

Regulatory Focus and the Effect of Nutritional Messages on Health and Well-Being: The Case of Red Meat Intake

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Background: The persuasiveness of nutritional messages varies according to individual regulatory focus. However, so far research has focused on the negative or positive valence of the message, while we lack research on the differential effectiveness of health vs. well-being messages. We tested whether messages centred on negative health or well-being outcomes influenced the intention to eat red meat, and whether participants' predominant regulatory focus moderated this effect. **Methods:** Participants ($N = 207$; 83 males, 124 females; mean age = 24.89, $SD = 7.76$) completed a questionnaire measuring dietary preferences and predominant regulatory focus. They were then presented with different versions of a message describing the negative effects of excessive red meat consumption on either health or well-being. They rated their involvement in the message and intention to eat red meat. **Results:** Participants with a prevalent prevention focus showed greater involvement and lower intention to eat red meat after reading health messages than after reading well-being messages. No such difference was found in participants with a prevalent promotion focus. **Conclusions:** Emphasising the avoidance of organic diseases appears to be an effective strategy to involve individuals and reduce their intention to eat red meat, especially when they have a predominant prevention focus.

Keywords: health, persuasive communication, prefactual style, red meat intake, regulatory focus, well-being

INTRODUCTION

Red meat is a primary component of many European diets. Recent research, however, has clearly shown a link between red meat consumption and negative health outcomes such as heart disease and bowel cancer (e.g. Bernstein et al., 2010; Tilman & Clark, 2014; Zur & Klöckner, 2014), and its correlation with

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the global obesity epidemic (Vergnaud et al., 2010). In many European countries, people eat more red meat than the recommended amount (Farchi, De Sario, Lapucci, Davoli, & Michelozzi, 2017), that is a maximum of two servings per week (e.g. Bach-Faig et al., 2011). Despite the fact that the negative impact of red meat intake on health has been clearly established, campaigns aimed at convincing people to change their eating habits still face strong cultural and psychological barriers, such as the widespread belief that red meat is a healthy and traditional part of the diet (Verbeke, Pérez-Cueto, de Barcellos, Krystallis, & Grunert, 2010), and the fact that many people simply do not want to give up on the taste of red meat (Berndsen & van der Pligt, 2004).

Research has investigated which communicative strategies can be used to overcome psychosocial barriers to the reduction of meat intake and enhance recipients' motivation to change their habits (Carfora, Bertolotti, & Catellani, 2019; Carfora, Catellani, Caso, & Conner, 2019). A frequently employed communicative strategy is message framing, namely, the use of different ways of delivering information on a given issue so as to convince recipients with different individual characteristics (Avnet & Higgins, 2006; Gallagher, Updegraff, Rothman, & Sims, 2011; O'Keefe & Jensen, 2006; Updegraff, Sherman, Luyster, & Mann, 2007). Regulatory focus is one of these characteristics, and regards a distinction between individuals who are mainly concerned with attaining positive outcomes (promotion-focused individuals) and individuals who are concerned with preventing negative outcomes (prevention-focused individuals) (Higgins, 1997).

Several studies have shown that individuals with either a promotion or a prevention focus are differentially persuaded by gain-framed versus loss-framed messages (Cesario, Grant, & Higgins, 2004). Message framing, however, is not limited to the basic gain versus loss distinction. It can also be attained by selecting and emphasising different pieces of information contained in persuasive messages (Levin, Gaeth, Schreiber, & Lauriola, 2002). In the case of meat intake, given its several potential negative consequences, messages advocating its reduction may focus on some of these consequences rather than others, for example the health outcomes or the well-being outcomes. According to previous research (Bertolotti, Carfora, & Catellani, 2019; Bertolotti, Chirchiglia, & Catellani, 2016), thinking about the health outcomes of eating excessive meat activates a safety concern, that is the preoccupation to avoid potential threats, whereas thinking about the well-being outcomes of eating meat activates a growth concern, that is the preoccupation to achieve desirable goals. Safety and growth concerns are particularly relevant to prevention-focused and promotion-focused individuals, respectively (Cesario, Corker, & Jelinek, 2013). One can therefore expect prevention-focused recipients to be potentially more sensitive to messages centred on health outcomes, and promotion-focused recipients to be potentially more sensitive to messages describing well-being outcomes. So far, however, we lack research data confirming the presence of such a link.

