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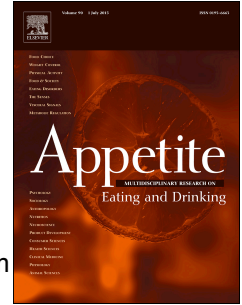
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When group members go against the grain: An ironic interactive effect of group identification
and normative content on healthy eating

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32 Abstract

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

52

53 Key words: social identity, self-categorisation, vicarious licensing, healthy eating.

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

56 Social factors exert a strong influence on eating behaviour (Cruwys, Bevelander, &
57 Hermans, 2015; Vartanian, 2015). Other people are especially likely to influence what we eat
58 if we feel a sense of sharing an important social identity with them, for example, if they study
59 at the same university (Cruwys et al., 2012). To date, research has focussed on social
60 modelling, which has been shown to occur across a wide range of participants' demographic
61 characteristics, and a variety of study paradigms (for a review, see Vartanian, Spanos,
62 Herman, & Polivy, 2015). The mechanism typically understood to be responsible for social
63 modelling is normative influence, whereby the behaviour of others communicates a norm of
64 what constitutes appropriate consumption in a particular social context (Vartanian, Sokol,
65 Herman, & Polivy, 2013).

66 While the normative influence approach in the eating domain makes intuitive sense
67 and there is a body of evidence to support it (Åstrom & Rise, 2001; Louis, Davies, Smith, &
68 Terry, 2007; Robinson, Harris, Thomas, Aveyard, & Higgs, 2013; Robinson, Fleming, &
69 Higgs, 2014), recent literature points to circumstances under which decision-making in the
70 context of eating may be more complex. For example, new developments in social
71 psychology suggest that people who identify highly with a particular social group may in
72 certain contexts be subject to an ironic process whereby they engage in behaviour *contrary* to
73 what others in the group do – a phenomenon known as vicarious licensing (Kouchaki, 2011).
74 In three studies, we manipulated normative content of social identities by presenting
75 information about other in-group members behaving in healthy or unhealthy ways. We then
76 examined the effect of the normative content on individuals who either strongly or weakly
77 identified with the group.

78 **Social Identity Perspective**

79 The social identity perspective, comprised of social identity theory (SIT; Tajfel &
80 Turner, 1986) and self-categorisation theory (SCT; Turner, Hogg, Oakes, Reicher, &
81 Wetherell, 1987), offers a useful framework for conceptualising social norms in the context
82 of group dynamics. Social identification, a key concept in both theories, refers to the process
83 whereby valued group memberships are internalized into a person's sense of self (Tajfel,
84 1972). A key premise of the social identity perspective is that psychologically categorising
85 oneself in terms of a particular group membership, through a process Turner (1982) refers to
86 as *depersonalization* — has distinctive consequences for subsequent behaviour. In particular,
87 this is because it provides a basis for various forms of co-ordinated group activity (Haslam,
88 2004).

89 According to the traditional account of social influence (Deutsch & Gerard, 1955),
90 people are influenced by others when they are uncertain about the world and require
91 information (informational influence) or when they seek approval and want to be liked
92 (normative influence). A social identity analysis removes the distinction between these two
93 types of influence and refers to a single process called referent informational influence. In
94 this process, conformity to group norms stems from the importance of the group in question
95 to the individual's sense of self and the associated desire to engage in behaviours appropriate
96 for the group. Accordingly, individuals are more likely to be influenced by in-group rather
97 than out-group members (Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990; Turner,
98 1991).

99 Within the social identity approach, social norms refer to the *content* of social
100 categories. When a social identity associated with a particular group is salient, the normative
101 content of the social category – such as the group's attitudes, values and ways of behaving –
102 becomes self-relevant. This translates into an increased motivation to behave in ways that are

103 congruent with the group, and a weaker motivation to behave in ways incongruent with the
104 group (Oyserman, Fryberg, & Yoder, 2007; Turner, 1991). As individuals typically possess
105 multiple social identities, their attitudes and behaviour are also likely to change as a function
106 of changes to the salience of particular social identities. For example, a female sportsperson is
107 more likely to see a knee injury (vs. a facial scar) as threatening if she self-categorises as a
108 sportsperson rather than as a woman (Levine & Reicher, 1996).

109 Salient social identity has been shown to influence health-related intentions, including
110 the intention to eat healthily. For example, British students who were encouraged to self-
111 categorise in terms of their British identity reported stronger intentions to reduce their salt
112 and alcohol consumption than those who categorised themselves in terms of their student
113 identity (Tarrant & Butler, 2011). The authors argued that this was because healthy behaviour
114 is more congruent with British identity than with student identity. In other words, the salient
115 self-categorisation was the basis for participants' intentions — and hence as the self-
116 categorization changed so too did their intentions.

