $F(2, 624) = 105.57$, $p < .001$). More importantly, target participants' self-monitoring indirectly, though slightly, positively predicted consumption dyadic correlation (indirect effect = .03, *SE* = .01, *LLCI* = .009, *ULCI* = .047). In other words, as expected (HP5b), high self-monitors were more similar to their friends than low self-monitors, in terms of both food likes (directly) and consumption patterns (indirectly).

Discussion

The present study investigated social influences on adolescents' food likes and consumption by measuring and comparing target-parent and target-friend resemblance at both levels. We also controlled for common culture influences by removing the stereotype effect, i.e., a typicality in responding, due to common culture influence, which needs to be distinguished from the dyadic mutual influence (Barni et al., 2012; Kenny & Acitelli, 2004). In line with previous research, we found low average correlations between adolescents' food likes and consumption and those of their parents and friends. However, the most important findings from our study wasthat the magnitude of the correlation varied as a function of authoritative parenting style and individual self-monitoring orientation (aim 5). Indeed, the results supported our main hypotheses (HP5a and HP5b) in showing that when target participants perceived their parents as responsive and demanding they resembled them more closely in terms of food likes and this in turn was associated with a higher similarity in terms of habitual food consumption. Furthermore, target participants who were more sensitive to social norms and motivated to conform their behavior to the demand of social situations (i.e., high

self-monitors) were more similar to their friends in terms of food likes than low self-monitors and this in turn was positively associated with their resemblance in terms of food consumption.

In our rationale, we argued that authoritative parenting should increase target-parent similarity by fostering children's openness to socialization and hence modeling. On the other hand, we reasoned that self-monitoring should increase target-friend similarity through conformity to implicit social pressures. One could ask what the difference is between modeling and implicit social pressures. The former concept has been defined as social learning occurring through observation and imitation (Bandura, 1976) and has been mostly used in developmental psychology, with reference to children: parents are definitively our first models, but peers are powerful models as well. Implicit social pressure has been operationalized in different ways, such as descriptive norms (Perrine & Aloise-Young, 2004), conformity to an implicit norm the experimental group converge on (Cavazza et al., 2011), or implicit observability cues like a set of eyes depicted on a message (Panagopoulos, 2014). These two kinds of influence actually seem very close to each other, both being subtle, implicit and non-injunctive. However, a difference between implicit pressures and modeling may be that the former is more about normative influence and the latter is more about informative influence (Deutch & Gerard, 1955). Indeed, parents have been shown to exert an informative influence and peers to exert a normative influence on adolescents (Roberts, Manolis & Tanner, 2008) and this could be the reason why, in our data, self-monitoring only affected target-friend resemblance, which was expected to derive from implicit (normative) pressures. That finding seems to support this expectation, but we cannot exclude the possibility that peer influence is also exerted through modeling, rather we suppose that it is likely exerted through both modeling and implicit pressures.

Comparing the dyadic correlations with and without the stereotype effect (aim 1), we showed that friends' resemblance was almost entirely due to a shared subculture, whereas target-parent resemblance was only in part explained by culture. In other words, adolescents' subculture seems more influential than adults' subculture, and parental influence seems more specific (i.e.,

specifically dyadic) than peer influence, appearing as more diffuse. Our participants were thus more similar to their parents than to their particular friends when controlling for common culture, but the degree of resemblance with parents and with the general group of same age and gender peers was almost equal (aim 3). It is worth noting that the unique dyadic target-friend resemblance was very small on average, but was also highly variable and did vary as a function of adolescents' self-monitoring. This suggests that best friends, regardless of cultural context, can influence the development of food liking and consumption for those particularly sensitive to implicit social norms. Target-parent dyadic correlation at the consumption level was the highest and this is probably due to the shared food exposure at home. However, as in earlier studies (Feunekes at al., 1998; Hannon et al., 2003), the frequency of shared eating episodes did not affect the resemblance, neither with parents nor with friends (even if eating more often with parents was associated with a lower similarity in friends' consumption).

In addition, approximately one quarter of variance of target-parent consumption resemblances was explained by resemblances in likes and was thus attributable to the internalization of food attitudes rather than to the shared exposure to the same food at home (aim 2). We could argue that the psycho-social influences concern the former only: indeed, it is indicative that the hypothesized predictors directly affected the degree of similarity in likes and only indirectly in consumption.

