

ENCOURAGING SUSTAINABLE FOOD CONSUMPTION: THE ROLE OF (THREATENED) IDENTITY

By

Wokje Abrahamse Birgitta Gatersleben David Uzzell

RESOLVE Working Paper 04-09









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Abstract

Meat consumption has risen considerably over the past decades. At the same time, an increasing body of research points to the potential health risks associated with eating too much meat, as well as the environmental implications of meat production and consumption. Information campaigns aimed at changing food consumption choices will potentially be more effective if they target the factors that are related to dietary choices. The current study examined the role of the identity concept in relation to meat consumption. Firstly, it examined factors (e.g. identity and values) associated with attitudes towards eating meat; and, secondly, it examined how people respond to information about meat consumption that is either matched or mismatched to a certain aspect of their self-concept (i.e. importance of eating meat).

For this purpose, a questionnaire study was conducted (N = 262), using a 2x2 between-subjects design. First, respondents were asked to indicate how important eating meat was to them personally (identity). Respondents then either read a message about the advantages of eating meat or about the advantages of eating vegetarian, and these messages either matched with their identity or it did not. Subsequently, respondents were asked to evaluate the information in terms of its persuasiveness, and they were asked about their attitude towards eating meat.

The results indicate that attitudes towards eating meat were most strongly related to identity, in that respondents who more strongly identified with being a meat eater also expressed more favourable attitudes towards eating meat. Health identity was positively related to attitudes towards eating meat too, that is, respondents who strongly identified with being health conscious, tended to have more positive attitudes towards eating meat. Values did not appear to be related to attitudes towards eating meat. In terms of the evaluation of information about eating meat or vegetarian, respondents tended to evaluate information that matched their selfconcept (identification with being a meat eater) as more positively than when it was not matched. However, no shifts in attitudes towards eating meat occurred. The results of this study highlight the importance of examining the role of (multiple) identifies in relation to food consumption.

1. Introduction

Today's consumers are increasingly being made aware of the consequences attached to their daily food consumption. In the UK, the 'five-a-day' campaign has been widely advertised, encouraging people to eat more fruit and vegetables in order to live healthier lifestyles (Department of Health, 2009). Arguably, such information campaigns will be effective to the extent that people take health issues (rather than for instance taste, or cost) into account when choosing to eat fruit and vegetables. Similarly, there is an increased body of evidence pointing to the various advantages of reducing our intake of meat. Various campaigns are currently aimed at encouraging people to reduce their meat consumption, usually pointing out the potential benefits in terms of health, animal welfare and environmental considerations (see for instance CIWF, 2009). There is some evidence to suggest that although people are aware of such information campaigns, many individuals may not necessarily incorporate this information into their daily practices (Goode, Beardsworth, Keil, Sherratt, & Haslam, 1996). The question thus arises to what extent such attempts are indeed successful in raising awareness and bringing about a change in attitudes (and behaviour). Which issues do people take into account when it comes to eating meat, and what kind of information would encourage people to reduce their consumption of meat? Do different groups of people evaluate such campaigns differently, and if so, what are the factors that play a role in that respect?

For a large number of people, meat constitutes a central part of their diets. Meat consumption has increased substantially over the past decades, especially in the Western, developed countries (to illustrate, Indians eat an average of 5 kg of meat per person per annum, while Americans eat 123 kg; FAO, 2007). Eating meat, as part of a balanced diet, contributes to a healthy lifestyle, as it helps provide the recommended intake of proteins and nutrients. Meat has symbolic meanings too; eating meat is often associated with traits such as masculinity, and values such as dominance and power (Fiddes, 1991; Twigg, 1983). Meat consumption also has its drawbacks. The intake of (relatively) large quantities of meat, and red meat in particular, has been linked to various health problems, such as obesity, an increased risk of heart disease, and certain types of cancer (WHO, 2007). Additionally, industrial meat production is related to safety issues (e.g. outbreak of diseases) and to animal welfare issues. Equally well, it is linked to a range of environmental problems as it requires the use of relatively large quantities of natural resources particularly, land, energy, and water (e.g. Dutilh & Kramer 2000; Ehrlich, Ehrlich and Daily 1995). There is evidence to suggest that the livestock sector is responsible for 18% of greenhouse gas emissions (methane in particular), making it an important contributor to climate change (FAO, 2007). Reducing the intake of meat may therefore not only have beneficial health outcomes for individuals, but it may also help reduce carbon footprints (WHO, 2007).

There is evidence to suggest that meat consumption is closely linked to people's selfconcept, or identity (e.g. Sparks & Shepherd, 1992). That is to say, individuals may choose to consume meat, because the meanings people attach to eating meat are consistent with aspects of their self-concept (Allen, Wilson, Ng, & Dunne, 2000). The importance people attach to eating meat, in terms of their self-concept may therefore be an important factor to take into consideration in attempting to encourage consumers to adopt healthier and environmentally sustainable dietary choices.