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

126 Of central importance to the present study, social identity theorising anticipates that
127 social norms should interact with group identification to structure behavioural intentions and

128 behaviour. More specifically, high identifiers should generally be more strongly influenced
129 by their group's social norms than low identifiers. For example, in a study by Louis et al
130 (2007), students' healthy eating intentions were significantly associated with the perceived
131 group norm, but this was true only for those who identified strongly as students. The
132 intentions of those who identified weakly were unaffected by the norm. Similarly, in a study
133 of young adults, Åstrom and Rise (2001) found that when it came to forming healthy eating
134 intentions, only those who identified strongly with their friends and peers were influenced by
135 a perceived group norm to eat healthily (or not).

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

148 **Ironic Effects**

149 Recent social psychological work has provided evidence for a number of
150 counterintuitive effects that lead to less healthy food choices, even in the presence of a
151 healthy eating intention. Licensing, a concept introduced in the goal attainment literature,
152 refers to the process where people give themselves a 'license' to disengage temporarily from

153 pursuing a particular goal, because they feel that they had already made sufficient progress
154 towards achieving that goal (Khan & Dhar, 2006). In the context of eating behaviour, one
155 study (Chang & Chiou, 2014) found that personally taking weight-loss supplements induced
156 a sense of progress towards one's weight loss goals, and reduced dietary restriction.

157 *Vicarious* licensing can be conceptualised as a specific form of licensing that occurs at
158 a group level. In this context, it is group (rather than individual) progress towards the goal
159 that results in a license to disengage from appropriate forms of behaviour. Specifically, it has
160 been argued that individuals who identify highly with their social group may disengage from
161 personally pursuing a group goal if they feel that others in the group are already making good
162 progress in achieving that goal. Illustrative of the effect, studies by Kouchaki (2011) showed
163 that, in an organisation that values equal opportunities, receiving information about in-group
164 members engaging in non-discriminatory behaviour may sometimes be seen *not* as a positive
165 descriptive norm that should be followed, but rather as a license for the individual to engage
166 in discriminatory practices. We propose that a similar effect could potentially be observed for
167 healthy behaviour and healthy eating specifically. If healthy eating is seen as an effortful
168 chore that the group needs to accomplish, information that other in-group members are
169 already engaging in healthy eating could be taken as evidence that individual effort towards a
170 healthy eating goal is not required — because this goal has already been achieved by
171 others who are representative of self. Much like behaviours such as discrimination, stealing
172 or recycling, healthy eating is perceived to have a moral component (Brown, 2013; Conrad,
173 1994). According to this logic, then, receiving information about in-group members eating
174 healthily might lead to the development of a vicarious 'healthy self-concept', and result in
175 less healthy behaviour.

176 Several studies have found evidence of ironic effects that may fit with this logic. In
177 particular, Wilcox et al. (2009) found that the mere presence of a healthy option on the menu

178 leads to more indulgent food choices, especially among customers with high levels of self-
179 control. The authors theorised that participants who simply considered healthy options felt
180 they were making progress towards their healthy eating goal, and subsequently gave
181 themselves a license to engage in unhealthy eating. Relatedly, Fitzsimmons and Finkel (2011)
182 showed that thinking about a significant other who helped the participant with their healthy
183 goal led participants to reduce the time and effort they planned to spend on that goal. The
184 hypothesised mechanism was similar to a traditional social loafing account, whereby one's
185 own effort in a task decreases when there are others who put a good effort in. In concert,
186 these effects seem to point to a conclusion applicable to all self-regulation dilemmas:
187 exercising self-control is hard, and people will take any available opportunity to convince
188 themselves that it is acceptable to temporarily disengage from a healthy (or otherwise
189 difficult) goal.

190 **The Present Research**

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

199 The context for the present studies was provided by three different social identities:
200 Australian identity, female identity and American identity. The outcomes of interest include
201 both healthy eating intentions and eating behaviour, in order to explore the parallels and
202 potential differences in the way these two outcomes are shaped by group identification and

203 normative content. Many studies in social psychology include intentions as the sole outcome
204 of interest and report significant effects of social processes on intention. However, on average
205 only 28% of variance in behaviour can be accounted for by intention (Sheeran, 2002), and
206 consequently even a significant change in intention may not translate into behaviour. It is
207 therefore important to assess behavioural outcomes as well and to focus on psychological
208 mechanisms that underpin behavioural change.

209 **Study 1**

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

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

227 **Method**

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

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

237 **Procedure.** Participants were randomly assigned to one of two conditions: healthy
238 normative content or unhealthy normative content condition. As part of the experimental
239 manipulation, all participants were presented with six images and asked to choose the three
240 that they thought best represented what it meant to be Australian. Two of these images were
241 neutral in content and were present in both conditions (the Australian flag, a koala). The
242 remaining four images were different in the two conditions and represented either healthy
243 behaviour (people playing sports, people jogging on the beach, fruit, grilled prawns) or
244 unhealthy behaviour (people watching sports, people sunbathing on the beach, beer, meat
245 pies). The images were used to influence the perceived normative content of Australian
246 identity.

247 After completing the manipulation, participants were asked to choose items for
248 breakfast, lunch and dinner from an online restaurant menu (this was based on a menu from a
249 popular Australian restaurant chain). These choices were hypothetical: participants were
250 asked to imagine being on a day trip and having to eat all their meals in a restaurant.

