Social Influences on Eating

14

Suzanne Higgs and Helen Ruddock

Contents

Abstract

Eating plays a central role in many social activities, and there is ample evidence to suggest that social context exerts a pervasive and powerful influence on what, and how much, people eat. This chapter presents an overview of the research on social influences on eating, with a specific focus on three main areas. First, we present evidence that people tend to adapt their food choices to those of other people, which is known as modelling. Second, we discuss evidence that people use their eating behaviors to convey a favorable impression of themselves to other people, which is known as impression management. Third, we present evidence on the social facilitation of eating, which is the tendency for people to eat more when eating with friends/family than they do

S. Higgs (✉) · H. Ruddock
School of Psychology, University of Birmingham, Birmingham, UK
e-mail: s.higgs.1@bham.ac.uk

H. L. Meiselman (ed.), *Handbook of Eating and Drinking*,
https://doi.org/10.1007/978-3-030-14504-0_27

when they eat alone. Throughout the chapter, we discuss the factors which may moderate the strength of these social influences on food intake and consider the mechanisms through which social influences affect eating.

Introduction

Eating is often a social activity. Sharing a meal with friends, family, or work colleagues is common in many areas of the world including the USA, Europe, and Thailand (Oh et al. 2014; Davidson and Gauthier 2010; Yiengprugsawan et al. 2015). Indeed, some people would consider that a meal that is not shared is not really a meal at all (Fischler 2011). Eating with others plays a role in reinforcing social connections, and food choices can be used to communicate and express ourselves to others (Murcott 1983). The social context in which we eat or make food choices also influences what and how much we choose to consume. A large body of evidence has now accumulated to suggest that other people influence our food intake and choices in a variety of ways (Higgs and Thomas 2016). For example, there is a general tendency for people to use others' eating as a guide for what and how much to eat, which is known as modelling. People also use their eating behavior to convey a particular impression of themselves to others and may make particular food choices because they think those choices will portray themselves in a favorable light, which is known as impression management. Another example of how social context affects eating is that when eating in a group of friends, people are likely to eat more than they would if they ate alone, which is known as the social facilitation of eating. The aim of this chapter is to present an overview of research into social influences on eating. We consider the three main research areas of (1) modelling of eating, (2) impression management, and (3) the social facilitation of eating.

Modelling of Eating Behaviors

The decisions that people make about what and how much to eat are influenced by their perceptions of the choices of others. The tendency to adapt one's behavior to be similar to that of other people is known as modelling (Vartanian et al. 2013). It has been suggested that modelling occurs because other people provide a guide as to appropriate behavior (Herman et al. 2003). The appropriate behavior, or what is known as a social norm, can be set by another present person (i.e., another person present at the eating occasion), but may also be communicated by environmental cues (e.g., portion sizes) or by the transmission of information about how other people behave (e.g., messages/text describing the behavior of others). A robust finding from studies conducted in controlled laboratory settings is that both adults and children model the consumption of others. That is, they tend to consume *more* when they eat with someone who is eating a large amount and *less* when they eat with someone who is eating a small amount, compared with when they are eating alone (e.g., Bevelander et al. 2012; Robinson et al. 2013; Salvy et al. 2008).

There is evidence from lab-based experimental studies that people also model the food choices of others. A study of food choices at a buffet found that the choices made by a confederate (a person known to the experimenter who was pretending to be another participant in the study) influenced the food selection of participants who observed these choices. Relative to a choosing-alone condition, and a condition in which the confederate chose predominantly low-calorie food items, the presence of a confederate who made high-calorie choices resulted in the participants choosing and consuming significantly fewer low-calorie items (Robinson and Higgs 2013). Conversely, choice of low-calorie vegetable items at a buffet was increased after students who were low habitual consumers of vegetables were informed about the relatively high vegetable consumption of other students (Robinson et al. 2014). However, Pliner and Mann (2004) found that when the communicated norm was consumption of a "healthy" bad tasting cookie, participants in a lab-based experiment were not inclined to follow this norm and instead chose to consume an "unhealthy" but good tasting cookie. These data suggest factors such as the palatability of food may override the influence of social norms under some circumstances. If someone is sure of what they like to eat, then that person may not look to others to guide their own preferences.

Evidence from field studies supports the suggestion that people do model the food choices of others outside of the laboratory. Teenage girls who shopped with a peer who made high-calorie purchases were more likely to purchase high-calorie food products relative to girls who shopped with a peer who made low-calorie choices (Bevelander et al. 2011). Diners in a restaurant were more likely to make healthier choices when they were provided with information about the healthy choices of other diners in that restaurant (Mollen et al. 2013; Thomas et al. 2017; Collins et al. 2019). Christie and Chen (2018) reported recently that customers in a restaurant modelled the main lunch choices of the person ahead of them in the lunch queue; customers were more likely to choose a vegetarian option if the person in front of them in the lunch queue chose that option.

Data from observational studies further support the idea that modelling of food choices occurs in real-life social relationships. It has been noted that the diets of socially connected individuals tend to be correlated and that people's eating choices are similar to the eating choices of those with whom they are socially connected (de la Haye et al. 2013; Pachucki et al. 2011). For example, it has been reported that women who dined more often with healthy eaters reported a higher diet quality than women who shared meals more frequently with unhealthy-eating companions (Mötteli et al. 2017). In addition, it has been observed that food choices of married couples tend to converge over time (Bove et al. 2003).