The present study aims to examine the role of the identity concept in relation to meat consumption. Firstly, the study examines the factors related to attitudes towards eating meat, with a specific focus on identity and value orientations. Information that targets these factors may ultimately be more effective in encouraging attitude (and potentially behaviour) change. Secondly, the study examines how people respond to information aimed at encouraging a lower intake of meat. More specifically, it examines whether the effectiveness of such messages (in terms of message evaluation and changes in attitudes towards meat) depends on people's level of identification with being a meat eater. In doing so, this study builds on and expands the existing body of literature on identity and meat consumption, by examining the effectiveness of information about meat consumption, and by gaining more insight into the factors that may be instrumental in encouraging attitude change.

2.1 Factors related to meat consumption: what is the role of identity?

Various studies have examined the relationships between food (and meat) consumption and identity (see Sparks, 2000). Here, identity is defined as an individual's adoption of particular groups (e.g. "I am female") and/or traits ("I am honest") as part of their self-concept (Tajfel & Turner, 1986; Fleming & Petty, 2000). It not only encompasses one's individual, personal identity or uniqueness (e.g. a person's values, attitudes, opinions), but also includes characteristics related to group memberships and social categories (social identity). A social identity may be defined as 'that part of the self concept that derives from one's membership of social groups' (Hogg & Vaughan, 2002) and refers to a shared/collective representation of who one is and how one should behave. The literature suggests that personal and social identities are closely intertwined and may not differ in terms of content (e.g. 'female' can refer to an individual as well as a group of individuals who share that trait) (Deaux, 1996).

From an identity perspective, the meanings attached to eating meat may be important to the extent that individuals may choose to consume meat, because the meanings of meat are consistent with their self-concept (Allen, Wilson, Ng, & Dunne, 2000). If health is an important part of someone's self-concept, eating meat may confirm his/her health conscious identity. Although identities refer to unique

features of a person or a group, these unique features exist solely on the grounds of a common consensus about its meaning(s) (Evans, 2006). That is to say, an identity as a vegetarian exists to the extent that people 'know' what it means to be a vegetarian.

Qualitative studies suggest that identities in relation to meat consumption are multifaceted and dynamic (see Bisogni, Connors, Devine, & Sobal, 2002; Foxx & Ward, 2007; Valentine, 1999). People develop (and alter) their food identities based on for instance their preferred eating habits (e.g. developed in childhood), personal characteristics, but also by comparing their eating patterns to relevant reference groups (Bisogni et al., 2002). A series of studies have examined whether the identity concept could be linked to food consumption (Sparks & Shepherd, 1992; Sparks & Guthrie, 1998; Cook, Kerr, & Moore, 2002). The results of these studies seem to suggest that the identity concept can indeed have additional explanatory value over and above constructs such as attitudes (for a more detailed review of the role of identity, see Armitage & Conner, 1999). Studies that specifically focused on the factors related to meat consumption show mixed results. For instance, Sparks, Conner, James, Shepherd, and Povey (2001) found that intentions to eat meat were positively related to identity as a healthy person. A study by Povey, Wellens, and Conner (2001) on the other hand, did not find a (health conscious) identity to add any variance to the explanation of dietary practices (i.e. following a meat-centred, vegan or vegetarian diet). The evidence appears to be mixed as to the extent to which the concept of identity is related to meat consumption. In addition, these studies only appear to have included one type of identity, generally this involved levels of identification with being a health-conscious person. This can be considered a rather general measure of identity, which may explain why this (rather general) measure of identity was not always related to specific food-related behaviours. Similar issues have been raised in relation to the attitude-behaviour relationship, in that explanatory power improves when the two are measured at similar levels of specificity (Eagly & Chaiken, 1993). Given the multifaceted aspects of meat consumption (e.g. health, environmental), meat consumption may be linked to various identities (e.g. health identity, and environmental identity).

Values people hold as general guiding principles in their lives may also inform how they evaluate certain issues related to food consumption (e.g. attitudes towards eating meat), which may in turn inform their behaviour. That is, attitudes can be considered as expressions (or reflections) of one's values (Eagly & Chaiken, 1993; Maio & Olson, 1999). Indeed, various studies point to a possible relationship between meat consumption and value orientations. For instance, Allen, Wilson, Ng, and Dunne (2000) found that the extent to which people considered themselves as omnivores was related to values reflecting human dominance over nature. Similarly, vegetarianism appeared to be positively related to altruistic values and negatively to traditional values (Dietz, Frisch, Kalof, Stern, & Guagnano, 1995). Another study (Kalof, Dietz, Stern, & Guagnano, 1995) found that vegetarianism was positively related to the belief that vegetarian diets have positive environmental effects. Based on this research, it can be argued that value orientations may be important factors to take into account when examining attitudes towards eating meat. In other words, attitudes towards meat consumption may be related to egoistic, altruistic and environmental values (De Groot & Steg, 2007). In addition to the (specific) identity measures, general value orientations were therefore also included in this study.

