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Towards more sustainable food choices: Value priorities and motivational orientations

Joop de Boer *, Carolien T. Hoogland, Jan J. Boersema

Institute for Environmental Studies, Vrije Universiteit Amsterdam, De Boelelaan 1087, 1081 HV Amsterdam, The Netherlands

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Abstract

This paper aims to improve our understanding of food choices that are more sustainable in terms of moral and health aspects of eating. The aim of sustainability may require that people in Western countries choose to eat smaller quantities of meat as well as types of meat that are produced in a more responsible way. Focusing on mediators of the relationship between broad universalistic values and meat choices, we examined how involvement in food can be separated into promotion-oriented and prevention-oriented motivational goals. In a survey among 1530 Dutch consumers we found that most of the basic human values were to a certain extent related to the direction of the food choice motives. However, giving priority to universalism appeared to be unique in its impact on food choices favouring less meat or free-range meat. This impact was weak but robust and it was mediated by prevention-oriented food choice motives together with a high level of involvement in food and motive-congruent animal friendly attitudes.

Keywords: Sustainability; Food choices; Values; Motivational orientations; Attitudes; Meat

1. Introduction

The relationship between conceptually broad values and specific behaviours is mediated by predecisional processes that are often described in terms of involvement and attitudes (e.g. Grunert & Juhl, 1995; Roininen, Lähteenmäki, & Tuorila, 1999). In this paper we examine how involvement in food can be separated into promotion-oriented and prevention-oriented motivational goals (e.g. Higgins, 1997, 1998). This theory-based distinction adds a new dimension to the literature on involvement and improves our understanding of food choices that are more sustainable in terms of moral and health aspects of eating. More specifically, food production and consumption will cause less pressure on crucial resources (i.e. energy, water and biodiversity), human health and animal welfare, if people in Western countries choose to eat smaller quantities of meat as well as types of meat that are produced in a more responsible way, such as organic or free-range meat (Aiking, de Boer, & Vereijken, 2006; Smil, 2000). As many consumers seem to respond rather sceptical to environmental issues nowadays (Macnaghten, 2003; Peattie, 2001), it is essential to obtain more insight into how the notion of food sustainability can be worked out in terms of values and choices that people find important in their lives. For that aim we developed a set of food choice motives and attitudes that can mediate the relationship between broad universalistic values and meat choices.

Although values are specifically defined as criteria that enable people to guide selection and justification of actions (Schwartz, 1992), many actions are only indirectly related to values (Strack & Deutsch, 2004). Values may shape behaviour in a value-congruent direction as far as they are activated during the predecisional process. The indirect impacts of values may operate via specific combinations of involvement and attitudes. This applies in particular to

* Corresponding author. Tel.: +31 20 5989555; fax: +31 20 5989553.
E-mail address: joop.de.boer@ivm.falw.vu.nl (J. de Boer).

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food choices, where very strong habits and preferences may create favoured combinations of use situations, meals, products and ingredients. Several previous studies in this field broadly suggest that the impacts of values may operate via involvement, attitudes and some closely related concepts, including lifestyles and knowledge structures (Brunsø, Scholderer, & Grunert, 2004), motives and criteria (Steptoe & Wardle, 1999), goals and goal-derived categories (Ratneshwar, Barsalou, Pechmann, & Moore, 2001), and regulatory focus (Spiegel, Grant-Pillow, & Higgins, 2004). Although there is a high degree of overlap in the way these concepts specify the development of predecisional processes, we build on Higgins's work (Higgins, 1997; Higgins et al., 2001), which provides a very interesting theoretical basis for research into motivational impacts on food choices.

The values that we study to get more insight into the moral and health aspects of eating belong to the main types of values that people may find important in their lives. These were methodically identified by the Schwartz Value Survey (SVS, see Schwartz, 1992). In particular, the priority a person gives to universalistic values, such as "social justice," and "unity with nature", is a promising psychological basis for a pattern of consumption that is more sustainable than the conventional ones (Grunert & Juhl, 1995; Thøgersen & Ölander, 2002). To avoid abstract descriptions of values, we used a recently developed version of the SVS that presents universalistic values and their various counterparts as portraits of people (Schwartz et al., 2001). The male and female versions of the portraits can make it easier for a person to recognize his or her value priorities in a psychological meaningful way. We examined the relationship between these values and meat choices in a survey among the general public in the Netherlands, which seems to have a middle position in Western Europe with regard to the moral aspects of eating (European Commission, 2005). The design and the results of the survey are presented after a brief description of our conceptual model.

2. Theoretical background and conceptual model

Theoretically, our study aims to specify the main predecisional processes that mediate the impacts of values on meat choices (i.e. amount and quality). Our approach is in agreement with recent work on multiple determinants of behaviour and information processing in which particular values and beliefs are but one of many factors that may influence a person's involvement in an activity, together with motivational orientations and associative links. This process is often denoted by pairs of terms that underline its basically dual character such as heuristic and systematic processing (Eagly & Chaiken, 1993), impulsive and reflective processes (Strack & Deutsch, 2004), or associative and propositional processes (Gawronski & Bodenhausen, 2006). As values refer to relatively abstract motivational goals that vary in importance (Schwartz, 1992), a value that is frequently activated may shape the motivational processes and corresponding attitudes that result in the person's involvement in a value-congruent activity (e.g. the person who particularly endorses tradition values will often pray before dinner). However, values may also have to compete with more impulsive determinants of behaviour, such as temptation or disgust. Dual models of information processing assume that the heuristic/impulsive process starts automatically and that more deliberate modes of processing, such as making value trade-offs, may subsequently correct or override the initial intentions (Strack & Deutsch, 2004). The latter depends on the person's motives and beliefs together with externally imposed restraints on processing time and capacity.

