When group members go against the grain: An ironic interactive effect of group identification and normative content on healthy eating

Kasia Banas [a, *], Tegan Cruwys [b], John B.F. de Wit [c, d], Marie Johnston [e], S. Alexander Haslam [b]

[a] University of Edinburgh, UK
[b] University of Queensland, Australia
[c] University of New South Wales, Australia
[d] Utrecht University, The Netherlands
[e] University of Aberdeen, UK

ARTICLE INFO

ABSTRACT

Three studies were conducted to examine the effect of group identification and normative content of social identities on healthy eating intentions and behaviour. In Study 1 (N = 87) Australian participants were shown images that portrayed a norm of healthy vs. unhealthy behaviour among Australians. Participants' choices from an online restaurant menu were used to calculate energy content as the dependent variable. In Study 2 (N = 117), female participants were assigned to a healthy or unhealthy norm condition. The dependent variable was the amount of food eaten in a taste test. Social group identification was measured in both studies. In Study 3 (N = 117), both American identification and healthiness norm were experimentally manipulated, and participants' choices from an online restaurant menu constituted the dependent variable. In all three studies, the healthiness norm presented interacted with participants' group identification to predict eating behaviour. Contrary to what would be predicted under the traditional normative social influence account, higher identifiers chose higher energy food from an online menu and ate more food in a taste test when presented with information about their in-group members behaving healthily. The exact psychological mechanism responsible for these results remains unclear, but the pattern of means can be interpreted as evidence of vicarious licensing, whereby participants feel less motivated to make healthy food choices after being presented with content suggesting that other in-group members are engaging in healthy behaviour. These results suggest a more complex interplay between group membership and norms than has previously been proposed.

© 2016 Published by Elsevier Ltd.

1. Introduction

Social factors exert a strong influence on eating behaviour (Cruwys, Bevelander, & Hermans, 2015; Vartanian, 2015). Other people are especially likely to influence what we eat if we feel a sense of sharing an important social identity with them, for example, if they study at the same university (Cruwys et al., 2012).

To date, research has focussed on social modelling, which has been shown to occur across a wide range of participants' demographic characteristics, and a variety of study paradigms (for a review, see Vartanian, Spanos, Herman, & Polivy, 2015). The mechanism typically understood to be responsible for social modelling is normative influence, whereby the behaviour of others communicates a norm of what constitutes appropriate consumption in a particular social context (Vartanian, Sokol, Herman, & Polivy, 2013).

While the normative influence approach in the eating domain makes intuitive sense and there is a body of evidence to support it (Louis, Davies, Smith, & Terry, 2007; Robinson, Fleming, & Higgs, 2014; Robinson, Harris, Thomas, Aveyard, & Higgs, 2013; Åstrom & Rise, 2001), recent literature points to circumstances

under which decision-making in the context of eating may be more complex. For example, new developments in social psychology suggest that people who identify highly with a particular social group may in certain contexts be subject to an ironic process whereby they engage in behaviour *contrary* to what others in the group do — a phenomenon known as vicarious licensing (Kouchaki, 2011). In three studies, we manipulated normative content of social identities by presenting information about other in-group members behaving in healthy or unhealthy ways. We then examined the effect of the normative content on individuals who either strongly or weakly identified with the group.

1.1. Social identity perspective

The social identity perspective, comprised of social identity theory (SIT; Tajfel & Turner, 1986) and self-categorisation theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), offers a useful framework for conceptualising social norms in the context of group dynamics. Social identification, a key concept in both theories, refers to the process whereby valued group memberships are internalised into a person's sense of self (Tajfel, 1972). A key premise of the social identity perspective is that psychologically categorising oneself in terms of a particular group membership, through a process Turner (1982) refers to as *depersonalisation* — has distinctive consequences for subsequent behaviour. In particular, this is because it provides a basis for various forms of co-ordinated group activity (Haslam, 2004).

According to the traditional account of social influence (Deutsch & Gerard, 1955), people are influenced by others when they are uncertain about the world and require information (informational influence) or when they seek approval and want to be liked (normative influence). A social identity analysis removes the distinction between these two types of influence and refers to a single process called referent informational influence. In this process, conformity to group norms stems from the importance of the group in question to the individual's sense of self and the associated desire to engage in behaviours appropriate for the group. Accordingly, individuals are more likely to be influenced by in-group rather than out-group members (Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990).

Within the social identity approach, social norms refer to the *content* of social categories. When a social identity associated with a particular group is salient, the normative content of the social category — such as the group's attitudes, values and ways of behaving — becomes self-relevant. This translates into an increased motivation to behave in ways that are congruent with the group, and a weaker motivation to behave in ways incongruent with the group (Oyserman, Fryberg, & Yoder, 2007; Turner, 1991). As individuals typically possess multiple social identities, their attitudes and behaviour are also likely to change as a function of changes to the salience of particular social identities. For example, a female sportsperson is more likely to see a knee injury (vs. a facial scar) as threatening if she self-categorises as a sportsperson rather than as a woman (Levine & Reicher, 1996).

Salient social identity has been shown to influence health-related intentions, including the intention to eat healthily. For example, British students who were encouraged to self-categorise in terms of their British identity reported stronger intentions to reduce their salt and alcohol consumption than those who categorised themselves in terms of their student identity (Tarrant & Butler, 2011). The authors argued that this was because healthy

behaviour is more congruent with British identity than with student identity. In other words, the salient self-categorisation was the basis for participants' intentions — and hence as the self-categorisation changed so too did their intentions.

The motivation to eat according to the norms of a desirable social group exerts a strong influence over food choices (Cruwys et al., 2012; Hackel, Coppin, Wohl, & Van Bavel, 2015) and eating can also be a way of affirming one's belonging and commitment to a group. For example, when their American identity was threatened, Asian immigrants to the USA were more likely to list an American food item as their favourite food, compared to participants whose American identity was not threatened (Guendelman, Cheryan, & Monin, 2011). After experiencing a threat to their American identity, participants were also more likely to choose an American meal from a restaurant menu, leading them to consume over 180 more calories and 7 g more fat than participants in the non-threatened group.

Of central importance to the present study, social identity theorising anticipates that social norms should interact with group identification to structure behavioural intentions and behaviour. More specifically, high identifiers should generally be more strongly influenced by their group's social norms than low identifiers. For example, in a study by Louis et al. (2007), students' healthy eating intentions were significantly associated with the perceived group norm, but this was true only for those who identified strongly as students. The intentions of those who identified weakly were unaffected by the norm. Similarly, in a study of young adults, Åstrom and Rise (2001) found that when it came to forming healthy eating intentions, only those who identified strongly with their friends and peers were influenced by a perceived group norm to eat healthily (or not).

While it is generally accepted that among high identifiers, group norms are predictive of the *intention* to eat healthily, the evidence for a similar effect on eating behaviour is less strong. Notably, Robinson et al. (2013; 2014) showed that presenting students with a positive descriptive norm increased fruit and vegetable consumption and decreased energy-dense snack intake, but only among those students whose baseline fruit and vegetable consumption was low. Stok, De Ridder, De Vet and De Wit (2012) showed a similar effect of a minority norm — adolescents who were told that only a few of their peers followed the fruit and vegetable intake guidelines were also less likely to consume fruit and vegetables themselves. Overall, the processes responsible for determining behaviour are less understood than those determining behavioural intention, and current theorising suggests that behaviour is more strongly influenced by non-intentional, or automatic, factors than previously thought (Sheeran, 2002; Hofmann, Friese, & Wiers, 2008).

1.2. Ironic effects

Recent social psychological work has provided evidence for a number of counterintuitive effects that lead to less healthy food choices, even in the presence of a healthy eating intention. Licensing, a concept introduced in the goal attainment literature, refers to the process where people give themselves a 'license' to disengage temporarily from pursuing a particular goal, because they feel that they had already made sufficient progress towards achieving that goal (Khan & Dhar, 2006). In the context of eating behaviour, one study (Chang & Chiou, 2014) found that personally taking weight-loss supplements induced a sense of progress towards one's weight loss goals, and reduced dietary restriction.

