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Testing relationships between values and food-related lifestyle: results from two European countries

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Abstract

The value survey developed by Shalom Schwartz (1992) has been applied in many countries with different purposes. In this study we present a new way of analysing the theoretically assumed circumplex structure of Schwartz value survey and its relationships to other constructs, here the instrument food-related lifestyle. In two countries; Germany and Spain, data were collected. In each country 1000 interviews were carried out where consumers were asked about their value priorities and about their food-related lifestyle. The study provides new insights into the way values influence peoples' food-related lifestyle in Germany and Spain, and the results validate both the Schwartz value survey and the food-related lifestyle instrument in a nomological sense, since significant and meaningful relationships were found between the two constructs.

Keywords: Food-related lifestyle instrument; Schwartz value survey; Lifestyle and values; Germany; Spain

Introduction

Human values have been conceptualized as abstract concepts or beliefs representing desired goals or end-states (Rokeach, 1968; Schwartz & Bilsky, 1987). Values constitute the most abstract level of cognition, not specific in relation to situations or objects, but influencing the perception and evaluation of these. Values are thus thought to be the criteria people use as guidelines for evaluating stimuli, i.e. situations, persons and objects. In general it is assumed that values are universal in the sense that individuals pursue the same values around the world—but that the relative importance attached to different values varies (Rokeach, 1973; Schwartz & Bilsky, 1987). Following this general understanding, five main assumptions can describe value systems: values are concepts or beliefs about desirable end-states that transcend specific situations, guide the selection or evaluation of behaviour or events, and are ordered by importance (Schwartz, 1992).

One of the most elaborate and well-developed instruments for measuring values is the Schwartz value survey (SVS). Values are here assumed to represent motivations and are defined to be cognitive representations of three types of universal human requirements: biological needs, social interaction requirements for interpersonal coordination, and societal demands for group welfare and survival. Based on this definition, 10 motivational domains of values are specified by Schwartz (1992), and 56 values have been validated representing the 10 motivational domains. These can be briefly described as follows:

- Power (POW): social status and prestige, control or dominance over people and resources,
- Achievement (ACH): personal success through demonstrating competence according to social standards,
- Hedonism (HED): pleasure and sensuous gratification for oneself,
- Stimulation (STI): excitement, novelty, and challenge in life,
- Self-direction (SDI): independent thought and action choosing, creating, and exploring,
- Universalism (UNI): understanding, appreciation, tolerance, and protection for the welfare of all people and for the nature,
- Benevolence (BEN): preservation and enhancement of the welfare of people with whom one is in frequent personal contact,

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- Tradition (TRA): respect for/commitment to/acceptance of the customs and ideas that traditional culture or religion imposes on the self,
- Conformity (CON): restraint of actions/inclinations/impulses likely to upset or harm others and to violate social expectations or norms,
- Security (SEC): safety, harmony, and stability of society, of relationship and of self.

Furthermore, it is assumed that the value domains are structured in a circular way, where adjacent domains are most compatible and opposite domains are in conflict (Bilsky & Schwartz, 1994; Schwartz, 1992). The value domains and their internal relationships can thus be referred to as a circumplex structure, where the order of the domains around the centre of a circle is determined by how compatible or how opposing the value domains are. The expected circumplex structure of SVS has been supported in a large number of countries (Schwartz & Bardi, 2001) by means of multidimensional scaling (MDS) analysis of the matrix of inter-item correlations, which Schwartz takes as an indicator of the cross-cultural validity of the value structure. Also two higher-order dimensions can be identified: openness to change (self-direction and stimulation) versus conservation (conformity, tradition, and security), and self-transcendence (universalism and benevolence) versus self-enhancement (achievement and power). The assumed circumplex structure is shown in Fig. 1.

Whilst the SVS has demonstrated its robustness in itself, and has provided interesting results on differences in value priorities between cultures (see, e.g. Schwartz & Bardi, 2001), analyses of relationships between values and other constructs have been less widespread. It is generally accepted that even though values guide behaviour, values cannot predict behaviour directly. Therefore, some kind of attitudinal construct is usually invoked as a mediator between values and behaviour. Examples of mediating constructs, which have been investigated together with the SVS, include self-monitoring (Puohiniemi, 1995),

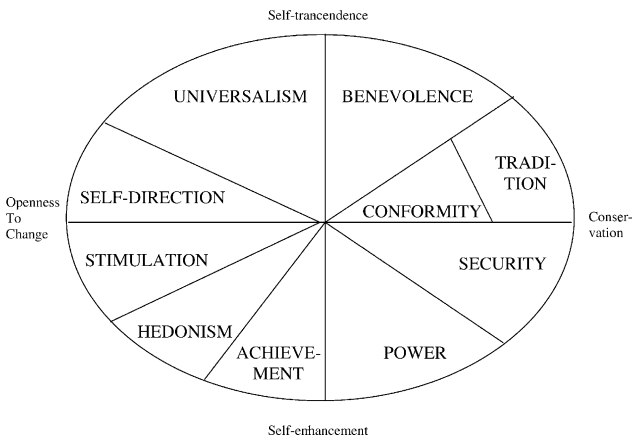

Fig. 1. The circumplex structure of Schwartz value survey.

environmental attitudes (Grunert & Juhl, 1995; Schultz & Zelenzny, 1999), and individualism/collectivism (Schwartz, 1994). These studies showed that value priorities of individuals as measured by the SVS correlate with other constructs, and that the relationships are following the expected direction and pattern.