Why Model?

One reason why people model the eating behavior of others is because imitating the behavior of another person serves to smooth the social interaction (Chartrand and Bargh 1999). Humans have a strong desire to be liked and this goal may be

achieved through modelling (Baumeister and Leary 1995). As the saying goes, imitation is the sincerest form of flattery. The idea that people model the eating behavior of another person in order to affiliate with that person is supported by evidence that traits linked to the need for affiliation, such as self-esteem and empathy, are associated with the tendency to model food intake (Robinson et al. 2011). In addition, modelling of eating behavior has been found to be particularly pronounced in social situations that demand effort to affiliate (e.g., in a situation in which the model is acting in an unsocial manner), relative to situations in which there is less of a need to ingratiate oneself (e.g., when the model is already acting in a friendly manner) (Hermans et al. 2009; Robinson et al. 2011). The results of these studies are consistent with the idea that modelling is a means of gaining acceptance from others (Higgs 2015).

Modelling also occurs because others provide information about what is the "right" way to behave and people are generally motivated to behave in a way that is "correct" (Deutsch and Gerard 1955). We know this because modelling can occur in situations where the social norm is conveyed by *information* about how other people have behaved rather than by *another present person*. In these situations, modelling cannot promote affiliation or a sense of belonging, because there is no other person present to impress. One type of study design that examines how people behave when exposed to such "informational social norms" is known as the remote confederate design. In these types of studies, participants "accidentally" see fictitious accounts of the amount of food consumed by previous participants in that study (e.g., see Feeney et al. 2011; Pliner and Mann 2004; Roth et al. 2001). Amounts consumed by previous participants in a study can also be communicated via cues such as empty food wrappers (assumed to have been left by previous participants) or by text-based descriptive norm messages conveying information about the eating behavior of others. In all cases, there is evidence that people follow the norm provided. For example, people are more likely to choose a "healthy" versus "unhealthy" food item if they see evidence that previous participants have chosen "healthily" (Prinsen et al. 2013), and they are more likely to choose a large amount of cookies to eat if they see that other participants have done so and choose a small amount of cookies if that is the norm in that situation (e.g., Robinson et al. 2013; see Fig. 1). In these cases a likely explanation for the modelling observed is that the normative information that is provided indicates the "right" way to behave (e.g., Roth et al. 2001).

According to the normative account of modelling (Herman et al. 2003), people are often motivated to eat as much palatable food as they can without appearing greedy. In a social situation, the amount that one can eat without appearing to be eating excessively is set by the amounts that other people are eating such that a dining companion with a small appetite will result in a person eating very little, whereas dining with someone who is eating a large amount gives a person license to eat a large amount too. Data to support the normative account come from a study which found that perceived norms of appropriate intake mediated the effects of the social model on participants' food intake (Vartanian et al. 2013).

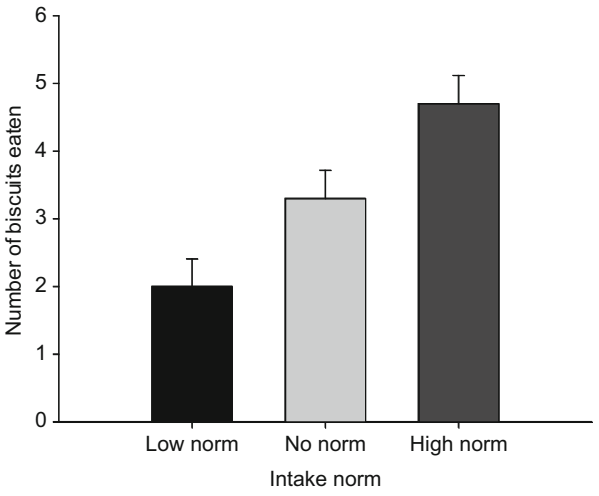

Fig. 1 Number of cookies eaten according to condition: participants eat fewer cookies in the low norm condition compared with the no norm condition, and they eat more cookies in the high norm versus the no norm condition. (Adapted from Robinson et al. 2013)

Factors that Affect Modelling

The results of two systematic reviews of a large collection of studies suggest that modelling of eating behavior is not dependent on current hunger state, dieting status, or familiarity with the model (Cruwys et al. 2015; Vartanian et al. 2015) (Fig. 2). However, there are some circumstances under which modelling is less likely to occur. If the model is from a social group that the participant does not feel a strong connection with, or the model is perceived as dissimilar to the participant, then modelling is reduced (McFerran et al. 2010; Stok et al. 2014; Cruwys et al. 2012; Liu and Higgs 2019). This is probably because the model is not thought to provide a relevant norm. For example, when participants were told that the size of a portion served was based on the behavior of group to which they did not belong, they were less likely to use that portion size as a guide to appropriate consumption (Versluis and Papies 2016).

Modelling is also less likely in situations for which there are established eating habits (Hermans et al. 2010; Leone et al. 2007). There is evidence that people are less likely to model the breakfast consumption of others than they are to model snack intake (Hermans et al. 2010; Leone et al. 2007). Many people have a clear idea about what constitutes appropriate consumption at breakfast as it is an habitual behavior, but they are perhaps less sure about what is "normal" when it comes to snack consumption and so more likely to use the behavior of others to guide their own intake.

