

SENSORY MARKETING: EVIDENCE FROM A CLUSTER ANALYSIS OF GERMAN CONSUMERS

MARKETING SENSORIAL: EVIDÊNCIAS DE UMA ANÁLISE DE GRUPOS DOS CONSUMIDORES ALEMÃES

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ABSTRACT

In the consumer behaviour literature regarding food consumption the food-related lifestyle (FRL) approach conceived by Grunert et al. (1993) is a well-established tool to target groups based on lifestyle and dietary habits. On the contrary, studies attempting to identify consumer groups according to their sensory preferences are rather scarce. In this article, we present an approach that combines elements of the FRL approach with variables of sensory perception of food. The findings show that it is meaningful to build a consumer typology based on both food-related lifestyle variables and sensory preferences. The six clusters resulting from this study differ significantly from each other so that managerial recommendations are derived.

Keywords: lifestyle-based segmentation, sensory marketing, FRL

RESUMO

Na literatura o comportamento do consumidor em relação ao consumo de alimentos a comida relacionado ao estilo de vida (FRL), abordagem concebida por Grunert et al. (1993), é uma ferramenta bem estabelecida para grupos-alvo baseados no estilo de vida e hábitos alimentares. Pelo contrário, os estudos que tentam identificar os grupos de consumidores de acordo com as suas preferências sensoriais são bastante escassos. Neste artigo, apresentamos uma abordagem que combina elementos da abordagem FRL com variáveis de percepção sensorial de alimentos. Os resultados mostram que é significativo para a construção de uma tipologia do consumidor com base em ambas as variáveis relacionadas com os alimentos de estilo de vida e preferências sensoriais. Os seis grupos resultantes deste estudo diferem significativamente um do outro, de modo que as recomendações são derivadas de gestão.

Palavras-chave: segmento baseado no estilo de vida, marketing sensorial, FRL

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INTRODUCTION

Eating healthy but also tasty food is an important part of our daily lives. In addition to the purely physical provision of vital nutrients, the consumption of food and drink has an important function for human psychological well-being. This can, for example, involve the social aspects of a communal meal or the feeling of pleasure when eating and drinking. Particularly the second aspect ensures individual's expectations of a positive sensory experience of a food as a necessity for physical performance (PTACH, 2003). However, consumers can vary greatly in their behavior with respect to food, mainly due to their individual sensory preferences (MACFIE; THOMSON, 1994; CLARK, 1998). In order to take into account the various needs of the consumer when choosing food products, it is important for the actors within the food and drink industry to classify consumers into suitable segments (MEFFERT, 2008).

With this in mind, a number of segmentation models have been produced in the past years in the field of nutritional consumer research. As a result, different consumer groups can be identified and characterized on the basis of their eating habits. This method of the so-called target group market research is considered to be a promising consumer research tool, especially in connection with the development and introduction of innovative products (SPARKE; MENRAD, 2007). An imperative approach to target group segmentation based on dietary habits is the concept of Food-Related Lifestyle (FRL) developed by Grunert et al. (1993). This instrument forms the basis for various further analyses of consumer typologisation within the field of market research on food and drink. FRL has been further developed and used, for example, for the differentiation of consumer groups with respect to disease prevention through a healthy diet (BRUHN, 2008) and for the characterization of different organic food consumer groups in Denmark (BECH, 1999).

Although as mentioned above, consumers' sensory preferences are an important differentiation criterion for the consumption of food and drink. This aspect has so far been largely ignored in the field of target group segmentation according to diet. Current paper presents an approach to consumer segmentation using an adapted version of FRL that includes the sensory preferences of consumers. In this study, the data of an online survey of 294 consumers are analysed using factor and cluster analyses. The aim of the study is to identify the different consumer groups according to their diet and their sensory preferences. Finally, the results show that there are diverse target groups for sensory marketing tactics.

The paper is structured as follows. Firstly, the role of the FRL concept in lifestyle and diet research will be briefly described. After that, based on the survey results it will be shown how the sensory characteristics of food and drink influence consumer decision-making in order to underline the relevance of this aspect in target group segmentation.