251 Participants knew that they would not be given any of the chosen foods to eat as part of the
252 study.

253 **Measures**

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

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

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

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

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

276 **Results**

277 **Preliminary analyses.** The mean, range, and standard deviation for key study variables
 278 are presented in Table 1. No differences between conditions were observed for BMI or group
 279 identification. There was, however, a significant difference in age ($t(84) = 2.45, p = .016$), with
 280 participants in the healthy normative content condition slightly older ($M = 21.07, SD = 7.40$)
 281 than those in the unhealthy condition ($M = 18.21, SD = 1.55$). However, inclusion of age as a
 282 covariate in subsequent analyses did not affect the results for any of the dependent variables,
 283 and hence this analysis is not reported below.

284

285 Table 1. *Descriptive statistics, Study 1.*

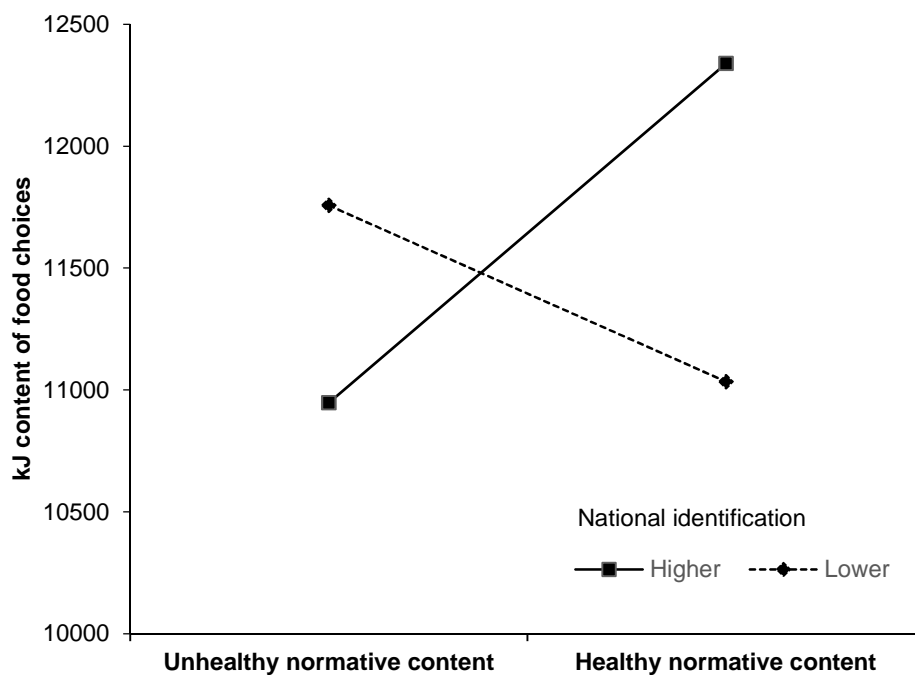
Variable	Range	Mean	SD
Age	17-48	19.67	5.56
BMI	15.9 – 41.4	22.29	4.10
National identification	4-7	6.16	0.69
Descriptive norm	1-6	3.93	1.24
Injunctive norm	2-7	4.45	1.21
Healthy eating intentions	3.5-7	6.03	0.76
Food choices (kJ)	7843 - 16959	11551	1925

286

287

288 **Online menu selections.** A model including the normative content condition, national
 289 identification and the interaction between the two variables accounted for a marginally
 290 significant amount of variance in the energy content of online menu selections, $F(3,78) =$
 291 $2.46, p = .069, R^2 = .087$. Multiple regression analysis indicated no main effect of condition
 292 ($\beta = .089, p = .416$) on the energy content of participants' food choices, and no association

293 between national identification and food choices ($\beta = .054, p = .626$). There was, however, a
 294 significant interaction between these two variables ($\beta = .262, p = .019$; see Figure 1).
 295 Participants who did not strongly identify as Australian were not significantly affected by the
 296 normative content of the images ($\beta = -.19, p = .26$). However, for those who did identify
 297 more strongly as Australian there was evidence of a significant effect of normative content (β
 298 $= .36, p = .02$), such that those in the healthy normative content condition chose higher-
 299 energy foods than those presented with an unhealthy norm. The difference in energy content
 300 of the chosen foods between participants whose national identification was one standard
 301 deviation above the mean and one standard deviation below the mean was 581kJ, which is
 302 roughly equivalent to the energy content of a cheese sandwich.
 303



304
 305 *Figure 1.* Simple slopes analysis: The effect of presenting healthy and unhealthy normative
 306 content at lower (-1SD) and higher (+1SD) levels of national identification.

307

308

309 **Healthy eating intentions.** A regression model including the normative content
310 condition, national identification, and the interaction between the two variables accounted for
311 a significant amount of variance in healthy eating intentions, $F(3, 83) = 3.65, p = .016, R^2 =$
312 $.116$. Multiple regression analysis revealed no significant main effect of condition ($\beta = .041,$
313 $p = .689$) on healthy eating intentions. There was, however, a significant association between
314 national identification and healthy eating intentions, such that participants who identified
315 more strongly as Australian also expressed more healthy eating intentions ($\beta = .334, p =$
316 $.002$). The condition \times national identification interaction was not significant ($\beta = -.087, p =$
317 $.402$), indicating that this relationship between national identification and healthy eating
318 intentions did not vary across the two experimental conditions.