In the food area, the food-related lifestyle (FRL) construct has been proposed as a mediator between values and behaviour (Brunsø & Grunert, 1995; Brunsø, Scholderer, & Grunert, 2004; Grunert, Brunsø, & Bisp, 1997; Scholderer, Brunsø, & Grunert, 2002). FRL is defined as a system of cognitive categories, scripts and associative networks relating a set of food-related behaviours to a set of values. The FRL instrument covers five interrelated aspects: ways of shopping, quality aspects for evaluating food products, cooking methods, consumption situations, and purchasing motives. The instrument consists of 69 Likert-type items, measuring 23 dimensions, each belonging to one of the five aspects. Each dimension is measured by three item-scales, and the names of the scales appear in Table 3. The FRL has been developed and tested in several European countries with regard to cross-cultural validity, has proved stable over time, and has been used to derive pan-European food consumer segments (Brunsø & Grunert, 1995, 1998, Brunsø, et al., 2004; Grunert et al., 1997; Grunert, Brunsø, Bredahl, & Bech, 2001; O'Sullivan et al., in press; Scholderer, Brunsø, Bredahl, & Grunert, 2004).

The assumption that FRL mediates the relationship between values and food-related behaviours has been tested in two studies (Brunsø et al., 2004; Scholderer et al., 2002), where values were measured using the list of values (LOV) instrument (Kahle, 1983). In both cases the mediating role of the FRL construct has been confirmed. However, the LOV instrument is a simpler and less sophisticated means to measure values than Schwartz's instrument. Investigating the relationships between the SVS and FRL would not only provide an additional validation of a basic assumption underlying the FRL concept, it would also provide additional validation of the SVS: as we will show below, an analysis of the relationship between values and FRL can be used as an additional test of the circumplex structure of human values as proposed by Schwartz. A test of the relationship between Schwartz's instrument and the FRL is therefore a study in nomological validity: if meaningful relationships are found, it would provide additional support for the validity of both the SVS and the FRL.

In addition to that, results on the relationship between human values and FRL are also interesting from an applied point of view. Human values are assumed to provide the motivation for human behaviour in situations where choices are involved, and by analysing their relations to aspects of FRL, we obtain deeper insight into the underlying motives for particular aspects of peoples' relationship to food.

In the following, we first describe the methodology which we will apply to test the relationship between the SVS

and FRL, and we describe the data used. This will be followed by a presentation of the results and their discussion.

Methodology

Schwartz and his co-workers (Schwartz & Bilsky, 1987, 1990; Schwartz, 1992) use a rather heuristic approach to establish the circumplex structure of the SVS. They subject their value data to smallest space analysis and inspect whether the values are distributed according to a pattern that is consistent with a circumplex structure. However, this procedure does not involve a real test in the sense that a particular statistical model or hypothesis is evaluated. Steiger (1980), for example, has developed a general method for testing hypotheses about patterns of correlations, using a quadratic-form asymptotic χ^2 statistic. Steiger's method could in principle be applied to the problem at hand.

A much simpler test, however, can be based on repeated-measures ANOVA. Suppose we have a vector y consisting of variables $y_1, y_2, \ldots y_k$. The intercorrelations of y are expected to follow a circumplex structure. If we have any external variable x that is not completely independent of y, the circumplex structure in y implies that the correlations of $y_1, y_2, \ldots y_k$ with x will also follow a specific pattern: x should correlate highest with that particular y_i that is closest to x in the graphical representation of the circumplex (see Fig. 2, lower panel). Moving clockwise around the circumplex, the correlations between x and the respective y_i should become gradually lower, until they reach a value of zero at a 90 degree angle to x (orthogonality). Turning even further clockwise, the correlations between x and the respective y_i should become negative, and reach the highest negative value at an angle of 180° to x in the graphical representation of the circumplex. Continuing clockwise after this point, the correlations should gradually approach a value of zero again, and reach it at an angle of 270° in the graphical representation of the circumplex (orthogonality). Approaching the origin again, the correlations should become increasingly positive and reach their maximum when the 360° in the graphical representation of the circumplex have been completed. The pattern in the correlations can be approximated by a quadratic trend line as illustrated in Fig. 2 (upper panel).

The trend can easily be tested by defining the dimensions $y_1, y_2, \ldots y_k$ as consecutive levels $1, 2, \ldots k$ of a within-subjects factor in a repeated-measures ANOVA. The particular dimension of y that is closest clockwise to the position of x in the circumplex is coded as level 1 of the within-subjects factor (in Fig. 2, this would be y_1), the one following clockwise is coded as level 2, the one following as level 3, and so on until the circle is complete. Polynomial contrasts are then imposed on the interaction between x and the within-subjects factor, testing the hypothesis that the size of the relation between x and y is moderated by the dimension of y. For a k-level within-subjects factor, most statistical packages will estimate polynomial trends up to order $k - 1$. The circumplex pattern itself is tested by the quadratic trend (polynomial of degree 2).