In this paper, we investigated whether messages presenting the negative outcomes of red meat consumption on health and well-being have differential effects on recipients depending on their individual regulatory focus. We expected that a match between the outcomes described in the message (health vs. well-being) and the recipients' regulatory focus (prevention vs. promotion) would positively influence involvement with the message, which would in turn lead to increased intention to follow the dietary recommendation. Such findings would contribute to developing nutritional messages effectively targeted on different consumers.

REGULATORY FOCUS AND NUTRITIONAL BEHAVIOUR

According to the Regulatory Focus Theory (RFT; Higgins, 1997), people differ with regard to their self-regulation strategies and the type of information they are most attentive to when they make a decision or plan their behaviour. Such self-regulation strategies are developed over time through socialisation (Motyka et al., 2014) or are temporarily induced by environmental cues (Freitas, Liberman, & Higgins, 2002) and priming (Lee & Aaker, 2004). Promotion-focused individuals are generally motivated by the pursuit of gains and the achievement of an ideal desirable state. Prevention-focused individuals, conversely, are generally motivated by the avoidance of losses and the fulfilment of duties and obligations (Higgins et al., 2001).

Social psychologists and marketing researchers have shown that RFT can be usefully employed to explain consumer food choices (Dreezens, Martijn, Tenbült, Kok, & de Vries, 2005; Verdurme, Gellynck, & Viaene, 2003). Generally speaking, promotion-focused individuals are oriented to eat healthy food in order to achieve the resulting benefits (Joireman, Shaffer, Balliet, & Strathman, 2012), while prevention-focused individuals are oriented to eat healthy food in order to avoid the risks deriving from not eating these foods (De Boer, Hoogland, & Boersema, 2007; Pula, Parks, & Ross, 2014; Spiegel, Grant-Pillow, & Higgins, 2004).

Given the ample evidence that regulatory focus influences food choice and dietary behaviour, communication promoting healthy eating habits should take into account this relevant individual characteristic, and possibly try to appeal to the predominant focus of its intended audience. If recipients can be convinced that the often hard and painstaking task of changing one's dietary habits is something that fulfills their own goals and fits with their self-regulation style, they might be more motivated to get involved and ultimately engage in different dietary behaviours.

REGULATORY FIT AND NUTRITIONAL COMMUNICATION

Past research on the relationship between regulatory focus and message framing has shown that certain types of messages fit the self-regulatory goals and

behavioural styles of promotion-focused individuals, whereas other types of messages fit the goals and styles of prevention-focused individuals. Regulatory fit (Avnet & Higgins, 2006; Cesario, Higgins, & Scholer, 2008; Higgins, 2006) was observed by presenting promotion- or prevention-focused participants with messages framed in different ways, and assessing whether participants in each condition found the message convincing and were inclined to act consistently with the recommendation contained in it. The persuasive effect of regulatory fit was explained by recipients' subjective experience of "feeling right" after reading or being exposed to a message matching their focus, and therefore reflecting their own preferred way of dealing with a problem, task, or decision (Cesario et al., 2008). Such experience of "feeling right" is not limited to an intuitive understanding and appreciation of the message, but it induces recipients to be more interested, involved, and motivated to consider the content of the message itself, therefore increasing the chances of a change in their attitudes and behaviour, as predicted by classic models of persuasion (Chaiken, 1980; Petty, Cacioppo, & Schumann, 1983).

Initially, most research investigated the interaction between message framing in terms of valence (i.e. gain-framed vs. loss-framed messages) and recipients' predominant regulatory focus. *Gain-framed messages*, that is, messages emphasising the positive consequences of adopting a certain behaviour, were found to be more persuasive for promotion-focused recipients, whereas *loss-framed messages*, that is, messages emphasising the negative consequences of not adopting said behaviour, were found to be more persuasive for prevention-focused recipients (e.g. Dijkstra, Rothman, & Pietersma, 2011). Subsequent studies, based on a broader theorisation of framing (Cesario et al., 2013), found that various elements of persuasive messages besides valence can have differential effects depending on recipients' regulatory focus. For instance, messages describing behavioural strategies aimed at achieving a goal, that is, messages framed in terms of *eager approach*, were found to be more persuasive for promotion-focused individuals, whereas messages describing strategies aimed at avoiding potential damage or losses, thus framed in terms of *vigilant avoidance*, were found to be more persuasive for prevention-focused individuals (e.g. Franzen, Reinders, Bartels, & Maassen, 2010; Hsu & Chen, 2014).

