



## Conference Proceedings



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# **The Impact Of Social Norms On Suboptimal Food Consumption: A Solution For Food Waste**

Isadora Stangherlin, Marcia Barcellos & Kenny Basso

## **Abstract**

Consumers seem to have a reduced preference to buy fruits and vegetables with unusual appearance, products with damaged package and close to the expiration date, usually called suboptimal food products. However, this pattern of behaviour is an important contributor to food waste levels. Interventions aimed at encouraging the purchase of suboptimal food are scarce, however needed. Across two studies, we investigated the effect of social norms in driving suboptimal food consumption. Additionally, it was tested if food waste problem awareness is the underlying mechanism in the relationship between social norms and intention to buy suboptimal food products. Results show that appeals employing social norms positively affect purchases intentions toward the products. Moreover, food waste problem awareness mediates the effect of social norms on intentions to purchase the product with an unusual appearance. We discuss how social norms can be used to tackle food waste and the implications for marketing and policy actions.

## **Purpose of the Research**

The main goal of this study was to investigate whether social norms influence consumers' purchase intentions toward suboptimal food products. A second goal of the study was to analyse if food waste problem awareness explain why social norms can influence the intention to buy suboptimal food products.

## **Background**

Food waste has received increasing attention due to its economic, social and financial impacts. The major problem to deal with the issue is the fact that food losses and waste occur throughout the entire food supply chain. Behaviours that result into waste are considered environmentally negative behaviours (Farr-Wharton, Foth, & Choi, 2014) and interventions aimed at encouraging pro-environmental behaviours are therefore necessary.

Theories of social influence in trying to encourage pro-environmental behaviours are a promising alternative (Nolan, Schultz, Cialdini, Griskevicius, & Goldstein, 2008; Goldstein, Cialdini, & Griskevicius, 2008). Social norms have the power to influence preferences and behaviours (Cialdini, Reno, & Kallgren, 1990), representing the common and accepted behaviour for a specific situation, directly affecting attitudes, intentions, preferences and choices (Cialdini et al., 1990). Despite a large body of research showing the importance and effects of normative influences, we focus on particular new environmentally friendly behaviour, namely the purchasing of suboptimal food products. Fruits and vegetables with different visual appearance, food product with damaged package and close to its expiration date are called suboptimal food products (de Hooge et al., 2017) and previous studies shown the reduced preference to buy and consume these products (Aschemann-Witzel, de Hooge, Amani, Bech-

Larsen, & Oostindjer, 2015; de Hooge et al., 2015; Loebnitz & Grunert, 2015; Loebnitz, Schuitema, & Grunert, 2015). However, this pattern of behaviour is an important contributor to food waste levels. Interventions aimed at encouraging the purchase of suboptimal food are scarce, however needed. No research thus far investigated how to change these patterns of behaviour, especially on how to influence consumers to buy and to consume suboptimal food products in trying to tackle food waste.

Social norms are maximized in uncertain, ambiguous and unclear situations. When consumers are uncertain of a particular behaviour, they tend to look to the behaviour of others, searching evidences of how to act (Griskevicius et al., 2008). The authors stress that this mechanism will particularly occur when conditions have changed, such as an introduction of a new green product. This may be the case when retailers stop rejecting suboptimal food (Loebnitz et al., 2015) and start to sell them. Consumers may face confusion or uncertainty when fruits and vegetables with different appearance, products with close expiration date or products with damages in package start being sold. Normative influences could, therefore, guide consumers' behaviour towards buying suboptimal food products. Creating anti-wastage social norms can help individuals to reduce their waste levels (Stancu et al., 2016). However, thus far this mechanism was not use with suboptimal food products.

Awareness of the consequences of the behaviour is central, specially when promoting environmental behaviours (Redman & Redman, 2014). To suboptimal food, Loebnitz et al., (2015) found that intentions to purchase fruits and vegetables with an unusual appearance are influenced by awareness of food waste problems. Schwartz (1977) postulates that the trait awareness of consequences mediated the impact of norms on altruistic behaviours. Therefore, food waste problem awareness was used in this study to analyse its mediating role between norms and purchase intentions toward the products.