319 Discussion

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

328 It has been argued that vicarious licensing will only occur when an individual and his or
329 her social group share a common goal (Kouchaki, 2011). That this was the case in the present
330 context is suggested by evidence both (a) that participants reported a moderately strong
331 injunctive norm for healthy eating among Australians (a mean of 4.45 on a 7-point scale) and
332 (b) that there was a significant positive correlation between Australian identification and
333 healthy eating intentions ($r = .327, p = .002$). In line with the vicarious licensing effect,

334 higher identifiers may thus have inferred from the information presented that the shared
335 group goal of healthiness was already being achieved (as their fellow in-group members
336 engaged in healthy behaviour), and hence given themselves a licence to select less healthy
337 options from the online restaurant menu. The choices of lower identifiers, by contrast, were
338 not significantly affected by the in-group norm manipulation.

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

345 Study 2

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

353 Method

354 **Design.** Participants were randomly assigned to one of two experimental conditions:
355 healthy normative content or unhealthy normative content. As in Study 1, an image-based

356 manipulation was used¹. Approval for the study was granted by Ethics Review Committee at
357 the second author's university (where the study was conducted).

358 **Participants.** Participants were 123 female first-year psychology students at a large
359 Australian university who took part as partial fulfilment of course requirements. Six
360 participants were eliminated from the study (two due to a data entry mistake, one had a nut
361 allergy and could not eat all of the offered foods, one did not believe the food labelling, one
362 studied nutrition, and one had experienced rapid weight loss due to illness), resulting in a
363 remaining sample of 117 participants. Participants were on average 18.9 years old ($SD =$
364 3.53) and had a mean BMI of 21.7 ($SD = 3.43$). Average levels of gender identification were
365 very high ($M = 5.98$, $SD = 0.76$).

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

373 The experimental manipulation was similar to that in Study 1. Specifically, participants
374 were presented with a set of six pictures, and were asked to select the three pictures that best
375 represented what it meant to be a woman. Three pictures in this set were not related to eating
376 or health more generally (a box of tampons, women shopping, a mother holding a baby). The
377 other three pictures constituted the manipulation and hence differed between conditions,
378 serving to communicate either a healthy or an unhealthy norm (see Figure 2 for examples).

379

¹The 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.

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386 Unhealthy social image

Healthy social image

387

388 *Figure 2.* Sample photos presented in the two experimental conditions.

389

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

399 Participants were asked to sample as much of the different food types as they needed in
400 order to have a good perception of their taste, and then to rate each food type. Subsequently,
401 they chose and tasted one of the four drinks and then rated it. The rating of foods and drinks
402 was done to corroborate the cover story, and the responses were not analysed. Participants
403 were given 10 minutes to complete the tasting test and filler questionnaires, and allowed
404 additional time if needed.

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

412 **Measures**

413 **Group identification.** Female identification was measured by adapting the 4-item scale
414 used in Study 1 (Doosje et al., 1995; e.g., 'I identify with other women'). The scores were
415 obtained by calculating an average response to the four items and ranged from 1 to 7. The
416 scale was internally consistent, $\alpha = .77$.

417 **Restrained eating.** The Revised Restraint Scale (RRS; Polivy, Herman, & Howard,
418 1988) was used as a measure of dietary restriction. This measure consists of 10 items and
419 participants responded on 4-point or 5-point scales (e.g. 'Would a weight fluctuation of 2.5
420 kg affect the way you live your life?'). The overall score was calculated by adding the
421 responses to all items. The RRS has been previously validated in a female student population
422 and is a recognised measure of dietary restraint.

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

425 **Healthy eating intentions.** Healthy eating intentions were measured using four items,
426 (e.g., 'I plan to eat more fruit and vegetables'). Participants responded to the items using a 7-
427 point Likert-type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The internal
428 consistency of the scale was high, $\alpha = .81$.

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

431 Results

432 **Preliminary analyses.** Descriptive statistics for key study variables are presented in
 433 Table 2. There were no significant differences between the two conditions in age, BMI,
 434 dietary restraint or group identification ($ps > .10$).