The regulatory fit effect can also be obtained by matching recipient focus with messages emphasising different aspects of the expected outcome of a proposed behaviour, that is whether its consequences affect one's *growth* and *nurturance needs*, or conversely, one's *safety* and *security needs* (Bertolotti & Catellani, 2014; Cesario et al., 2013). Receivers in a promotion focus, whose primary self-regulatory concern is fulfilling their growth and nurturance needs, were found to be more persuaded by messages presenting behavioural consequences in terms of growth. Conversely, receivers in a prevention focus, who are concerned with the fulfilment and maintenance of safety and security needs, were found to be more persuaded by messages presenting behavioural consequences in terms of safety.

Past research (Bertolotti et al., 2016) has shown that negative health outcomes (e.g. cardiovascular disease and cancer) are associated with a safety concern, whereas negative well-being outcomes (e.g. poor physical fitness and psychological distress) are associated with a growth concern. This might be the case because health is conceptualised as a minimal goal domain (Berthold, Mummeny, Kessler, Luecke, & Schubert, 2012), in which individuals are concerned with preventing disorders from disrupting a desirable equilibrium. Once such equilibrium is achieved, individuals are generally more motivated to preserve it as it is (i.e. avoiding illness), rather than further improve it. Well-being, conversely, is seen as a maximum goal domain, in which individuals are concerned with improving their condition by achieving progressively higher targets. Individuals therefore are generally more motivated to improve their well-being (e.g. better physical shape, or a higher quality of life), rather than being preoccupied with a potential decline in it.

Based on the link between health and well-being and different regulatory concerns, it is therefore possible that a message emphasising the consequences of food choices on health would fit with a prevention focus, whereas a message emphasising the consequences of food choices on well-being would fit with a promotion focus. In this study, we aimed precisely at testing this hypothesis empirically.

THE PRESENT STUDY

In the present study, for the first time, we investigated whether the persuasive effect of nutritional messages focusing on the negative health or well-being outcomes of meat consumption would vary according to receivers' predominant regulatory focus. We expected prevention-focused participants to be more involved, interested, and motivated by messages describing the negative consequences of red meat on health than by messages describing the negative consequences of red meat on well-being, as such messages would appeal to a safety concern which is particularly relevant to prevention-focused individuals. Conversely, we expected promotion-focused participants to be more involved by messages describing the negative consequences of red meat eating on well-being than by messages describing the negative consequences on health, as well-being is a growth concern particularly relevant for promotion-focused individuals. Such findings would confirm that health and well-being are associated with different self-regulatory concerns, and that promotion-focused and prevention-focused recipients "feel right" when they read a message that specifically addresses their respective predominant concern.

As past research on regulatory fit suggests, greater involvement with a message is associated with higher motivation and cognitive effort to process message-related information (Marshall & Bell, 2004), which can in turn lead to the adoption of the suggested behaviours (e.g. Campbell, DiPietro, & Remar, 2014;

Slater, 1999). We hypothesised that regulatory fit would indirectly affect participants' intention to reduce their meat intake, through increased involvement in the message. Behavioural intention indicates an individual's readiness to perform a specific behaviour (Ajzen, 1991) and is one of the main measures employed to test the effectiveness of a nutritional message (e.g. Caso & Carfora, 2017; McEchan, Conner, Taylor, & Lawton, 2011).

METHOD

Participants and Procedure

A convenience sample of Italian university students, who enrolled in a psychology course at the Catholic University of Milan, was involved in a university study to receive training credits. The inclusion criterion was that participants did not follow any specific diet, such as a vegan, vegetarian, or restrictive diets. Students who agreed to participate ($N = 247$) received an email with a link to a questionnaire combined with a short fictional newspaper article (approximately 125 words) on the negative consequences of excessive meat consumption. A total of 207 students fully completed the questionnaire (83 males, 124 females; mean age = 24.89, $SD = 7.76$). Participants were randomly assigned to two different conditions. The text purportedly reported the results of several studies by the World Health Organization on the effects of red meat intake. The message was manipulated, describing the negative consequences of red meat intake in terms of either health outcomes or well-being outcomes. The full text of the two versions of the message is reported in Table 1. The groups were composed of 104 and 103 participants, respectively, for the health and the well-being conditions.