FRL in the context of lifestyle and diet research

Since early 1950s, numerous approaches have been used in the field of lifestyle and diet. Researchers have attempted to place people with similar characteristics and behavioural patterns in groups so that different consumer segments and typologies can be identified (HARTMANN,

1999). The differentiation of consumers into homogeneous groups provides advantages for companies within a heterogeneous market, where they (companies) will be able to target the different needs of the individual consumer segments in their marketing activities (HOMBURG; KROHMER, 2006; MEFFERT, 2008).

The different approaches vary as to which criteria are used for the segmentation of a market; for example, geographic, socio-demographic, behavioral and/or psychographic criteria (MEFFERT, 2008; PLUMMER, 1974; ENGEL et al., 1986; NÖTHEL, 1999). Especially the latter allow a clearer differentiation of the groups concerning the reasons for purchase than the other criteria (HOMBURG; KROHMER, 2006; MEFFERT, 2008). However, particularly for the lifestyle-based segmentation, a combination of different criteria is used in order to describe the consumer groups more clearly (MEFFERT, 2008).

Even though that the term “lifestyle” has already been used in numerous pieces of consumer research and is generally accepted, there is no clear or agreed definition of this construct. According to Wind and Green (1974), lifestyle can be defined as the way in which people live and use their time and money. There are various concepts used in the determination of the characteristics that are used as lifestyle-influencing variables. For Meffert (2008), lifestyle is determined by characteristics of observed behaviour and psychological variables, while Engel et al. (1986) describe lifestyle as being a function of consumer motivation, previous knowledge, social class, demography and other variables.

According to existing lifestyle concepts, a series of approaches have been developed for customer segmentation within the field of consumer research in the past few years. These approaches differ not only in their combination of lifestyle characteristics but also in their aims and area of application (MEFFERT, 2008). For example, lifestyle concepts have been used for the development of consumer typologies in areas of culture, habitation and furnishings, clothing and fashion. Also, lifestyle concepts have been used in the field of food and nutrition (SPARKE, 2008).

Exactly the FRL approach conceived by Grunert et al. (1993) emerged from attempts to develop an efficient instrument for the description of consumer nutritional behaviour with respect to their consumption of food and drink. These researchers used a cognitive deductive approach, which classified lifestyle as being a mental construct that may not correspond with the person's actual behaviour but explains it (GRUNERT et al., 1993). FRL ought to provide an explanatory model for how consumers utilise food and drink in order to achieve particular values within their lives (BREDAHL; GRUNERT, 1997). The FRL consists of five related cognitive categories which connect values and patterns of attitudes with concrete attributes and product categories.

Along with the development of FRL, was developed a concept for the identification of consumer groups according to their dietary habits that can be used independently of cultural area (GRUNERT et al., 1993). This FRL consists of 23 dimensions within the five aforementioned cognitive categories, which can be operationalized using a total of 69 statement variables. Figure 1 provides an overview of the five cognitive categories used in FRL and their associated dimensions.

Shopping	Food preparation	Quality aspects	Motive for buying	Type of food consumption
<ul style="list-style-type: none"> • Significance of production information • Attitude to advertising • Pleasure associated with shopping • Specialty shops • Price • Shopping list 	<ul style="list-style-type: none"> • Interest in cooking • Search for new ways of cooking • Comfort • The whole family • Planning • “A woman’s job” 	<ul style="list-style-type: none"> • Health • Price-performance ratio • Degree of novelty • Organic products • Taste* • Freshness* 	<ul style="list-style-type: none"> • Self-fulfilment • Security • Social relationships 	<ul style="list-style-type: none"> • Snack vs. full meal • Social event

Figure 1. Cognitive categories and dimensions of Food-Related Lifestyles. * identified by experts. Source: adapted from Grunert et al. (1996); Grunert et al. (2001)

The sensory perception of taste belongs to the quality aspects of FRL. As the influence of taste is only described by three statements in the FRL concept, this approach cannot be used alone as a starting model for the development of consumer typologies which characterise and differentiate consumers according to their nutritional habits and their sensory preferences. That is why in the following, an approach will be presented that combines elements of the FRL concept with variables of sensory perception of food. Firstly, the term “sensory analysis” will be explained. Additionally, a description will be given as to how consumers perceive the sensory characteristics of food and drink, and how this affects their behaviour.