435

436 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

437

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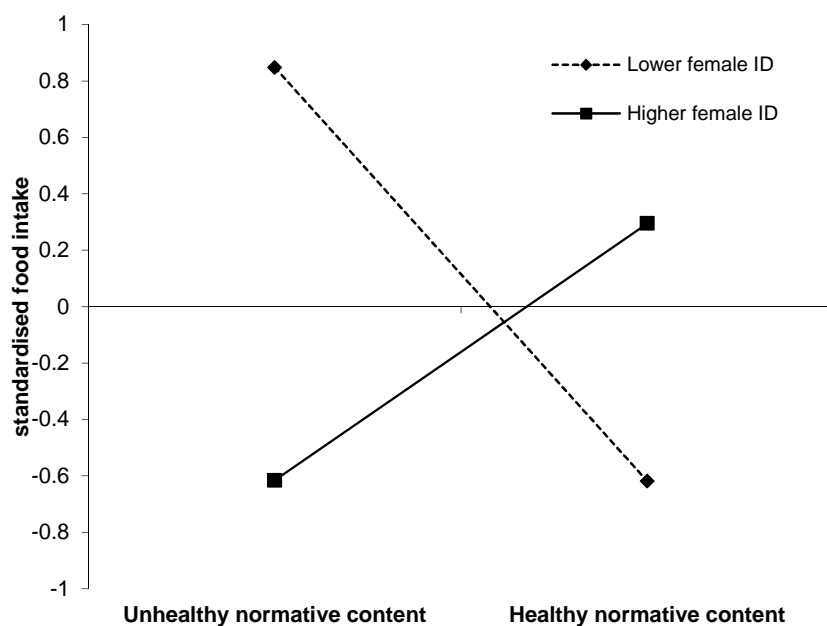
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442

443 **Food intake.** A model comprised of the main effects of healthiness norm and female
 444 identification and the interaction between them accounted for a marginally significant amount
 445 of variance in food intake, $F(3, 112) = 2.213, p = .091, R^2 = .056$. Analogous to the results of
 446 Study 1, there was no significant main effect of healthiness norm or female identification on
 447 participants' food intake ($ps > .10$). There was, however, a significant two-way interaction
 448 between healthiness norm and female identification ($\beta = 0.236, p = .014$), such that the norm
 449 manipulation affected higher and lower identifiers differently (see Figure 3). Although the
 450 overall pattern was consistent with Study 1, simple effects indicated that lower identifiers
 451 behaved in accordance with the presented norm, eating significantly less food when presented
 452 with healthy images ($\beta = -0.73, p = .029$). Higher identifiers exhibited an opposite (albeit
 453 non-significant) pattern, whereby they ate more food when presented with the healthy norm,
 454 and less food when presented with an unhealthy norm ($\beta = 0.456, p = .18$).



455
 456 *Figure 3.* Simple slopes analysis: The effect of presenting healthy and unhealthy normative
 457 content at lower (-1SD) and higher (+1SD) levels of female identification.

458

459 **Healthy eating intentions.** Multiple regression analysis revealed that neither female
460 identification ($\beta = -.011, p = .912$) nor the healthiness norm ($\beta = .080, p = .392$) were
461 significantly associated with healthy eating intentions. The two-way interaction was also not
462 statistically significant ($\beta = .077, p = .426$). The overall model did not account for a
463 significant amount of variance, $F(3, 113) = 0.459, p = .712, R^2 = .012$.

464 **Discussion**

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

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

479 **Study 3**

480 Study 3 was designed to provide a stronger test of the ironic effect of norms and
481 identity in the domain of healthy eating. In this study, both the healthiness norm and strength
482 of identification were manipulated, to allow us to make stronger inferences about the causal
483 role of both factors (noting that in the previous two studies we had only measured, not

484 manipulated, identification). In addition, a control condition was included to provide a
485 baseline comparison. We also tested three potential psychological mediators: healthy self-
486 concept, value of health, and the perception of healthy eating as a group goal for Americans.

487 **Method**

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

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

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

504 **Identification manipulation.** To manipulate strength of American identification, we
505 adapted a linguistic framing procedure by Greenaway et al. (2015). Participants were
506 presented with 10 statements about the United States: five of them positive and five negative.
507 Participants were asked to indicate whether or not they agreed with each statement. The
508 statements were different in the two conditions: in the high identification condition, the

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

518 **Norm manipulation.** Immediately after the identity manipulation, participants were
519 presented with bogus information about the healthiness of Americans as a group. In the
520 healthy norm condition, participants were told that 75% of Americans were meeting the
521 recommended daily consumption of fruit and vegetables and that 90% reported that healthy
522 eating was important to them. In the unhealthy norm condition, participants were told that
523 only 25% of Americans adhered to the fruit and vegetable intake guidelines, and that only
524 30% reported that healthy eating was important to them. In the control condition, participants
525 were not given any descriptive norm information.

526 **Manipulation checks.** To check whether the identification manipulation was effective,
527 participants were asked to respond to two items, which were placed at the end of the
528 questionnaire: *Completing the questions at the beginning of the survey led me to identify as*
529 *an American* and *Completing the questions at the beginning of the survey made me feel proud*
530 *of being an American*. Participants responded on a 7-point scale from *strongly disagree* to
531 *strongly agree*, and the items formed a reliable scale ($r = .813, p < .001$).

532 At the end of the questionnaire, participants were asked two questions to test whether
533 they remembered the normative information provided at the start (*What percentage of*

534 *Americans are already meeting the recommended daily consumption of fruit and vegetables?*
535 *and What percentage of Americans report that healthy eating is important to them?).*

536 Participants responded by moving a slider to the appropriate percentage. Their answer was
537 coded as correct if it fell within ± 10 points of the target number presented on the
538 manipulation screen.