Measures

Predominant Regulatory Focus. At the beginning of the questionnaire, participants completed the Regulatory Focus Scale (RFS) by Fellner, Holler, Kirchler, and Schabmann (2007), which assesses individuals' dispositional promotion and prevention orientation with 10 items on a 7-point Likert scale from (1) "totally disagree" to (7) "totally agree". The promotion subscale was composed of five items (e.g. "I like to do things in a new way"; Cronbach's $\alpha = 0.66$). The prevention subscale was composed of five items (e.g. "I always try to make my work as accurate and error-free as possible"; Cronbach's $\alpha = 0.68$). The correlation between the two scores was not significant ($r = -0.01$, $p = .86$). Predominant regulatory focus was calculated as the difference between the promotion subscale and the prevention subscale. Values higher than zero on this measure reflect relatively greater promotion than prevention

TABLE 1
 Different Versions of the Fictional Newspaper Article on Excessive Meat Consumption

<i>Health Message Condition</i>	<i>Well-Being Message Condition</i>
<p>The World Health Organization states that “a diet with a high content of red meat is bad for your health”. Epidemiological studies have shown that life expectancy is significantly shorter for those who consume a large amount of red meat. In particular, the spokesman for the World Health Organization says that eating a lot of red meat significantly increases the risk of serious diseases, such as cardiovascular disorder, diabetes, obesity and cancer. A recent study presented by the World Health Organization has shown that eating a lot of meat increases the risk of developing type-2 diabetes and raises your chances of suffering a heart attack and stroke. Other studies have also found that a diet with plenty of animal protein and fat predisposes you to cancers of the digestive system.</p>	<p>The World Health Organization states that “a diet with a high content of red meat is bad for your psychophysical well-being”. Epidemiological studies have shown that quality of life is significantly worse for those who consume a large amount of red meat. In particular, the spokesman for the World Health Organization says that eating a lot of red meat significantly undermines well-being by making digestion more difficult and impairing bowel regularity and physical fitness. A recent study presented by the World Health Organization has shown that eating a lot of red meat slows down metabolism, thus reducing the rate at which you burn your body fat. Other studies have also found that a diet with plenty of animal protein and fat has a negative impact on your mood and psychological well-being.</p>

focus. And vice versa, values lower than zero on this measure reflect relatively greater prevention than promotion focus.

After assessing individuals' predominant regulatory focus, we defined red meat as mammalian meat, that is, red when it is raw and dark in colour when cooked. This includes veal, beef, lamb, pork, venison and goat. Then, we asked participants to read the text of the message. After this reading task, participants answered questions on message involvement and future intention to eat red meat.

Message Involvement. Participants' involvement in the message (Karmarkar & Tormala, 2010) was measured by asking them to indicate how interested, involved, and motivated they were after reading the message on a 7-point Likert scale from (1) “not at all” to (7) “very much” (e.g. “As you read the article, how much did you feel motivated?”). The three items were used to compute a single involvement index. Higher scores indicated higher involvement during the reading. Cronbach's α was 0.82.

Future Intention to Eat Red Meat. Participants' intentions about red meat consumption were assessed by asking participants to indicate their intention to consume red meat over the next month. Answers were again given on a 7-point Likert scale from (1) “never” to (7) “very often”.

RESULTS

Preliminary Analysis

Overall, the item scores did not show systematic asymmetry or kurtosis. Participants' average involvement level was close to the scale mid-point ($M = 3.90$; $SD = 1.56$), whereas self-reported intention to eat red meat was slightly lower than that ($M = 3.40$; $SD = 1.56$). Table 2 reports means and standard deviations of study variables for each condition.

To check randomisation, an ANOVA on difference scores for predominant regulatory focus orientation was performed, with the message condition (health vs. well-being message) as the between-participants factor. Findings did not show any significant ($p = .49$) differences between conditions before the intervention. This confirmed that participants in the two conditions did not differ in predominant regulatory focus.

Effect of Message Condition on Participants' Involvement in the Message

To analyse the impact of message condition on participants' involvement in the message, we ran a univariate analysis (ANOVA). No significant effect emerged, $F(1, 206) = 1.49$, $p = .22$, $\eta^2 = 0.01$, showing that participants were equally involved by health messages and by well-being messages.