Mechanisms Underlying Modelling

The mechanisms underlying modelling have not been fully elucidated, but it is possible that people directly mimic the behavior of others by copying their actions, a tendency that may occur automatically and outside of conscious awareness

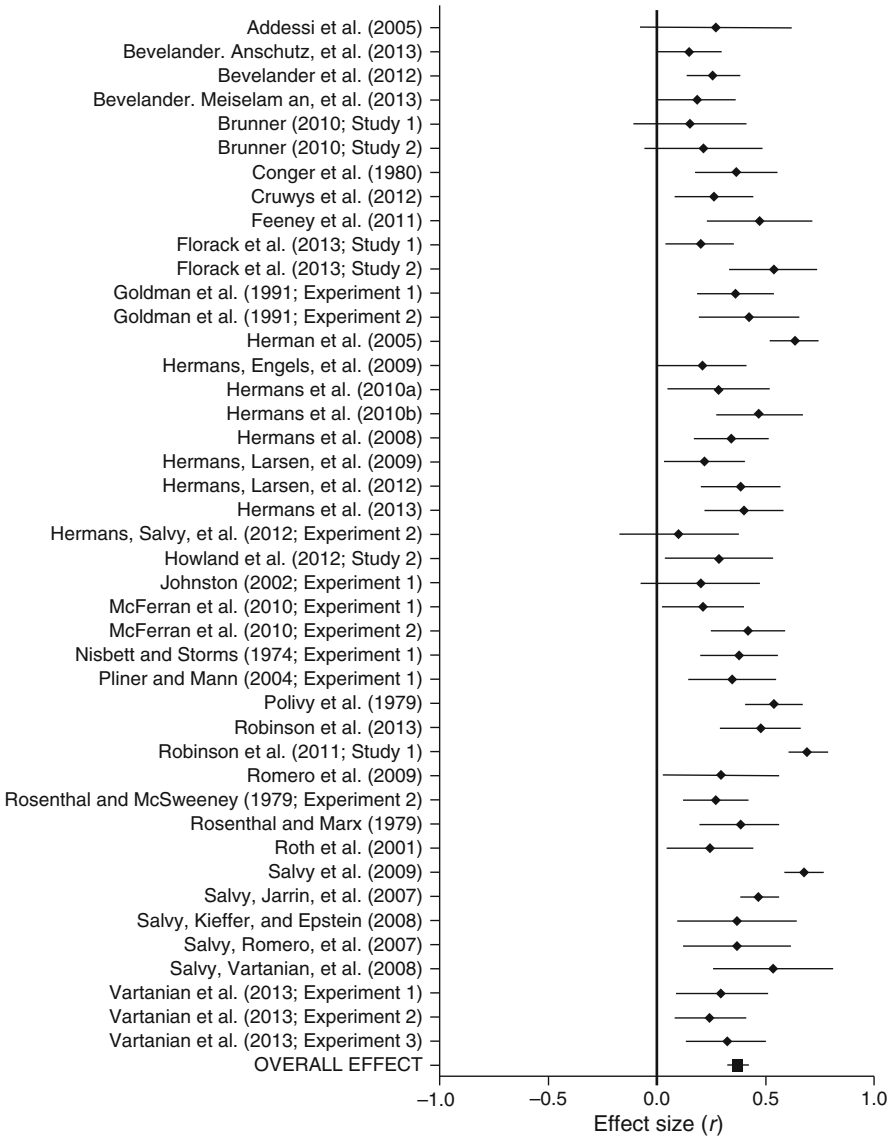

Fig. 2 Forest plot of effect sizes for all studies included in the meta-analysis. For ease of presentation, an average effect size is provided for each individual study. (Source: Reprinted from Vartanian et al. 2015, with kind permission from Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington OX5 1GB, UK)

(Chartrand and Bargh 1999). In support of this idea, it has been reported that co-eaters coordinate their eating-related actions and take a sip of a drink or reach for food immediately after a model performs the same behavior (Hermans et al. 2012; Sharps et al. 2015). There may also be some explicit tracking of the consumption of another person that facilitates modelling (Vartanian et al. 2013).

Modelling may be facilitated by changes in preferences for food/drink items. Bringing behavior in line with a norm has been reported to be a rewarding experience (Nook and Zaki 2015), and eating in the presence of someone else has been shown to enhance the pleasure derived from eating (Boothby et al. 2014). If we are told that our peers have a preference for a specific food, then we expect to like it too (Robinson and Higgs 2012). These data suggest that modelling is a behavior that is reinforced because it has positive consequences.

Impression Management

Impression management is when we behave in a particular way to convey a specific impression of ourselves to others (Leary 1995). Impression management concerns are usually highest when we are interacting with people whom we do not know very well, and in these situations we are usually motivated to present ourselves in a positive light (Baumeister and Leary 1995). One way in which we can manage the impression we give to others is via the decisions we make about what and how much to eat (Vartanian et al. 2007). This is because we hold shared assumptions with others about the characteristics that are associated with people who make certain consumption choices. These assumptions are known as consumption stereotypes. We tend to make judgments about others based on these stereotypes, but we also use them to manage others' perceptions of ourselves (Vartanian et al. 2015). For example, we may choose to eat a salad over a pizza in some social situations because we know that eating the salad will convey something to those around us about our personality. Interestingly, even children have been found to judge others based on their food choices and to make negative judgments about people who deviate from conventional eating habits (DeJesus et al. 2019).