539 **Value of health.** A five-item scale was used to measure how much value participants
540 saw in being in good health (Costa, Jessor, & Donovan, 1989). The scale included items such
541 as *How important is it to you to be in good shape and feel physically fit?*, to which the
542 participants responded on a 7-point scale ranging from *not at all important* to *extremely*
543 *important*. The scale was internally consistent ($\alpha = .90$).

544 **Healthy self-concept.** Four items (e.g. *I see myself as someone with a healthy lifestyle*)
545 were used to measure healthy self-concept (Armitage & Conner, 1999). Participants
546 responded to the items on a 7-point scale ranging from *strongly disagree* to *strongly agree*.
547 The scale was internally consistent ($\alpha = .70$).

548 **Group goal.** We included a novel scale to measure participants' perception that healthy
549 eating was a group goal that should be pursued by Americans. This scale consisted of three
550 items (e.g. *It is important to me that Americans are healthy eaters*) to which participants
551 responded on a 7-point scale from *strongly disagree* to *strongly agree*. Cronbach's α for the
552 five-item scale was acceptable ($\alpha = .68$)

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

556 **Healthy eating intention.** Behavioural intention was measured using three items (e.g. *I*
557 *intend to eat healthier*). Participants responded to the items on a 7-point scale ranging from

558 *strongly disagree to strongly agree* and the items formed an internally consistent scale ($\alpha =$
559 $.84$).

560 Results

561 **Preliminary analyses.** Descriptive statistics are presented in Table 3. There were no
562 significant differences between the groups in average BMI ($ps > .10$). There average age,
563 however, was significantly higher in the unhealthy norm and low identification condition,
564 compared to the other three experimental conditions (contrast $p = .052$). Age was therefore
565 controlled for in subsequent analyses.

566

567 Table 3. *Descriptive statistics, Study 3.*

Variable	Range	Mean	SD
Age	20 – 69	41.5	12.8
BMI	14.6 – 56.4	26.5	8.15571
Healthy self-concept	2.25 – 7	5.17	0.98573
Value on health	2.00 – 7	5.48	1.11575
Healthy eating as a group goal	2.00 – 7	5.25	1.02577
Healthy eating intentions	2.67 – 7	5.95	0.91
Food choices (kJ)	3102 – 15093	10025	2294

581

582 **Manipulation checks.** A one-way analysis of variance (ANOVA) revealed a
583 significant effect of the identification manipulation ($F(2,114) = 8.52, p < .001$), with
584 participants in the high identification condition identifying more as American ($M = 5.22, SD$
585 $= 1.27$) than those in the low identification condition ($M = 4.66, SD = 1.59$) or the control

586 condition ($M = 3.73$, $SD = 1.55$). Pairwise comparisons showed that the difference between
587 high and low identification conditions was marginally significant ($p = .064$).

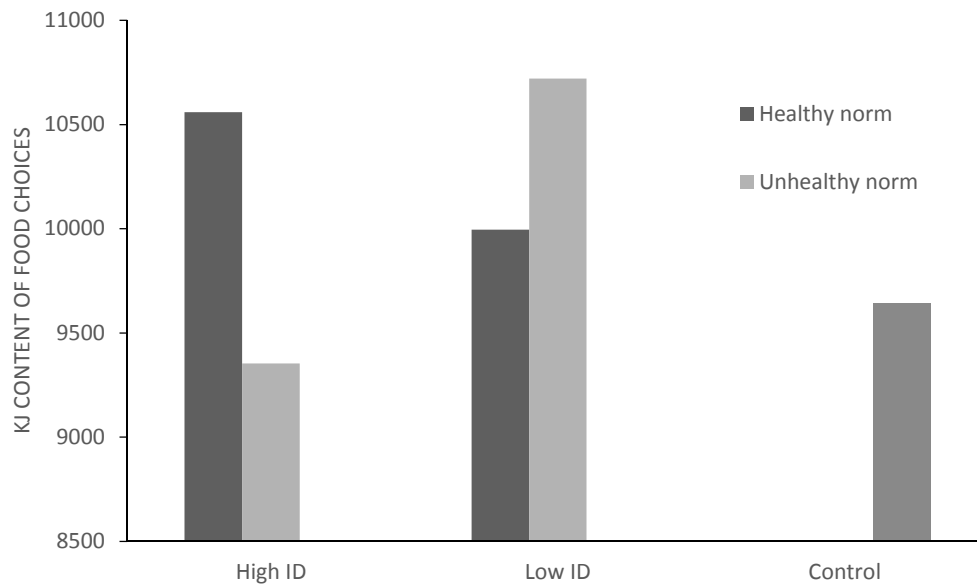
588 Most participants correctly recalled the normative information provided at the
589 beginning of the study when asked about it later. Ninety-five percent correctly identified the
590 proportion of Americans who were already meeting the fruit and vegetable intake guidelines,
591 and 86% correctly recalled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