Effect of Message Concern on Participants' Intention to Eat Red Meat

We then tested the effect of message condition on future intention to eat red meat. A significant main effect emerged, $F(1, 206) = 4.32$, $p = .04$, $\eta^2 = 0.02$. Participants who had read the health message had less intention to eat red meat ($M = 3.17$; $SD = 1.55$) as compared to participants who had read the well-being message ($M = 3.62$; $SD = 1.56$).

TABLE 2
Means and Standard Deviations of Study Variables for Each Condition

	<i>Health Message</i>		<i>Well-Being Message</i>	
	M	SD	M	SD
1. Predominant Regulatory Focus	-0.74	1.18	-0.65	1.09
2. Involvement	4.03	1.55	3.76	1.56
3. Intention to Eat Red Meat	3.17	1.55	3.62	1.55

Moderation of Regulatory Focus on Message Involvement and Intention to Eat Red Meat

To test the moderating role of regulatory focus, we conducted two moderation analyses using the PROCESS macro for SPSS (model 1). In the first moderation analysis, we tested whether the predominant regulatory focus moderated the effect of message condition on participants' involvement with the message (Figure 1). This first moderation model included a regression model of involvement predicted by message condition (contrast coded: Health = -1; well-being = 1) and predominant regulatory focus, plus the interaction term between predictors. Neither main predictor had a significant effect on participants' involvement with the message (condition: $B = 0.05$; 95% CI [-0.19, 0.29]; predominant regulatory focus: $B = 0.09$; 95% CI [-0.09, 0.27]), whereas the interaction term was indeed found to be a significant predictor of involvement ($B = -0.27$; 95% CI [0.08, 0.45]).

We then performed a follow-up analysis probing the conditional effects of message condition at two levels of the predominant regulatory focus index (i.e. 1 *SD* below the average, representing a predominant prevention focus, and 1 *SD* above the average, representing a predominant promotion focus). Results showed that among participants with a predominant prevention focus the health message resulted in greater involvement in the message than the well-being message, $B = -0.44$; 95% CI [-0.74, -0.14]), whereas no difference was found among participants with a predominant promotion focus ($B = 0.16$; 95% CI [-0.13, 0.46]). Thus, participants with a prevention focus were more involved by messages about the negative health outcomes of red meat intake than by messages about the negative well-being outcomes. No such difference was found among participants with a promotion focus.

The second moderation model included one regression model of intention to eat red meat predicted by message concern and predominant regulatory focus, plus their interaction term. Neither main predictor had a significant effect on participants' intention to eat red meat (concern: $B = 0.03$; 95% CI [-0.21, 0.27]; predominant regulatory focus: $B = 0.04$; 95% CI [-0.14, 0.22]), but the interaction term between message condition and predominant regulatory focus was indeed found to be a significant predictor of intention ($B = -0.28$; 95% CI [-0.46, -0.09]). The effect of message condition on intention was evident for participants with a predominant prevention focus ($B = 0.54$; 95% CI [0.24, 0.83]), but not for participants with a predominant promotion focus ($B = -0.09$; 95% CI [-0.38, 0.20]). Thus, participants who had a prevention focus intended to eat less red meat after reading about the negative health consequences of red meat intake than after reading about the negative well-being consequences of red meat intake (Figure 2). No difference emerged among participants with a predominant promotion focus.

