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Effects of front-of-pack social norm messages on food choice and liking



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ABSTRACT

Social norms refer to what most people do or approve of. Perceived social norms can influence food choice and intake behaviour. However, whether social norms can increase liking and taste perception of food products has not been studied so far. Across two studies, we investigated the impact of on-pack social norm messages (no norm, descriptive or injunctive) and focus (taste or health) on choice and liking of salt-reduced products. In Study I, we investigated the effects of on-pack social norm messages on choice of salt-reduced products in an online shelf purchase test ($n = 491$). In Study II, we investigated the effects of on-pack social norm messages on liking and salt taste perception of salt-reduced products after tasting ($n = 194$). Results of Study I showed that focus rather than social norms impacted product choice: participants chose soups with a health focused message significantly more than soups with a taste focused message, regardless of social norm condition. Results of Study II showed that, just before tasting, participants expected the soups with the descriptive norm messages to be saltier but not better liked than the other soups. When actually tasting the soups, the descriptive norm messages did not influence salt taste perception nor liking, *i.e.* all soups were similarly perceived in saltiness and liking. No effects were found of injunctive norms on expectations, perceptions and liking. Implications with regard to theory and practice are discussed.

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1. Introduction

An important goal of health promotion is to make it easier for people to make healthier food choices (WHO, 1986). One way to help consumers to make more healthy and informed food choices is the provision of clear nutrition information and communication on packaging (*e.g.* reduced in fat, sugar, 'light'). Previous studies have shown that communication messages can influence taste perception and product acceptance (Cardello, 2007; Deliza & Macfie, 1996; Kuenzel, Zandstra, El-Deredy, Blanchette, & Thomas, 2011; McClure *et al.*, 2004). For example, nutrition information with regards to fat (Kähkönen, Tuorila, & Rita, 1996) and sugar (Kuenzel *et al.*, 2011) increased liking for the products, whereas labeling on ingredients (*i.e.* soy content; Wansink and Park (2002)) and salt (Liem, Miremadi, Zandstra, & Keast, 2012; Liem, Toraman, & Zandstra, 2012) resulted in lower liking and taste perception scores. Thus, communication can have positive and negative effects on perceived taste intensity and acceptance, and the precise formulation of the message is very important (Zandstra, Lion, & Newson, 2016). There is therefore a clear need to develop

an evidence base for health messages that will positively influence people's choice and liking for healthier alternatives of products in order to effectively promote healthful food choices (Robinson, 2015).

The social norms approach provides a framework that could have important implications for health promotion and prevention (Berkowitz, 2004). Social norms are crucial in consumer decision making and can be very effective in promoting healthy choice behaviours. There are two types of social norms: descriptive social norms, which refer to perceptions about what other people tend to do ('the extent to which I think others perform the behaviour'), and injunctive social norms, which refer to perceptions of what others approve of ('the extent to which I think others approve or disapprove of the behaviour') (Berkowitz, 2004; Cialdini, Reno, & Kallgren, 1990). For example, most people would tend to act in a way that is socially acceptable (*e.g.* how much to drink at a party, what music to like or what policies to support). Several studies found evidence for the influence of social norms on a variety of behaviours such as binge drinking (Borsari & Carey, 2003; Haines & Spear, 1996; Neighbors, Larimer, & Lewis, 2004), sun protection (Mahler, Kulik, Butler, Gerrand, & Gibbons, 2008), energy conservation behaviours (Goldstein, Cialdini, & Griskevicius, 2008; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007) and the amount of

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food consumed at a meal (Herman, Roth, & Polivy, 2003; Roth, Herman, Polivy, & Pliner, 2001).

There is also preliminary evidence that social norms, especially descriptive social norms, can improve choices for healthier products (Crocker, Whitaker, Cooke, & Wardle, 2009; Higgs, 2015; Mollen, Rimal, Ruiters, & Kok, 2013; Robinson, 2015; Robinson, Harris, Thomas, Aveyard, & Higgs, 2013; Thomas et al., 2016). For example, consumer choices are affected by cues in the environment such as empty food wrappers. People are more likely to choose a 'healthy' versus 'unhealthy' food if they see evidence via empty food wrappers that previous participants have chosen 'healthily' (Burger et al., 2010; Pliner & Mann, 2004; Prinsen, De Ridder, & De Vet, 2013; Roth et al., 2001). Similar effects have been observed by Mollen et al. (2013) who found that healthy descriptive social norm messages resulted in slightly more healthy food choices during lunch in a canteen at a university campus. More specifically, on the day on which a healthy descriptive norm message about choosing salads was displayed on a poster, the number of salads bought was higher than on the day on which no message was displayed. Altogether, the results suggest that descriptive social norms may not only influence how much people eat but also what people eat. The extent to which the communication of injunctive social norms influences healthier food choices is less clear. Results have been mixed, *i.e.* on the one hand injunctive social norms did not influence choice of fruit and vegetables (Robinson, Fleming, & Higgs, 2014; Stok, De Ridder, De Vet, & De Wit, 2014) and salads (Mollen et al., 2013), whereas on the other hand these norms did influence choice of snacks by discouraging people away from snacks perceived as unhealthy (Vasiljevic, Pechey, & Marteau, 2015). The effectiveness of injunctive social norms for food-related behaviours therefore clearly warrants further investigation. No previous studies have directly compared the effects of different types of social norm messages placed as a front-of-pack label on packaged food products in order to determine to what extent they can improve choice of these products, and whether the magnitude of this effect would be larger for descriptive than for injunctive social norms.