593 **Food choices.** Bootstrapping (Hayes, 2013; Model 1) was used to assess whether
594 strength of identification, healthiness norm and the interaction between the two predicted
595 participants' food choices. The full model, controlling for age, did not account for a
596 significant amount of variance in the energy content of online menu selections, $F(4,88) =$
597 1.66 , $p = .167$, $R^2 = .070$. A regression model with bootstrapping² indicated no effect of
598 descriptive norm ($p = .266$), but a significant main effect of identification strength ($p = .037$)
599 and a significant interaction between the two variables ($p = .034$) on the energy content of
600 participants' food choices³ (see Figure 4). At low level of identification, there was no effect
601 of the descriptive norm on food choices ($p = .266$). At high level of identification, there was a
602 significant effect of the descriptive norm on food choices ($p = .049$), such that participants
603 presented with a healthy descriptive norm chose more caloric food than participants presented
604 with an unhealthy norm. A one-way ANOVA was then conducted to compare these means to
605 the control condition and this indicated that there was no significant difference between any
606 of the experimental conditions and the control condition ($ps > .10$).

607

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 ($p = .071$) and the interactive effect were marginally significant ($p = .065$).



608

609 *Figure 4.* The average kJ content of participants' food choices in Study 3. NB. Means are
 610 estimated at age = 41.5.

611

612 **Mediation analyses.** In order to explore whether particular psychological mechanisms
 613 were implicated in the vicarious licensing effect, we tested whether the interactive effect of
 614 identification strength and descriptive norm was mediated by (a) value of health, (b) healthy
 615 self-concept, or (c) group goal. While the interaction between identification and norm was a
 616 significant predictor of value of health and group goal, the paths between these two variables
 617 and food choices was not significant ($ps > .10$). Healthy self-concept was not significantly
 618 predicted by either of the manipulated variables ($ps > .10$).

619 **Intention.** We tested a model in which identification level and healthiness norm were
 620 entered as predictors of the intention to eat healthily. The two variables and their interaction
 621 did not explain a significant amount of variance in behavioural intention ($F(4,88) = 0.224, p$
 622 $= .925$). Neither the main effects nor the interaction term were significant ($ps > .10$).

623 Discussion

624 In this study, we manipulated both strength of identification and descriptive norm to
625 obtain stronger evidence for the interactive effect of these two variables on people's food
626 choices. Using a 2×2 experimental design, we replicated the pattern of results observed in the
627 previous two studies. Namely, we found that group identification moderated the effect of
628 descriptive norm on food choices: in the low-identification condition, participants' choices
629 were not significantly affected by the presented norm; in the high-identification condition,
630 participants chose less calorific food when presented with an unhealthy norm, and more
631 calorific food when presented with a healthy norm. Again, these results go against the
632 traditional normative influence effect and suggest that, among high identifiers, receiving
633 information about other in-group members behaving healthily led to *less* healthy food
634 choices. However, as we were unable to find evidence for mediation by any of the three
635 hypothesised variables, the mechanism underlying this effect still remains unclear. Also, the
636 effect size of the interaction was relatively small ($\eta_p^2 = .05$), as indicated by the non-
637 significant predictive power of the overall model. This suggests that there is still a need for
638 further research — potentially using a more powerful study design — to clarify the
639 psychological mechanism responsible for these findings.

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

647 **General Discussion**

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

655 This pattern of results could be interpreted as evidence for a vicarious licensing
656 process, whereby high identifiers make inferences about themselves on the basis of observing
657 how psychologically similar others (i.e., in-group members) behave (Goldstein & Cialdini,
658 2007). In particular, it has been argued that when people observe in-group members behaving
659 in ways that achieve morally challenging goals, this ‘frees them up’ to behave in less moral
660 ways themselves (Kouchaki, 2011). Whereas this effect has traditionally been observed in
661 the domain of prejudicial attitude expression, translated to the domain of dietary behaviour it
662 appears that high identifiers may disengage from pursuing a healthy eating goal if they
663 believe that other members of their in-group are fulfilling this goal.

664 It remains the case, however, that in the absence of a significant mediation by healthy
665 self-concept or the perception of healthy eating as a group goal, there is no direct evidence
666 that supports the role of vicarious licensing in our findings. Accordingly, their interpretation
667 requires some caution. It is nevertheless noteworthy that the presence of an individual-level
668 licensing effect has previously been documented in the context of dieting. Specifically,
669 Fishbach and Dhar (2005) found that participants who believed they had made sufficient
670 progress towards their weight loss goal were less likely to choose an apple rather than a
671 candy bar as compensation gift. In other words, perceived progress towards the goal was used