Vicarious licensing can be conceptualised as a specific form of licensing that occurs at a group level. In this context, it is group (rather than individual) progress towards the goal that results in a license to disengage from appropriate forms of behaviour. Specifically, it has been argued that individuals who identify highly with their social group may disengage from personally pursuing a group goal if they feel that others in the group are already making good progress in achieving that goal. Illustrative of the effect, studies by Kouchaki (2011) showed that, in an organisation that values equal opportunities, receiving information about in-group members engaging in non-discriminatory behaviour may sometimes be seen *not* as a positive descriptive norm that should be followed, but rather as a license for the individual to engage in discriminatory practices. We propose that a similar effect could potentially be observed for healthy behaviour and healthy eating specifically. If healthy eating is seen as an effortful chore that the group needs to accomplish, information that other in-group members are already engaging in healthy eating could be taken as evidence that individual effort towards a healthy eating goal is not required — because this has goal has already been achieved by others who are representative of self. Much like behaviours such as discrimination, stealing or recycling, healthy eating is perceived to have a moral component (Brown, 2013; Conrad, 1994). According to this logic, then, receiving information about in-group members eating healthily might lead to the development of a vicarious 'healthy self-concept', and result in less healthy behaviour.

Several studies have found evidence of ironic effects that may fit with this logic. In particular, Wilcox, Vallen, Block, and Fitzsimons (2009) found that the mere presence of a healthy option on the menu leads to more indulgent food choices, especially among customers with high levels of self-control. The authors theorised that participants who simply considered healthy options felt they were making progress towards their healthy eating goal, and subsequently gave themselves a license to engage in unhealthy eating. Relatedly, Fitzsimons and Finkel (2011) showed that thinking about a significant other who helped the participant with their healthy goal led participants to reduce the time and effort they planned to spend on that goal. The hypothesised mechanism was similar to a traditional social loafing account, whereby one's own effort in a task decreases when there are others who put a good effort in. In concert, these effects seem to point to a conclusion applicable to all self-regulation dilemmas: exercising self-control is hard, and people will take any available opportunity to convince themselves that it is acceptable to temporarily disengage from a healthy (or otherwise difficult) goal.

1.3. The present research

The studies presented in this paper investigate the effect of exposing individuals to a norm relating to the healthiness of their social group on food choices and food intake. According to the traditional normative influence approach, high identifiers will adjust their behaviour in order to bring that behaviour into line with a group norm. Thus, normative content portraying the group as healthy would lead to healthier individual behaviour, and vice-versa. The licensing approach, however, suggests that an opposite effect is also possible: given information about healthy behaviour of other group members, high identifiers may feel 'licensed' to temporarily make less healthy choices.

The context for the present studies was provided by three different social identities: Australian identity, female identity and American identity. The outcomes of interest include both healthy eating intentions and eating behaviour, in order to explore the parallels and potential differences in the way these two outcomes are shaped by group identification and normative content. Many studies in social psychology include intentions as the sole outcome of interest and report significant effects of social processes on intention. However, on average only 28% of variance in behaviour can be accounted for by intention (Sheeran, 2002), and consequently even a significant change in intention may not translate into behaviour. It is therefore important to assess behavioural outcomes as well and to focus on psychological mechanisms that underpin behavioural change.

2. Study 1

In our first study, Australian participants were presented with pictures showing in-group members (i.e., other Australians) engaging in either healthy or unhealthy behaviour, with a focus on eating and physical activity. Pictures were selected to present one conception of the normative content of the referent group (i.e., either as healthy or unhealthy). The outcome variables in which we were interested were healthy eating intentions and the energy content of foods chosen from an online restaurant menu. Energy content is often used as a heuristic when making choices between different food items (Van Kleef, Van Trijp, Paeps, & Fernández-Celemín, 2008) and has also been used in previous social-psychological studies of eating (e.g. Guendelman et al., 2011) and in interventions designed to make food choices healthier (Allan, Johnston, & Campbell, 2015). Accordingly, the energy content (in kilojoules) of food choices was used as a proxy measure for healthy eating: lower energy content of selected foods was interpreted as evidence of healthier eating.

Our key prediction was that eating intentions would vary as an interactive function of the in-group norm and participants' identification with the in-group (H1). However, we did not make a specific prediction as to whether identification would accentuate (H1a; consistent with a normative influence account) or attenuate (H1b; consistent with a vicarious licensing account) the effect of group norms.

2.1. Method

2.1.1. Design

The study was introduced as an investigation of the food preferences of Australians. We used a between-subjects design, where the normative content of Australian identity was manipulated by exposing participants to a specific set of pictures. Approval for the study was granted by the Ethics Review Committee at the second author's university (where the study was conducted).

2.1.2. Participants

Participants were 87 (69 women and 18 men) Australian first-year psychology students at a large Australian university. Participants were recruited as partial fulfilment of course requirements. Participants were on average 19.7 years old ($SD = 5.6$), with a mean self-reported BMI of 22.3 ($SD = 4.1$).

2.1.3. Procedure

Participants were randomly assigned to one of two conditions: healthy normative content or unhealthy normative content condition. As part of the experimental manipulation, all participants were presented with six images and asked to choose the three that they thought best represented what it meant to be Australian. Two

of these images were neutral in content and were present in both conditions (the Australian flag, a koala). The remaining four images were different in the two conditions and represented either healthy behaviour (people playing sports, people jogging on the beach, fruit, grilled prawns) or unhealthy behaviour (people watching sports, people sunbathing on the beach, beer, meat pies). The images were used to influence the perceived normative content of Australian identity.

After completing the manipulation, participants were asked to choose items for breakfast, lunch and dinner from an online restaurant menu (this was based on a menu from a popular Australian restaurant chain). These choices were hypothetical: participants were asked to imagine being on a day trip and having to eat all their meals in a restaurant. Participants knew that they would not be given any of the chosen foods to eat as part of the study.

2.1.4. Measures

Following the menu choices, participants were asked to complete a battery of questionnaires measuring constructs related to identity and eating. They also reported their height and weight. These measures were as follows:

2.1.4.1. Group identification. National identification was measured using a 4-item scale (e.g. 'I identify with other Australians'; Doosje, Ellemers, & Spears, 1995). Responses were made on a 7-point scale, ranging from *strongly disagree* to *strongly agree*. The scale was internally consistent, $\alpha = 0.78$.

2.1.4.2. Group-specific norms. Norms were measured using two items: 'I think of Australians as the kind of group which would eat a healthy diet' (descriptive norm) and 'Trying to eat a healthy diet is important to Australians' (injunctive norm; items adapted from Tarrant & Butler, 2011). Responses were made on a 7-point scale, ranging from *strongly disagree* to *strongly agree*.

2.1.4.3. Food choices. Participants were presented with an online restaurant menu and asked to choose breakfast, lunch and dinner for the next day. The menu comprised up to forty options, and the interface allowed participants to specify their first and second choices for each meal. Based on information provided by the restaurant, we were able to retrieve the energy content in kilojoules of each meal. The mean energy content of the three meals chosen by each participant was then summed and constituted our dependent measure.

2.1.4.4. Healthy eating intentions. Healthy eating intentions were measured using two items: 'I intend to eat a healthy diet in the next 3 months' and 'I want to eat a healthy diet in the next 3 months'. Participants responded to these using a 7-point scale, ranging from *strongly disagree* to *strongly agree*. The internal consistency of this scale was satisfactory, $\alpha = 0.68$.

2.2. Results

2.2.1. Preliminary analyses

The mean, range, and standard deviation for key study variables are presented in Table 1. No differences between conditions were observed for BMI or group identification. There was, however, a significant different in age ($t(84) = 2.45$, $p = 0.016$), with participants in the healthy normative content condition slightly older ($M = 21.07$, $SD = 7.40$) than those in the unhealthy condition ($M = 18.21$, $SD = 1.55$). However, inclusion of age as a covariate in subsequent analyses did not affect the results for any of the dependent variables, and hence this analysis is not reported

Table 1
Descriptive statistics, Study 1.