2.2. Tailored information and attitude change: what is the role of identity?

Tailoring is an approach frequently used in health psychology as part of interventions aimed to help people change unhealthy practices into healthy ones (e.g. smoking cessation, reducing fat intake). Essentially, tailoring makes use of information from or about an individual (or group) which are related to a given (health) outcome in order to determine the most appropriate intervention to meet the unique needs of that person (or group) (Kreuter, Farrell, Olevitch, & Brennan, 1999; Rimer & Kreuter, 2006). Tailoring can be used by first examining the antecedents of the behaviour one wishes to change and to then, based on this information, design interventions that specifically address these behavioural antecedents. For instance, research in health psychology shows that people were more inclined to adopt healthy behaviours (such as stop smoking, start dieting, etc) when the information they received was tailored to their specific situation (e.g. Rimer & Kreuter, 2006). Similarly, tailoring has been used to encourage the adoption of environmentally friendly behaviours (e.g. Abrahamse, Steg, Vlek, & Rothengatter, 2007; Daamen, Staats & Wilke, 2001).

An extensive body of research indicates that information that is tailored (or matched) to people's pre-existing views tends to be more persuasive than messages that are not matched (e.g. Rimer & Kreuter, 2006). It has been suggested that matching information to people's identity may enhance its effectiveness, to the extent that when information is tailored to certain characteristics of a person's self-concept it will be regarded as more persuasive and will result in (more durable) attitude change (Fleming & Petty, 1999; Petty, Wheeler, & Bizer, 2000). Research within the realm of the Elaboration Likelihood Model (ELM) of persuasion (Petty & Cacioppo, 1986) indicates that people process information in different ways and under different conditions. People are assumed to be more motivated to think elaborately about a topic when it is personally relevant for them, for instance when it matches aspects of their self-concept or their personality traits (e.g., extraversion and /introversion, see Wheeler, Petty, & Bizer, 2005). Also, it appears that a larger shift in attitudes occurs when the content of information about consumer products matches certain aspects of the recipient's identity (e.g. DeBono & Packer, 1991). In a similar vein, Petty and Wegener (1998) found that messages that matched recipients' gender identities were found to be more persuasive than message that did not match recipients' identity,

but this appeared to depend on the strength of the arguments used in the message. Interestingly, when weak arguments were used, matched messages were perceived as less persuasive than mismatched messages. Identity appears to influence behaviour and behavioural change in different ways (for a more extensive overview, see Petty, Wheeler, & Bizer, 2005).

The identity concept may be particularly relevant in the area of meat consumption, as research indicates that people's self-concepts are intertwined with their food consumption choices (Sparks, 2000; Sparks, Conner, James, Shepherd, & Povey, 2001; Sparks & Shepherd, 1992). In that respect, identities are an interesting point of departure as they may constitute a barrier to attitude change. To illustrate, an information campaign encouraging people to reduce their meat consumption may constitute a 'threat' to someone for whom eating meat is a very important aspect of who they are as a person (i.e. who strongly identifies him/herself with being a meat eater). According to Breakwell (1983), such threats to identity can originate internally (e.g. a change in attitudes), from other people (e.g. change in social norms), or from the material world (e.g. changes in availability of natural resources). As a consequence, people try to cope with this by removing or altering the (origins) of the threat to their identity. The question thus arises how people respond to information that does not match with, or poses a threat to their identity. Will they find such information more or less persuasive? Will they shift their attitudes upon receiving such information? Returning to the example of the information campaign, it may well be that people who strongly identify with being a meat eater respond in a way that is contrary to what the information campaign is trying to achieve. In other words, reactance may occur (cf. Brehm, 1966), in that people's attitudes towards meat may become even stronger after reading a message that is in conflict with their selfconcept. The present study looks at the role of identity and threatened identity in relation to the evaluation of such informational messages and in terms of attitude change.

2.3 Aims and Hypotheses

As a first aim, the present study examined factors related to attitudes towards meat, with a specific focus on the role of identity and the role of value orientations. More specifically, based on the literature reviewed above, it is hypothesised that more positive attitudes towards meat will be associated with stronger levels of identification with being a meat eater (meat identity). Also, people with a stronger health conscious identity will have more positive attitude towards eating meat. In contrast, attitudes towards eating meat will be negatively associated with people's environmental identity. Further, attitudes towards eating meat are expected to be positively related to egoistic value orientations, and negatively related to altruistic and biospheric value orientations. The second aim of the present study is to examine how people evaluate messages about meat consumption that is either matched or

mismatched to their identity as a meat eater. Specifically, the principle of tailoring was used by matching the framing of the message arguments to the recipient's self-concept. In other words, the message about meat consumption was either assumed to pose a threat to one's identity, or not. It is expected that matched messages will be evaluated more positively than mismatched messages (i.e. threatened identity). Additionally, mismatched messages will result in stronger attitude change than matched messages, in such a way that those who strongly identify with being a meat eater will have more positive attitudes towards meat after reading the mismatched message than after reading the matched message.