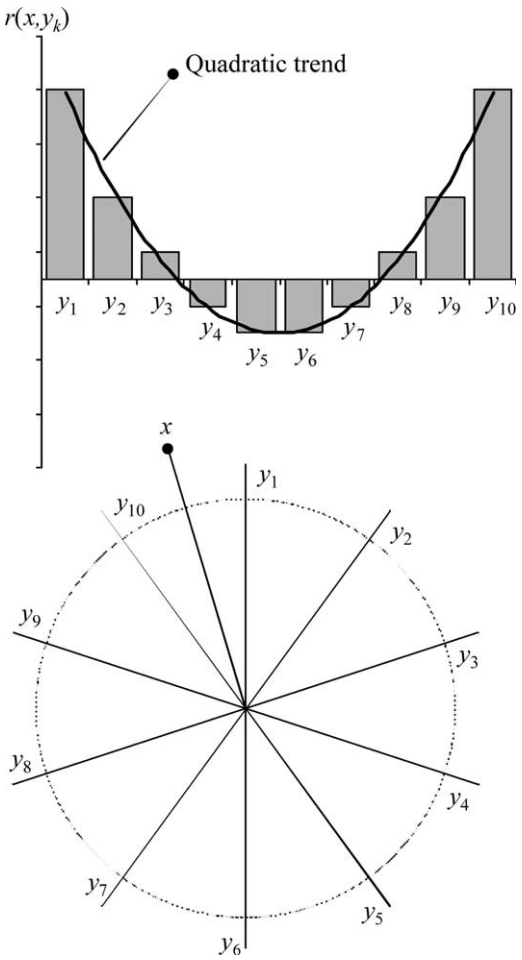

Fig. 2. Testing patterns of correlations by repeated measures ANOVA.

This approach achieves two things simultaneously: it tests for the validity of the assumption of a circumplex structure in the value data, and it tests for a relationship between the set of value domains and a set of dependent variables, here FRL. In other words, the pattern of interrelationship between the endorsements of value domains is tested by the pattern of its relationships with a set of dependent variables. For each the FRL dimension where we find the quadratic trend-term in the repeated measures ANOVA to be significant, we have then established the pattern of its relationship with the 10 Schwartz value domains.

Data collection in Germany and Spain

Participants

In order to test the described methodology, data were used from two different countries, since an application of

the test for the circumplex structure on two different data sets and comparison of results will give stronger evidence for the analysis. For this purpose Germany and Spain were chosen. According to a study of food cultures in Europe carried out by Askegaard & Madsen (1995), Germany and Spain belong to two different food regions in Europe. The choice of Germany and Spain thus enables a cross-validation of the relationships between values and FRL, since the two countries represent different food cultures. Samples in both countries were drawn on a household basis by means of a random-route procedure: Start points were drawn at random from a sample frame, and interviewers began walking from a given start address, followed a specified route, and contacted a specific number of households, with a quota imposed on age. This procedure is often used for in-home interviews, and takes point of departure in specified regions and sampling points (Nieschlag, Dichtl, & Hörschgen, 1990 p. 692). All interviews were conducted personally in-home with the person with main responsibility for food shopping and cooking in the household. Upon agreement to participate, respondents were screened according to three inclusion criteria: (a) did not work in advertising, market research or public relations, (b) were mainly responsible for the food shopping and cooking in their household, and (c) fit of age quota. Then respondents were asked to answer the 69 items of the the FRL questionnaire, 30 items from the SVS (see below), a set of other questions relating to food consumption, and finally a set of demographic variables. In both countries fieldwork was carried out by local research agencies:

- Germany: Data were collected from $N = 1042$ German consumers in 1996. The mean age of the respondents was 44.10 years (SD = 15.73), 78% of the respondents were female (Bredahl & Grunert, 1997; Brunsø, Bredahl & Grunert 1996).
- Spain: Data were collected from $N = 1000$ Spanish consumers in 1996. The mean age of the respondents was 49.54 years ($SD = 15.65$), 98% of the respondents were female (Bredahl, Brunsø, Grunert & Beckmann 1996).

After data collection, household samples were compared with official statistics and checked for deviations, and were in both cases found to be representative for households with regard to household size, income, age, and region.

Measures

The 10 value domains were measured by a subset of 30 items out of the original 56. The selection of these items was based on two criteria: demonstrated cross-cultural validity and expected relevance with regard to food. The reduction will be further explained below. An additional criterion was that all 10 value domains should still be represented among the 30 items.

Schwartz himself proposes to use 'core cross-cultural indexes' based on the most cross-culturally valid items when making cross-cultural comparisons, and proposed a selection of 45 cross-cultural items (Schwartz, 1992, 1994). His criterion for selecting these 45 values was the representation of the individual item in the predicted domain in at least 27 out of 36 samples from different cultures. We used his procedure to reduce the number of items further, based on the criterion of cross-cultural validity of the items combined with an evaluation of the expected relevance of the values in relation to FRL, e.g. their relevance for motivating FRL and food-related consumer behaviour. Based on this procedure, we selected three value items in each of the 10 domains, resulting in a value pool of 30 items, all expected to be valid for cross-cultural comparisons, and potentially relevant for FRL.

In the original Schwartz value questionnaire, the values are written in two forms, as nouns to describe the most abstract terminal values, and as adjectives to describe instrumental values. Analysis of correlations between the two types of phrasing suggests, though, that they are perceived very similarly, and Schwartz himself suggests that only one form is necessary to measure values and that the terminal noun form seems preferable, since people usually think of values as nouns (Schwartz, 1992). We therefore transformed the instrumental values from adjectives to nouns in the value list, e.g. changed loyal to loyalty, obedient to obedience etc. We expect to be able to reveal the same value structure based on the 30 items as has been found in other studies, since all 10 value types are included in the item pool. Each of the 30 values was translated to German and Spanish, respectively, and checked for translational equivalence by means of the back-translation procedure to ensure that the items were covering the same aspects as in the original English version (Samiee & Jeong, 1994). All items were rated 'as guiding principle in my life' on a 9-point scale ranging from 7 ('of supreme importance') to 0 ('not important') and −1 ('opposed to my values'). The 30 value items can be seen in Table 1.