Variable	Range	Mean	SD
Age	17—48	19.67	5.56
BMI	15.9—41.4	22.29	4.10
National identification	4—7	6.16	0.69
Descriptive norm	1—6	3.93	1.24
Injunctive norm	2—7	4.45	1.21
Healthy eating intentions	3.5—7	6.03	0.76
Food choices (kJ)	7843—16,959	11,551	1925

below.

2.2.2. Online menu selections

A model including the normative content condition, national identification and the interaction between the two variables accounted for a marginally significant amount of variance in the energy content of online menu selections, $F(3,78) = 2.46$, $p = 0.069$, $R^2 = 0.087$. Multiple regression analysis indicated no main effect of condition ($\beta = 0.089$, $p = 0.416$) on the energy content of participants' food choices, and no association between national identification and food choices ($\beta = 0.054$, $p = 0.626$). There was, however, a significant interaction between these two variables ($\beta = 0.262$, $p = 0.019$; see Fig. 1). Participants who did not strongly identify as Australian were not significantly affected by the normative content of the images ($\beta = -0.19$, $p = 0.26$). However, for those who did identify more strongly as Australian there was evidence of a significant effect of normative content ($\beta = 0.36$, $p = 0.02$), such that those in the healthy normative content condition chose higher-energy foods than those presented with an unhealthy norm. The difference in energy content of the chosen foods between participants whose national identification was one standard deviation above the mean and one standard deviation below the mean was 581 kJ, which is roughly equivalent to the energy content of a cheese sandwich.

2.2.3. Healthy eating intentions

A regression model including the normative content condition, national identification, and the interaction between the two
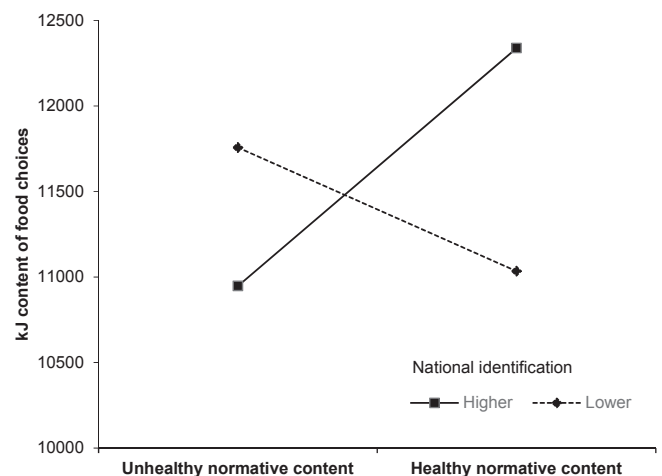

Fig. 1. Simple slopes analysis: The effect of presenting healthy and unhealthy normative content at lower (−1SD) and higher (+1SD) levels of national identification.

variables accounted for a significant amount of variance in healthy eating intentions, $F(3, 83) = 3.65$, $p = 0.016$, $R^2 = 0.116$. Multiple regression analysis revealed no significant main effect of condition ($\beta = 0.041$, $p = 0.689$) on healthy eating intentions. There was, however, a significant association between national identification and healthy eating intentions, such that participants who identified more strongly as Australian also expressed more healthy eating intentions ($\beta = 0.334$, $p = 0.002$). The condition × national identification interaction was not significant ($\beta = -0.087$, $p = 0.402$), indicating that this relationship between national identification and healthy eating intentions did not vary across the two experimental conditions.

2.3. Discussion

Findings supported the hypothesis that national identification would interact with the healthiness norm to predict healthy eating. As predicted, lower identifiers were not affected by the normative content manipulation. However, contrary to the predictions of a traditional normative influence account, higher identifiers made eating choices that *went against* the normative content that was presented. Specifically, they chose higher-energy food when they were presented with a healthy group norm and lower-energy food when they were presented with an unhealthy group norm. These results are thus indicative of an ironic effect, consistent with vicarious licensing logic (H1b).

It has been argued that vicarious licensing will only occur when an individual and his or her social group share a common goal (Kouchaki, 2011). That this was the case in the present context is suggested by evidence both (a) that participants reported a moderately strong injunctive norm for healthy eating among Australians (a mean of 4.45 on a 7-point scale) and (b) that there was a significant positive correlation between Australian identification and healthy eating intentions ($r = 0.327$, $p = 0.002$). In line with the vicarious licensing effect, higher identifiers may thus have inferred from the information presented that the shared group goal of healthiness was already being achieved (as their fellow in-group members engaged in healthy behaviour), and hence given themselves a licence to select less healthy options from the online restaurant menu. The choices of lower identifiers, by contrast, were not significantly affected by the in-group norm manipulation.

Despite this evidence of an ironic effect, it is nevertheless the case that our ability to draw inferences from this study is limited by its reliance on a quasi-behavioural measure of healthy eating. Accordingly, it is unclear whether the findings would generalise to eating behaviour in the real world. To address this limitation, Study 2 incorporated an ecologically valid measure of actual eating behaviour. We also sought to increase external validity by testing our hypotheses in a different identity domain.

3. Study 2

Study 2 was designed to replicate Study 1 in the context of female identity, using a behavioural measure of eating behaviour (the amount of food consumed in a taste test). Female identification was also measured, allowing us to test the prediction that the healthiness norm would interact with female identification and lead to different eating behaviours depending on level of participants' gender identification (H1). In particular, in line with the ironic effect observed in Study 1, we expected higher identifiers to consume more food after exposure to a healthy eating norm (H1b).

3.1. Method

3.1.1. Design

Participants were randomly assigned to one of two experimental conditions: healthy normative content or unhealthy normative content. As in Study 1, an image-based manipulation was used.[1] Approval for the study was granted by Ethics Review Committee at the second author's university (where the study was conducted).

3.1.2. Participants

Participants were 123 female first-year psychology students at a large Australian university who took part as partial fulfilment of course requirements. Six participants were eliminated from the study (two due to a data entry mistake, one had a nut allergy and could not eat all of the offered foods, one did not believe the food labelling, one studied nutrition, and one had experienced rapid weight loss due to illness), resulting in a remaining sample of 117 participants. Participants were on average 18.9 years old ($SD = 3.53$) and had a mean BMI of 21.7 ($SD = 3.43$). Average levels of gender identification were very high ($M = 5.98$, $SD = 0.76$).

3.1.3. Procedure

The experiment was introduced as a study of "Gender differences in taste perception". This was done to increase the salience of participants' female identity, and also to conceal the focus on the amount of food consumed during the study. Participants who signed up via the online booking system were then invited to the laboratory, asked to provide written consent, and completed the study individually. All participants interacted with the same female experimenter who was responsible for administering the questionnaires and delivering food and drink for the taste test.

The experimental manipulation was similar to that in Study 1. Specifically, participants were presented with a set of six pictures, and were asked to select the three pictures that best represented what it meant to be a woman. Three pictures in this set were not related to eating or health more generally (a box of tampons, women shopping, a mother holding a baby). The other three pictures constituted the manipulation and hence differed between conditions, serving to communicate either a healthy or an unhealthy norm.

Next, participants were invited to take part in a taste test. This involved tasting four different foods (grapes, trail mix, chocolate chip cookies, and low-fat chocolate chip cookies) and choosing and then tasting one of four drinks (water, orange juice, Coke, or diet Coke). Each food type was presented on a well-stocked individual plate, in quantities that were kept approximately the same between participants (9 pieces of each type of cookies, about 120 g of trail mix, about 140 g of grapes). All foods were labelled, primarily to alert participants to the difference between chocolate chip cookies and low-fat cookies. The drinks were presented in individual cans or bottles, in quantities that were easily available in the supermarket (200 ml for coke and diet coke, 250 ml for orange juice, 350 ml for water).

Participants were asked to sample as much of the different food types as they needed in order to have a good perception of their taste, and then to rate each food type. Subsequently, they chose and tasted one of the four drinks and then rated it. The rating of foods and drinks was done to corroborate the cover story, and the

---

[1] The study also included a manipulation of thinness focus. This manipulation was unsuccessful and did not cause significant differences between conditions. Hence, this manipulation is not further described in the study method or results.

responses were not analysed. Participants were given 10 min to complete the tasting test and filler questionnaires, and allowed additional time if needed.