### **Methodology study 1**

Two experiments were used in this study. The first one was a preliminary study to create a realistic norm in study 2. The complete absence of studies indicating how many consumers who have the opportunity to buy suboptimal food buy or approve the purchase of them (which is the role of social norms) was solved by this study. Different messages appeal (environmental, social and financial) were used in this study to capture the frequencies of purchase of each message. The one with higher frequencies was used in the following study. Participants were 127 university students recruited from the south of Brazil. The experiment employed a 3 (message type: environmental, social, financial) x 3 (suboptimal food: unusual appearance, close expiration date, package damaged) with a control group (with no message) mixed-design, with first factor between-subjects and the second within-subjects. Participants were randomly assigned to one of the four experimental conditions. To manipulate the message type, participants were invited to imagine that they were in a supermarket buying food products and visualized the three products separately with the message of the group. The control group did not receive message, just visualized the products. After, participants were asked if they would buy those products, with "yes" or "no" options. Data was analysed with Generalized Estimating Models (GEE) (Zeger & Liang, 1986).

## **Main findings study 1**

Results revealed a significant difference between the message type factor ( $X^2Wald(2) = 24.501, p < 0.000$ ). No significant interaction between the message type and the suboptimal factor was found ( $p = .237$ ). In the same way, the type of suboptimal did not reveal a main effect ( $p = .270$ ). Analyses revealed a significant difference only between the control group and the other three message groups ( $X^2Wald(1) = 18.14, p < 0.000$ ). This means that between the environmental, social and financial messages no differences emerged. However, in order to create a prevalent norm to use in the second study, the social message was used due to the fact that it produced higher frequencies of purchases for each product (72.4%<sub>appearance</sub>, 58.6%<sub>expiration date</sub>, 69%<sub>package damaged</sub>).

## **Methodology study 2**

Study 2 combined the message from the first experiment, using the one that produced higher purchase levels with normative influences. This study was a 2 (normative influence: social norms, without norm) X 3 (suboptimal food: appearance, expiration date, package damaged), using a mixed-design, with the first factor between-subjects and the second within. Total sample size was 119 participants. After seeing the images of each product, participants expressed their purchase intentions on a 7-point scale (1 = "very unlikely", 7 = "very likely"). Food waste problem awareness was adapted from Loebnitz et al. (2015) and was composed by eight items ( $\sigma = .757$ ) measured in a 7-point Likert scale.

## **Main findings study 2**

A mixed-design ANOVA with norms as the between-subjects variable and suboptimal food as the within-subjects variable revealed an interaction between the factors ( $F(2, 228) = 3.080, p < .05$ ). Also main effects for the norm condition ( $F(1, 114) = 17.982, p < .000$ ) and the suboptimal factor ( $F(2, 228) = 13.241, p < .000$ ) emerged. Post hoc tests using the Bonferroni correction revealed that purchases intentions toward suboptimal food was higher in the social norms group ( $M = 3.99$ ) than the control group ( $M = 2.90$ ). The social norms had a significant effect in the carrot with an unusual appearance ( $M = 4.75$ ) when comparing to the control group ( $M = 3.29, p < .000$ ) and in the product with a damaged packaged ( $M = 3.56$ ) compared to the control group ( $M = 2.21, p < .001$ ). However, for the product with a reduced expiration date, no significant difference was found between the social norms ( $M = 3.66$ ) and the control group ( $M = 3.19, p = .224$ ).

To analyze an indirect path of the effect of the norms in the purchases intentions, it was tested the mediation role of food waste problem awareness, using the procedures described by Preacher and Hayes (2004). There is an effect of social norms on food waste problem awareness ( $a = 0.41; t = 2.09; p < 0.05$ ). The food waste problem awareness positively influences the purchase intentions toward the carrot with an unusual appearance ( $b = 0.66; t = 3.85; p < 0.005$ ). The confidence interval (95%) for the indirect effect ( $a \times b = 0.27$ ), computed for each of 5.000 bootstrapped samples, does not include zero or zero effect (0.015 to 0.56), which evidence that there is a significant indirect effect. However, social norms have a direct effect on purchases intentions ( $c = 1.19; t = 3.27; p < .005$ ), which denotes a partial mediation (Zhao et al., 2010).