The role of involvement in these processes is well known from the literature on consumer behaviour. In this literature, the concept of involvement refers to differences between consumers who are highly interested in a certain product category and those who are not (Engel & Blackwell, 1982; Peter & Olson, 2002). Typically, persons with a high level of involvement in an issue tend to make informed choices based on relatively active and "open-minded" information processing, provided that their self-interest is not harmed by the outcomes (Darke & Chaiken, 2005). In the case of food, even lowly involved consumers have to make choices every day, but they can do this by relying on overlearned ways of information search and well-established attitudes (Bell & Marshall, 2003; Verbeke & Vackier, 2004). What seems to be of interest to many researchers is not involvement as a general factor, but the combination of involvement with factors such as product knowledge (Peter & Olson, 2002), health and safety concerns (Verbeke & Vackier, 2004), or feelings of pleasure (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999). Some very pragmatic classifications are presented by research into differences between consumers in all phases of interaction with foods (Bell & Marshall, 2003; Brunsø et al., 2004; Martins & Pliner, 1998; Steptoe, Pollard, & Wardle, 1995).

Research into food involvement may significantly gain from Higgins's Regulatory Focus Theory (Higgins, 1997; Higgins et al., 2001). According to this theory, all goal directed behaviour is regulated by two distinct motivational systems, termed promotion and prevention, which underlie approach orientation and avoidance orientation, respectively. Both systems have survival functions. The promotion system is basically concerned with obtaining nurturance (e.g. nourishing food); it underlies higher-level concerns with the pleasurable presence of positive outcomes, including accomplishments, aspirations and ideals. In contrast, the prevention system is concerned with obtaining security and avoiding negative outcomes (e.g. dangerous food); it underlies higher-level concerns with safety and fulfilment of responsibilities. An individual's momentary focus on promotion or prevention will depend on his or her personal history and circumstances induced by the situation at hand.

The different functions of promotion and prevention orientation make it important to distinguish at least two types of involvement. This notion is in agreement with several well-known contrasts that have been identified in recent discussions about diet, such as the contrast between indulgence and health, or novelty and familiarity (Warde, 1997). A promotion orientation may fit with culinary motives that emphasize the importance of food as a positive force in life, which appear to be popular in countries as France and Belgium (versus the United States and Japan) (Rozin et al., 1999). In contrast, a prevention orientation may put much weight on those food choice criteria that ensure protection from some personally felt threats to a clear conscience. This orientation may, for example, fit with the notion that the choice of organic products will contribute to the prevention of ills. Of particular interest for our understanding of the value-behaviour relationship is the view that promotion and prevention orientations are more than just intervening structures, because various experiments have shown (Spiegel et al., 2004) that the value of an activity to a person increases when there is a fit between the manner of a person's engagement in an activity and focus (i.e. eagerness and doing extra things fit with a promotion focus; vigilance and being careful fit with a prevention focus).

The implications of these insights for understanding of consumer behaviour have hardly been elaborated yet (Pham & Higgins, 2005). For example, the way in which consumers learn to incorporate new information into their set of choice criteria may depend on the fit between the new information and their promotion or prevention orientation. There are indications (Zhou & Pham, 2004) that consumers learn to associate different products with either promotion or prevention and that they apply the corresponding approach and avoidance strategies (i.e. eagerness and vigilance) over and over again rather than reconsidering the options on every occasion.

Associations between products and motivational orientations may be extremely relevant in relation to enduring personal values. For instance, universalistic values, such as the belief that people should care for nature, may in principle appeal to the achievement of ideals in case of a promotion focus or the fulfilment of responsibilities in case of a prevention focus. With regard to food products, these processes may give weight to those food choice criteria that take sustainability-related characteristics of products and production processes into account, either as ideals or as responsibilities. Initial evidence of such impacts is provided by some studies showing that the endorsement of universalistic values is related to at least two relevant ways in which people may care about the origins of their foods, namely self-reported frequency of buying organic food (Grunert & Juhl, 1995; Thøgersen & Ölander, 2002) and vegetarianism practised because of the benefits of avoiding meat (Kalof, Dietz, Stern, & Guagnano, 1999). Although Higgins's theory has not been used in previous research into the motives of organic food buyers, several findings suggest that these buyers often show characteristics of a prevention orientation, such as wanting control over all aspects of their lives (Homer & Kahle, 1988), avoiding risks (Schifferstein & Oude Kamphuis, 1998), inclined to reflection (Torjusen, Lieblein, Wandel, & Francis, 2001) and valuing a good conscience (Magnusson, Arvola, Koivisto Hursti, Åberg, & Sjödén, 2003). These findings of previous studies are extremely interesting from a sustainability perspective, but it should be added that far more evidence is required for the mediating role of promotion and prevention motivation.

More evidence is also necessary to support the point that endorsing universalistic values is related to both preferences for organic products and vegetarianism. In view of the relatively small number of strict vegetarians in developed countries – often about 1–2% of the general population (e.g. Hoek, Luning, Stafleu, & de Graaf, 2004; Lea & Worsley, 2001; Warde, 1997) – it is more relevant to focus on consumers who use to eat small versus large portions of meat. According to the literature, the amount of meat eating depends on many personal and socio-cultural characteristics, such as sensory appeal [eating small portions of meat may go together with being picky about red meat, skin and bones (Kubberød, Ueland, Rødbotten, Westad, & Risvik, 2002; Santos & Booth, 1996)], gender and age [women and elderly men are low on meat (Rousset, Patureau Mirand, Brandolini, Martin, & Boirie, 2005)], personality traits and value-laden vocational interests [e.g. teachers are low on meat whereas managers are high on meat (Goldberg & Strycker, 2002)], personal values [low in red meat corresponds with greater importance attributed to health, naturalness of the food, weight control and ethical considerations (Pollard, Steptoe, & Wardle, 1998)], and the presence of other people who share the meal [people eat more in the company of others (de Castro, 1997)]. The variety of these consumer characteristics makes it interesting to take a more systematic look at the motivational aspects of low or high meat eating.