What has further received little research attention so far is the impact of social norms on sensory perception and hedonic responses to food. Exceptions are the studies by Robinson and Higgs (2012) and Thomas et al. (2016). A food might be expected to have positive rewarding consequences and to taste good because other people we identify with are eating it and enjoying it (Higgs, 2015). Robinson and Higgs (2012) found that providing social information about how much an in-group but not an out-group likes orange-juice affected consumers' (expected) liking for the orange juice, such that suggesting that others *disliked* it resulted in lower (expected) liking scores for the orange juice. Thomas et al. (2016) assessed whether it is possible to increase liking via the use of social norms by providing information about others' liking for the food (liking norm). They found that, for people whose consumption of vegetables was habitually low, a liking norm increased raw broccoli intake to more than three times the amount that was consumed in the control condition, whereas consumption of other vegetables (celery and cucumber) remained the same. Moreover, the liking ratings of broccoli and celery were not affected by the liking norm, whereas it increased liking of cucumber. Broccoli and celery were the least-liked vegetables in this study suggesting that referring to the enjoyment of vegetables may be a useful strategy in promoting intake of less liked (more bitter tasting) vegetables (Thomas et al., 2016).

We build on this prior research by investigating whether social norms can increase the choice, liking and taste perception of healthier products, in this particular case salt-reduced soups. We conducted two studies: Study I investigates the effects of front-of-pack social norm messages on choice of salt-reduced products

in an online shelf purchase test, and Study II investigates the effects of front-of-pack social norm messages on liking and salt taste perception of salt-reduced products after tasting. Six communication messages are investigated in both Study I and II. These messages differ in the type of norm that is communicated: control conditions (no norm) are compared to conditions with a descriptive norm and conditions with an injunctive norm. The norms are tailored to the context. That is, to take into account the current levels of behaviour in reality, the descriptive norm describes a trend in behaviour (*i.e.* more and more people are reducing their salt intake) rather than the more typical formulation of the majority of consumers that is used in most prior research (*i.e.* most consumers reduce their salt intake). This builds upon the notion that information on a growing trend in behaviour can act as a social norm in affecting consumer behaviour (Van Herpen, Van Trijp & Van Amstel, 2012). For injunctive norms, we took a broader definition than is customary as we included recommendations from experts (*i.e.* chefs and nutritionists) instead of a typical injunctive norm 'you should do this'. Additionally, we manipulate whether taste is mentioned in the message. From a consumer point of view, we know that consumers want and expect high quality food products that are healthy yet tasty at the same time (Liem et al., 2012; Liem et al., 2012; Zandstra, Miyapuram, & Tobler, 2013; Zandstra et al., 2016). This is a challenge as prior research has shown that people can have a 'healthy = not tasty' intuition, such that they expect and perceive healthier alternatives of foods as less tasty (Grunert, 2011; Kähkönen, Hakanpää, & Tuorila, 1999; Mela, 2000; Raghunathan, Naylor, & Hoyer, 2006). To preempt such inferences, we wanted to examine whether adding a reassurance in the message that taste was not compromised upon would increase choice and liking of the food product. We compared these taste focused messages to more functional and health focus messages in relation to salt reduction.

We hypothesized that 1) Salt-reduced products with social norm messages on-pack would be chosen more frequently than the same products with control messages, 2) Salt-reduced products with social norm messages on-pack would score higher on liking and perceived saltiness than salt-reduced products with control messages, and 3) Taste focused messages would have a larger positive impact on choice, liking and sensory perception than health focused messages. Additionally, we explore potential differences in the extent to which consumers feel that they understand and believe the messages.

2. Study I

2.1. Method

2.1.1. Participants

In total, 491 Dutch individuals were randomly assigned to a 2 (focus: taste versus health) \times 3 (norm: control, descriptive or injunctive) between-subjects design, using an online shelf purchase test (aged 18–65 years; 280 females and 211 males; evenly distributed over five geographic regions in the Netherlands). Participants were recruited by a market research agency (Essensor B. V., Ede, The Netherlands). Inclusion criteria were: 1) participants needed to be between 18 and 65 years, with roughly equal representation of the age groups from 18 to 35 years ($n = 137$), between 36 and 50 years ($n = 171$), and between 51 and 65 years ($n = 183$), 2) participants were (co-)responsible for the grocery shopping, and 3) participants were regular users of dry soup products (*i.e.* at least 3 times in half a year). Our sample size provided over 80% power at $\alpha = 0.05$ to detect effect sizes of 0.16 or larger. A recent meta-analysis on the effects of informal eating norms on eating behaviour concluded that effect sizes are moderate (Robinson et al.,

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