672 as a licence to excuse the choice of an unhealthy snack in the wake of that progress. The
673 vicarious licensing effect implies a similar mechanism, but at a group level. Here, then,
674 progress made by other group members towards a common goal is used as a licence to excuse
675 one's own goal-incongruent behaviour. However, in line with the original vicarious moral
676 licensing research (Kouchaki, 2011), this effect was only found among high identifiers,
677 presumably because it is through the process of social identification that *depersonalisation*
678 occurs (Turner, 1982), and others become psychologically interchangeable with the self. In
679 other words, for high identifiers, knowing about others' healthy behaviour may have created
680 a perception that they themselves are engaging in healthy behaviour as well (regardless of
681 their actual behaviour), and to licence unhealthy behaviour. It should also be noted that in
682 Studies 1 and 2, where the level of identification was measured rather than manipulated, the
683 average identification was relatively high (6.16 and 5.98, respectively, on a 7-point scale),
684 and so the individuals classed as low identifiers (one SD below the mean) could still be
685 strongly identifying with the relevant social groups. Thus, this ironic effect may be restricted
686 to very high identifiers who are the most likely to experience depersonalisation (along the
687 lines suggested by identity fusion researchers; see Swann et al., 2010).

688 The pattern of results observed among lower identifiers is broadly consistent with
689 previous findings in the domain of normative influence. When these participants were
690 presented with a healthy social norm, they ate less and chose less caloric foods from an
691 online menu. When presented with an unhealthy social norm, however, they ate more and
692 chose more caloric foods. The latter phenomenon has been described as a *boomerang effect*,
693 typically in the context of energy conservation: low energy users, when told that the majority
694 of people use much more energy than they do, tend to increase their energy use (Fischer,
695 2008; Mollen, Rimal, Ruiter, Jang, & Kok, 2013; Nolan, Schultz, Cialdini, Goldstein, &
696 Griskevicius, 2008). The boomerang effect has been identified as one of the reasons why

697 norm-based interventions sometimes have a null effect on behaviour (Fischer, 2008) and is a
698 good illustration of the complex nature of normative influences on behaviour.

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

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

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

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

734 From a health promotion perspective, evidence of this ironic effect is surprising and
735 potentially alarming. This is because it is often assumed that presenting people with
736 information about good behaviour on the part of their peers or other in-group members will
737 provide a motivational basis for them to improve their own behaviour (Lewis & Neighbors,
738 2006). On the other hand, these findings are consonant with other existing evidence
739 suggesting that normative influence is complex, and that conflicting descriptive and
740 injunctive norms may undermine positive behaviour change (e.g., Smith, Louis, Terry,
741 Greenaway, Clarke, & Cheng, 2012). Our studies show that, at least in certain cases, it is
742 possible that exposing high identifiers to a healthy social image may backfire and result in
743 less healthy behaviour. As future research clarifies when exactly an ironic effect of normative
744 content is likely to arise, health promotion recommendations may need to be updated to
745 incorporate this information.

746 **Limitations and future research**

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

763 Along related lines, there would also be value in seeking to establish the specific
764 conditions under which information about the healthy behaviour of in-group members
765 ‘switches’ from being seen as prescriptive norm to behave in one way rather than as a
766 potential license to behave in another. Our sense is that this is likely to relate to the strength
767 of social identification, since, as here, Kouchaki (2011) demonstrated that vicarious moral
768 licensing only occurred among high identifiers. She further argued that high identifiers would
769 be particularly likely to construct self-concepts based on information about the behaviour of
770 fellow in-group members. Future studies may be able to establish what level of social

771 identification is needed to facilitate vicarious licensing, and how vicarious licensing could be
772 prevented.

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

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

790 A further strength of the present research is its inclusion of both healthy eating
791 intentions and behaviour as outcome variables, with behaviour as the primary outcome.
792 While the relationship between social identity processes and healthy eating intentions has
793 been demonstrated previously (e.g. Louis et al., 2007; Tarrant & Butler, 2011), experimental
794 studies in this area that incorporate actual eating behaviour are still relatively rare. Moreover,
795 by including measures of both intention and behaviour, we were able to show that there can

796 sometimes be an important discontinuity between these processes. Specifically, while group
797 identification and norm did not interact to shape eating intentions, they did when it came to
798 eating behaviour (making choices from a restaurant menu and eating food in a taste test).

799 **Conclusion**

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

805 The emergence of this ironic effect in the context of healthy eating is an important
806 result which certainly warrants further investigation. Eating is viewed as a predominantly
807 individual activity, and current psychological research often overlooks the fact that food
808 choices can be a reflection of a social identity (Bisogni, Connors, Devine, & Sobal, 2002).
809 The presence of the ironic effect documented in our studies suggests that when making
810 decisions about eating, people pay attention not only to what other individuals eat, but also to
811 what their group as a whole is eating. In the original formulation of the vicarious moral
812 licensing effect, Kouchaki (2011) emphasised the novelty of her finding that moral
813 credentials could be acquired through group membership alone. In a similar vein, the results
814 of our studies provide preliminary evidence that the mere fact of belonging to a group which
815 engages in healthy behaviour may sometimes provide a licence for individuals to act in less
816 healthy ways. Moreover, if high identifiers are dissuaded from engaging in healthy eating
817 behaviour when they are given information about the healthy behaviour of others in their
818 group, then we may need to rethink the strategies through which we seek to promote their
819 commitment to a healthy lifestyle.

820

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