3. Method

3.1 Sample

A total of 304 undergraduate students from a middle-sized university in the south east of England participated in the study. The questionnaire was available online and potential participants were sent the link to the online questionnaire via the university's undergraduate e-mail lists, with the option of entering in a prize draw to win one of three £20 vouchers. Twelve questionnaires were incomplete and these were left out of further analyses. Additionally, it appeared that thirty participants had filled out the survey in less than 5 minutes, which raised doubts about whether they would have actually read the message. These surveys were left out of further analyses, leaving a sample of 262. The mean age of participating students was 22 years, 68.3 % (N = 179) was female, and they were predominantly from a Caucasian (white/British) background (89.3%; N = 234), and 84% (N = 220) had completed or were in the process of completing a first degree (see also Table 1). Up-to-date details of the mailings lists were not easily accessible, but the response rate is generally estimated to be around 20%.

Age	Average	22.2 years		
Gender	Male	31.7%		
	Female	68.3%		
Ethnic Background	Caucasian	89.3%		
	Asian	6.5%		
	Black	0.4%		
	Mixed	2.7%		
	Other	1.1%		
Education	A-levels or equiv.	7.3%		
	Higher National Diplomas	6.1%		
	First Degree (BA or BSc)	84.0%		
	Higher Degree (MA or PhD)	1.1%		
	Other	1.5%		

Table 1: Sample characteristics

3.2 Design and Procedure

The design was a 2 (weak vs strong identification) x 2 (framing: pro meat, pro vegetarian) between-subjects design. Participants were randomly assigned to either the pro-meat, or the pro-vegetarian message conditions. Analyses of variance for the continuous data and Chi-square analyses for the categorical data indicated that the randomisation procedure appeared to have been successful. There were no significant differences in socio-demographic characteristics (age, gender, education level, ethnicity), and in meat consumption and identification with being a meat eater between respondents in the pro-meat and pro-vegetarian experimental conditions.

Participants were told that they were invited to take part in a survey about food consumption and that the study was examining how people responded to information about various aspects related to meat consumption in particular. First, respondents were asked various questions about their meat consumption, and prior to reading the message, identification with being a meat eater was measured. Then, participants were randomly directed to either the message in which the advantages of eating meat were argued (the pro-meat message), or to the message that advocated the advantages of eating a vegetarian diet (the pro-vegetarian message). Both messages were presented as articles from a major British broadsheet newspaper and participants were asked to read the article carefully as they would be asked a number of questions about the article (this is assumed to enhance message elaboration, see Petty and Caccioppo, 1986).

The messages each contained three types of arguments, which were either framed in terms of advantages of eating meat, or in terms of advantages of eating a vegetarian diet. Both messages emphasised health aspects ("eating meat/vegetarian is part of a healthy lifestyle"), aspects related to animal welfare issues ("eating organic meat is beneficial for animal welfare" or "eating organic meat does not address the unnecessary use of livestock") and environmental issues ("It is claimed that meat has a higher impact on the environment than vegetarian products. However, it appears to be a bit more complicated than that" and "It is sometimes claimed that vegetarian diets can have a large impact on the environment because vegetarians tend to eat more dairy products than meat eaters. However, it appears to be a bit more complicated than that."). The messages presented knowledge of the pros and the cons of a specific argument, as research indicates that such 'balanced' messages about food and nutrition are perceived to be more convincing than messages that only give one side of the story (Wilson, 2007). To illustrate, in the pro-meat message it was stated that: "A common misperception is that vegetarian diets are healthier because they are lower in fat. Yet a recent study that compared vegetarians to nonvegetarians found no difference in fat intake, or body weight." For the provegetarian message it read: "A common misperception is that eating meat is healthier because it is essential for our daily intake of iron, vitamin B12 and zinc. Yet meeting this daily recommended intake of nutrients is difficult anyway – even when (red) meat is part of the diet." In each message, the arguments were accompanied by results from scientific studies. The information for both messages was gathered from sources such as reports from the World Health Organisation, and peer reviewed scientific studies and was (as far as we know) factually correct.

3.3 Independent Variables

Meat consumption. Participants were asked to indicate how many days a week they would normally eat (red and/or white) meat, and scores could range from 0 'never' to 7 '7 days a week'. A total of 11.5% (N = 30) said they never at, and 19.8% (N = 52) said they always eat meat. Those who indicated eating meat would do so an average of 4.6 days a week. It is difficult to indicate whether this sample is representative as few studies report on the prevalence of vegetarianism among university students. A British survey among first year students reported a prevalence of 15.7% (Beardsworth & Bryman, 1999). However, direct comparisons are difficult to make as different studies measure vegetarianism differently.