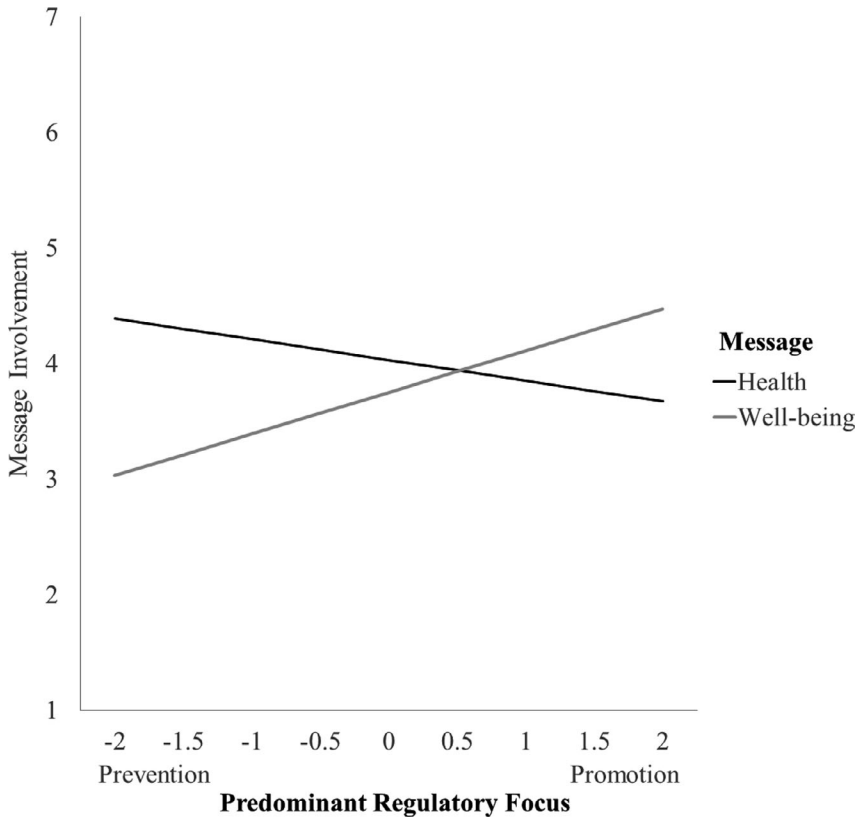


FIGURE 1. Message involvement as a function of message concern (health vs. well-being) and participants' predominant regulatory focus (promotion vs. prevention).

Moderated Mediation of Message Involvement on Intention to Eat Red Meat

A final aim of the present study was to assess whether a greater involvement with messages that “fit” participants' predominant regulatory focus (i.e. health messages in the case of prevention-focused participants, or well-being messages in the case of promotion-focused participants) led to a greater intention to reduce meat consumption in the future. We therefore tested a moderated mediation model including two multiple regression analyses (Figure 3). In the first regression analysis, the proposed mediator (involvement) was regressed on message condition, the predominant regulatory focus, and their interaction. The interaction term between message condition and predominant regulatory focus was

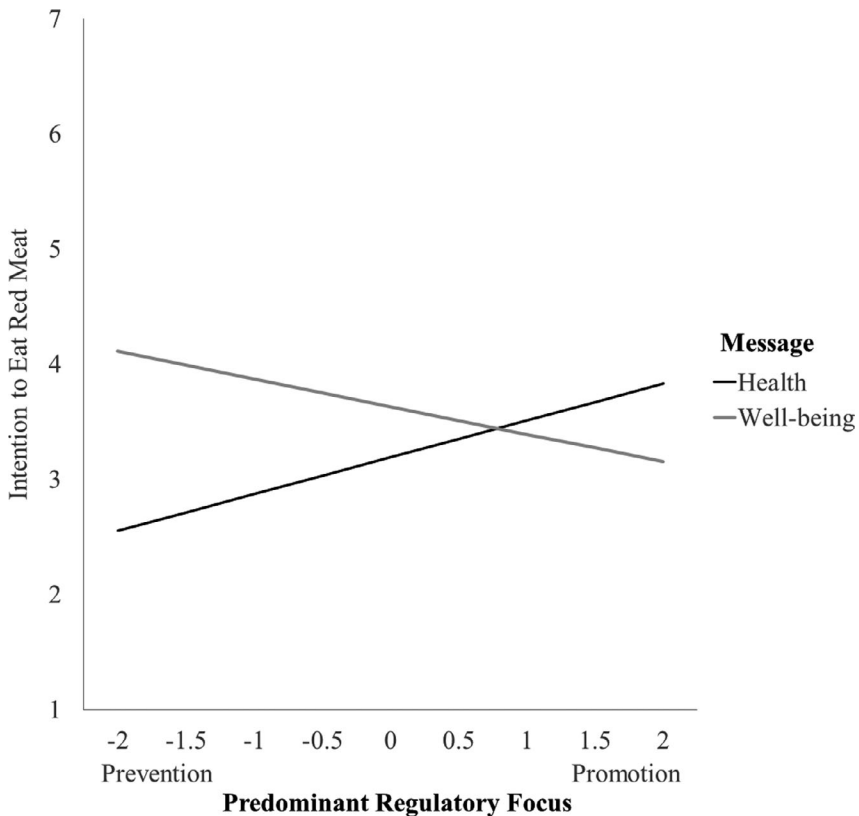


FIGURE 2. Intention to eat red meat as a function of message concern (health vs. well-being) and participants' predominant regulatory focus (promotion vs. prevention).