The relationship between food waste problem awareness and purchases intentions toward the product with a reduced expiration date ( $a = 0.26$ ;  $t = 1.48$ ;  $p = .14$ ) and the product with a damaged package ( $a = 0.23$ ;  $t = 1.52$ ;  $p = .13$ ) was not significant, which evidences that there is no mediation role in these products.

### **Contributions to Theory and Practice**

Given the recent interest in studying suboptimal foods in the food waste literature, this study fills an important gap by studying interventions to increase their acceptance. This study brought a different approach in the study of food waste issues. By using the theory normative influences, a well-developed and well-known conceptual model of behaviour influence, this study proposed to analyse the effect of this stimulus in suboptimal food consumption. Results show that, in a general way, the theory of normative influences is applied to food waste reduction issues, more specifically, with suboptimal food consumption. However, it is necessary to consider the type of sub-optimally when using this influence. Following Loebnitz et al., (2015) suggestion of using communication strategies to understand purchase intentions toward suboptimal food, this study explored the effect of social norms (Cialdini et al., 1990) in suboptimal food consumption. This study corroborates previous ones showing that the acceptance of suboptimal food depends on its characteristics and levels of sub-optimality (de Hooge et al., 2017).

Another contribution is related to the theoretical mechanism by which social norms influences intentions to purchase the products. The result of the mediation analysis in study 2 shows that norms has an impact on the intentions to purchase the carrot with an unusual appearance mediated by the levels of food waste problem awareness of the individuals. The direct effect of this norm on intentions was also significant. However, corroborating Schwartz (1977), awareness mediates the impact of norms. On the whole, by examining the activation of social norms to promote pro-environmental behaviour, this research enriches the literature on social influence, applied in a different context (suboptimal food consumption) and also enriches the literature of consumer-related food waste and food waste reduction.

This research also has several practical implications. For food marketers, the study explored consumers' acceptance of suboptimal food products. This research may be the first to empirically examine strategies to increase acceptance of these products and shed light on consumers' evaluation of this category of foods in trying to help food waste reduction. First, the effects social norms on intentions to purchase suboptimal food indicate that retailers and food marketers can use this strategy in the point of purchase. Retailers reject suboptimal food due to a concern with their consumers (Loebnitz & Grunert, 2015). However, consumers' decision-making regard suboptimal food is positively influenced if they are provided with the appropriate message for that. Therefore, marketing actions can help in food waste reduction (Calvo-Porrá, Medín, & Losada-López, 2017). Food marketers should contribute to the cause of food waste reduction by selling suboptimal food and also have brand benefits with that, increasing, perhaps, their corporate social responsibility (CSR) (Aschemann-Witzel et al., 2016) and use as part of their social marketing communication campaign (Pearson & Perera, 2018).



Additionally, this research holds important implications for advertisers. Campaign designers should use normative influences in trying to communicate the importance of consuming suboptimal food. This research can be assimilated with nudge marketing. In this study, the activation of social norms can be considered a type of nudge used to encourage suboptimal food purchase. Governments can also include in their ads communication about others' behaviours about suboptimal food.

Whereas it is important the implementation and evaluation of food waste reduction initiatives (Melbye, Onozaka, & Hansen, 2017) this study contributes to prevent the waste of suboptimal food, which is food still suitable for human consumption. Additionally, it adds by offering to individuals suggestions on how they can contribute to food waste reduction. However, communication strategies are essential, specially to increase awareness of the issue and to educate consumers of different causes of food waste, such as products about to expire or a damaged packaging. As food waste consequences affect both environmental and social problems, this study advances into a different way to reduce food waste along the food supply chain.

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