In the present study we will look at value-laden differences between consumers by combining involvement in food with motivational focus. In our conceptual model (Fig. 1), these promotion-oriented and prevention-oriented motives shape food choices directly as well as indirectly through motive-congruent attitudes. Consistent with dual process models, the attitudes are distinguished into

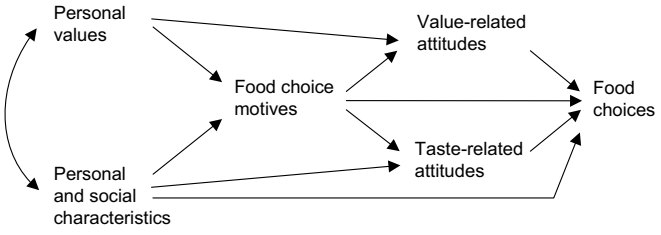

Fig. 1. Conceptual model.

attitudes that have been formed in relation with values and beliefs, for example a positive attitude towards the notion of free-range meat, and attitudes that have been formed in relation with more affect-specific associations, such as taste and pickiness. In addition, personal and social characteristics affect food choices, for example, because it may be easier for urban residents to get certified products (Tanner, Kaiser, & Wolfing Kast, 2004). However, the impact of these characteristics on values and behaviour is not our main focus here.

On this basis we may be able to apply Higgins' (1998) motivation theory to the field of food choice behaviour. Our *first* hypothesis is that we will reveal significant value-laden differences between consumers by separating involvement in food into promotion-oriented and prevention-oriented motives. This hypothesis builds on the motivational structure of Schwartz's (1992) theory of basic human values, which displays prevention and promotion motives at a general level, irrespective of the person's involvement in food. Our *second* hypothesis is that consumers who give priority to universalistic values will often make food choices in favour of less meat and in favour of meat from production chains with organic or free-range standards. These relationships with universalistic values should also be seen in the context of Schwartz's value constructs. Additionally, the *third* hypothesis is that the relationships between universalistic values and meat choices are mediated by prevention-oriented food choice motives. This point is not only important for the psychological aspects of food sustainability but also for our understanding of value-behaviour relationships in general.

3. Method

3.1. Subjects and procedure

The very high degree of Internet penetration in the Netherlands enabled us to test the hypotheses in a survey among consumers with Internet access. In 2005 this category included 78% of the households in the population under 75 years of age (CBS, 2005). In June 2005, a call to fill in a questionnaire was mailed to a stratified sample drawn from a large panel of persons who are willing to participate in web-based research for a small fee. The call resulted in 1530 completed questionnaires (response rate 71%). Due to the stratified sampling procedure, the data showed an adequate distribution of the main demographic characteristics, i.e. gender (51% female), age (between 18 and 89), and level of education (25% higher education).

The questionnaire comprised modules with questions about meat choices and attitudes towards meat products, basic values, food choice motives, and some household characteristics. The questions had been developed in two rounds of pilot work, except for the value module derived from Schwartz et al. (2001). All questions had standardized answer categories.

3.2. Values

The 10 value constructs that are part of Schwartz's (1992) theory of human values can be arranged in a circular structure of underlying complementary and competing motivations, which revolve around two axes: (1) Conservation versus Openness to Change and (2) Self-Enhancement versus Self-Transcendence. Going anti-clockwise around the circular structure from Conservation to Openness to Change and back the 10 value types are Security, Conformity, Tradition, Benevolence, Universalism, Self-direction, Stimulation, Hedonism, Achievement, and Power (see Fig. 2). We used the 40 item Portrait Value Questionnaire (PVQ), in which each portrait consists of two sentences describing a person in terms of a value that is important to him or her (Schwartz et al., 2001). The female version of a Universalism item is: "She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life." Respondents were asked to compare the portrait to themselves and to rate on a 6-point scale "how much like you" the person is.

Following Schwartz's (2003) recommendations we examined the structure of relations among the value items at various levels of detail. After multidimensional scaling by PROXSCALE (SPSS, 2003), we confirmed the discrimination of value items into those that serve primarily individual interests (i.e. Self-direction, Stimulation, Hedonism, Achievement and Power items), those that serve primarily collective interests (i.e. Benevolence, Conformity and Tradition items), and those that serve both (i.e. Universalism and Security items). In addition, we could reproduce the four distinct regions of items that represent each of the four

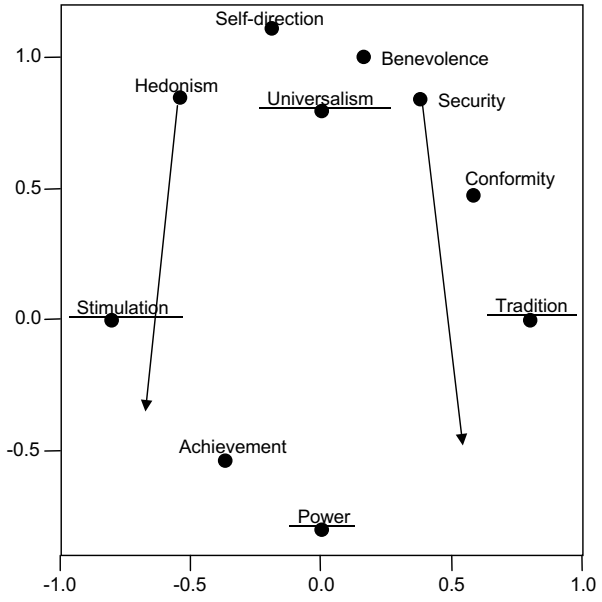

Fig. 2. Positions of the value scales in the multidimensional space (model = interval, normalized raw stress = .01, the positions of the four underlined values were fixed in the analysis; the arrows indicate deviations from theoretical positions).