FRL was measured by 69 Likert-type items originally proposed by Brunsø & Grunert (1995), corresponding to 23 scales (shown in Table 3) with three items each. All 69 items were translated to German and Spanish by means of back-translation and had to be answered on seven-point scales ranging from (1) 'completely disagree' to (7) 'completely agree'.

Procedure

Data were analysed in two steps. First, scales (sum scores) were constructed for both the 10 value domains and the 23 FRL dimensions. Reliability analysis (Cronbach's alpha) was carried out for value and lifestyle scales and means computed. Next, the relationship between values and FRL was investigated using the repeated-measures ANOVA approach described above.

Table 1
The 30 Schwartz values

Abbreviation	Items
POW	Social power (control over other, dominance)
	Wealth (material possessions, money)
	Authority (the right to lead or command)
ACH	Ambition (hardworking, aspiring)
	Capability (competent, effective, efficient)
	Success (achieving goals)
HED	Pleasure (gratification of desires)
	Enjoyment of life (enjoying food, sex, leisure, etc.)
	Self-indulgence (doing pleasant things)
STI	An exciting life (stimulating experiences)
	A varied life (filled with challenge, novelty and change)
	Daring (seeking adventure, risk)
SDI	Creativity (uniqueness, imagination)
	Independence (self-reliant, self-sufficient)
	Curiosity (interested in everything, exploring)
UNI	Unity with nature (fitting into nature)
	Broad-mindedness (tolerant of different ideas and beliefs)
	Protection of the environment (preserving nature)
BEN	Loyalty (faithful to my friends, group)
	Honesty (genuine, sincere)
	Helpfulness (working for the welfare of others)
TRA	Respect for tradition (preservation of time-honored customs)
	Humility (modest, self-effacing)
	Acceptance of my portion in life (submitting to life's circumstances)
CON	Politeness (courtesy, good manners)
	Self-discipline (self-restraint, resistance to temptation)
	Obedience (dutiful, meeting obligations)
SEC	Reciprocation of favors (avoidance of indebtedness)
	Family security (safety for loved ones)
	Cleanliness (neat, tidy)

Results and discussion

Reliabilities for the value domain sum scores in Germany ranged from 0.48 to 0.71 with 40% above 0.60, and in Spain reliabilities ranged from 0.33 to 0.74, with 50% above 0.60. The results are reasonable considering that the scales are cross-cultural and only consist of three items. Scale means show some differences between Germany and Spain, in general the value domains are rated higher in Spain compared to Germany. Results can bee seen in Table 2.

Reliabilities for the 23 FRL scales are shown in Table 3. In Germany the reliabilities ranged from 0.36 to 0.84 with 83% of the scales at.60 or higher, in Spain the reliabilities ranged from 0.19 to 0.72 with 40% at 0.60 or higher. Especially the scale 'Taste' shows low reliabilities in both countries, and should be considered for improvement for future studies. Also the scale 'Freshness' has low reliability in Spain, indicating that the underlying items were not as strongly related as in Germany. However, even though there are differences in reliabilities between the countries, the cross-cultural validity of the FRL scales has been extensively tested (cf. Scholderer et al., 2004), thus allowing a qualified comparison of the results: differences between countries in the reliabilities of FRL scales may flatten the curve displayed in Fig. 2, but not change its basic shape and hence the validity of the conclusions drawn about relationships.

Table 2
Reliability, means and standard deviations of the 3-item Schwartz value domain scores (Cronbach's alpha)

	German data			Spanish data		
	α	Mean	Std. Dev.	α	Mean	Std. Dev.
POW	0.53	5.55	4.30	0.50	7.55	4.38
ACH	0.62	11.74	3.59	0.64	13.26	4.16
HED	0.63	12.26	3.67	0.62	12.53	4.25
STI	0.67	8.69	4.55	0.73	9.28	5.06
SDI	0.48	11.71	3.55	0.55	12.49	4.13
UNI	0.69	13.23	3.50	0.67	15.65	3.40
BEN	0.58	14.65	3.21	0.63	16.72	2.89
TRA	0.50	9.62	4.14	0.55	14.30	3.83
CON	0.51	12.25	3.62	0.51	14.27	3.53
SEC	0.56	14.53	3.58	0.33	17.13	2.63

The second part of the analysis concerned the relationship between values and lifestyle. Correlations between Schwartz value domains and FRL scales were computed for both countries (all correlations are shown in Appendix A and B). Then tests for quadratic trends were conducted according to the procedure explained earlier, using the highest positive correlation between any FRL scale and the 10 value domains as an anchor point. Results of all tests are shown in Table 4.

For each FRL scale, the anchor point shows with which value domain the individual scale has the highest positive correlation. As can be seen in, most of the relationships between the FRL scales and the value domains follow the predicted pattern—meaning that a significant amount of the variation in that particular relationship is explained by the circumplex structure. In Germany 18 out of 23 relationships follow the circumplex structure, in Spain 16 out of 23 relationships can be accepted as following the predicted circumplex structure, all at a level of $p < .05$.

To illustrate the results, all FRL scales following the predicted structure were plotted into the circular value structure - in that particular domain they correlate most positively with. This implies, according to the theoretical assumptions about the circumplex structure and the test results, that a given FRL scale is in conflict (negatively correlated) with the opposite value domain, and may have more or less neutral relationships with in-between value domains. So even though the FRL scales are only shown in one value domain, it is possible to interpret relationships with all value domains on the basis of the exhibited circumplex structure. The constructed circles are shown in Fig. 3.