After the tasting was completed, the experimenter collected the remaining food and drinks, and instructed the participant to complete a number of questionnaires on a tablet computer. The leftover food was then taken to another room and weighed. For each food type, the weight of the leftovers was subtracted from the initial weight, to calculate the amount consumed. The consumed amounts of the four food types were then added up to calculate the total food intake (in grams), which constituted the main outcome. Drink choice was not analysed, as it was not related to the measures of interest.

3.1.4. Measures

3.1.4.1. Group identification. Female identification was measured by adapting the 4-item scale used in Study 1 (Doosje et al., 1995; e.g., 'I identify with other women'). The scores were obtained by calculating an average response to the four items and ranged from 1 to 7. The scale was internally consistent, $\alpha = 0.77$.

3.1.4.2. Restrained eating. The Revised Restraint Scale (RRS; Polivy, Herman, & Howard, 1988) was used as a measure of dietary restriction. This measure consists of 10 items and participants responded on 4-point or 5-point scales (e.g. 'Would a weight fluctuation of 2.5 kg affect the way you live your life?'). The overall score was calculated by adding the responses to all items. The RRS has been previously validated in a female student population and is a recognised measure of dietary restraint.

3.1.4.3. Food intake. Participants' food intake was calculated by measuring the weight (in grams) of food that was consumed during the taste test.

3.1.4.4. Healthy eating intentions. Healthy eating intentions were measured using four items, (e.g., 'I plan to eat more fruit and vegetables'). Participants responded to the items using a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The internal consistency of the scale was high, $\alpha = 0.81$.

3.1.4.5. Demographics. At the end of the questionnaire, participants were asked about their age, height and weight. The height and weight data were used to calculate BMI.

3.2. Results

3.2.1. Preliminary analyses

Descriptive statistics for key study variables are presented in Table 2. There were no significant differences between the two

Table 2
Descriptive statistics, Study 2 (n = 117).

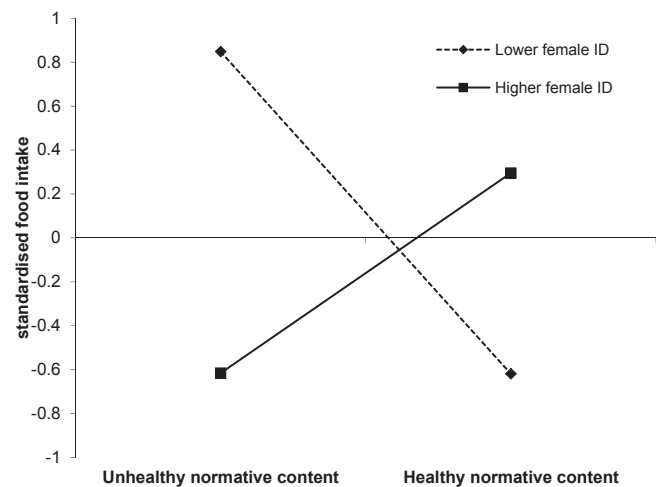| Variable	Range	Mean	SD
Age	16–42	18.94	3.53
BMI	16.2–37.2	21.76	3.35
Dietary restraint	2–32	15.05	5.95
Female identification	3.5–7	5.98	0.76
Healthy eating intentions	3–7	5.85	0.80
Total food intake (g)	9–214	87.49	47.77
Grapes intake (g)	2–145	43.38	35.88
Chocolate chip cookies intake (g)	0–51	16.97	10.86
Low fat cookies intake (g)	0–51	16.54	10.94
Trail mix intake (g)	0–74	10.61	12.49

Fig. 2. Simple slopes analysis: The effect of presenting healthy and unhealthy normative content at lower (−1SD) and higher (+1SD) levels of female identification.

conditions in age, BMI, dietary restraint or group identification ($ps > 0.10$).

3.2.2. Food intake

A model comprised of the main effects of healthiness norm and female identification and the interaction between them accounted for a marginally significant amount of variance in food intake, $F(3, 112) = 2.213, p = 0.091, R^2 = 0.056$. Analogous to the results of Study 1, there was no significant main effect of healthiness norm or female identification on participants' food intake ($ps > 0.10$). There was, however, a significant two-way interaction between healthiness norm and female identification ($\beta = 0.236, p = 0.014$), such that the norm manipulation affected higher and lower identifiers differently (see Fig. 2). Although the overall pattern was consistent with Study 1, simple effects indicated that lower identifiers behaved in accordance with the presented norm, eating significantly less food when presented with healthy images ($\beta = -0.73, p = 0.029$). Higher identifiers exhibited an opposite (albeit non-significant) pattern, whereby they ate more food when presented with the healthy norm, and less food when presented with an unhealthy norm ($\beta = 0.456, p = 0.18$).

3.2.3. Healthy eating intentions

Multiple regression analysis revealed that neither female identification ($\beta = -0.011, p = 0.912$) nor the healthiness norm ($\beta = 0.080, p = 0.392$) were significantly associated with healthy eating intentions. The two-way interaction was also not statistically significant ($\beta = 0.077, p = 0.426$). The overall model did not account for a significant amount of variance, $F(3, 113) = 0.459, p = 0.712, R^2 = 0.012$.

3.3. Discussion

In line with the results of Study 1, those of Study 2 support our primary hypothesis in indicating that the effect of normative content on eating behaviour varies as a function of the strength of group identification (H1). Again too, it was the case that higher identifiers were less inclined to act in accordance with the norm than lower identifiers — a pattern that replicates the ironic effect observed in Study 1 (H1b).

This study speaks to the importance of assessing gender identification when seeking to understand and predict the impact of

gender norms on women's eating behaviour. For while it has been shown that women have on average healthier diets and healthier eating intentions than men (Wardle et al., 2004), our results suggest that manipulations that appeal to aspects of female identity will have different effects, depending on the level of female identification. However, a limitation of both Study 1 and Study 2 was that identification was measured rather than manipulated, and so caution needs to be exercised in drawing causal inferences from the patterns we have observed. In order to address this issue, Study 3 included a manipulation of both salient social identity and health-related norms.

4. Study 3

Study 3 was designed to provide a stronger test of the ironic effect of norms and identity in the domain of healthy eating. In this study, both the healthiness norm and strength of identification were manipulated, to allow us to make stronger inferences about the causal role of both factors (noting that in the previous two studies we had only measured, not manipulated, identification). In addition, a control condition was included to provide a baseline comparison. We also tested three potential psychological mediators: healthy self-concept, value of health, and the perception of healthy eating as a group goal for Americans.

4.1. Method

4.1.1. Design
The study was conducted online using Mechanical Turk, and was introduced to participants as an investigation of the lifestyle choices of Americans. We used a between-subjects 2 × 2 design, where both the strength of American identification and healthiness norm were manipulated. Approval for the study was granted by the Ethics Review Committee at the second author's university.

4.1.2. Participants
Participants were 117 female MTurk workers who were paid $1 for completing the 20-min study. Participants were located in the USA (according to their MTurk account data), self-identified as Americans and were on average 41.5 years old (ranging from 20 to 69), with an average BMI of 26.5.

4.1.3. Materials and measures
Participants were randomly assigned to one of five conditions in a 2 (American identification: high vs. low) x 2 (descriptive norm: healthy vs. unhealthy) design, with a control condition. After completing the manipulation, participants were asked to choose items for breakfast, lunch and dinner from an online restaurant menu (in a procedure identical to that used in Study 1). Following the menu choices, participants were asked to complete a battery of questionnaires measuring constructs related to identity and eating. They then also reported their height and weight.