higher-order values (i.e. Conservation, Openness to Change, Self-Enhancement and Self-Transcendence). The next step of the analysis provided no satisfactory ordering of the 40 items in the two-dimensional space. At the level of scales, however, the items intended to measure a value construct showed an adequate internal consistency. Cronbach's alpha exceeded the level of .70 for 9 of the 10 scales (the 4-item Tradition scale yielded a score of .56). Each scale indicates the relative importance of a value in the set of the individual's value priorities, as the scores were corrected for individual differences in mean response to all 40 items. In the next run of multidimensional scaling we used the 10 scales instead of the 40 items, which resulted in the pattern depicted in Fig. 2. In this analysis the opposing positions of the four underlined values were fixed. The ordering of the other six values in space was largely but not completely in accordance with Schwartz's structural theory. In the spatial arraying of scales presented in Fig. 2, Hedonism was not located between Stimulation and Achievement and Security not between Power and Tradition. A certain variability is not unusual in the case of Hedonism but the deviation of Security is a relatively recent finding (Schwartz, 2003). There seems to be a hole in the circular structure opposite the region of Universalism, where the border between Security and Power is supposed to be. This may indicate that the Security items currently appeal to broader concerns, for example about a world at peace (i.e. a universalistic theme), than in the 1990s.

3.3. Meat choices and attitudes

Choices in favour of large or small amounts of meat (including poultry, excluding fish) were measured by three questions on reported behaviour. The first question asked for a self-categorization in terms of being always high, sometimes high, average, or low on meat, with the additional option of eating no meat at all. The other two questions asked for the number of days per week that meat is part of one's hot meal and the number of days per week that one eats a meat-substitute. The alpha measure of internal consistency of the three items was .63. In addition, a reported behaviour question asked whether one usually eats meat (including poultry) from factory farms or free-range meat. The respondents who said not to eat meat (1.6%) did not answer the other items and were left out of the analysis.

The attitude statements were developed in line with previous work on the distinction between taste-related and value-related attitudinal associations with meat's animal origin (Hoogland, de Boer, & Boersema, 2005; Kubberød et al., 2002; Santos & Booth, 1996). The first set of associations refers to feelings of ease or unease connected with the animal origin of meat, including particular reminders of an animal such as skin and bones. The second set of attitudinal associations is being willing or unwilling to pay attention to the treatment and the welfare of livestock animals, in particular when one is buying meat. The answers to the statements on a scale varying from 1 (fully agree) to 5 (fully disagree) were analyzed with a principal components analysis. Because the initial Eigenvalues were not high (2.83, 1.78, 1.16 and 0.96 for the first four components), we opted for a solution with two rotated components (Table 1). The first dimension differentiated consumers who do like meat and have feelings of ease with meat's animal origin, from those who have feelings of unease and who are picky about meat. The second dimension differentiated consumers who pay attention to the treatment and the welfare of livestock animals, from those who do not seem to care about the origin of their meat. Only one item loaded on both components, which means that giving thought to the animal origin of meat may go together with either pickiness or concern about animal welfare. As this makes sense theoretically, we decided to use two attitude component scores, one that is especially connected with pickiness (the first component of Table 1, $\alpha = .65$) and the other expressing an animal friendly attitude (the second component, $\alpha = .58$).

Table 1
Component loadings of the attitudinal statements on meat (after Varimax Rotation)

Items	Component	
	1	2
The idea that meat comes from an animal gives me an uneasy feeling (1 = fully agree)	.74	.16
Actually, I prefer a plant-based meat substitute to meat (1 = fully agree)	.67	.23
I can accept that meat comes from an animal (1 = fully agree)	−.66	−.11
Meat with bones or skin, such as chops, does not appeal to me (1 = fully agree)	.61	−.06
I love meat that is rich in fat such as a steak (1 = fully agree)	−.59	.10
I prefer white meat such as chicken to red meat such as beef (1 = fully agree)	.46	.05
Do you ever give thought to the fact that meat comes from an animal? (1=always)	.31	.42
If I buy fish I like to know whether it was harvested from aquaculture or caught (1 = fully agree)	.07	.75
If I buy meat I want to know whether it has been produced in an animal friendly way (1 = fully agree)	−.00	.58
If I buy meat I want to know the country of origin (1 = fully agree)	.09	.57
If I buy meat I want to know whether it has been produced in a way that is environmentally friendly (1 = fully agree)	.03	.58
I would love to see the animal from which my meat originates (1 = fully agree)	−.02	.54
Variance explained (%)	21	18
Alpha	.65	.58

Table 2
Food choice motives (female version, in order of popularity)

Items[a]	Mean	SD
She likes to vary her meal. She is curious about new tastes	4.36	1.25
She prefers an ordinary meal. She is happy with meat and two vegetables	4.02	1.43
She prefers natural products. She would really like her food fresh from the garden	3.98	1.34
She is grateful for her meal. In her view everything that is edible deserves respect	3.96	1.25
She feels proud of her taste. She believes that her food choices are very attractive	3.78	1.43
She is very mindful of food. She wants to eat sensibly	3.76	1.34
She enjoys eating well. In her view every meal should be festive	3.59	1.25
Food does not bother her. She has no special demands on it	3.44	1.43
She is a big eater. She loves to have plenty of palatable foods	3.31	1.34
She is easy about cooking. She uses a lot of ready-made products in her meals	3.00	1.41
She eats because she has to. Meals are not important to her	2.82	1.32

[a] Rating scale: 1 = not like me at all, 6 = very much like me.

3.4. Food choice motives

The items on food choice motives were written in terms of short portraits, like the PVQ. In several rounds of pilot work we tried to formulate positively worded portraits of persons who show different degrees of involvement in food, both in promotion-oriented and prevention-oriented ways. Main themes are the issues of taste, health, indulgence, convenience, naturalness and familiarity. In contrast to the existing instruments mentioned above, we did not want to investigate a large number of specific food-related motives but some broad dimensions. From a promotion perspective, for example, it is not taste as such that matters but being proud of one's taste and being eager to taste something new (Higgins, 1998). Alternatively, from a prevention perspective, the person will focus on sensible choices to avoid bad food and particular associations that could spoil his or her appetite, including unpleasant feelings about the food's origin. The 11 items that we used are shown in Table 2.