Beliefs about meat consumption. By means of an open-ended question, participants were asked to write down which were, according to them, the best and the worst things about eating meat. They were asked to list as few or as many as they liked. This was done to gain more insight into the beliefs associated with eating meat and, more importantly, to make respondents think about eating meat (hence, making their identity as a (non) meat eater salient).

Identification with being a meat eater. Four items were used to measure identity. They were worded in a similar way as identity measures used in previous studies (e.g. Sparks & Shepherd, 1992; Hines & Sparks, 2008). The items were: 'I consider myself to be a meat eater', 'I would feel at a loss if I had to give up eating meat', 'It is (or would be) difficult for me to give up meat', and 'I do not think of myself as a meat eater'. The last item was reverse coded. The Cronbach's alpha, an indication of construct reliability, is .93, suggesting that the four items were sufficiently highly correlated. The items were combined to form a reliable scale, with scores ranging from 1 'strongly disagree' to 5 'strongly agree'. On average, respondents indicated a relatively strong identification with being a meat eater (Mean = 3.7; Standard Deviation = 1.23).

Health identity. Health identity was measured by the following three items: "I think of myself as a healthy eater", "I think of myself as someone who is concerned about healthy eating" and "I believe I am eating a healthy diet". The items were combined to form a reliable scale (α = .85). On average, respondents indicated a relatively high identification with a being health conscious person (M = 3.7; Sd = .80).

Environmental identity was measured by the following items: "I think of myself as someone who is concerned about the environment", "To engage with issues related to the environment is an important part of who I am" and "Engaging in environmentally friendly behaviours is important to me". The items were combined to form a reliable scale and average scores were computed (α = .86; M = 3.4; Sd = .84).

Values. Values were measured by means of the shortened Schwartz values scale developed by De Groot & Steg (2007). Respondents were asked to indicate how important 13 different values were as a guiding principle in their lives. Scores could range from -1 'goes against my principles' 0 'not important' to 7 'extremely important'. The 5 egoistic values (authority, wealth, power, influential, ambitious) formed a reliable scale (α = .75; M = 3.2; Sd = 1.31), as did the 4 altruistic values (social justice equality peace helpful) (α = .80; M = 5.3, Sd = 1.34) and the 4 biospheric values (preventing pollution, protecting the environment, respecting the earth, unity with nature) did as well (α = .86; M = 4.4, Sd = 1.54).

Message framing. Participants were either directed to the message advocating the advantages of eating meat, or the message advocating the advantages of eating a vegetarian diet. Both messages contained three arguments in favour of meat or vegetarian diets (viz., health, animal welfare, and environment). In a pre-test of the messages (with 45 undergraduates), no significant differences in argument strength were found between the pro meat and the pro vegetarian message (based on the thought-listing procedure, see Petty & Caccioppo, 1986).

3.4 Dependent Variables

Message evaluation. Participants' evaluation of the message was assessed with five items (following Petty & Caccioppo, 1986). The items were: 'To what extent did you feel the arguments presented made their points effectively?' (1 'not at all' – 5 'completely'), 'Considering both content and style, how well written did you think the message was?' (1 'very poorly written' – 5 'very well written'), 'To what extent did you like the message presented above?' (1 'not at all' – 5 'very much'), 'To what extent did you feel the arguments in the message were convincing?' (1 'not at all convincing' – 5 'very convincing') and 'To what extent do you agree with the message?' (1 'not at all' – 5 'completely'). The items were combined to form a reliable scale and average scores were computed (α = .87; M = 3.0; Sd = .82).

Post message attitude. Attitude towards eating meat was measured by means of 6 pairs of adjectives. Participants were asked to rate, on a five point scale, the extent to which they thought eating meat was 'bad – good', 'harmful – beneficial', 'foolish – wise', 'unpleasant – pleasant', 'unnatural – natural', 'not enjoyable – enjoyable'. A reliable scale could be constructed and average scores were computed (α = .91, M = 3.8; Sd = .93).

4. Results

In this section, first participants' beliefs about eating meat are discussed, followed by the results of correlation and regression analyses that explore the relationships between values, identities and attitudes towards meat. Then, the effectiveness of information that is either matched to levels of identification with being a meat eater, or mismatched to levels of identification (i.e. identity threat) is discussed, i.e. in terms of message evaluation and attitude towards eating meat.

4.1 Beliefs about eating meat

When asked, what - according to them - were the best and the worst things about eating meat, a variety of things were mentioned. Overall, participants listed issues related to health (68.5%) as one of the best things about eating meat, e.g. the intake of proteins and vitamin B12. Taste was also frequently mentioned (59.9%), followed by versatility/variety (12%), filling (16.1%), texture (10%), ease of preparation (3.8%). Sometimes reference was made to how eating meat made one feel (2.7%), or the social aspects of eating meat (1.0%), such as meat as part of family dinners. Also, mention was made of the fact that certain attributes of meat could not (easily) be replaced by alternatives (6.8%). Some 2.1% specifically stated there were no good things about eating meat.