4.1.3.1. Identification manipulation. To manipulate strength of American identification, we adapted a linguistic framing procedure by Greenaway et al. (2015). Participants were presented with 10 statements about the United States: five of them positive and five negative. Participants were asked to indicate whether or not they agreed with each statement. The statements were different in the two conditions: in the high identification condition, the positive statements were moderate (and thus easy to agree with, e.g. "In

general, I like living in the United States") and the negative statements were extreme (and thus difficult to agree with, e.g. "I feel no affiliation with the United States"); in the low identification condition, the positive statements were extreme (and difficult to agree with, e.g. "I identify very strongly with the United States") and the negative statements were moderate (and easy to agree with, e.g. "There are some things I don't like about the United States"). Participants were also asked to count the number of positive and negative statements they agreed with, to make their overall response pattern more salient. In the control condition, these statements were not presented.

4.1.3.2. Norm manipulation. Immediately after the identity manipulation, participants were presented with bogus information about the healthiness of Americans as a group. In the healthy norm condition, participants were told that 75% of Americans were meeting the recommended daily consumption of fruit and vegetables and that 90% reported that healthy eating was important to them. In the unhealthy norm condition, participants were told that only 25% of Americans adhered to the fruit and vegetable intake guidelines, and that only 30% reported that healthy eating was important to them. In the control condition, participants were not given any descriptive norm information.

4.1.3.3. Manipulation checks. To check whether the identification manipulation was effective, participants were asked to respond to two items, which were placed at the end of the questionnaire: *Completing the questions at the beginning of the survey led me to identify as an American* and *Completing the questions at the beginning of the survey made me feel proud of being an American.* Participants responded on a 7-point scale from *strongly disagree* to *strongly agree*, and the items formed a reliable scale ($r = 0.813$, $p < 0.001$).

At the end of the questionnaire, participants were asked two questions to test whether they remembered the normative information provided at the start (*What percentage of Americans are already meeting the recommended daily consumption of fruit and vegetables?* and *What percentage of Americans report that healthy eating is important to them?*). Participants responded by moving a slider to the appropriate percentage. Their answer was coded as correct if it fell within ±10 points of the target number presented on the manipulation screen.

4.1.3.4. Value of health. A five-item scale was used to measure how much value participants saw in being in good health (Costa, Jessor, & Donovan, 1989). The scale included items such as *How important is it to you to be in good shape and feel physically fit?*, to which the participants responded on a 7-point scale ranging from *not at all important* to *extremely important*. The scale was internally consistent ($\alpha = 0.90$).

4.1.3.5. Healthy self-concept. Four items (e.g. *I see myself as someone with a healthy lifestyle*) were used to measure healthy self-concept (Armitage & Conner, 1999). Participants responded to the items on a 7-point scale ranging from *strongly disagree* to *strongly agree*. The scale was internally consistent ($\alpha = 0.70$).

4.1.3.6. Group goal. We included a novel scale to measure participants' perception that healthy eating was a group goal that should be pursued by Americans. This scale consisted of three items (e.g. *It is important to me that Americans are healthy eaters*) to which participants responded on a 7-point scale from *strongly disagree* to *strongly agree*. Cronbach's α for the three-item scale was acceptable ($\alpha = 0.68$).

Table 3
Descriptive statistics, study 3.

Variable	Range	Mean	SD
Age	20–69	41.5	12.8
BMI	14.6–56.4	26.5	8.15
Healthy self-concept	2.25–7	5.17	0.98
Value on health	2.00–7	5.48	1.11
Healthy eating as a group goal	2.00–7	5.25	1.02
Healthy eating intentions	2.67–7	5.95	0.91
Food choices (kJ)	3102–15,093	10,025	2294

4.1.3.7. Food choices. The food choices measure was identical to that used in Study 1. The energy content of the three meals chosen by each participant was summed and constituted our primary dependent variable.

4.1.3.8. Healthy eating intention. Behavioural intention was measured using three items (e.g. *I intend to eat healthier*). Participants responded to the items on a 7-point scale ranging from *strongly disagree* to *strongly agree* and the items formed an internally consistent scale ($\alpha = 0.84$).

4.2. Results

4.2.1. Preliminary analyses

Descriptive statistics are presented in Table 3. There were no significant differences between the groups in average BMI ($ps > 0.10$). The average age, however, was significantly higher in the unhealthy norm and low identification condition, compared to the other three experimental conditions (contrast $p = 0.052$). Age was therefore controlled for in subsequent analyses.

4.2.2. Manipulation checks

A one-way analysis of variance (ANOVA) revealed a significant effect of the identification manipulation ($F(2,114) = 8.52, p < 0.001$), with participants in the high identification condition identifying more as American ($M = 5.22, SD = 1.27$) than those in the low identification condition ($M = 4.66, SD = 1.59$) or the control condition ($M = 3.73, SD = 1.55$). Pairwise comparisons showed that the difference between high and low identification conditions was marginally significant ($p = 0.064$).

Most participants correctly recalled the normative information provided at the beginning of the study when asked about it later. Ninety-five percent correctly identified the proportion of Americans who were already meeting the fruit and vegetable intake guidelines, and 86% correctly recalled the proportion of Americans who reported that healthy eating was important to them.

4.2.3. Food choices

Bootstrapping (Hayes, 2013; Model 1) was used to assess whether strength of identification, healthiness norm and the interaction between the two predicted participants' food choices. The full model, controlling for age, did not account for a significant amount of variance in the energy content of online menu selections, $F(4,88) = 1.66, p = 0.167, R^2 = 0.070$. A regression model with bootstrapping[2] indicated no effect of descriptive norm ($p = 0.266$), but a significant main effect of identification strength ($p = 0.037$) and a significant interaction between the
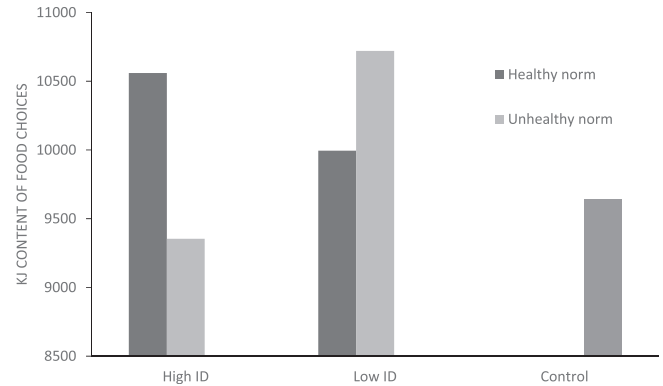

Fig. 3. The average kJ content of participants' food choices in Study 3. NB. Means are estimated at age = 41.5.

two variables ($p = 0.034$) on the energy content of participants' food choices[3] (see Fig. 3). At low level of identification, there was no effect of the descriptive norm on food choices ($p = 0.266$). At high level of identification, there was a significant effect of the descriptive norm on food choices ($p = 0.049$), such that participants presented with a healthy descriptive norm chose more caloric food than participants presented with an unhealthy norm. A one-way ANOVA was then conducted to compare these means to the control condition and this indicated that there was no significant difference between any of the experimental conditions and the control condition ($ps > 0.10$).

4.2.4. Mediation analyses

In order to explore whether particular psychological mechanisms were implicated in the vicarious licensing effect, we tested whether the interactive effect of identification strength and descriptive norm was mediated by (a) value of health, (b) healthy self-concept, or (c) group goal. While the interaction between identification and norm was a significant predictor of value of health and group goal, the paths between these two variables and food choices were not significant ($ps > 0.10$). Healthy self-concept was not significantly predicted by either of the manipulated variables ($ps > 0.10$).

4.2.5. Intention

We tested a model in which identification level and healthiness norm were entered as predictors of the intention to eat healthily. The two variables and their interaction did not explain a significant amount of variance in behavioural intention ($F(4,88) = 0.224, p = 0.925$). Neither the main effects nor the interaction term were significant ($ps > 0.10$).

4.3. Discussion

In this study, we manipulated both strength of identification and descriptive norm to obtain stronger evidence for the interactive effect of these two variables on people's food choices. Using a 2 × 2 experimental design, we replicated the pattern of results observed in the previous two studies. Namely, we found that group identification moderated the effect of descriptive norm on food choices: in the low-identification condition, participants' choices were not significantly affected by the presented norm; in the high-

---

[2] Bootstrapping was used as a more powerful method, but a similar pattern of results can be obtained using an ANCOVA.