The influence of a product’s sensory characteristics on consumer decision-making

In recent years, numerous scientists from various fields have studied the question of which variables influence consumers’ choice of food. In addition to factors such as price, image or health aspects, sensory perception has been repeatedly identified as an important factor for the choice of a particular food (FURST et al., 1996; STENZEL, 2008; STEENKAMP, 1997). A number of other approaches have also underlined the significance of sensory characteristics of foodstuffs for consumer behaviour and dietary habits (SHEPERD, 1985; KRONDL; LAU, 1982).

The term “sensory analysis” with respect to human perception can be understood as the registration and processing of chemical and physical stimuli from the environment. The stimuli are registered by the different sensory organs and transformed into sensations by the central nervous system. These sensations are then perceived by humans as impressions and feelings (NEUMANN; MOLNAR, 1991).

The aforementioned statement that in modelling exercises sensory perception is important for the purchase and consumption of food and drink, has also been confirmed by the results of various empirical consumer surveys, thus, reflecting true consumer behaviour. For example, the latest results of the German National Nutrition Survey II show that taste is the most important

criterion for the choice of food products. This aspect was considered important or very important by 97.2% of the questioned people (97.5% women and 96.9% men); this was followed respectively by freshness with 96.9% (98.5% vs. 95.3%), shelf life with 86.7% (89.6% vs. 83.7%) and healthiness with 83% (89.2% vs. 76.7%). In comparison to these aspects, ethical motives such as high animal welfare production (total 69.8%) and being non-GM (total 67.7%) played a lesser role in consumer decisions (MAX-RUBNER-INSTITUT, 2008).

In addition to the German National Nutrition Survey II, a number of other studies have also shown the importance of sensory product characteristics for consumer behaviour with respect to food. This aspect has been repeatedly mentioned, especially in the context of surveys on the buying of organic food. Taste was identified as the most important criterion for the purchase of organic products in a study by Kuhnert et al. (2003), followed by animal welfare, healthiness, freshness and ripeness. The majority of the participants in that study said that the taste and appearance of organic products were better than those of conventional foods. A study by Lüth et al. (2005) also showed that taste was an important motive especially for occasional consumers of organic food, while this aspect played a lesser role for regular organic food customers. Another survey about the reasons for organic consumption showed that product taste (46%) was the second most important criterion behind the health aspect (57%) (DIALEGO, 2007). Additionally, the results showed that the product taste had obviously increased in significance since 2005 (40%) (DIALEGO, 2007).

Briefly, this chapter has shown that sensory characteristics and their perception have an important influence on the choice and purchase of food and drink. The product attributes of taste and appearance are of particular weight. Therefore, aspects of sensory perception will be considered in the consumer typology discussed in the following, and an approach for the identification of target groups for sensory marketing tactics will be presented.

The integration of FRL with sensory-related preferences of consumers

In the consumer behaviour literature addressed the issue of lifestyle and diet research, only a few studies have attempted to identify consumer groups according to their sensory preferences. Some studies have defined consumer groups according to their willingness to experiment with new tastes (LÄHTEENMÄKI; ARVOLA, 2001) as well as their preference for sweetness (CONNER; BOOTH, 1988; BOOTH et al., 1987). Nevertheless, to the best of our knowledge, there is no research approach so far which identifies consumer segments in terms of both dietary habits and sensory preferences. Accordingly, the study design of this investigation will further integrate the above mentioned willingness to experiment as well as the preference for sweetness with other important aspects. To this end, the model includes preferences for natural taste, for a rich taste, for the perfect appearance of products and the attitude toward flavour enhancers. In order to collect data on the dietary habits of consumers, a group of dimensions closely related to the concept of FRL was chosen, belonging to the overall categories of buying, cooking, food consumption and healthy eating.