Table 3
Reliability, means and standard deviations of the 3-item food-related lifestyle scales (Cronbach's alpha)

	German data			Spanish data		
	α	Mean	Std. Dev.	α	Mean	Std. Dev.
Ways of shopping						
Importance of product information	0.69	13.97	4.02	0.62	15.31	3.91
Attitudes to advertising	0.63	10.24	4.02	0.60	10.85	4.15
Enjoyment from shopping	0.39	10.14	3.33	0.43	11.34	4.18
Speciality shops	0.60	11.12	4.10	0.43	13.78	3.70
Price criteria	0.67	15.18	3.99	0.53	15.72	3.86
Shopping list	0.69	15.14	4.52	0.67	13.21	4.93
Quality aspects						
Health	0.78	15.52	3.81	0.65	17.78	3.07
Price/quality relation	0.62	17.32	3.05	0.53	18.52	2.53
Novelty	0.60	10.85	3.84	0.42	10.42	3.76
Ecological products	0.81	11.98	4.61	0.68	14.27	4.23
Taste	0.36	15.07	2.84	0.19	15.15	2.33
Freshness	0.71	17.01	3.64	0.38	18.31	2.90
Cooking methods						
Interest in cooking	0.75	12.53	4.27	0.50	13.00	3.99
Looking for new ways	0.84	11.22	4.89	0.64	12.56	4.41
Convenience	0.81	10.52	4.63	0.60	7.39	3.69
Whole family	0.65	11.42	4.46	0.72	11.95	4.88
Planning	0.63	12.74	4.06	0.45	12.04	3.89
Woman's task	0.78	11.32	4.89	0.55	11.60	4.26
Consumption situations						
Snacks versus meals	0.64	9.18	4.02	0.63	8.31	4.14
Social event	0.68	10.48	4.41	0.58	10.29	4.51
Purchasing motives						
Self-fulfilment in food	0.58	14.65	3.57	0.51	16.25	2.99
Security	0.52	12.85	3.74	0.36	16.14	3.13
Social relationships	0.69	14.32	3.99	0.55	15.74	3.71

Table 4
Results of tests for quadratic trend in repeated measures ANOVA

FRL scale	German data				Spanish data			
	Anchor	*F*	Df	*p*	Anchor	*F*	Df	*P*
Importance of product information	UNI	0.10	1.92	0.75	UNI	21.41	1.95	0.00
Attitudes to advertising	POW	18.07	1.93	0.00	POW	3.51	1.96	0.06
Enjoyment from shopping	TRA	1.48	1.88	0.22	SDI	2.52	1.95	0.11
Specialty shops	UNI	3.80	1.94	0.05	CON	0.99	1.96	0.32
Price criteria	SEC	99.80	1.93	0.00	CON	9.09	1.96	0.00
Shopping list	SEC	29.98	1.88	0.00	ACH	1.26	1.95	0.26
Health	UNI	20.31	1.91	0.00	UNI	12.39	1.96	0.00
Price/quality relation	SEC	49.01	1.93	0.00	UNI	1.43	1.96	0.23
Novelty	STI	92.18	1.88	0.00	STI	152.26	1.96	0.00
Organic products	UNI	27.47	1.88	0.00	UNI	17.25	1.96	0.00
Taste	HED	8.46	1.88	0.00	SEC	7.36	1.96	0.01
Freshness	BEN	101.81	1.91	0.00	TRA	21.51	1.96	0.00
Interest in cooking	CON	87.32	1.89	0.00	BEN	12.93	1.96	0.00
Looking for new ways	SDI	21.92	1.93	0.00	SDI	67.46	1.96	0.00
Convenience	POW	18.07	1.89	0.00	STI	46.47	1.96	0.00
Whole family	HED	6.79	1.94	0.01	HED	15.06	1.96	0.00
Planning	SEC	106.40	1.90	0.00	ACH	0.03	1.96	0.86
Woman's task	TRA	81.03	1.89	0.00	TRA	137.32	1.96	0.00
Snacks versus meals	POW	3.45	1.93	0.06	POW	0.53	1.95	0.47
Social event	STI	168.17	1.93	0.00	STI	173.13	1.96	0.00
Self-fulfillment in food	SEC	33.45	1.93	0.00	SEC	4.68	1.96	0.03
Security	TRA	75.12	1.93	0.00	TRA	44.05	1.95	0.00
Social relationships	STI	1.91	1.94	0.17	STI	60.76	1.96	0.00