[3] Without controlling for age, the main effect of identification ($p = 0.071$) and the interactive effect ($p = 0.065$) were marginally significant.

identification condition, participants chose less calorific food when presented with an unhealthy norm, and more calorific food when presented with a healthy norm. Again, these results go against the traditional normative influence effect and suggest that, among high identifiers, receiving information about other in-group members behaving healthily led to *less* healthy food choices. However, as we were unable to find evidence for mediation by any of the three hypothesised variables, the mechanism underlying this effect still remains unclear. Also, the effect size of the interaction was relatively small ($\eta_p^2 = 0.05$), as indicated by the non-significant predictive power of the overall model. This suggests that there is still a need for further research — potentially using a more powerful study design — to clarify the psychological mechanism responsible for these findings.

At the same time, though, it is clear that this study replicated the ironic effect that had been observed in Studies 1 and 2. This gives us some confidence in the robustness of the patterns we have uncovered and in the external validity of our analysis. Moreover, the experimental design of Study 3 gives us greater confidence for asserting that both normative content and social identification play a causal role in driving eating behaviour. In light of previous uncertainties around this issue (e.g., see Balaam & Haslam, 1998), we would argue that this is a non-trivial contribution to the field.

5. General discussion

In three studies, the prediction that social identification would moderate the effect of the healthiness norm on food intake was supported. This is in line with the social identity perspective, which argues that group norms have differential meaning and relevance for low and high identifiers (Turner, 1991). However, whereas traditionally it tends to be assumed that high identifiers are more motivated to align their behaviour with the in-group norm than low identifiers, in the present studies we found exactly the opposite — with high identifiers consuming more food when exposed to a healthy norm than an unhealthy one.

This pattern of results could be interpreted as evidence for a vicarious licensing process, whereby high identifiers make inferences about themselves on the basis of observing how psychologically similar others (i.e., in-group members) behave (Goldstein & Cialdini, 2007). In particular, it has been argued that when people observe in-group members behaving in ways that achieve morally challenging goals, this 'frees them up' to behave in less moral ways themselves (Kouchaki, 2011). Whereas this effect has traditionally been observed in the domain of prejudicial attitude expression, translated to the domain of dietary behaviour it appears that high identifiers may disengage from pursuing a healthy eating goal if they believe that other members of their in-group are fulfilling this goal.

It remains the case, however, that in the absence of a significant mediation by healthy self-concept or the perception of healthy eating as a group goal, there is no direct evidence that supports the role of vicarious licensing in our findings. Accordingly, their interpretation requires some caution. It is nevertheless noteworthy that the presence of an individual-level licensing effect has previously been documented in the context of dieting. Specifically, Fishbach and Dhar (2005) found that participants who believed they had made sufficient progress towards their weight loss goal were less likely to choose an apple rather than a candy bar as compensation gift. In other words, perceived progress towards the goal was used as a licence to excuse the choice of an unhealthy snack in the wake of that progress. The vicarious licensing effect implies a similar mechanism, but at a group level. Here, then, progress made by other group members towards a common goal is used as a licence to excuse one's own goal-incongruent behaviour. However, in line

with the original vicarious moral licensing research (Kouchaki, 2011), this effect was only found among high identifiers, presumably because it is through the process of social identification that *depersonalisation* occurs (Turner, 1982), and others become psychologically interchangeable with the self. In other words, for high identifiers, knowing about others' healthy behaviour may have created a perception that they themselves are engaging in healthy behaviour as well (regardless of their actual behaviour), and to licence unhealthy behaviour. It should also be noted that in Studies 1 and 2, where the level of identification was measured rather than manipulated, the average identification was relatively high (6.16 and 5.98, respectively, on a 7-point scale), and so the individuals classed as lower identifiers (one SD below the mean) could still be strongly identifying with the relevant social groups. Thus, this ironic effect may be restricted to very high identifiers who are the most likely to experience depersonalisation (along the lines suggested by identity fusion researchers; see Swann, Gómez, Dovidio, Hart, & Jetten, 2010).

The pattern of results observed among lower identifiers is broadly consistent with previous findings in the domain of normative influence. When these participants were presented with a healthy social norm, they ate less and chose less caloric foods from an online menu. When presented with an unhealthy social norm, however, they ate more and chose more caloric foods. The latter phenomenon has been described as a *boomerang effect*, typically in the context of energy conservation: low energy users, when told that the majority of people use much more energy than they do, tend to increase their energy use (Fischer, 2008; Mollen, Rimal, Ruiter, Jang, & Kok, 2013; Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). The boomerang effect has been identified as one of the reasons why norm-based interventions sometimes have a null effect on behaviour (Fischer, 2008) and is a good illustration of the complex nature of normative influences on behaviour.

In all three studies, it was also clear that normative content and group identification explained significant variance in eating behaviour, but had no effect on intention. This lack of effect on measures of intention is consonant with the logic of licensing, whereby the perception that one has already made sufficient progress towards a goal (or in line with an intention) leads to a decrease in goal-congruent behaviour – but not in the importance of the goal, or one's intention to achieve it. It thus appears that people's underlying goal or intention does not change, but rather that the change in behaviour is caused by perceived progress in achieving the goal. However, it should also be noted that in all three studies intention was measured after food choices or intake, making the measurement of intention prone to any number of cognitive dissonance-reduction strategies (e.g., participants expressing a stronger intention to eat healthily after they chose unhealthy foods). Therefore, our results regarding behavioural intention should be interpreted with caution.

Considering that this is the first account of norms having an ironic effect on healthy eating among high identifiers, and earlier studies have reported a more straightforward process of normative influence, it is important to ask in which circumstances we should expect one or the other effect. Robinson et al. (2014) found an effect of descriptive social norm on fruit and vegetable and snack food consumption, but this effect was only present among participants whose usual fruit and vegetable consumption was low. In our studies, we did not control for usual intake, but we did find that, consistent with previous research (Kouchaki, 2011), the ironic effect of healthiness norm only occurred among high identifiers. Thus, identification levels and usual eating habits may be crucial in determining which effect is likely to occur. Another potential moderator may be the degree of alignment between the normative information presented and the outcome that is measured. In our

study, the presented norm referred to healthy behaviour in a relatively broad sense (e.g., the images in Studies 1 and 2 presented content related to eating as well as physical activity), whereas the measured behaviour included food choices and food intake. In previous studies (e.g. Robinson et al., 2014), the norm and behaviour in question were more closely aligned.

Along similar lines, the prediction that follows from the traditional normative influence model is that presenting high identifiers with a group's descriptive norm increases norm-congruent behaviour, regardless of the content of the norm. In other words, norm-congruent behaviour should increase, whether or not it is easy or difficult, convenient or inconvenient. Licensing, on the other hand, occurs predominantly in situations where there is a conflict between short-term and long-term goals, or between pleasure and effortful self-control —where licensing is a way of justifying goal-incongruent behaviour. Therefore, licensing would be unlikely to occur when the goal-congruent behaviour is easy or convenient.

From a health promotion perspective, evidence of this ironic effect is surprising and potentially alarming. This is because it is often assumed that presenting people with information about good behaviour on the part of their peers or other in-group members will provide a motivational basis for them to improve their own behaviour (Lewis & Neighbors, 2006). On the other hand, these findings are consonant with other existing evidence suggesting that normative influence is complex, and that conflicting descriptive and injunctive norms may undermine positive behaviour change (e.g., Smith et al., 2012). Our studies show that, at least in certain cases, it is possible that exposing high identifiers to a healthy social image may backfire and result in less healthy behaviour. As future research clarifies when exactly an ironic effect of normative content is likely to arise, health promotion recommendations may need to be updated to incorporate this information.