found to be a significant predictor of involvement ($B = 0.27$; 95% CI [0.08, 0.45]), whereas neither predominant regulatory focus ($B = 0.09$; 95% CI [-0.10, 0.27]) nor message condition ($B = 0.05$; 95% CI [-0.19, 0.29]) had a significant main effect (Table 3). In the second regression analysis, participants' intention to eat red meat was regressed on the main predictors, their interaction term, and the proposed mediator. Involvement was found to be significantly and negatively associated with intention ($B = -0.24$; 95% CI [-0.38, -0.11]), whereas neither message condition ($B = 0.04$; 95% CI [-0.20, 0.27]) nor predominant regulatory focus ($B = 0.06$; 95% CI [-0.11, 0.24]) were significant predictors of intention. The interaction term between message condition and predominant regulatory focus did show a significant effect on intention ($B = -0.21$; 95% CI [-0.39, -0.03]). The 95% bootstrapped CIs for the indirect effect of the

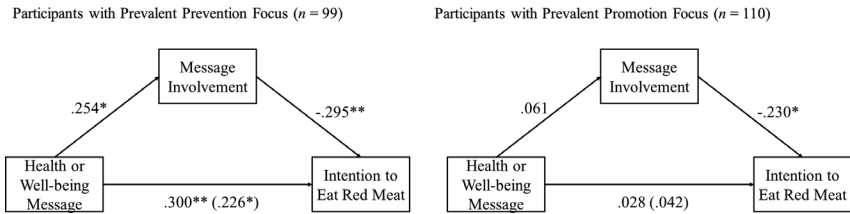


FIGURE 3. Moderated mediation model.

Note: Standardised β coefficients. * $p < .05$; ** $p < .01$.

moderated mediation did not contain 0 (Index = -0.06 ; 95% CI [-0.16 , -0.02]), thus supporting our hypothesis that involvement mediated the conditional effect of message condition (Table 3).

These results lent support to our expectation that participants' involvement would mediate the effect of the message on their intention to eat red meat. As to the moderation effect of regulatory focus, again as expected participants with a prevention focus were more involved by a message about negative health outcomes than by a message about negative well-being outcomes, and this in turn decreased their intention to eat red meat. This was not the case for participants with a mainly promotion focus, who did not show any difference in involvement and intention to eat red meat after reading well-being or health messages. The size of the effects found in our study was limited ($R^2 = 0.12$), but given that food choice is a complex and multi-layered phenomenon, only small effects can be expected from a single exposure to a short message (a 125-word fictional newspaper report). Therefore, we can conclude that regulatory fit elicited by messages focusing on health vs. well-being outcomes does affect, at least to some extent, individuals' intentions to change their eating habits.

DISCUSSION

The results of the present study extend our knowledge of whether and how messages about the health or well-being outcomes associated with red meat intake can be differently persuasive for different audiences, in line with the notion of regulatory fit (Cesario et al., 2013). In the present study, the persuasiveness of nutritional messages eliciting a safety concern (by describing negative health outcomes) or a growth concern (by describing negative well-being outcomes) varied as a function of recipients' predominant regulatory focus. Health messages were more effective than well-being messages in involving participants and in reducing their intention to eat red meat, but only when participants had a predominant prevention focus. Health messages emphasised the avoidance of organic diseases, thus addressing a safety concern. This increased message

TABLE 3
Moderated Mediation of Message Involvement on Intention to Eat Red Meat

<i>Dependent Variable</i>	R ²	B	SE	p	<i>95% Confidence Interval</i>	
					<i>Lower</i>	<i>Upper</i>
Step 1: Message Involvement						
(Constant)		3.95	0.12	0.001	3.70	4.20
Message Concern		0.05	0.12	0.68	-0.19	0.29
Predominant Regulatory Focus		0.09	0.09	0.35	-0.10	0.27
Message Concern × Predominant Regulatory Focus		0.27	0.09	0.005	0.08	0.45
	0.05			0.02		
Step 2: Intention to Eat Red Meat						
(Constant)		4.41	0.29	0.001	3.83	4.99
Message Concern		0.04	0.12	0.74	-0.20	0.28
Predominant Regulatory Focus		0.06	0.09	0.48	-0.11	0.24
Involvement		-0.24	0.07	0.001	-0.38	-0.11
Message Concern × Predominant Regulatory Focus		-0.21	0.09	0.03	-0.39	-0.03
	0.12			0.001		

involvement in prevention-focused recipients, leading in turn to a lesser intention to engage in an unhealthy eating behaviour. Our results, therefore, offer an insight on the process of persuading people with a predominant prevention focus to follow a diet recommendation.