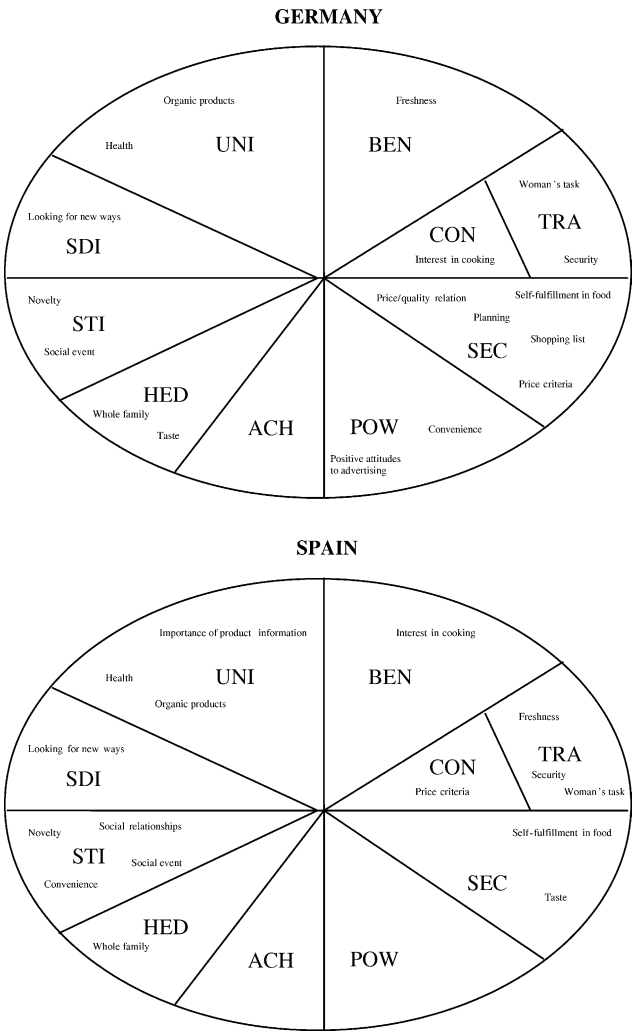

Fig. 3. Value domains and food-related lifestyle dimensions in Germany and Spain.

When looking at the results from Germany in Fig. 3, interesting relationships occur. Starting with the 'power' domain, it can be seen that the FRL scales 'convenience' and 'positive attitudes to advertising' are positively correlated with this domain. Power expresses social status and prestige, aspects usually connected with striving for a professional career and having a busy life. Relating these aspects to FRL implies less time for shopping and cooking, and the emphasis on convenience seems plausible. As explained earlier it is possible to interpret results all the way around the circle. This means that 'universalism'—which is opposite to 'power'—is negatively correlated with 'convenience', and that 'hedonism', 'stimulation' and 'tradition' have a more or less zero-level relationship with 'convenience'. These three last-mentioned value domains, even though opposite to each other (with 'stimulation' and 'hedonism' on one side and 'tradition' on the other), all express the importance of social relations to other people—aspects that are neither in conflict nor in particular correspondence with 'convenience'.

With regard to 'positive attitude to advertising' and 'power', the positive relationship may suggest a general positive attitude to communication or a positive attitude towards influencing other people. Advertisements may also help decision making, thus making shopping for food quicker or easier.

Moving around the circle, the value domain 'security' (which covers aspects like safety and cleanliness) is positively related to a number of FRL scales, involving 'price-quality relation', 'price criteria', 'planning', 'shopping list' and 'self-fulfilment' in relation to shopping for food and cooking. With regard to 'planning', 'looking for prices', and 'price/quality relationship', these dimensions express aspects of security and safety in themselves, and a positive relationship to this domain appears meaningful. When shopping and cooking are planned, nothing remains insecure and no chances are taken. Also, an interest in checking prices corresponds well with this value domain. Concerning 'self-fulfilment in food', the explanation is less clear. We would expect a positive relationship to value domains such as 'stimulation' and 'self-direction', and not the contrary as is the case. Somehow, self-fulfilment seems to be perceived in terms of having control over the situation and feeling secure rather than expressing oneself through experimenting in the kitchen.

The next two value domains, 'conformity' and 'tradition', are closely related. According to Schwartz (1992) the two domains share the same motivational goal of subordination of the self, but whilst 'conformity' is covering subordination to closely related persons, 'tradition' covers subordination to more abstract objects like cultural customs. With regard to the FRL scale 'interest in cooking', which is positively related to the 'conformity' domain, this is again unexpected, and may express an interest in the well-being of the family and taking care of others through serving of good food. We would normally expect that interest in cooking was positively (or at least not negatively) related to value domains such as 'stimulation' and 'self-direction'. The unexpected relation may indicate that interest and self-fulfilment in Germany has to do with more conservative values.

With respect to the value domain 'tradition', the close relationships to the FRL scale 'security' (keeping traditions in relation to cooking) and 'woman's task' (to do the shopping for food and cooking), are quite obvious, since these FRL scales express the interest in keeping traditions in relation to eating habits. Also the negative relation to the value domain 'hedonism' is expected—'hedonism' relates to the whole family being together in the kitchen, as shown in Fig. 3.

The value domain 'benevolence' covers aspects like loyalty and honesty, and in Germany we find that the scale

'freshness' is positively related to 'benevolence'. This may express thoughts about purity and naturalness connected to 'benevolence'. Since 'hedonism' is opposite to 'benevolence', "freshness" is negatively related to this value domain, which may seem surprising, but it probably indicates that 'freshness' here is understood as something corresponding with nature rather than eating quality.

Concerning the value domain 'universalism' (expressing concern for nature and welfare), significant positive relations were found with the FRL scales 'organic products' and 'health'. These relationships are easy to interpret, since the scales cover aspects like the use of natural ingredients in food products and a healthy diet meaning no additives and the like. On the opposite side of the circle we have 'power' and 'security', both value domains having negative relationships with the organic and health-oriented FRL scales. This confirms the interpretation of the circular structure, since we would not really expect people favouring power or security to be very positive about organic or natural food.

'Self-direction' (expressing creativity, independence and curiosity), is positively related to 'looking for new ways', as could be expected, since the two constructs express the same idea of trying out new things. And in conflict we find, not surprisingly, 'security' expressing keeping things as they always were.

