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Research report

Eating like you are overweight: the effect of overweight models on food intake in a remote confederate study[☆]

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ABSTRACT

There is consistent evidence that people model the eating behaviour of others. The extent to which people model the amount of food consumed by other people of different weight statuses has received less attention. Here we tested the effect on food consumption of exposing female participants to information about the food consumption of either normal/healthy weight or overweight individuals. Eighty female participants took part in a between-subjects experiment, in which we used a remote-confederate design and manipulated whether participants saw intake information about normal/healthy weight or overweight previous participants (remote confederates). Regardless of the weight-status of the remote confederates, participants ate more food when they believed that previous participants had eaten a large amount of food, in comparison with when they believed previous participants had eaten a smaller amount of food. These findings indicate that women may model the food intake of other women, even when they believe they are of a different weight status to themselves.

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Introduction

There is now consistent evidence that beliefs about the eating habits of others can influence food consumption (Prinsen, de Ridder, & de Vet, 2013; Robinson, Thomas, Aveyard, & Higgs, 2014b; Roth, Herman, Polivy, & Pliner, 2001). For example, in a recent meta-analysis, studies that had experimentally manipulated whether participants believed others had been eating large or small amounts of food reported sizeable effects on ad-libitum food intake (Robinson et al. 2014b). Less research has examined whether we are more likely to model the eating behaviour of specific groups of people. Cruwys et al. (2012) showed that after priming a specific social group (the participants' university), participants followed an intake norm when it was set by a person who was from that same social group, but did not when it was set by a person from an opposing group (rival university). Thus, it may be the case that we are particularly likely to copy the eating behaviour of other people if we perceive them to be similar to ourselves or we aspire to be like them. This proposition is also supported by findings that suggest that the extent to which individuals identify with a social group increases the likelihood they model the eating behaviour of that group (Louis, Davies, Smith, & Terry, 2007; Stok, de Ridder, de Vet, & de Wit, 2012).

Weight status has been suggested as a potential characteristic that might have an effect on whether or not we are influenced by the eating behaviour of others, but previous studies have produced mixed findings (Conger, Conger, Costanzo, Wright, & Matter, 1980; Hermans, Larsen, Herman, & Engels, 2010; Johnston, 2002; McFerran, Dahl, Fitzsimons, & Morales, 2010). Most recently, Hermans et al. (2010) found that healthy weight females modelled the intake of a live eating companion only when that companion appeared to be a similar weight and not when the eating companion appeared slimmer. The authors suggested that one interpretation of this finding could be similarity; the normal weight participants may have viewed the eating behaviour of their slimmer co-eater as inappropriate to follow because they were slimmer and so should have smaller appetites. A study by McFerran et al. (2010) provides some support to this proposition. The researchers found that participant portion size selections were influenced by portion size selections made by both overweight and slim confederates, but how closely participants matched their portion size to the portion size selected by the confederate depended on weight status. Slim confederates serving themselves a large amount of food caused participants to increase their food consumption, and although heavy confederates serving themselves a large amount of food increased participant serving size, this increase was smaller than when the confederate was slim (McFerran et al., 2010). These findings suggest that participants will sometimes model the behaviour of people of a different weight status and an earlier study by Conger et al. (1980) supports this suggestion. In Conger et al. (1980) weight status had little effect on whether participants were influenced by a

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co-eater. Both normal weight and obese participants modelled the food intake of normal weight and obese confederates in this study. Finally, Johnston's (2002) results conflicted with those of McFerran et al. (2010) and Conger et al. (1980). In this study participants ate with a normal weight or obese model and a significant modelling effect was observed only when the model was of normal weight.

Studies to date have produced conflicting results. In all of these studies 'live' confederate models have been used, so that participants are given the opportunity to model the eating/serving behaviour of a present co-eater. One issue is that in such a paradigm visual perceptions of weight may be inaccurate, which could result in it being unclear how closely participants viewed themselves as being in a similar or dissimilar weight range to their co-eater. This possibility is supported by findings that show that people can be poor at recognising whether or not other people are overweight or a normal weight (Robinson & Kirkham, 2013; Smith, Gatley, & Rudolf, 2008). A difference across these studies may also be the extent to which participants may have been eager to impress or be liked by the confederates. This may be of relevance as social approval concerns may be one reason why people copy the eating behaviour of present co-eaters (Hermans, Engels, Larsen, & Herman, 2009; Robinson, Tobias, Shaw, Freeman, & Higgs, 2011).