Based on these items we prepared the test of our hypotheses in three steps. Firstly, we conducted multidimensional scale analysis by PROXSCALE (SPSS, 2003) and principal component analyses to check the dimensionality of the items. Secondly, we examined their direction. Because there is no standard procedure to differentiate promotion- and prevention-oriented motives, we calculated correlations between motives and value scales, taking due account of the motivational structure of Schwartz's value theory. Security, Conformity, and Tradition are prevention-oriented; Stimulation, Hedonism, Achievement and Power promotion-oriented. Thirdly, we conducted mediation analysis, using the regression approach advocated by Baron and Kenny (1986), to assess the extent to which the motive scales and the attitudes account for the relation between the value scales and the measures of reported behaviour, i.e. being high or low on meat and buying or not free-range meat. The 10 scales regarding the value priorities were condensed for the regression analyses by combining pairs of adjacent scales (i.e. Conformity and Tradition, Stimulation and Hedonism, Achievement and Power). Moreover, one of the 10 scales (i.e. Benevolence) was left out of these analyses to avoid linear dependencies.

4. Results

4.1. Promotion and prevention orientations

Our *first* hypothesis stated that degree of involvement in food and direction of motivational focus can fruitfully be combined to classify people into consumers with prevention-oriented or promotion-oriented food choice motives. Table 2 describes the short portraits that we presented to consumers for their assessment of each portrait's similarity to themselves. The judgments were first analysed through multidimensional scaling to identify the dimensions that best account for the data. The great advantage of this analysis is that the results are invariant with respect to the average level of each person's similarity ratings. Fig. 3 shows the positions of the 11 items in the two-dimensional space [model = interval, normalized raw Stress = .007

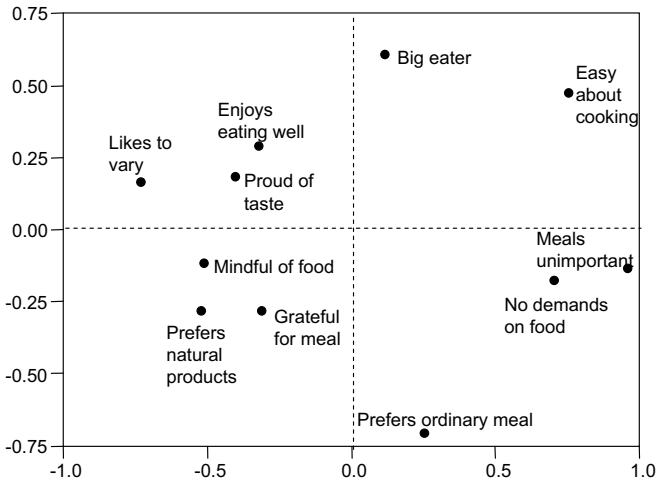

Fig. 3. Multidimensional scaling of the food choice motives (model = interval, normalized raw Stress = 0.007).

(two-dimensional solution) versus .08 (one-dimensional)]. It appears that the horizontal dimension can be interpreted in terms of high versus low involvement in food. High involvement, for example, is expressed by the preference to vary one's meal; low involvement means that meals are not considered important. In addition, the vertical dimension separates the items into, on the one hand, promotion-oriented motives, such as enjoying eating well (in case of high involvement) or eating plenty of foods (in case of lower involvement), and, on the other hand, prevention-oriented motives, such as a preference for natural products (in case of high involvement) or ordinary meals (in case of lower involvement).

The two-dimensional configuration of Fig. 3 was checked by a principal component analysis. In this analysis, we centered the items to correct for individual differences in average similarity ratings. The scree plot suggested up to four components (Eigenvalues 3.53, 1.99, 1.09, 0.83, 0.78, etc.), but a four-dimensional solution (one for each quadrant of Fig. 3) did not give satisfactory alpha's (.59, .53, .52 and .33) and a three-dimensional solution was unbalanced with respect to content. A plot of the item loadings on the first two unrotated components almost produced a mirror image (not shown) of Fig. 3. Table 3 presents the item loadings before and after Varimax rotation. The two unrotated components ($\alpha = .79$ and .55) can be interpreted as degree of food involvement and direction of motivational focus, respectively. Although the unrotated components are important for analytical purposes, the rotated components give a more familiar picture of people's motives. The two rotated components ($\alpha = .75$ and .63) show particular combinations of involvement in food and motivational focus. The highly involved consumers were split into those who are taste-oriented and those who are reflective about food. Similarly, consumers who are less involved may be characterized as "supporters of an ordinary meal" (low on taste-orientation), "big eaters" or "convenience eaters" (low on reflection).

We tested the directional differences between the food choice motives by correlating the component scores, both

Table 3
Loadings of the food choice motives before and after Varimax rotation

Items[a]	Unrotated		Rotated	
	1	2	1	2
She enjoys eating well. In her view every meal should be festive	.60	−.44	.74	−.10
She eats because she has to. Meals are not important to her	−.68	.24	−.72	−.12
She likes to vary her meal. She is curious about new tastes	.68	−.24	.71	.11
She feels proud of her taste. She believes that her food choices are very attractive	.62	−.26	.67	.07
She prefers an ordinary meal. She is happy with meat and two vegetables	−.59	.32	−.67	−.00
Food does not bother her. She has no special demands on it	−.80	−.08	−.67	−.46
She prefers natural products. She would really like her food fresh from the garden	.45	.59	.11	.74
She is very mindful of food. She wants to eat sensibly	.58	.43	.30	.66
She is grateful for her meal. In her view everything that is edible deserves respect	.25	.58	−.06	.63
She is easy about cooking. She uses a lot of ready-made products in her meals	−.50	−.41	−.24	−.60
She is a big eater. She loves to have plenty of palatable foods	−.03	−.68	.30	−.61
Variance explained (%)	32	18	29	21
Alpha	.79	.55	.75	.63

[a] All items have been centered (rating scale: 1 = not like me at all, 6 = very much like me).