The domain of 'stimulation' has positive relations to two FRL scales, namely 'novelty' and 'social event'. People striving for 'stimulation' are interested in an exciting, varied life, and are seeking adventures. Thus, it comes as no surprise that the FRL scales 'novelty' and 'social event' are positively related to this domain.

The last of the value domains around the circle, 'hedonism', covers basically to strive for pleasure and enjoyment, and this is expressed in the FRL scale 'taste'. With regard to 'whole family' this relationship express the fact that people find pleasure in gathering the whole family and being together as part of the family eating habits.

When looking at the Spanish results, many of the relationships are the same despite the cross-cultural differences in food-related life style scale means and in lifestyle segments in the two countries found in other studies (Grunert et al., 1997; Bredahl et al., 1996). This means that even though differences exist on the lifestyle level, and in relation to the emphasis on values in the two countries (e.g. more emphasis on Universalism and Security in Spain), the way values and lifestyle are related to each other is not very different between the two countries. Below only the differences in results from the two countries will be discussed.

If we start to look at the value domain 'security' in Spain, we find the scale 'taste' located there, which in Germany belonged to the domain of 'hedonism'. Thus, in Spain 'taste' appears to be more related to traditional ways of cooking—keeping things as they used to be.

In Spain, the FRL scale 'price criterion' is positively related to 'conformity' and not to 'security' as in Germany. This does not change the interpretation much, though, since 'security' and 'conformity' are adjacent value domains and therefore closely related. In the value domain 'tradition', the scale 'freshness' is new. 'Freshness' was in Germany placed in the adjacent value domain 'benevolence', and the relationship to 'freshness' may be interpreted almost as in Germany. Moving to 'benevolence', we find 'interest in cooking' located here in Spain, and since this factor expresses an interest in what is being cooked and consumed in the household, this aspect fits well with the motivations assumed to underlie 'benevolence'. In Germany this scale was most positively related to the adjacent domain 'conformity'.

In the domain of 'universalism', we find again 'health' and 'organic products', but in addition to these also 'importance of product information'. This aspect goes well together with the other two, since it expresses an interest in knowing what food products contain and how they are produced.

In the value domain 'stimulation', two of the FRL scales are the same as in Germany ('novelty' and 'social event'), while 'social relationships' (very similar to 'social event') and 'convenience' are new scales in this domain. With regard to 'convenience', the way this is perceived in Spain is most likely as enhancing an exciting, varied life through dealing with food in a convenient way.

Conclusions

One of the basic assumptions underlying Schwartz's concept of personal values is that value domains are structured in a circular way, since value domains represent compatible and conflicting motivations. We have introduced a new way of testing the circular structure, and we have shown that the circumplex structure may be properly established by a subset of the SVS items (30 cross-cultural values), and that the relationships between FRL and value domains conform to the assumed circumplex structure in most cases. The new approach seems promising for testing relationships between values and other constructs, and more studies using the circumplex approach for analysing structural relationships are called for.

Furthermore, the results provide new insights into the way values influence peoples' FRL in Germany and Spain, or, put another way, insights into the underlying motives driving the way people perceive and experience food in their everyday life. In this respect it is interesting that no FRL scale was found in the value domain 'achievement' in either of the two countries. Apparently this value domain expresses something that is not achieved best through one's food-related lifestyle.

For purposes of easier interpretability, a new way of illustrating relationships was introduced. The circumplex structure of the 10 Schwartz value domains was used for representing significant relationships identified in the quadratic trend test. By doing so it became possible to represent relationships to all value domains by one point in the circumplex structure.

All in all, we found the relationships between values and FRL to be intuitively plausible, i.e. values have meaningful relations with FRL. Also we found that many of the domains were related to the same FRL scales in the two countries, which supports the basic idea of values having a universal influence on other, less abstract attitudinal constructs, here FRL.

Overall, we can conclude that our results validate both the SVS and the FRL instrument in a nomological sense, since significant and meaningful relationships were found for a majority of the possible relations. In this study, only two countries were covered though, and results from more countries using the approach are needed in order to establish the generalisability of the approach to other constructs as well.

Appendix A

Correlations between Schwartz value domains and food-related lifestyle scales in Germany (Pearson correlations)

