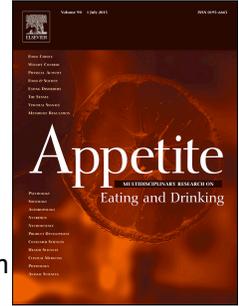# Accepted Manuscript

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 has 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.

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 different 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

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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 (β = .054, p = .626). There was, however, a

294   significant interaction between these two variables (β = .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 (β = -.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.

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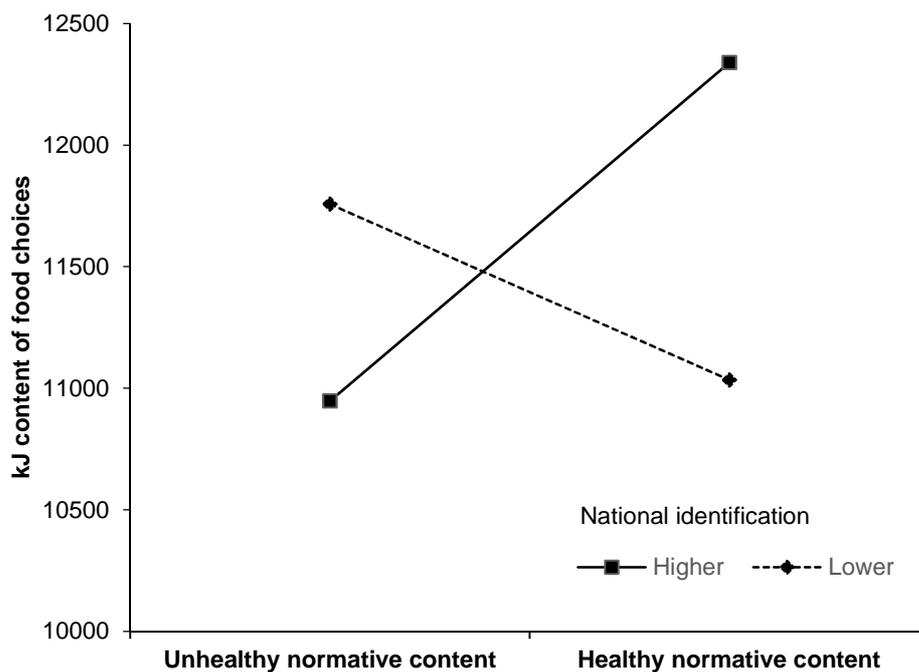
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305   *Figure 1.* Simple slopes analysis: The effect of presenting healthy and unhealthy normative

306   content at lower (-1SD) and higher (+1SD) levels of national identification.

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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 used[1]. 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).

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[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.

                Unhealthy social image   Healthy social image

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

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 120g of trail mix, about 140g 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 (200ml for coke and diet coke, 250ml for orange juice, 350ml 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 responses were not analysed. Participants were given 10 minutes to complete the tasting test and filler questionnaires, and allowed 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

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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 ($\beta = 0.456$, $p = .18$).
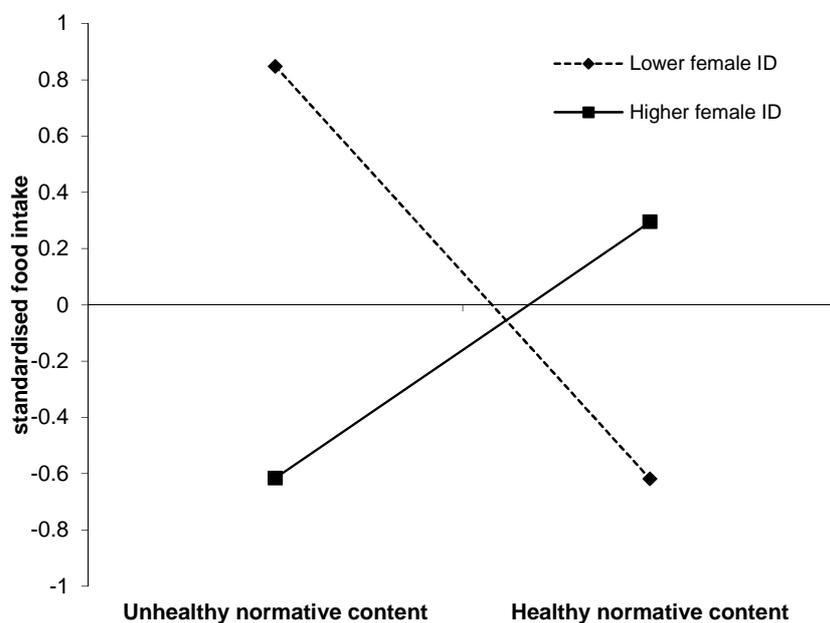
455

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 (β = -.011, p = .912) nor the healthiness norm (β = .080, p = .392) were

461   significantly associated with healthy eating intentions. The two-way interaction was also not

462   statistically significant (β = .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 (α =

559   .84).