Consumption Stereotypes

There is ample evidence that certain foods and food choices are associated with specific characteristics, particularly attributes associated with gender. For example, meat eating is associated consistently with masculinity (Rozin et al. 2012; Rothgerber 2013), whereas meat avoidance and consumption of vegetables, salad, fish, and sweet foods are associated with femininity (Cavazza et al. 2015; Jensen and Holm 1999; Rothgerber 2013; Ruby and Heine 2011). In general, eating "good/healthy" foods is seen as feminine, and eating "bad/unhealthy" foods is seen as masculine. Men who ate "bad" foods (i.e., high-calorie foods thought to be bad for health) were rated as more masculine (and less feminine) than were men who ate "good" foods (i.e., low-calorie foods thought to be good for health) (Stein and Nemeroff 1995). Consumption of low-fat foods is seen as more feminine and less masculine than is eating high-fat foods (Barker et al. 1999). This may be because people automatically think of foods as either feminine or masculine and attribute these characteristics to the eater (Kimura et al. 2009). Similarly, consumption of "good" foods may result in the eater being perceived as having a "good" character.

People who eat "good" foods are perceived as being "better" people than are those who eat "bad" foods: they are rated as more attractive, healthier, more moral, and more intelligent than are consumers of "bad" foods (Stein and Nemeroff 1995). On the other hand, consumers of "good" foods are also judged as more serious and less likable (Barker et al. 1999), whereas consumers of "bad foods" are perceived to be fun-loving, happy, and sociable (Barker et al. 1999).

People also hold stereotypes about the characteristics associated with eating small versus large amounts of food. Eating a large portion is associated with masculinity and eating small portion is associated with femininity (Bock and Kanarek 1995). Women who eat small meals are rated as more attractive than are women who are depicted eating large meals (Chaiken and Pliner 1987; Bock and Kanarek 1995).

Do Consumption Stereotypes Guide Behavior?

The majority of studies on eating and impression management have focused on the consumption stereotypes that people hold rather than investigating whether these consumption stereotypes actually explain eating choices. However, some studies have found that women tend to eat lightly in the company of men, and this may be motivated by attempts to portray an impression of femininity and behave in a socially desirable manner (e.g. Pliner and Chaiken 1990; see Table 1). Cavazza and colleagues (Cavazza et al. 2015) reported that women's intentions to consume particular dishes were influenced by the perception of the dish as feminine or masculine: women reported that they intended to consume a small portion of salad when it was elegantly presented, because they perceived it to be more feminine. There is also evidence that the food choices made by men may be motivated by impression management under some circumstances (White and Dahl 2006; Gal and Wilkie 2010). In one study, participants were asked to imagine that

Table 1 Mean cracker consumption as a function of participant sex and partner sex. Females but not males ate less in the presence of a desirable partner than in any other conditions. (Source: Reprinted from Pliner and Chaiken 1990, with kind permission from Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington OX5 1GB, UK)

		Male subjects		
		High desirability	Low desirability	Combined
Sex of partner	Male	12.5(11)	17.3(14)	15.2(25)
	Female	14.3(15)	12.4(9)	13.6(24)
		Female subjects		
		High desirability	Low desirability	Combined
Sex of partner	Male	8.8(10)	12.1(14)	10.7(24)
	Female	12.5(13)	14.0(10)	13.2(23)

Note. Amounts are expressed in terms of number of crackers. *N*'s are in parentheses

they had been in workshops all day as part of a training course and that they were planning to order from the room service menu for dinner. To encourage choice of a small steak, the participants were told: "You aren't feeling too hungry because you had a late lunch; however, you are tempted to select steak for dinner." They were then asked to select from a hypothetical menu and to evaluate each menu option. Men were less likely to choose a small steak (versus a large steak) when it was described as a ladies' cut than when it was described as a chef's cut, but only when they thought they would be eating the steak in public and not when they thought they would be consuming it in private, which suggests that their choice was motivated by the effects they thought their choice would have on others (White and Dahl 2006). In another study, men who had their masculine identity challenged as part of the study were less likely to choose stereotypically feminine foods, compared with those who had their masculine identity affirmed, perhaps because they were motivated to counter the challenge to their identity using their food choices (Gal and Wilkie 2010).

Social Facilitation of Eating

The mere presence of other people at a meal can result in increased food intake relative to eating alone, which is known as the social facilitation of eating. The first studies that documented the social facilitation of eating were food diary studies that involved participants recording what and how much they ate over 7 days and with whom they ate (de Castro and Brewer 1992; de Castro and de Castro 1989). It was a surprise to the researchers that one of the most significant influences on food intake was the social context in which people said they ate: people reported eating much more food when they ate in company than when they ate alone. Social facilitation appears to occur at all meal types including breakfast, snacks, meals eaten at home, and meals eaten without alcohol (de Castro 1991). Social facilitation also occurs for meals eaten at the weekends and weekdays. These findings are particularly interesting because they suggest social facilitation of eating is not an artifact that arises because people eat more, and are more likely to eat with others, during certain meals/eating occasions, e.g., meals taken at the weekends or meals taken with alcohol (de Castro 1991).