When asked what the worst things about eating meat were, again, health aspects topped the list (34.2%), mainly with reference to high fat intake. Animal welfare was also mentioned (30.5%), as were concerns over the quality and safety (25%) of the meat (e.g. bacteria, outbreak of diseases). The cost of meat was also listed as a disadvantage of eating meat (20.9%), as were the 'hassles' of preparing meat (11.6%) (cooking, defrosting) and the 'hassles' of eating it (8.6%) (chewy, bones, blood, etc.). Mention was also made of the environmental impact of meat (3.1%). Some 7.9% stated that there were no bad things about eating meat.

4.2 Factors related to attitudes towards meat

Correlations. As the correlations in Table 2 indicate, attitudes towards eating meat were strongly and positively related to both current meat consumption (r = .55, p < .001) and to identification with being a meat eater (r = .67, p < .001). Also, a more positive attitude towards eating meat was associated with a weaker identification with being an environmentally conscious person (r = .14, p < .05). Additionally, the more respondents identified with being a meat eater, the less strongly they tended to identify with being an environmentally conscious person (r = .20, p < .05). In turn, environmental identity was positively associated with health identity (r = .34, p < .001), in that respondents who identified strongly with being a healthy person, also identified more strongly with being environmentally aware. Respondents who reported higher levels of identification with being a meat eater tended to attach less importance to biospheric values (r = .16, p < .05) and altruistic values (r = .14, p < .05).

.05), while egoistic values were judged to be more important to them (r = .13, p < .05). Respondents with a stronger environmental identity tended to attach more importance to biospheric values (r = .61, p < .001) and to altruistic values (r = .40, p < .001). Altruistic and biospheric values appeared to be strongly positively related as well (r = .41, p < .001).

		М	Sd	α	1	2	3	4	5	6	7	8
1.	Message evaluation	3.0	.82	.87								
2.	Attitude towards meat	3.8	.93	.91	23**							
3.	Meat consumption	4.0	2.35	n/a	20**	.55**						
4.	Identity as meat eater	3.7	1.23	.93	27**	.67**	.68**					
5.	Health identity	3.7	.80	.85	09	.08	02	04				
6.	Environment Identity	3.4	.84	.86	.09	14*	12*	21**	.34**			
7.	Egoistic values	3.2	1.31	.75	05	.10	.18**	.13*	.01	14*		
8.	Altruistic values	5.3	1.27	.80	.08	09	13*	14*	.13*	.23**	06	
9.	Biospheric	4.4	1.54	.86	.07	10	09	16*	.25**	.61**	.09	.41**

Table 2: Descriptive statistics, and correlations between the predictor and criterion variables (N = 262)

Note: The scale for meat consumption runs from 0 'never' to 7 'always'; for the value orientations, the scale runs from -1 'negative' to 7 'positive'. All other scales run from 1 'negative' to 5 'positive'. ** = p < .01; two-tailed

* = p < .05; two-tailed

Regressions. A hierarchical regression analysis was conducted with attitude towards eating meat as the criterion variable, and current meat consumption, the three identity measures and the three value orientations as predictor variables (with message framing as a covariate) (see Table 3). Because we asked about attitudes towards eating meat only after the message had been presented to respondents, message framing was entered first, to control for a possible effect of the message. A total of 47% of the variance in attitudes towards eating meat could be explained by current meat consumption, the identity measures and values (controlled for message framing): R = .69, R² = .47, F (7,254) = 32.67, p < .001. More frequent meat consumption was related to more positive attitudes towards meat (β = .55, t = 10.60, p < 001). Identification with being a meat eater was also a significant predictor: higher levels of identification with being a meat eater were associated with more positive attitudes towards eating meat (β = .54, t = 8.71, p < 001. Also, people who more strongly identified with being a health-conscious person expressed more positive attitudes

towards eating meat (β = .12, t = 2.55, p < 05). The value orientations did not add significantly to the model.

	Beta	t	R	R ²	F
Message version	04	86	.69	.48	28.64***
Meat consumption	.19	2.96**			
Meat identity	.53	8.35***			
Health identity	.13	2.58*			
Environmental	06	99			
identity					
Egoistic values	02	34			
Altruistic values	.00	.00			
Biospheric values	.01	.19			

Table 3: Regression results with attitude towards meat as criterion variable, and current meat consumption, identification with meat eater, and the three value orientations as predictor variables (controlled for version of message). (N = 262)

To further explore the relationships between values, identities and attitude towards meat, a series of regression analyses was conducted. As can be seen in Table 4, the different identities were related differently to the three value orientations. A mere 5% of the variance in identification with being a meat eater could be explained by the values (F (3, 258) = 4.71, p < .01). Egoistic values were positively (β = .14, p < .05) and biospheric values were negatively related (β = -.15, p < .05) to identification with being a meat eater. Some 6% of the variance in health identity could be explained by the value orientations (F (3, 258) = 5.90, p < .01). Stronger biospheric values were associated with stronger health identities (β = .24, p < .001). A total of 41% of the variance in environmental identity could be explained by the three values: F (3, 258) = 59.14, p < .001. The more importance respondents attached to biospheric values, the stronger they tended to identify with being an environmentally conscious person (β = .64, p < .001). In contrast, stronger egoistic values tended to be associated with weaker environmental identities (β = -.19, p < .001).