The extent to which individuals copy the eating behaviour of people of different weight statuses in a remote confederate design has not been examined. In a remote confederate design participants learn about the amount of food that other participants have been eating and the effect on participant food consumption is examined. Importantly, no other participants or confederates are present. Thus, a difference between 'live confederate' and 'remote confederate' design studies is that in remote confederate designs participants cannot mimic the gestures of an eating companion (Hermans et al., 2012), nor can they attempt to bond with the confederate by copying his or her behaviour (Chartrand & Bargh, 1999). In remote confederate design studies it can therefore be argued that participants would be most likely to be copying the behaviour of remote confederates as a way of removing uncertainty about how to behave, as opposed to any additional concern or desires to ingratiate themselves with others. Because studies examining the effect of the weight status of an eating model on food consumption have used live confederate designs (Conger et al., 1980; Hermans et al., 2010; Johnston, 2002; McFerran et al., 2010), it is not clear whether simply learning about the eating behaviour of people of a different weight status (as opposed to being in the physical presence of a co-eater) can influence food consumption.

One of the reasons that understanding whether beliefs about the eating behaviour of people of different weight statuses influences food consumption is interesting is because in a large proportion of the developed world, overweight and obesity are now becoming very common (Swinburn et al., 2011). Thus, we presume that it is now fairly common for normal/healthy weight individuals to be seeing and learning about the eating habits of overweight and obese individuals. Moreover, there is some research suggesting that having heavier friends increases one's likelihood of gaining weight (Christakis & Fowler, 2007). One potential mechanism explaining this effect is that individuals could use the eating behaviour of their overweight peers as a guide to inform their own behaviour and this in some instances could result in increased energy consumption (Robinson, Blissett, & Higgs, 2013b). Although work has examined how the mere presence of overweight individuals can influence behaviour or activate different stereotypes (Campbell & Mohr, 2011; De Luca & Spigelman, 1979), we are not aware of any work directly examining whether directly manipulating beliefs about what overweight vs. normal/healthy weight individuals have been

eating influences the eating behaviour of normal/healthy weight participants.

The aim of the present work was to examine whether individuals model the eating behaviour of people from the same weight status (normal/healthy weight) and a different weight status (overweight) in a remote confederate study. In this study we recruited females and exposed them to information suggesting that other participants (who were described as being either healthy weight or overweight) had tended to eat either a large or small amount of snack food in the study. Based on the well replicated modelling effect, but mixed findings regarding weight status, we predicted that the consumption level of remote confederates would exert a significant influence on food consumption. However, we were unsure whether this effect would occur when remote confederates were described as being overweight. We reasoned that participants may discount the eating behaviour of overweight confederates and view it as not being socially appropriate to model (Hermans et al., 2010). Although as the amount of food that one should consume is often ambiguous and people like to avoid uncertainty (Hogg, 2007), it also seemed plausible that participants may model the behaviour of both normal weight and overweight models as a way of removing uncertainty about how much food to consume.

Method

Participants

Ninety eight female undergraduate psychology students participated. To disguise the aims of the study it was advertised as research examining food and mood. Participation was in return for course credit. Advertisement was through an online portal in which participants signed up to time slots in advance of study participation. The only eligibility criteria were that participants were female and did not have any food allergies. Participants gave informed signed consent. The study protocol was approved by the institutional ethics board. We based sample size on a recent comparable study (Robinson, Benwell, & Higgs, 2013a).

Design

A 2 × 2 between-subjects design was used with levels: confederate intake (high vs. low intake) and weight status of remote confederates (normal/healthy weight vs. overweight). We adopted a remote confederate design in which participants were exposed to a fictitious previous participant information sheet. In both the low and high intake conditions the sheet contained information about six participants (age, date of session, gender) and included the number of cookies eaten by the first four participants only. All were female psychology students aged between 18 and 24 years old. In the low intake condition the first four participants had eaten 1, 1, 2 and 2 cookies respectively. In the high intake condition they had eaten 8, 9, 8 and 10 cookies respectively. These intake norms were based upon the values used in Robinson et al. (2013a). In both conditions the two most recent participants' information about cookie consumption was left blank (see Procedure for explanation). In addition to the cookie information, a final column contained weight status information. To form the two remote confederate weight status conditions, the first four participants were recorded as being 'healthy weight' or 'overweight' with corroborating BMI information included in the column (e.g. BMI = 21, healthy weight). The two most recent participants (for whom cookie consumption information was left blank) were recorded as being 'healthy weight'. We did this as we believed participants in the overweight remote confederate condition might not believe that all six previous participants had been overweight.

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