5.1. Limitations and future research

As with all research, the studies presented in this paper are not without limitations. While vicarious licensing offers a plausible explanation for the pattern of results, we were not able to confirm the role of this mechanism by showing that outcomes were mediated by relevant factors (i.e., healthy self-concept, value of health or group goal). Accordingly, we cannot state with certainty that the effect we have documented in three studies results from vicarious licensing. Alternative explanations therefore also need to be considered. For example, it may be the case that high identifiers are motivated to prove that they are good group members by 'sticking their oar in' to question unauthorised representations of group norms (e.g., along lines suggested by Packer, 2007). This might be particularly likely among high identifiers, who may reject an unhealthy norm and choose especially healthy food to demonstrate that the presented norm was incorrect. Other alternative explanations stem from a purely cognitive view of decision making, whereby the normative information presented could be seen as a sample of past behaviour, which is then used to calibrate future behaviour (Stewart, Chater, & Brown, 2006). If past behaviour is seen as healthy (as it would be upon presentation of healthy norm materials), then participants might be more likely to feel licensed to engage in more indulgent eating.

Along related lines, there would also be value in seeking to establish the specific conditions under which information about the healthy behaviour of in-group members 'switches' from being seen as prescriptive norm to behave in one way rather than as a potential license to behave in another. Our sense is that this is likely to relate to the strength of social identification, since, as here, Kouchaki (2011) demonstrated that vicarious moral licensing only

occurred among high identifiers. She further argued that high identifiers would be particularly likely to construct self-concepts based on information about the behaviour of fellow in-group members. Future studies may be able to establish what level of social identification is needed to facilitate vicarious licensing, and how vicarious licensing could be prevented.

Finally, as the studies presented here were conducted online or in a laboratory, only limited conclusions can be made regarding the results' replicability in real-world settings. In situations where people are exposed to multiple identity cues (e.g., in a shop or a restaurant), the normative influence will become increasingly complex to predict. Further work outside the laboratory is therefore needed to establish whether people are at all sensitive to identity cues when making their food choices, and how identity cues might be invoked to increase healthy eating.

Nevertheless, despite its shortcomings, a key strength of the present research is empirical — offering as it does fresh insights into the nuanced impact of social group processes on healthy and unhealthy eating. Our exploration of these nuances also alerts us to the fact that, hitherto, the literatures on licensing and on the effects of self-categorisation have moved forward largely independently, even though both are concerned with the ways in which self- and social processes structure behaviour. By shedding light on important points of tension between processes of normative influence and of vicarious licensing, the present research thus provides an important agenda for future work to bring these bodies of work into closer alignment — a development that would seem to be important for future theoretical and practical progress in this area.

A further strength of the present research is its inclusion of both healthy eating intentions and behaviour as outcome variables, with behaviour as the primary outcome. While the relationship between social identity processes and healthy eating intentions has been demonstrated previously (e.g. Louis et al., 2007; Tarrant & Butler, 2011), experimental studies in this area that incorporate actual eating behaviour are still relatively rare. Moreover, by including measures of both intention and behaviour, we were able to show that there can sometimes be an important discontinuity between these processes. Specifically, while group identification and norm did not interact to shape eating intentions, they did when it came to eating behaviour (making choices from a restaurant menu and eating food in a taste test).

5.2. Conclusion

In three studies using different social identities and different measures of healthy eating we found that, when presented with information about healthy behaviour of their in-groups, high identifiers eat less healthily themselves. This finding highlights the complex role of social processes in healthy eating, and points to vicarious licensing as a potential basis for the intention-behaviour gap.

The emergence of this ironic effect in the context of healthy eating is an important result which certainly warrants further investigation. Eating is viewed as a predominantly individual activity, and current psychological research often overlooks the fact that food choices can be a reflection of a social identity (Bisogni, Connors, Devine, & Sobal, 2002). The presence of the ironic effect documented in our studies suggests that when making decisions about eating, people pay attention not only to what other individuals eat, but also to what their group as a whole is eating. In the original formulation of the vicarious moral licensing effect, Kouchaki (2011) emphasised the novelty of her finding that moral credentials could be acquired through group membership alone. In a similar vein, the results of our studies provide preliminary evidence that the mere fact of belonging to a group which engages in

healthy behaviour may sometimes provide a licence for individuals to act in less healthy ways. Moreover, if high identifiers are dissuaded from engaging in healthy eating behaviour when they are given information about the healthy behaviour of others in their group, then we may need to rethink the strategies through which we seek to promote their commitment to a healthy lifestyle.

Acknowledgements

References

Abrams, D., Wetherell, M., Cochrane, S., Hogg, M. A., & Turner, J. C. (1990). Knowing what to think by knowing who you are: Self-categorization and the nature of norm formation, conformity and group polarization. *British Journal of Social Psychology, 29*(2), 97–119. http://dx.doi.org/10.1111/j.2044-8309.1990.tb00892.x.

Allan, J. L., Johnston, M., & Campbell, N. (2015). Snack purchasing is healthier when the cognitive demands of choice are reduced: A randomised controlled trial. *Health Psychology, 34*(7), 750–755. http://dx.doi.org/10.1037/hea0000173.

Armitage, C. J., & Conner, M. (1999). Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low-fat diet using the Theory of Planned Behavior. *Journal of Applied Social Psychology, 29*(1), 72–90. http://dx.doi.org/10.1111/j.1559-1816.1999.b01375.x.

Åstrom, A. N., & Rise, J. (2001). Young adults' intention to eat healthy food: Extending the theory of planned behaviour. *Psychology and Health, 16*(2), 223–237. http://dx.doi.org/10.1080/08870440108405501.

Balaam, B., & Haslam, S. A. (1998). A closer look at the role of social influence in the development of attitudes to eating. *Journal of Community and Applied Social Psychology, 8*, 195–212. http://dx.doi.org/10.1002/(SICI)1099-1298(199805/06)8:3<195::AID-CASP447>3.0.CO;2-U.

Bisogni, C. A., Connors, M., Devine, C. M., & Sobal, J. (2002). Who we are and how we eat: A qualitative study of identities in food choice. *Journal of Nutrition Education and Behavior, 34*(3), 128–139. http://dx.doi.org/10.1016/S1499-4046(06)60082-1.

Brown, R. C. (2013). Moral responsibility for (un) healthy behaviour. *Journal of Medical Ethics, 39*(11), 695–698. http://dx.doi.org/10.1136/medethics-2012-100774.

Chang, Y. Y.-C., & Chiou, W.-B. (2014). Taking weight-loss supplements may elicit liberation from dietary control. A laboratory experiment. *Appetite, 72*, 8–12. http://dx.doi.org/10.1016/j.appet.2013.09.021.

Conrad, P. (1994). Wellness as virtue: Morality and the pursuit of health. *Culture, Medicine and Psychiatry, 18*(3), 385–401. http://dx.doi.org/10.1007/BF01379232.

Costa, F. M., Jessor, R., & Donovan, J. E. (1989). Value on health and adolescent conventionality: A construct validation of a new measure in problem-behavior theory. *Journal of Applied Social Psychology, 19*(10), 841–861. http://dx.doi.org/10.1111/j.1559-1816.1989.tb01225.x.

Cruwys, T., Bevelander, K. E., & Hermans, R. C. J. (2015). Social modeling of eating: A review of when and why social influence affects food intake and choice. *Appetite, 86*(0), 3–18. http://dx.doi.org/10.1016/j.appet.2014.08.035.

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. http://dx.doi.org/10.1016/j.appet.2011.12.002.

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), 629–636. http://dx.doi.org/10.1037/h0046408.

Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of Experimental Social Psychology, 31*(5), 410–436. http://dx.doi.org/10.1006/jesp.1995.1018.

Fischer, C. (2008). Feedback on household electricity consumption: A tool for saving energy? *Energy Efficiency, 1*(1), 79–104. http://dx.doi.org/10.1007/s12053-008-9009-7.

Fishbach, A., & Dhar, R. (2005). Goals as excuses or guides: The liberating effect of perceived goal progress on choice. *Journal of Consumer Research, 32*(3), 370–377. http://dx.doi.org/10.1086/497548.

Fitzsimons, G. M., & Finkel, E. J. (2011). Outsourcing self-regulation. *Psychological Science, 22*(3), 369–375. http://dx.doi.org/10.1177/0956797610397955.