	Me ider	eat ntity	Heide	ealth entity	Environmental identity		
	β	t	β	t	β	t	
Egoistic values Altruistic values Biospheric values	.14 07 15	2.27* -1.04 -2.21*	01 .03 .24	18 .51 3.59***	19 04 .64	-3.99*** 73 12.13***	
F R R2	4.71 .32 .05		5.	90** .25 .06	59.	14*** .64 .41	

Table 4: Regression results with the three identity measures as criterion variables, and the three value orientations as predictor variables (N = 262)

4.3 Effects of the matched and mismatched messages

Separate hierarchical regression analyses were conducted to explore the effects of message framing on both message evaluation and attitudes, and to examine whether this effect depended on levels of identification with being a meat eater. In each regression model, experimental condition (version of message), identity and the interaction term (version * identity) were entered, with meat consumption as a covariate. For this purpose, following Cohen, Cohen, West and Aiken (2003), all variables were standardized and the experimental condition was dummy-coded (pro-meat message = 0, pro-vegetarian message = 1). To interpret the version*identity interaction, simple slope analyses were conducted, examining the relationships between identity and the outcome variable (message evaluation and attitude) at two levels of identify: 1 standard deviation above the mean identification score (i.e. strong identifiers) and 1 standard deviation below the mean identification score (i.e. low identifiers).

Message evaluation. The regression model explaining message evaluation, controlling for (baseline) meat consumption was significant: R = .47, R² = .22, F (4, 257) = 17.99, p < .001. The framing of the message (B = -.54, β = -.27, t = -4.83, p < .001) and identification with being a meat eater (B = .56, β = .57, t = 2.96, p < .001) both emerged as significant predictors of message evaluation. The interaction term added significantly to the model: R²_{change} = .07, F_{change} = 24.26, p < .001. To probe its nature, simple slope analysis was conducted. For strong identifiers (1 SD above the mean),

the pro-meat message was evaluated as more persuasive than the pro-vegetarian message (B = -1.10, $\beta = -.54$, t = -.6.91, p < .001). In contrast, for low identifiers (1 SD below the mean), message evaluation was not related to version of the message (B = .01, $\beta = .05$, t = .06, *ns*). These results lend partial support to our hypothesis that information that is matched to one's identity is evaluated more favourably than information that is mismatched (or, poses a threat to) one's identity, at least for strong identifiers (see Figure 1).

As an additional analysis, it was examined whether vegetarians and meat eaters evaluated the messages differently, depending on message framing. Based on their meat consumption, respondents were either classified as a vegetarian (never eats meat; N = 30), or as a meat eater (eats meat at least one day a week; N = 232). An ANOVA was conducted with message evaluation as the dependent variable and version of the message, a dummy variable representing meat consumption (0 = vegetarian, 1 = meat eater), and the interaction term for version*meat consumption as the independent variables. It appeared that only the interaction effect was significant: F (1, 258) = 28.45, p < .001. Respondents who would eat meat evaluated the pro meat message as significantly more positive (M = 3.3; Sd = .76) then they did the pro vegetarian message (M = 2.7; Sd = .74). Vegetarians on the other hand, evaluated the pro meat message (M = 2.7; Sd = .78).



Figure 1: The version*identity interaction, explaining message evaluation, controlling for (baseline) meat consumption. The lines were plotted using unstandardised regression coefficients (weak identifiers b = .01; strong identifiers b = -1.10).

Attitude towards meat. The regression model explaining attitude towards eating meat, controlling for (baseline) meat consumption was significant: R = .68, $R^2 = .46$, F (4, 257) = 55.20, p < .001. Meat consumption (B = .19, β = .19, t = 2.95, p < .001) and identification with being a meat eater (B = .63, β = .64, t = 4.02, p < .001) both emerged as significant predictors of attitude towards eating meat. The more often respondents would eat meat, and the stronger they identified with someone who eats meat, the more positive their attitude towards eating meat was. Attitudes, however, did not appear to be influenced by the framing of the message. Also, the interaction term did not add significantly to the model: $R^2_{change} = .001$, $F_{change} = .47$, ns. So, whether a message was matched or mismatched to a person's identity did not appear to influence their attitude towards eating meat.