Table 4
Correlations between value priorities and food choice motives

	Unrotated components		Rotated components	
	Degree of involvement	Motivational focus	Taste-orientation	Reflection-orientation
Security	−.01	.31***	−.12***	.24***
Conformity	−.18***	.24***	−.25***	.09**
Tradition	−.20***	.27***	−.29***	.10***
Benevolence	.03	.12***	−.01	.11***
Universalism	.17***	.32***	.04	.36***
Self-direction	.16***	−.09***	.18***	.02
Stimulation	.12***	−.31***	.23***	−.17***
Hedonism	.01	−.39***	.15***	−.31***
Achievement	.03	−.30***	.08**	−.26***
Power	−.04	−.31***	.07*	−.28***

* $p < .05$.
** $p < .01$.
*** $p < .001$.

unrotated and rotated, with the 10 value scales. The first two columns of Table 4 present the correlations regarding degree of involvement and motivational focus. The results indicate that value priorities generally do not have much impact on differences in degree of food involvement as such. The main exception is that, by their very nature, the high-involvement items suit more openness for change than the low-involvement items, such as preferences for an ordinary meal, which fit tradition and conformity values. Most value priorities were stronger correlated with direction of motivational focus. As expected, these correlations showed opposite signs in line with either prevention (e.g. Security) or promotion (e.g. Stimulation) orientations (in all cases, $p < .001$). The two rotated components demonstrated different combinations of the same elements. Taste-orientation was positively correlated with Self-direction, Stimulation and Hedonism, but negatively with Security, Conformity and Tradition. Reflection-orientation was positively correlated with Security and Universalism, but negatively with Stimulation, Hedonism, Achievement and Power. In sum, these patterns of correlations reveal the expected value-laden differences between promotion and prevention, supporting the *first* hypothesis.

A special point of attention is the relationship between food choice motives and Universalism. As noted before, the motives underlying Universalism can be either promotion- or prevention-oriented. Depending on the person and the circumstances, for example, respect for the welfare of others can be seen as an ideal that should be achieved (promotion focus) or as a responsibility that should not be neglected (prevention focus). In the case of food, Universalism appeared to be positively correlated with reflection-orientation only, which emphasizes the latter's association with the fulfilment of moral responsibilities. This point is also in favour of the *first* hypothesis.

4.2. Universalism and meat choices

Our *second* hypothesis refers to the relationship between Universalism and food choices in favour of less meat and in favour of meat from production chains with organic or free-range standards. A correlation analysis showed that Universalism was associated with being low on meat ($r = .21$, $N = 1530$, including those who do not eat meat; $r = .18$, $N = 1504$, without them). Universalism was also correlated with an animal friendly attitude ($r = .26$, $N = 1507$) and reported animal friendly behaviour – i.e. sometimes or often buying free-range meat ($r = .18$, $N = 1504$). These results support accepting the *second* hypothesis; the correlations are weak but robust (in all cases, $p < .001$) and their impacts can become clearer by mediation analysis. It should be noted that the two behaviour scales were weakly correlated; being low on meat was positively associated with buying free-range meat ($r = .18$, $N = 1506$, $p < .001$). Both scales will be used separately in the next analyses.

4.3. Motives as mediators

The *third* hypothesis is that the relationships between universalistic values and meat choices are mediated by prevention-oriented food choice motives. According to our conceptual model, motives may shape behaviour directly as well as indirectly through motive-congruent attitudes. One of the attitudes that may be congruent with prevention motivation is an animal friendly attitude. In addition, values other than Universalism and a number of personal characteristics (i.e. gender, age, education, income, urban residence, and frequency of eating in the company of others) should also be taken into account. Through a number of regression analyses we examined (1) the effects of the independent variables on the potential mediators (degree of involvement, motivational focus, animal friendly attitude, pickiness), (2) the effects of the independent variables on the dependent variables (buying free-range, high or low on meat), and (3) the effects of the independent variables and the mediators on the dependent variables. For reasons of presentation, all the independent variables have been standardized; their effects are presented as sample estimates of the unstandardized regression coefficients b ($N = 1504$).

Table 5 shows the results of the analyses in which the four potential mediators were regressed on the personal characteristics (Model 1) in combination with the value priorities (Model 2). Food involvement was somewhat higher among women; it increased with age, education, eating in the company of others, giving less priority to tradition and more to universalism. The difference between prevention and promotion focus was related to gender, age, income and three of the value scales (i.e. prevention orientation was higher among women, older people, people with lower incomes, and people who gave less priority to stimulation/hedonism and more to universalism and security). Taken together, the combination of high involvement and prevention focus was more often found among women, people older than 40 and those with universalistic value priorities.

An animal friendly attitude when buying meat was positively but weakly related to age, education and urban residence. There was a much stronger positive effect of Universalism ($b = .34$), but also an unexpected positive effect of the values that oppose Universalism in the circular value structure – Achievement and Power ($b = .17$). The latter positive coefficient was actually an analytical effect of the strong negative correlation between Universalism and its opposite values ($r = -.57$), but it suggests that a consumer's willingness to pay attention to the animal origin of meat may to a certain extent serve his or her self-interest. Inclusion of Involvement and Focus in the regression equation resulted in two positive coefficients ($b = .27$ and $b = .17$), which supports the designation of the animal friendly attitude as an attitude that is congruent with prevention-oriented motives. The sum of Involvement and Focus gave a more positive attitude, but the negative sign of gender ($b = -.09$) suggests that this effect was

Table 5
Regression of food choice motives and attitudes on values and personal characteristics[a]