The conclusions based on the data from diary studies have been corroborated by results obtained from studies examining social facilitation within laboratory and field settings. For example, Berry et al. (Berry et al. 1985) found that participants ate much more ice cream in three- or four-person groups than when alone. Similarly, Klesges et al. (1984) found that people dining out in a restaurant ate more in groups than when eating alone. Evidence to support the suggestion that eating in a group facilitates intake comes from numerous studies employing different methodological approaches (see Herman (2015) for a review). However, it is important to note that social facilitation of eating is confined to meals that involve friends/family (see Fig. 3).

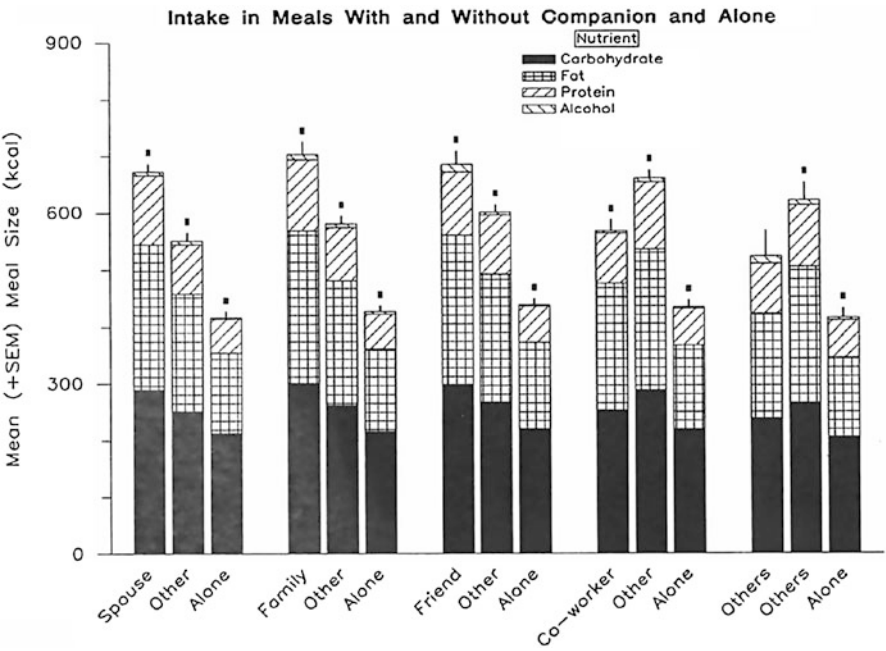

Fig. 3 Mean (± SEM) amounts (kcal) ingested per meal of carbohydrate (solid portion of each bar), fat (crosshatched portion), protein (hatched upward), and alcohol (hatched downward) for meals eaten with a particular companion type (first bar of each set of three), with others but not that companion type present (second bar of each set of three), and alone (third bar). The above the bar indicates a significant difference ($P < 0.05$) between the total meal sizes as assessed with a *t*-test. The above the first bar signifies the "with companion-with other" comparison, above the second bar signifies the "with other-alone" comparison, and above the third bar signifies the "with companion-alone" comparison. (Source: Reprinted from Physiol. Behav., 56(3), J.M. de Castro, Family and friends produce greater social facilitation of food intake than other comparisons, 445–455, 1994, with kind permission from Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington OX5 1GB, UK)

When Does Social Facilitation of Eating Occur?

Social facilitation of eating appears to occur only in groups of people who are known to each other (de Castro 1994). When people eat in a group of strangers, they may actually eat less than they would if they were eating alone (e.g., Hetherington et al. 2006; Péneau et al. 2009). When eating in a group of strangers, some people may restrain their intake to convey a positive impression (and avoid appearing "greedy"), and this tendency to restrain may be the overriding factor affecting total intake. In other words, social facilitation of eating in this context is trumped by impression management concerns (Herman 2015). Impression management concerns, and in particular, concerns about the stigma associated with appearing to eat excessively, might also explain why people with obesity have been observed to consume fewer calories in a group than when dining alone (Krantz 1979; Schüz et al. 2017).

Similarly, an observational study found that, unlike males, female diners eating in larger mixed-sex groups did not eat more than those eating in same-sex pairs (Brindal et al. 2015). This may be because they are restricting their intake to convey a feminine impression (Pliner and Chaiken 1990).

Why Does Eating in a Group Facilitate Consumption?

Several explanations for the social facilitation of eating have been forwarded, but to date few studies have formally examined the underlying mechanisms. One explanation that has been suggested is that social meals are longer than are solo meals and this extended meal duration provides greater opportunity for eating (e.g., Feunekes et al. 1995; Pliner et al. 2006). However, this explanation does not account for the fact that, in order for people to eat more, there is probably more food available at social meals. Indeed, given that most people tend to clear their plates (Hinton et al. 2013), it is unlikely that lone eaters serve themselves (or order) the same amount of food as social eaters, but do not finish all of their portion. A more likely explanation is that people anticipate that they will eat more at social meals, and so they plan to provide more food or order more food when they know they will be eating socially (Herman 2015). In support of this idea, Cavazza et al. (2011) observed that customers in a restaurant ordered more dishes as the number of people in the party increased. In other words, more food was made available for consumption in larger versus smaller groups. However, this social "precilitation" hypothesis remains to be investigated experimentally.