5. Discussion

The current study clearly indicates the importance of the identity concept in relation to attitudes towards eating meat. A total of 47% of the variance in attitudes towards eating meat could be explained by past meat consumption, identities and values. Attitudes towards eating meat appeared to be most strongly related to identity, in that respondents who more strongly identified with being a meat eater also expressed more favourable attitudes towards eating meat, whilst respondents who more weakly identified with being a meat eater expressed less favourable attitudes. Also, health identity was positively related to a more positive attitude towards eating meat. These results corroborate previous findings in this area (e.g. Sparks & Guthrie, 1998). This study also shows the importance of examining multiple identities in relation to meat consumption. Interestingly, both the open ended questions and the quantitative measures of identity highlight the importance of health aspects associated with meat consumption (see also Foxx & Ward, 2007). This would imply that people may be particularly sensitive to information that highlights the health issues related to meat consumption. Contrary to our expectations, value orientations were not significantly related to attitudes towards eating meat. A possible explanation for this is that general values may not be suitable for explaining specific attitudes (cf. Eagly & Chaiken, 1993). We did however find the values to be related to the identity measures. Biospheric values in particular appeared to be strongly associated with environmental identity. Further research could explore the relationships between values, identity and attitudes.

Further, the results of this study indicate that information that is matched to an individual's identity is judged to be more persuasive than information that is not matched, specifically for those who strongly identify with being meat eaters, hereby partly confirming our first hypothesis. Messages advocating the advantages of eating a vegetarian diet were evaluated more negatively by respondents who strongly identified with being a meat eater as compared to those who weakly identified with being a meat eater. This is in line with previous research that also found that

information that is matched to certain aspects of people's self concept are generally more persuasive than mismatched information (Fleming & Petty, 1999; Petty, Wheeler, & Bizer, 2000). Contrary to our expectations, attitudes were not influenced by whether or not the information was matched to people's self-concept. A possible explanation for this is that attitudes towards eating meat may be relatively stable over time, and are not likely to be affected by a single message. Additionally, information alone may not be sufficient to encourage a change in attitudes in relation to food consumption. Also, research indicates that attitudes towards food may have a strong affective component (Trafimow & Sheeran, 1989). Rather than affective factors, our measure of attitudes included cognitive aspects mainly (e.g. foolish/wise; natural/unnatural), which may have affected the results. Lastly, attitudes towards meat were already relatively high and a ceiling effect may have occurred.

Despite the fact that specific attention was devoted to ensuring the messages were equally persuasive (by pre-testing them), it may be that the messages were perceived differently on other dimensions. For instance, the messages did not contain an equal number of positively and negatively phrased arguments, which may have affected the results. Also, the overall message may have been too balanced (i.e. indicating both pros and cons) to pose a threat. Future work could help shed more light on the issue of developing the content of information that may encourage attitude change. To illustrate, health aspects were both named as best and worst things about eating meat, and as such this may be an important avenue for developing the content of information about dietary choices, as potential contradictions may be elicited this way.

Given the fact that students participated in this study, the results cannot be generalised to the wider population. An important reason for using a student sample is that the occurrence of vegetarianism tends to be relatively higher than it is in the general population. The proportion of vegetarians in the UK population was estimated to be 4.5 per cent in 1995 (reported in Beardsworth & Keil, 1997), as compared to 15.7% found in a study among students (Beardsworth & Bryman, 1999). This was important because we (ideally) needed a more or less equal distribution of low versus high identifiers with being a meat eater. It would be interesting to examine the effects of messages about meat consumption in the wider population, and look for instance at the effects of existing information campaigns that aim to encourage a reduction of meat consumption.

As a drawback to this study, it can be noted that only individual level variables were included, i.e. the study focused on individual attitudes, and personal rather than social identities. In fact, when asked about their beliefs about eating meat, respondents mainly listed individual-level aspects, such as health and taste, rather than social aspects. As the study was not necessarily framed in terms of the social aspects of eating meat, it may have 'prompted' such individual-level responses. As such, it only sheds a partial light on the issue, as meat consumption also encompasses practices associated with religion, culture, etc.. To illustrate, qualitative work indicates that dietary practices of households as a whole tended to change gradually as a result of the decision of individual household members to become vegetarian (Valentine, 1999). Given the scope of the present study, we did not look at socio-cultural processes. Future research could shed more light on the social practices in relation to meat consumption.

Taken together, the results of this study highlight the importance of (multiple) identities in relation to meat consumption. Both identification with being a meat eater, and with being a healthy person were positively associated with attitudes towards eating meat. Also, respondents tended to respond differently to information when it was matched to certain characteristics of their self-concept (i.e., the extent to which they identify with being a meat eater) than when it was not matched. Further research is needed that helps design effective information campaigns to encourage people to change the choices they make in relation to the food they eat, and in doing so help them adopt healthier, and more sustainable lifestyles.

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