	Involvement Model			Focus Model			Animal friendly Model			Picky about meat Model		
	1	2		1	2		1	2		1	2	
	b	*b*	s.e.	*b*	*b*	s.e.	*b*	*b*	s.e.	*b*	*b*	s.e.
Involvement								.27***	(.03)		−.01	(.03)
Focus								.17***	(.03)		.12***	(.03)
Security		.02	(.04)		.07*	(.04)	.05	.03	(.04)	.08	.07	(.04)
Conformism/Tradition		−.20***	(.07)		.07	(.06)	−.01	.03	(.07)	.00	−.01	(.07)
Universalism		.12*	(.05)		.14***	(.05)	.34***	.28***	(.05)	.13*	.12*	(.05)
Self-direction		.03	(.04)		.02	(.04)	.08*	.07	(.04)	−.02	−.02	(.04)
Stimulation/Hedonism		.08	(.05)		-.20***	(.05)	.01	.02	(.05)	−.01	.02	(.05)
Achievement/Power		−.05	(.06)		−.08	(.06)	.17**	.19**	(.06)	.08	.08	(.06)
Gender	.14***	.13***	(.03)	.17***	.11***	(.02)	−.03	−.09***	(.03)	.21***	.20***	(.02)
Age	.11***	.13***	(.03)	.38***	.21***	(.03)	.09**	.02	(.02)	−.23***	−.25***	(.03)
Education	.18***	.13***	(.03)	−.01	−.02	(.03)	.06*	.03	(.03)	.08**	.08**	(.03)
Income	.05	.05	(.03)	−.09**	−.06*	(.02)	.01	.01	(.03)	−.01	−.01	(.03)
Urban	.01	.00	(.03)	−.05	−.03	(.02)	.06*	.06**	(.02)	.09***	.09***	(.03)
Meals together	.08***	.10***	(.03)	−.01	−.04	(.02)	.01	−.01	(.02)	−.04	−.04	(.03)
R square	.07	.14		.18	.30		.11	.20		.13	.14	

[a] All independent variables have been standardized.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

somewhat less among women. The inclusion of Involvement and Focus partially mediated the effect of Universalism ($b = .34$ decreased to $b = .28$).

Pickiness about meat is the dependent variable in the final columns of Table 5. This attitude was significantly related to gender ($b = .21$), age ($b = -.23$) and to a lesser extent education and urban residence. Females and young people in general had higher scores on pickiness about meat than men and older people. Pickiness was also somewhat more common among consumers with a higher level of education and those who live in urban areas. These differences are indicative of the conditions in which this attitude has been formed. Pickiness had almost no relation with value priorities, but there were still some small effects of Universalism ($b = .12$) and Focus ($b = .12$), which mean that this attitude is not completely free of value-related influences.

The final step of the mediation analysis examined the effects of the independent variables and the mediators on the dependent variables. Table 6 describes the results of the regression analyses in which each of the meat-related variables was regressed on the value priorities and personal characteristics (Model 1), in combination with the food choice motives (Model 2) and the attitudes (Model 3). Due to the relatively low percentage of Dutch consumers who appeared to buy free-range meat (7% "usually"), we decided to dichotomize this variable ("sometimes" or "usually " versus "never") and to run a logistic regression analysis. The first three columns of Table 6 demonstrate that buying free-range meat is positively related to education, income and urban residence – reflecting the premium price and the differential availability of certified products – in addition to Universalism, Involvement and Focus, and animal friendly attitude. The unique position of Universalism is quite clear from the data. The other value priorities were not significantly associated with buying free-range meat. The effect of Universalism was partially mediated by Involvement and Focus ($b = .36$ decreased to $b = .29$) and animal friendly attitude (finally, $b = .09$). Animal friendly attitude also partially mediated the effects of Involvement ($b = .42$ decreased to $b = .26$) and Focus ($b = .22$ decreased to $b = .10$). Accordingly, the effect of Universalism on buying free-range meat was partially mediated by food choice motives, as hypothesized, but also, and more strongly, by animal friendly attitude. In addition, it is important to note that both Involvement and Focus had positive effects on buying free-range meat but that the role of Involvement was stronger.

The second half of Table 6 refers to effects on being low or high on meat. This variable was significantly related to gender, age and frequency of eating in the company of others. Females and older people in general described themselves more often as low on meat; persons who frequently eat in the company of others tended to be higher on meat. Universalism was the only value priority that had an effect on being low on meat; this small effect was mediated by food choice motives and attitudes ($b = .11$ decreased to $b = .08$ and $b = .01$). Involvement and Focus were both associated with being low on meat, but in this case the effect of Focus was stronger. The strongest effect can be attributed to pickiness about meat ($b = .36$), which also caused some subtle differences: the effect of gender was partially mediated by pickiness ($b = .13$ decreased to $b = .07$) but the effect of age was articulated ($b = .05$ became

Table 6
Regression of food choices on attitudes, motives, values and personal characteristics[a]

	Buys free-range[b]				Low-high on meat[c]			
	Model				Model			
	1	2	3		1	2	3	
	B	*b*	*b*	s.e.	*b*	*b*	*b*	s.e.
Animal friendly			.69***	(.07)			.08***	(.02)
Picky			.07	(.06)			.36***	(.02)
Involvement		.42***	.26***	(.07)		.08***	.06**	(.02)
Focus		.22**	.10	(.07)		.21***	.16***	(.02)
Security	−.12	−.15	−.20	(.10)	.02	−.00	−.03	(.03)
Conformism/Tradition	−.25	−.18	−.25	(.18)	.01	.01	.01	(.06)
Universalism	.36**	.29*	.09	(.14)	.11*	.08	.01	(.04)
Self-direction	.01	−.01	−.07	(.11)	.06	.05	.06	(.03)
Stimulation/Hedonism	−.03	−.02	−.06	(.14)	−.02	.02	.01	(.04)
Achievement/Power	−.05	−.00	−.17	(.17)	.01	.03	−.02	(.05)
Gender	.09	.02	.06	(.07)	.17***	.13***	.07**	(.02)
Age	.13*	.04	.04	(.07)	.10***	.05	.14***	(.02)
Education	.20**	.16*	.15*	(.07)	.08**	.07**	.04	(.02)
Income	.15*	.15*	.16*	(.09)	.01	.02	.02	(.02)
Urban	.21**	.22***	.18**	(.07)	.04	.05*	.01	(.02)
Meals together	.05	.02	.03	(.07)	−.11***	−.11***	−.09***	(.02)
R square	.11[d]	.15[d]	.23[d]		.10	.15	.29	

[a] All independent variables have been standardized.
[b] Logistic regression.
[c] Ordinary least squares.
[d] Nagelkerke *R* square.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

$b = .14$), as older people were less picky but yet low on meat.