Another explanation of the social facilitation of eating that has yet to be formally tested is that social context affects eating via its effects on hunger, satiety, or food reward. For example, social facilitation may be due to an increased "liking" for foods eaten socially. This is supported by evidence that eating in company enhances food palatability (Boothby et al. 2014). Furthermore, social interaction during social meals may distract people from monitoring how much they are eating or their awareness of internal cues that might inhibit eating. Indeed, one study found that people spent longer looking away from their meal and ate more food, when eating with a friend, relative to when eating alone (Hetherington et al. 2006). Another possibility is that meals eaten alone are smaller than are social meals because eating alone is not as enjoyable as eating with company. However, there is only indirect evidence in support of this assumption. de Castro (1990) found that people were generally happier when eating with others than when eating alone, but his analysis found that mood and the number of people present contributed independently to variance in intake.

Conclusions

Social context plays an important role in determining what, and how much, we eat. Research has highlighted the tendency for people to model their food intake on the consumption patterns of other people, to eat *more* when with friends/family relative

to when alone, and to use food to convey positive impressions to others. While the relative contribution of each of these factors varies across individuals and situations, together they exert a pervasive and powerful influence on food intake.

Acknowledgments This work and the work cited herein were supported by a grant from the Economic and Social Research Council (ESRC), grant number: ES/P01027X/1. The funder had no role in the study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the article for publication.

Conflict of Interest Suzanne Higgs and Helen Ruddock declare they have no conflict of interest.

References

Barker, M. E., Tandy, M., & Stookey, J. D. (1999). How are consumers of low-fat and high-fat diets perceived by those with lower and higher fat intake? *Appetite, 33*(3), 309–317.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529.

Berry, S. L., Beatty, W. W., & Klesges, R. C. (1985). Sensory and social influences on ice-cream consumption by males and females in a laboratory setting. *Appetite, 6*(1), 41–45.

Bevelander, K. E., Anschütz, D. J., & Engels, R. C. (2011). Social modeling of food purchases at supermarkets in teenage girls. *Appetite*, *57*(1), 99–104.

Bevelander, K. E., Anschütz, D. J., & Engels, R. C. (2012). Social norms in food intake among normal weight and overweight children. *Appetite, 58*(3), 864–872.

Bock, B. C., & Kanarek, R. B. (1995). Women and men are what they eat: The effects of gender and reported meal size on perceived characteristics. *Sex Roles, 33*(1–2), 109–119.

Boothby, E. J., Clark, M. S., & Bargh, J. A. (2014). Shared experiences are amplified. *Psychological Science, 25*, 2209–2216.

Bove, C. F., Sobal, J., & Rauschenbach, B. S. (2003). Food choices among newly married couples: Convergence, conflict, individualism, and projects. *Appetite, 40*(1), 25–41.

Brindal, E., Wilson, C., Mohr, P., & Wittert, G. (2015). Eating in groups: Do multiple social influences affect intake in a fast-food restaurant? *Journal of Health Psychology, 20*(5), 483–489.

Cavazza, N., Graziani, A. R., & Guidetti, M. (2011). Looking for the "right" amount to eat at the restaurant: Social influence effects when ordering. *Social Influence, 6*(4), 274–290.

Cavazza, N., Guidetti, M., & Butera, F. (2015). Ingredients of gender-based stereotypes about food. Indirect influence of food type, portion size and presentation on gendered intentions to eat. *Appetite, 91*, 266–272.

Chaiken, S., & Pliner, P. (1987). Women, but not men, are what they eat: The effect of meal size and gender on perceived femininity and masculinity. *Personality and Social Psychology Bulletin, 13*(2), 166–176.

Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception-behavior link and social interaction. *Journal of Personality and Social Psychology, 76*, 893–910.

Christie, C. D., & Chen, F. S. (2018). Vegetarian or meat? Food choice modeling of main dishes occurs outside of awareness. *Appetite*, *121*, 50–54.

Collins, E. I., Thomas, J. M., Robinson, E., Aveyard, P., Jebb, S. A., Herman, C. P., & Higgs, S. (2019). Two observational studies examining the effect of a social norm and a health message on the purchase of vegetables in student canteen settings. *Appetite, 132*, 122–130.

Cruwys, T., Bevelander, K. E., & Hermans, R. C. (2015). Social modeling of eating: A review of when and why social influence affects food intake and choice. *Appetite, 86*, 3–18.

Cruwys, T., Platow, M. J., Angullia, S. A., Chang, J. M., Diler, S. E., Kirchner, J. L., et al. (2012). Modeling of food intake is moderated by salient psychological group membership. *Appetite, 58*(2), 754–757.