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.*

			568
Variable	Range	Mean	SD
			569
Age	20 – 69	41.5	12.8
			570
BMI	14.6 – 56.4	26.5	8.15
			571
Healthy self-concept	2.25 – 7	5.17	0.98
			573
Value on health	2.00 – 7	5.48	1.11
			575
Healthy eating as a group goal	2.00 – 7	5.25	1.02
			577
Healthy eating intentions	2.67 – 7	5.95	0.91
			579
Food choices (kJ)	3102 – 15093	10025	2294
			580

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 bootstrapping[2] 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 choices[3] (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

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[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
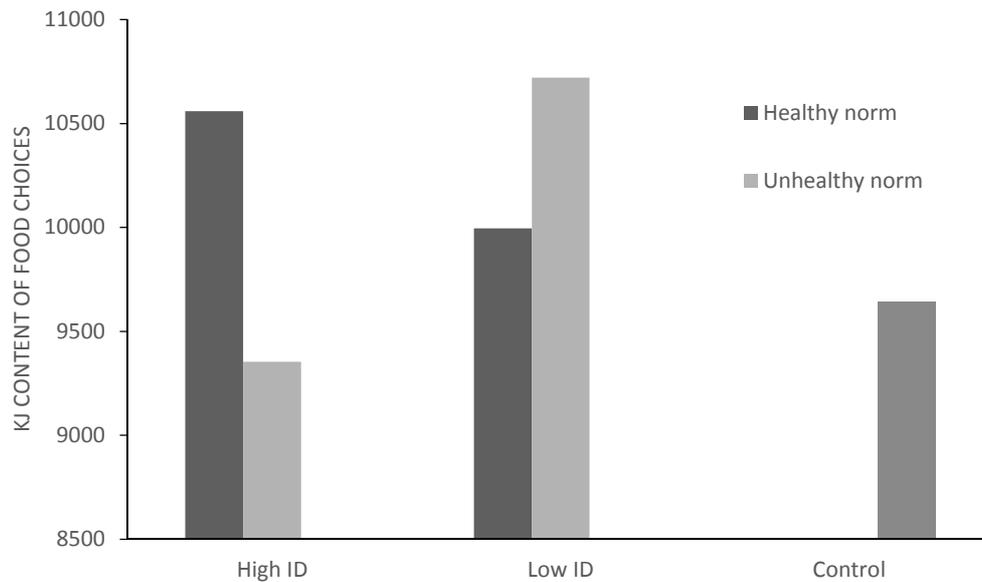
Figure 4. The average kJ content of participants' food choices in Study 3. NB. Means are

    estimated at age = 41.5.

611

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 was not significant (ps > .10). Healthy self-concept was not significantly

predicted by either of the manipulated variables (ps > .10).

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

= .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.

Limitations and future research

746   As with all research, the studies presented in this paper are not without limitations.

747 While vicarious licensing offers a plausible explanation for the pattern of results, we were not

748 able to confirm the role of this mechanism by showing that outcomes were mediated by

749 relevant factors (i.e., healthy self-concept, value of health or group goal). Accordingly, we

750 cannot state with certainty that the effect we have documented in three studies results from

751 vicarious licensing. Alternative explanations therefore also need to be considered. For

752 example, it may be the case that high identifiers are motivated to prove that they are good

753 group members by 'sticking their oar in' to question unauthorised representations of group

754 norms (e.g., along lines suggested by Packer, 2007). This might be particularly likely among

755 high identifiers, who may reject an unhealthy norm and choose especially healthy food to

756 demonstrate that the presented norm was incorrect. Other alternative explanations stem from

757 a purely cognitive view of decision making, whereby the normative information presented

758 could be seen as a sample of past behaviour, which is then used to calibrate future behaviour

759 (Stewart, Chater, & Brown, 2006). If past behaviour is seen as healthy (as it would be upon

760 presentation of healthy norm materials), then participants might be more likely to feel

761 licensed to engage in more indulgent eating.

762   Along related lines, there would also be value in seeking to establish the specific

763 conditions under which information about the healthy behaviour of in-group members

764 'switches' from being seen as prescriptive norm to behave in one way rather than as a

765 potential license to behave in another. Our sense is that this is likely to relate to the strength

766 of social identification, since, as here, Kouchaki (2011) demonstrated that vicarious moral

767 licensing only occurred among high identifiers. She further argued that high identifiers would

768 be particularly likely to construct self-concepts based on information about the behaviour of

769 fellow in-group members. Future studies may be able to establish what level of social

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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.

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825

826 **References**

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