Overall, these results seem partially to concur with the hypothesis that the relationships between Universalism and meat choices in favour of less meat and in favour of free-range meat are mediated by prevention-oriented food choice motives. The analyses showed a mediating effect that could be attributed to prevention-oriented motives, but the impact of two other mediating variables should be stressed. The first is Involvement as such: consumers who had prevention-oriented motives but were less involved in food tended to have a preference for an ordinary meal (see also Fig. 3) instead of free-range meat or less meat. It is the combination of food involvement and prevention motivation that characterized the reflection-oriented consumers who tended to endorse Universalism and were also inclined to make choices in favour of free-range meat or less meat. The other mediating variable is attitude, as a significant part of the effect of Universalism was mediated by animal friendly attitude. Therefore, our conclusion is that the *third* hypothesis can only be supported with these two qualifications.

5. Discussion

This study uncovered several important psychological factors for our understanding of food choices in general and food sustainability in particular. As hypothesized, we revealed significant value-laden differences between consumers by examining how involvement in food can be separated into promotion-oriented and prevention-oriented motives. This distinction adds a new dimension to the literature on involvement and highlights a number of meaningful consumer segments. We found that most of the basic human values were to a certain extent related to the direction of the food choice motives. However, endorsing universalism appeared to be unique in its impact on food choices that favour less meat or free-range meat. This impact was weak but robust. In agreement with our conceptual model, we were able to shed some light on the way in which these value-behaviour relationships were mediated by prevention-oriented food choice motives together with a high degree of food involvement and motive-congruent animal friendly attitudes.

For reasons of analytical clarity we conducted the mediation analysis with the unrotated food choice components. Based on the rotated components we identified consumers who were both highly involved in food and prevention-oriented. This reflective type of food consumers seems to incorporate all the characteristics that are associated in the literature with a preference for organic products, such as wanting control over all aspects of their lives (Homer & Kahle, 1988), avoiding risks (Schifferstein & Oude Kamphuis, 1998), inclined to reflection (Torjusen et al., 2001), and valuing a good conscience (Magnusson et al., 2003). Accordingly, Higgins' motivation theory is extremely

important as a coherent framework to understand the motives of these consumers. The theory explains, for example, why consumers may combine the avoidance of risks to their health with the fulfilment of moral responsibilities, as both motives fit well into a prevention focus.

The presumed causal link from endorsing universalistic values to food choices was not the only one that resulted in buying free-range meat or being low on meat. One of the other routes refers to consumers who were both promotion-oriented and highly involved in food. Degree of involvement as such was positively correlated with buying free-range meat and there are several reasons why taste-oriented consumers may choose this meat more often than less involved consumers. For example, they may associate such a certified product with sensory quality. Another point is that all persons with a high level of involvement in an issue tend to be relatively "open-minded" information searchers, as long as their self-interest is not harmed by the outcomes (Darke & Chaiken, 2005). We found that taste-oriented consumers were less concerned about security and more focused on stimulation than reflection-oriented consumers and this difference can also make them more interested in novel concepts, such as "free-range" or "slow food" and other stories that add special qualities to the taste of a product (Grunert, 2006). Accordingly, it is important to take due account of the differences between promotion and prevention-oriented highly involved food consumers, as both may have quite different reasons for choosing the same product.

Consumers with a low degree of involvement in food were less inclined to buy free-range meat. Whether these consumers were high or low on meat depended on their attitudes. In agreement with dual process models we distinguished attitudes that have been formed in relation with values and beliefs from attitudes that have been formed in relation with more affect-specific associations. The latter type of attitudes can be more predictive of behaviour than the former, if the attitude has been formed in direct experience with the attitude object (Eagly & Chaiken, 1993). We found indeed that the taste-related attitude was more strongly correlated with meat choices than the value-related animal friendly attitude. This may also explain why the correlations with measures of reported behaviour were generally low, as very strong habits and preferences must have created favoured combinations of use situations, meals, products and ingredients.

Consumers with a low degree of involvement in food are often characterized as persons with habitual or impulsive behaviour (Verbeke & Vackier, 2004). Our results showed that they could further be typified as "supporters of an ordinary meal" (prevention-oriented and low on taste-orientation), "big eaters" or "convenience eaters" (promotion-oriented and low on reflection). The results of the principal component analysis suggested that it might be useful to develop more extensive scales for each quadrant of Fig. 3. Further research may also expand the number of items of the set to create a more refined segmentation. We are confident, though, that the main types of motives have been included. In addition, it will be extremely interesting to find out whether the expressions of prevention and promotion motives are culturally invariant.

The importance of pickiness about meat has also been found in other developed countries, especially among women and young people in general (Kubberød et al., 2002; Santos & Booth, 1996). The relatively strong associations with age suggest that a generation is growing up with quite different attitudes towards meat than their parents. Young people were also less involved in food than people over 40. Therefore, further research is necessary to find out whether these age differences are cohort or life cycle effects. From the perspective of sustainable development, an answer to this question is crucial to assess how the behaviour of young people will affect the environmental pressure of food consumption and production in the future.

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