Davidson, R., & Gauthier, A. H. (2010). A cross-national multi-level study of family meals. *International Journal of Comparative Sociology, 51*(5), 349–365.
de Castro, J. M., & de Castro, E. S. (1989). Spontaneous meal patterns in humans: Influence of the presence of other people. *American Journal of Clinical Nutrition, 50*, 237–247.
de Castro, J. M., & Brewer, E. M. (1992). The amount eaten in meals by humans is a power function of the number of people present. *Physiology & Behaviour, 51*(1), 121–125.
de Castro, J. M. (1990). Social facilitation of duration and size but not rate of the spontaneous meal intake of humans. *Physiology and Behavior, 47*, 1129–1135.
de Castro, J. M. (1991). Social facilitation of the spontaneous meal size humans occurs on both weekdays and weekends. *Physiology and Behavior, 49*, 1289–1291.
De Castro, J. M. (1994). Family and friends produce greater social facilitation of food intake than other companions. *Physiology & Behavior, 56*(3), 445–455.
De La Haye, K., Robins, G., Mohr, P., & Wilson, C. (2013). Adolescents' intake of junk food: Processes and mechanisms driving consumption similarities among friends. *Journal of Research on Adolescence, 23*(3), 524–536.
DeJesus, J. M., Gerdin, E., Sullivan, K. R., & Kinzler, K. D. (2019). Children judge others based on their food choices. *Journal of Experimental Child Psychology, 179*, 143–161.
Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *The Journal of Abnormal and Social Psychology, 51*(3), 629.
Feeney, J. R., Polivy, J., Pliner, P., & Sullivan, M. D. (2011). Comparing live and remote models in eating conformity research. *Eating Behaviors, 12*(1), 75–77.
Fischler, C. (2011). Commensality, society and culture. *Social Science Information, 50*(3–4), 528–548.
Feunekes, G. I., de Graaf, C., & Van Staveren, W. A. (1995). Social facilitation of food intake is mediated by meal duration. *Physiology & Behavior, 58*(3), 551–558.
Gal, D., & Wilkie, J. (2010). Real men don't eat quiche: Regulation of gender-expressive choices by men. *Social Psychological and Personality Science, 1*(4), 291–301.
Herman, C. P. (2015). The social facilitation of eating. A review. *Appetite, 86*, 61–73.
Herman, C. P., Roth, D. A., & Polivy, J. (2003). Effects of the presence of others on food intake: A normative interpretation. *Psychological Bulletin, 129*(6), 873–886.
Hermans, R. C., Engels, R. C., Larsen, J. K., & Herman, P. C. (2009). Modeling of palatable food intake. The influence of quality of social interaction. *Appetite, 52*, 801–804.
Hermans, R. C., Herman, P. C., Larsen, J., & Engels, R. C. (2010). Social modeling effects on young women's breakfast intake. *Journal of the American Dietetic Association, 110*, 1901–1905.
Hermans, R. C., Lichtwarck-Aschoff, A., Bevelander, K. E., Herman, C. P., Larsen, J. K., & Engels, R. C. (2012). Mimicry of food intake: The dynamic interplay between eating companions. *PLoS One, 7*(2), e31027.
Hetherington, M. M., Anderson, A. S., Norton, G. N., & Newson, L. (2006). Situational effects on meal intake. A comparison of eating alone and eating with others. *Physiology & Behavior, 88*, 498–505.
Higgs, S., & Thomas, J. (2016). Social influences on eating. *Current Opinion in Behavioral Sciences, 9*, 1–6.
Higgs, S. (2015). Social norms and their influence on eating behaviours. *Appetite, 86*, 38–44.
Hinton, E. C., Brunstrom, J. M., Fay, S. H., Wilkinson, L. L., Ferriday, D., Rogers, P. J., & de Wijk, R. (2013). Using photography in 'the restaurant of the future'. A useful way to assess portion selection and plate cleaning? *Appetite, 63*, 31–35.
Jensen, K. O. D., & Holm, L. (1999). Preferences, quantities and concerns: Socio-cultural perspectives on the gendered consumption of foods. *European Journal of Clinical Nutrition, 53*(5), 351.
Kimura, A., Wada, Y., Goto, S. I., Tsuzuki, D., Cai, D., Oka, T., & Dan, I. (2009). Implicit gender-based food stereotypes. Semantic priming experiments on young Japanese. *Appetite, 52*(2), 521–524.
Klesges, R. C., Bartsch, D., Norwood, J. D., Kautzrnan, D., & Haugrud, S. (1984). The effects of selected social and environmental variables on the eating behavior of adults in the natural environment. *International Journal of Eating Disorders, 3*(4), 35–41.

Krantz, D. S. (1979). Naturalistic study of social influences on meal size among moderately obese and non-obese subjects. *Psychosomatic Medicine, 41*, 19–27.

Leary, M. R. (1995). *Self-presentation: Impression management and interpersonal behavior*. Madison: Brown & Benchmark Publishers.

Leone, T., Pliner, P., & Herman, C. P. (2007). Influence of clear versus ambiguous normative information on food intake. *Appetite, 49*(1), 58–65.

Liu, J., & Higgs, S. (2019). Social Modeling of food intake: No evidence for moderation by identification with the norm referent group. *Frontiers in psychology*, *10*.

McFerran, B., Dahl, D., Fitzsimons, G., & Morales, A. (2010). I'll have what she's having. Effects of social influence and body type on the food choices of others. *Journal of Consumer Research, 36*, 915–929.

Mollen, S., Rimal, R. N., Ruiter, R. A., & Kok, G. (2013). Healthy and unhealthy social norms and food selection. Findings from a field experiment. *Appetite, 65*, 83–89.

Mötteli, S., Siegrist, M., & Keller, C. (2017). Women's social eating environment and its associations with dietary behavior and weight management. *Appetite, 110*, 86–93.

Murcott, A. (1983). *The sociology of food and eating*. Aldershot: Gower.

Nook, E. C., & Zaki, J. (2015). Social norms shift behavioral and neural responses to foods. *Journal of Cognitive Neuroscience, 27*(7), 1412–1426.

Oh, A., Erinosho, T., Dunton, G., Perna, F. M., & Berrigan, D. (2014). Cross-sectional examination of physical and social contexts of episodes of eating and drinking in a national sample of US adults. *Public Health Nutrition, 17*(12), 2721–2729.