Regarding the effectiveness of the messages centred on negative health or well-being outcomes, our hypothesis was that people with a promotion focus would perceive a greater regulatory fit if they read messages focused on well-being. This hypothesis was based on the fact that a well-being message would be connected with a growth concern, because it emphasises the progressive pursuit of a good quality of life. Our results showed that messages on the negative consequences of meat consumption on well-being involved promotion-focused participants, and reduced their intention to eat red meat, only marginally more than messages on the negative consequences on health. The lower persuasiveness of well-being messages might depend on the fact that only negative outcomes were described in our stimulus text. As promotion-focused individuals tend to be more sensitive to the presence or absence of positive outcomes than to negative outcomes (Lee & Aaker, 2004; Sengupta & Zhou, 2007), it is possible that the messages used in our study were not seen as very compelling by promotion-focused participants. Thus, our findings should be confirmed or disconfirmed by evaluating the effect of well-being messages framing the adoption of a nutritional recommendation in terms of the achievement of positive outcomes (e.g. “A diet low

in animal protein has a positive impact on your mood and psychological well-being”).

Limitations and Future Directions

Our study has some potential limitations that future research might usefully address. First, since our data were collected with a convenience sample of psychology students, results may not be generalised directly to the whole population. Students have different dietary habits from the rest of the population, and likely have little first-hand experience of the long-term health outcomes of nutrition. Thus, health messages might be seen as less compelling by young people than by older adults (see Bertolotti et al., 2016, for a study with older adults). Second, the measures used in our questionnaire had some limitations, such as the lack of manipulation checks, and the way we measured eating intention. Specifically, in measuring future intention to eat red meat, we used a simple Likert scale ranging from “never” to “very often”, while a more precise scale, for instance referring to the number of portions per week, could have been more informative. Third, we did not use a control condition in which participants received no message or read a neutral message. This would have been useful to fully test the impact of the messages on involvement and behavioural intentions. Finally, in this study, we used messages describing only the *negative* consequences of red meat intake on health and well-being. Future studies could employ a more complex factorial design to assess the simple and interactive effects of message valence (negative or positive) and concern (health or well-being).

Since participants were exposed only once to a short message on health and well-being outcomes, we were able to assess only small and short-term effects. Messages delivered over a longer time span and with repeated exposure (e.g. Carfora, Caso, Palumbo, & Conner, 2018; Caso & Carfora, 2017) could yield larger and persistent effects on recipients’ attitudes, intentions, and eventually behaviour. However, future research should carefully reconfirm our preliminary results on the matching effects among regulatory focus and health or well-being messages over a longer period of time, for at least two reasons. First, health eating behaviours need to be performed habitually and over a longer term to confer health benefit. Second, as widely recognised in the domain of interventions to change eating behaviour (e.g. Webb & Sheeran, 2006), although effective interventions typically have a medium-to-large effect on intentions, they only have a small-to-medium effect on behaviour, suggesting that part of an intervention’s effectiveness gets lost between intentions and behaviour. Given that it is hard to obtain strong evidence that intentions are translated into behaviour, future research should include more robust cross-cultural studies using strong methodologies. Robust studies and multisite collaboration will help better understand the conditions under which message interventions based on health or well-being can indeed induce people to modify their eating behaviour.

Practical Implications and Conclusion

In sum, this study advances research on the effects of communication in the food choice domain, showing that messages emphasising different types of negative consequences of red meat could effectively reduce the intention to eat it, depending on the regulatory orientation of recipients. From a practical point of view, the main challenge in the application of our findings to real-world nutritional campaigns is identifying and targeting potential recipients with messages that fit with their individual characteristics. Information about individuals' predominant regulatory focus is barely available outside research and academic settings. However, one might rely on other variables known to correlate with it, such as age (Lockwood, Chasteen, & Wong, 2005). Another interesting recent development in this sense is the use of information from the online behaviour of large numbers of users (the so-called "big data"; Kosinski, Wang, Lakkaraju, & Leskovec, 2016) to create predictive profiles of individuals' preferences, orientations, and personalities. Future applied research might therefore identify socio-demographic, behavioural, or digital markers of individuals' regulatory focus, and use them to target different groups with tailored messages appealing to their needs and concerns.

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