Regarding socio-demographic predictors (aim 4), by removing the stereotype effect, our analyses showed that the increase of target-parent similarity in consumption as a function of adolescent's age (also found by De Bourdeaudhuij, 1996) was actually due to the adoption of a progressively more adult-like diet rather than to the real rise in specific dyadic resemblance. In line with previous results (Burke et al., 2001; Feunekes et al., 1997; Park et al., 2004), daughters' (vs. sons) consumption habits appeared more similar to their parents' ones. In addition, mothers' (vs. fathers) likes appeared more similar to their children's: this is consistent with Logue et al.'s (1988) findings, but in contrast with others (Burt & Hertzler, 1978; Pliner, 1083; Pliner & Pelchat, 1986;

Rozin et al., 1984; Rozin, 1991; Skinner et al., 1998). It is interesting to note that this gender difference only emerged after the stereotype effect had been removed: this could be a reason why similar findings had not emerged previously and also indicates the usefulness of separating the cultural influence (stereotype effect) and the dyadic one.

To sum up, our study suggests that child-parent resemblance, though significantly enhanced by common culture, is mainly due to the dyadic relation and is not fostered by a food specific behavior (the sharing of eating episodes) but by the more general dimension of authoritative parenting style likely to promote modeling by improving children's openness to socialization and identification with parents. On the contrary, peer influence seems to almost exclusively occur through conformity to the adolescents' subculture and implicit norms and indeed is fostered by the individual motivation to comply with implicit pressures.

Some limitations of the present study should be acknowledged. Above all, this is a cross-sectional correlational study, thus direction of effects cannot be determined. Although we could reasonably hypothesize that parenting style and self-monitoring predicted our dyadic correlations, the problem of direction applies to likes and consumption resemblances. In our models, we assumed that resemblance in likes affects resemblance in consumption, but the reverse could also be true. However, we assessed liking before consumption ratings in the questionnaire and our predictors did not affect consumption resemblance directly but only indirectly through resemblance of likes. However, longitudinal studies using cross-lagged panel designs may be worthwhile in order to rule out any alternative interpretations.

In addition, the reliability of self-reports may be problematic, and respondents may have under-reported their intake of unhealthy food and over-reported healthy food intake. In particular, in the present study, correlations between target's and friend's measures, when both of them are high on self-monitoring, may be spuriously due to or inflated by a common motivation to satisfy social expectations. In order to rule out this alternative explanation, we ran again the target-friend model also controlling for best friend self-monitoring orientation. The included interaction term between

targets' and friend's self-monitoring scores proved to be non-significant and did not change the global pattern of results observed. Furthermore, the choice of assessing self-reported past or usual consumption as a dependent variable is common in research aimed at explaining adolescents' eating behavior (e.g., Karimi-Shahanjarini et al., 2012; Lally, Bartle & Wardle, 2011; Powell & Han, 2011; Woodruff & Hanning, 2009), and a systematic review (Brener, Billy, & Grady, 2003) showed that the cognitive factors affecting adolescents' self-reported food consumption do not threaten the validity of these self-reports.

Notwithstanding these limitations, to the best of our knowledge, this is the first study comparing participants' similarity to both parents and friends, at both likes and consumption levels, using dyadic correlations as dependent variables and controlling for common culture by removing the stereotype effect. More importantly, this is the first study proposing and identifying two psycho-social factors accounting for the variation in child-parent and friends resemblance and outlining and testing an influence process from psycho-social factors to food consumption similarity through food likes similarity. Furthermore, our sample, though not representative, is to date the largest used in research about family resemblance in food liking and one of the largest in the domain of food consumption similarities. As such, the present work makes a unique and valuable contribution to the understanding of the psycho-social factors affecting adolescents' food likes and consumption patterns.