Goldstein, N. J., & Cialdini, R. B. (2007). The spyglass self: A model of vicarious self-perception. *Journal of Personality and Social Psychology, 92*(3), 402–417. http://dx.doi.org/10.1037/0022-3514.92.3.402.

Greenaway, K. H., Haslam, S. A., Cruwys, T., Branscombe, N. R., Ysseldyk, R., & Heldreth, C. (2015). From "we" to "me": Group identification enhances

perceived personal control with consequences for health and well-being. *Journal of Personality and Social Psychology, 109*(1), 53–74. http://dx.doi.org/10.1037/pspi0000019.

Guendelman, M. D., Cheryan, S., & Monin, B. (2011). Fitting in but getting fat: Identity threat and dietary choices among us immigrant groups. *Psychological Science, 22*(7), 959–967. http://dx.doi.org/10.1177/0956797611411585.

Hackel, L. M., Coppin, G., Wohl, M. J. A., & Van Bavel, J. J. (2015). *From groups to grits: Social identity shapes evaluations of food pleasantness*. Available at SSRN http://ssrn.com/abstract=2662835.

Haslam, S. A. (2004). *Psychology in organizations: The social identity approach* (2nd ed.). London: Sage.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Hofmann, W., Friese, M., & Wiers, R. W. (2008). Impulsive versus reflective influences on health behavior: A theoretical framework and empirical review. *Health Psychology Review, 2*(2), 111–137. http://dx.doi.org/10.1080/17437190802617668.

Khan, U., & Dhar, R. (2006). Licensing effect in consumer choice. *Journal of Marketing Research, 43*(2), 259–266. http://dx.doi.org/10.1509/jmkr.43.2.259.

Kouchaki, M. (2011). Vicarious moral licensing: The influence of others' past moral actions on moral behavior. *Journal of Personality and Social Psychology, 101*(4), 702–715. http://dx.doi.org/10.1037/a0024552.

Levine, R. M., & Reicher, S. D. (1996). Making sense of symptoms: Self-categorization and the meaning of illness and injury. *British Journal of Social Psychology, 35*, 245–256. http://dx.doi.org/10.1111/j.2044-8309.1996.tb01095.x.

Lewis, M. A., & Neighbors, C. (2006). Social norms approaches using descriptive drinking norms education: A review of the research on personalized normative feedback. *Journal of American College Health, 54*(4), 213–218. http://dx.doi.org/10.3200/JACH.54.4.213-218.

Louis, W., Davies, S., Smith, J., & Terry, D. (2007). Pizza and pop and the student identity: The role of referent group norms in healthy and unhealthy eating. *Journal of Social Psychology, 147*(1), 57–74. http://dx.doi.org/10.3200/SOCP.147.1.57-74.

Mollen, S., Rimal, R. N., Ruiter, R. A., Jang, S. A., & Kok, G. (2013). Intervening or interfering? the influence of injunctive and descriptive norms on intervention behaviours in alcohol consumption contexts. *Psychology and Health, 28*(5), 561–578. http://dx.doi.org/10.1080/08870446.2012.752827.

Nolan, J. M., Schultz, P. W., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2008). Normative social influence is underdetected. *Personality and Social Psychology Bulletin, 34*(7), 913–923. http://dx.doi.org/10.1177/0146167208316691.

Oyserman, D., Fryberg, S. A., & Yoder, N. (2007). Identity-based motivation and health. *Journal of Personality and Social Psychology, 93*(6), 1011–1027. http://dx.doi.org/10.1037/0022-3514.93.6.1011.

Packer, D. J. (2007). On being both with us and against us: A normative conflict model of dissent in social groups. *Personality and Social Psychology Review, 12*(1), 50–72. http://dx.doi.org/10.1177/1088868307309606.

Polivy, I., Herman, C. P., & Howard, K. (1988). The Restraint Scale: Assessment of dieting. In M. Hersen, & A. S. Bellack (Eds.), *Dictionary of behavioral assessment techniques* (pp. 377–380). New York: Pergamon Press.

Robinson, E., Fleming, A., & Higgs, S. (2014). Prompting healthier eating: Testing the use of health and social norm based messages. *Health Psychology, 33*(9), 1057–1064. http://dx.doi.org/10.1037/a0034213.

Robinson, E., Harris, E., Thomas, J., Aveyard, P., & Higgs, S. (2013). Reducing high calorie snack food in young adults: A role for social norms and health based messages. *International Journal of Behavioral Nutrition and Physical Activity, 10*(1), 73. http://dx.doi.org/10.1186/1479-5868-10-73.

Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. *European Review of Social Psychology, 12*(1), 1–36. http://dx.doi.org/10.1080/14792772143000003.

Smith, J. R., Louis, W. R., Terry, D. J., Greenaway, K. H., Clarke, M. R., & Cheng, X. (2012). Congruent or conflicted? the impact of injunctive and descriptive norms on environmental intentions. *Journal of Environmental Psychology, 32*(4), 353–361. http://dx.doi.org/10.1016/j.jenvp.2012.06.001.

Stewart, N., Chater, N., & Brown, G. D. (2006). Decision by sampling. *Cognitive Psychology, 53*(1), 1–26. http://dx.doi.org/10.1016/j.cogpsych.2005.10.003.

Stok, F. M., De Ridder, D. T., De Vet, E., & De Wit, J. B. (2012). Minority talks: The influence of descriptive social norms on fruit intake. *Psychology & Health, 27*(8), 956–970. http://dx.doi.org/10.1080/08870446.2011.635303.

Swann, W. B., Gómez, A., Dovidio, J. F., Hart, S., & Jetten, J. (2010). Dying and killing for one's group: Identity fusion moderates responses to intergroup versions of the trolley problem. *Psychological Science, 21*(8), 1176–1183. http://dx.doi.org/10.1177/0956797610376656.

Tajfel, H. (1972). Social categorization. In S. Moscovici (Ed.), *Introduction a la Psychologie Sociale* (vol. 1, pp. 272–302).

Tajfel, H., & Turner, J. (1986). An integrative theory of integroup conflict. In S. Worchel, & W. G. Austin (Eds.), *Social psychology of intergroup relations* (pp. 2–24). Chicago, IL: Nelson-Hall.

Tarrant, M., & Butler, K. (2011). Effects of self-categorization on orientation towards health. *British Journal of Social Psychology, 50*(1), 121–139. http://dx.doi.org/10.1348/014466610X511645.

Turner, J. C. (1982). Towards a cognitive redefinition of the social group. In H. Tajfel (Ed.), *Social identity and intergroup relations* (pp. 15–40). Cambridge: Cambridge University Press.

Turner, J. C. (1991). *Social influence*. Milton Keynes: Open University Press.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987).

Rediscovering the social group: A self-categorization theory. Cambridge, MA, US: Basil Blackwell.

Van Kleef, E., Van Trijp, H., Paeps, F., & Fernández-Celemín, L. (2008). Consumer preferences for front-of-pack calories labelling. *Public Health Nutrition, 11*(02), 203–213. http://dx.doi.org/10.1017/S1368980007000304.

Vartanian, L. R. (2015). Impression management and food intake. Current directions in research. *Appetite, 86*(0), 74–80. http://dx.doi.org/10.1016/j.appet.2014.08.021.

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. http://dx.doi.org/10.1371/journal.pone.0079268.

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. http://dx.doi.org/10.1080/15534510.2015.1008037.

Wardle, J., Haase, A. M., Steptoe, A., Nillapun, M., Jonwutiwes, K., & Bellisie, F. (2004). Gender differences in food choice: The contribution of health beliefs and dieting. *Annals of Behavioral Medicine, 27*(2), 107–116. http://dx.doi.org/10.1207/s15324796abm2702_5.

Wilcox, K., Vallen, B., Block, L., & Fitzsimons, G. J. (2009). Vicarious goal fulfillment: When the mere presence of a healthy option leads to an ironically indulgent decision. *Journal of Consumer Research, 36*(3), 380–393. http://dx.doi.org/10.1086/599219.