	POW	ACH	HED	STI	SDI	UNI	BEN	TRA	CON	SEC
Importance of product information	0.01	0.05	−0.06	−0.05	0.02	0.23**	0.19**	0.17**	0.19**	0.20**
Attitudes to advertising	0.18**	0.05	0.03	0.04	−0.06	−0.04	−0.02	0.15**	0.08*	0.01
Enjoyment from shopping	0.08*	0.01	−0.04	0.01	0.01	0.06	−0.01	0.13**	0.11**	0.05
Specialty shops	0.05	0.07*	−0.06*	0.01	0.08**	0.20**	0.10**	0.15**	0.16**	0.08**
Price criteria	−0.11**	−0.07*	−0.09**	−0.21**	−0.12**	0.10**	0.19**	0.18**	0.24**	0.31**
Shopping list	−0.13**	−0.05	−0.03	−0.17**	−0.05	0.15**	0.18**	0.09**	0.17**	0.23**
Health	−0.15**	0.05	−0.02	−0.10**	0.10**	0.40**	0.30**	0.19**	0.26**	0.26**
Price/quality relation	−0.18**	0.05	0.01	−0.18**	0.01	0.26**	0.25**	0.13**	0.28**	0.37**
Novelty	0.06	0.12**	0.19**	0.26**	0.20**	0.09**	−0.06	−0.20**	−0.12**	−0.14**
Organic products	0.01	0.09**	−0.02	0.09**	0.16**	0.28**	0.14**	0.12**	0.11**	0.05
Taste	−0.03	0.05	0.22**	0.07*	0.09**	0.02	0.11**	−0.07*	0.01	0.07*
Freshness	−0.20**	0.06	−0.01	−0.11**	0.08*	0.32**	0.34**	0.15**	0.30**	0.38**
Interest in cooking	−0.19**	−0.08*	−0.11**	−0.20**	−0.11**	0.16**	0.18**	0.20**	0.22**	0.19**
Looking for new ways	0.02	0.11**	0.12**	0.16**	0.17**	0.14**	0.03	−0.05	0.05	0.02
Convenience	0.22**	0.09**	0.08*	0.13**	−0.04	−0.17**	−0.15**	−0.08*	−0.06	−0.10**
Whole family	0.07*	0.08*	0.08**	0.08**	0.02	−0.01	0.01	−0.01	0.01	0.04
Planning	−0.17**	−0.12**	−0.20**	−0.25**	−0.13**	0.14**	0.21**	0.24**	0.25**	0.25**
Woman's task	0.01	−0.11**	−0.18**	−0.29**	−0.23**	−0.03	0.06	0.24**	0.23**	0.19**
Snacks versus meals	0.31**	0.10**	0.12**	0.21**	0.11**	−0.10**	−0.14**	−0.01	−0.09**	−0.18**
Social event	0.21**	0.23**	0.29**	0.36**	0.23**	0.02	−0.07*	−0.13**	−0.14**	−0.14**
Selffulfillment in food	−0.07*	0.07*	0.01	−0.10**	0.02	0.23**	0.22**	0.18**	0.25**	0.29**
Security	0.09**	−0.01	−0.16**	−0.18**	−0.10**	−0.01	0.10**	0.37**	0.29**	0.17**
Social relationships	0.03	0.16**	0.24**	0.25**	0.18**	0.15**	0.12**	−0.04	0.01	−0.01

Appendix B

Correlations between Schwartz value domains and food-related lifestyle scales in Spain (Pearson correlations)

	POW	ACH	HED	STI	SDI	UNI	BEN	TRA	CON	SEC
Importance of product information	−0.03	0.10*	0.07*	0.10**	0.14**	0.18**	0.10**	−0.07	0.08*	0.06
Attitudes to advertising	0.12**	−0.01	0.07*	0.07*	−0.05	−0.02	−0.06	−0.04	0.02	−0.03
Enjoyment from shopping	0.03	0.03	0.07*	0.04	0.08*	0.05	0.02	0.06	0.05	−0.02
Specialty shops	0.01	0.12**	0.01	0.05	0.13**	0.10**	0.08*	0.08*	0.14**	0.08*
Price criteria	−0.04	−0.01	−0.08**	−0.08**	−0.03	−0.01	−0.01	0.02	0.03	0.01
Shopping list	−0.09**	0.12**	0.01	−0.03	0.07*	0.06	0.08*	−0.03	−0.02	−0.04
Health	−0.10**	0.05	−0.06	−0.05	0.06	0.19**	0.12**	0.07*	0.15**	0.05
Price/quality relation	−0.09**	0.03	−0.06	−0.07*	−0.01	0.10**	0.05	0.03	0.05	0.10**
Novelty	0.03	0.16**	0.22**	0.28**	0.18**	0.06	0.01	−0.20**	−0.09**	−0.04
Organic products	−0.09**	−0.03	−0.01	0.01	0.04	0.16**	0.06	0.01	0.07*	0.06*
Taste	−0.06	−−0.03	−0.06	−0.09**	−0.11**	−0.03	−0.03	−0.05	−0.04	0.06
Freshness	−0.07*	0.04	−0.10**	−0.10**	−0.03	0.06*	0.09**	0.09**	0.06*	0.09**
Interest in cooking	−0.13**	0.05	−0.07*	−0.07*	0.02	0.06	0.06	0.03	0.03	0.03
Looking for new ways	0.01	0.15**	0.15**	0.22**	0.23**	0.11**	0.08*	−0.04	0.01	0.03
Convenience	0.13**	0.03	0.15**	0.16**	0.05	−0.06	−0.08**	−0.06	−0.07*	−0.03
Whole family	0.03	0.06	0.17**	0.13**	0.13**	0.05	0.01	−0.01	0.01	0.00
Planning	0.01	0.08*	−0.02	−0.04	−0.01	0.04	0.07*	0.05	0.03	0.03
Woman's task	−0.06	−0.19**	−0.26**	−0.30**	−0.28**	−0.09**	−0.02	0.19**	0.10**	−0.00
Snacks versus meals	0.18**	−0.06	0.12**	0.18**	0.03	−0.09**	−0.04	0.02	0.02	−0.05
Social event	0.10**	0.16**	0.31**	0.34**	0.27**	0.11**	0.08*	−0.07**	−0.06	0.01
Self − fulfillment in food	−0.06	0.02	0.03	−0.06	0.01	0.11**	0.08*	0.09**	0.09*	0.14**
Security	−0.02	−0.03	−0.07*	−0.12**	−0.10**	0.07*	0.04	0.20**	0.17**	0.09**
Social relationships	0.01	0.20**	0.22**	0.22**	0.22**	0.16**	0.13**	−0.07*	0.05	0.03

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