From a theoretical point of view and beyond the food domain, our results add to the integrative model of parenting style as a context (Darling & Steinberg, 1993) suggesting that authoritative parenting might improve the effectiveness of parental modelling, as well as parenting practices. Likewise, our findings add to the literature on self-monitoring and implicit social influence (Cavazza et al., 2011; Perrine & Aloise-Young, 2004) indicating that this personal orientation can increase the degree of resemblance between friends. Our results also show that parental and peer influence are two different processes, fostered by different factors. Future

research could explore whether these mechanisms emerged in the food domain can be extended to different health related or social domains.

The present research also has practical implications, indicating the specific role of parents and the more general role of peer norms in affecting adolescents' food likes and consumption patterns. In addition, our results suggested that the more parents are authoritative the more influential they could be, and peer norms are more powerful for high self-monitors. This highlights the particular importance of involvement and awareness for nutrition education: parents should be involved in nutrition education programs for informing them about the influence they can have on their children and the ways for improving that influence. In addition, adolescents should be made more aware of the implicit pressures effects, so that they could actively participate in changing peer norms toward a healthier model.

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Footnotes

1. As we measured dyadic correlations and used them as dependent variables, when referring to our analyses, we talk about predictors of resemblance rather than moderators of correlations.
2. As in Cavazza et al (2011), "implicit social pressure" or "implicit social norms" referred here to a kind of subtle or passive social influence, which is not made explicit, such as descriptive norms.
3. Similar measures have been used in research on child-parent resemblances (Brown & Ogden, 2004; Ritchey & Olson, 1983), producing comparable results to studies using the more prevailing and accurate food frequency questionnaire.
4. The original item, in Italian, is "cibi piccanti" and refers to food producing a burning sensation in the mouth, usually because it contains either chili pepper or hot pepper.
5. Indeed, the Parenting Styles and Dimensions Questionnaire, validated with a large sample of parents of preschool and school-age children (Robinson, Mandleco, Olsen, & Hart, 2001), included the corporal punishment and punitive strategies subscales in the Authoritarian style measure rather than in the Authoritative.
6. We should note that target participant's and friend's gender were strongly associated as these dyads were formed by same-gender members in 91-92% of cases, $\chi^2(1, N = 573) = 396.75$, $p < .001$.

Table 1.

Descriptive statistics for dependent variables and predictors.

	M	*SD*	*CV*
Target-parent liking (ISE)	$.19_a$***	.25	1.32
Target-parent consumption (ISE)	$.28_b$***	.25	.89
Target-friend liking (ISE)	$.19_a$***	.23	1.21
Target-friend consumption (ISE)	$.20_a$***	.23	1.15
Target-parent liking (ESE)	$.13_c$***	.23	1.77
Target-parent consumption (ESE)	$.20_a$***	.24	1.26
Target-friend liking (ESE)	$.03_d$**	.23	7.67
Target-friend consumption (ESE)	$.03_d$**	.23	7.67
Shared eating parent	3.06	.80	
Shared eating friends	1.74	.57	
Authoritative parenting	4.20	.60	
Target ppts' self-monitoring	2.55	.52	

Note. ISE = including stereotype effect; ESE = excluding stereotype effect; *CV* = Coefficient of Variation. Mean dyadic correlations are significantly different from 0: ** $p < .01$; *** $p < .001$. Mean dyadic correlations with different subscripts are significantly different at $p < .001$ level (Bonferroni adjustment for multiple comparisons).

Table 2.

Ccorrelation between dependent variables (z-transformed dyadic correlations both including and excluding stereotype effect) and predictors.

	Target ppts' age	Shared eating parent	Shared eating friends	Authoritative parenting	Target ppts' self-monitoring
Target-parent liking (ISE)	-.01	.06	-.03	.10**	-.06
Target-parent consumption (ISE)	.12**	-.01	-.06	.03	-.04
Target-friend liking (ISE)	-.02	.00	.01	-.02	.10*
Target-friend consumption (ISE)	.02	-.08*	.02	-.04	-.04
Target-parent liking (ESE)	-.02	.05	-.02	.11**	-.05
Target-parent consumption (ESE)	-.01	.05	-.02	.02	.01
Target-friend liking (ESE)	.01	.00	-.01	.01	.12**
Target-friend consumption (ESE)	.00	-.06	-.04	-.04	-.02

Note. ISE = including stereotype effect; ESE = excluding stereotype effect. * $p < .05$; ** $p < .01$; *** $p < .001$.