Pachucki, M. A., Jacques, P. F., & Christakis, N. A. (2011). Social network concordance in food choice among spouses, friends, and siblings. *American Journal of Public Health, 101*(11), 2170–2177.

Péneau, S., Mekhmoukh, A., Chapelot, D., Dalix, A.-M., Airinei, G., Hercberg, S., et al. (2009). Influence of environmental factors on food intake and choice of beverage during meals in teenagers. A laboratory study. *British Journal of Nutrition, 102*, 1854–1859.

Pliner, P., Bell, R., Hirsch, E. S., & Kinchla, M. (2006). Meal duration mediates the effect of "social facilitation" on eating in humans. *Appetite, 46*(2), 189–198.

Pliner, P., & Chaiken, S. (1990). Eating, social motives, and self-presentation in women and men. *Journal of Experimental Social Psychology, 26*(3), 240–254.

Pliner, P., & Mann, N. (2004). Influence of social norms and palatability on amount consumed and food choice. *Appetite, 42*(2), 227–237.

Prinsen, S., de Ridder, D. T., & de Vet, E. (2013). Eating by example. Effects of environmental cues on dietary decisions. *Appetite, 70*, 1–5.

Robinson, E., & Higgs, S. (2012). Liking food less: The impact of social influence on food liking evaluations in female students. *PLoS One, 7*(11), e48858.

Robinson, E., & Higgs, S. (2013). Making food choices in the presence of 'healthy' and 'unhealthy' companions. *British Journal of Nutrition, 109*(4), 765–771.

Robinson, E., Benwell, H., & Higgs, S. (2013). Food intake norms increase and decrease snack food intake in a remote confederate study. *Appetite, 65*(1), 20–24.

Robinson, E., Fleming, A., & Higgs, S. (2014). Prompting healthier eating: Comparing the use of health and social norm based messages. *Health Psychology, 33*(9), 1057–1064.

Robinson, E., Tobias, T., Shaw, L., Freeman, E., & Higgs, S. (2011). Social matching of food intake and the need for social acceptance. *Appetite, 56*(3), 747–752.

Roth, D. A., Herman, C. P., Polivy, J., & Pliner, P. (2001). Self-presentational conflict in social eating situations: A normative perspective. *Appetite, 36*(2), 165–171.

Rothgerber, H. (2013). Real men don't eat (vegetable) quiche. Masculinity and the justification of meat consumption. *Psychology of Men and Masculinity, 14*, 363–375.

Rozin, P., Hormes, J. M., Faith, M. S., & Wansink, B. (2012). Is meat male? A quantitative multimethod framework to establish metaphoric relationships. *Journal of Consumer Research, 39*, 629–643.

Ruby, M. B., & Heine, S. J. (2011). Meat, morals, and masculinity. *Appetite, 56*(2), 447–450.

Salvy, S. J., Vartanian, L. R., Coelho, J. S., Jarrin, D., & Pliner, P. P. (2008). The role of familiarity on modeling of eating and food consumption in children. *Appetite, 50*(2–3), 514–518.

Schüz, B., Revell, S., Hills, A. P., Schüz, N., & Ferguson, S. G. (2017). Higher BMI is associated with stronger effects of social cues on everyday snacking behaviour. *Appetite, 114*, 1–5.

Sharps, M., Higgs, S., Blissett, J., Nouwen, A., Chechlacz, M., Allen, H. A., & Robinson, E. (2015). Examining evidence for behavioural mimicry of parental eating by adolescent females. An observational study. *Appetite, 89*, 56–61.

Stein, R. I., & Nemeroff, C. J. (1995). Moral overtones of food: Judgments of others based on what they eat. *Personality and Social Psychology Bulletin, 21*(5), 480–490.

Stok, F. M., Ridder, D. T., Vet, E., & Wit, J. B. (2014). Don't tell me what I should do, but what others do: The influence of descriptive and injunctive peer norms on fruit consumption in adolescents. *British Journal of Health Psychology, 19*(1), 52–64.

Thomas, J. M., Ursell, A., Robinson, E. L., Aveyard, P., Jebb, S. A., Herman, C. P., & Higgs, S. (2017). Using a descriptive social norm to increase vegetable selection in workplace restaurant settings. *Health Psychology, 36*(11), 1026.

Vartanian, L. R., Herman, C. P., & Polivy, J. (2007). Consumption stereotypes and impression management: How you are what you eat. *Appetite, 48*(3), 265–277.

Vartanian, L. R., Sokol, N., Herman, C. P., & Polivy, J. (2013). Social models provide a norm of appropriate food intake for young women. *PLoS One, 8*(11), e79268.

Vartanian, L. R., Spanos, S., Herman, C. P., & Polivy, J. (2015). Modeling of food intake: A meta-analytic review. *Social Influence, 10*(3), 119–136.

Versluis, I., & Papies, E. K. (2016). The role of social norms in the portion size effect: Reducing normative relevance reduces the effect of portion size on consumption decisions. *Frontiers in Psychology, 7*, 756.

White, K., & Dahl, D. W. (2006). To be or not be? The influence of dissociative reference groups on consumer preferences. *Journal of Consumer Psychology, 16*, 404–414.

Yiengprugsawan, V., Banwell, C., Takeda, W., Dixon, J., Seubsman, S. A., & Sleigh, A. C. (2015). Health, happiness and eating together: What can a large Thai cohort study tell us? *Global Journal of Health Science, 7*(4), 270.