Furthermore, a number of socio-demographic characteristics were recorded, which both allow the profiling of the customer segments obtained in the model and ensure representative sampling.

The final theoretical model includes characteristics which relate both to dietary habits and sensory preferences.

Accordingly, the main objectives of this research are the following:

- To detect and to investigate the dimensions of dietary habits that can be used to differentiate between groups of food consumers.
- To detect and to explore the dimensions of sensory preferences that can be used to differentiate between groups of food consumers.
- To define different target groups for sensory based market strategies.

STUDY DESIGN

Structure of the questionnaire

The data were collected online by means of a standardised questionnaire. In order to investigate the dietary habits of the respondents, 21 variables from the FRL concept were combined with a further 11 items also related to dietary habits. The statements were measured using five-point Likert scale. In addition, the following behavioural items were included: frequency of consumption of different groups of food products, usage of several types of retail outlets, opportunities for eating out, frequency of cooking, frequency of consumption of hot meals and time devoted to eating. For the analysis of sensory preferences, alongside three statements from the FRL concept, another 20 items were developed for this study to measure the above mentioned sensory.

Data collection

A total of 300 respondents were surveyed online through a specialized panel provider in June 2009. The respondents were recruited according to a demographic quota restricted on gender, age, German state of residency, town size and consumption frequency of organic products. Such strategy ensured the data to be as more representative for the German population as possible. After checking for inconsistent response behaviour, six respondents were identified as outliers and for that reason removed from the analysis. The final number of usable responses was 294.

The data were analysed using the statistical software SPSS 17.0. Firstly, the behavioural responses were analysed using univariate and bivariate statistics. Next, in order to accomplish two aforementioned goals, a cluster analysis was employed to identify the consumer segments.

DATA ANALYSIS

Sample description

Table 1 presents summary statistics of the participants described by gender, age and monthly household net income. 49.7 % of the respondents were female and 50.3 % were male. The age ranges from 18 to 65 years with a mean age of 41 years ($\sigma = 13.01$).

Table 1. Demographic details of the achieved sample

	Total (n)	%
<i>Gender</i>		
Male	148	50.3
Female	146	49.7
<i>Age</i>		
15-29 years	65	22.1
30-44 years	115	39.1
45 years and over	114	38.8
<i>Education</i>		
Still in school	3	1.0
Primary school	155	52.8
Secondary school	77	26.2
College of higher education	55	18.7
Other	4	1.4
<i>Monthly household net income</i>		
Under €999	50	17.0
€1,000 - €1,999	106	36.1
€2,000 - €2,499	64	21.8
€2,500 - €2,999	31	10.5
€3,000 and more	43	14.6

To identify relevant dimensions for the later group formation and reduce the number of criteria for cluster-building, two exploratory factor analyses were conducted separately for food-related lifestyle variables and for sensory characteristics. This kind of multivariate analysis allows the user to identify the independent factors among a large number of variables (BACKHAUS et al.,2006). For these two factor analyses was used principal component extraction technique with varimax rotation. The Kaiser-Meyer-Olkin criterion with minimal threshold of at least 0.7 (KMO; otherwise known as the measure of sampling adequacy, MSA) was employed to test the suitability of the sample for a factor analysis (BACKHAUS et al.,2006).Furthermore, a total variance test was used to see how much variance in the model could be explained by the extrapolated factors (BACKHAUS et al.,2006). Finally, the reliability of the obtained factors was assessed by calculating the Cronbach's Alpha, which reflects how well(in terms of error) the indicators determine a fundamental factor. Although the rule of thumb is a Cronbach's Alpha value of at least 0.7, values ranging from 0.5 to 0.7 may be accepted as well if the inner consistency of the factor is checked

(BORTZ; DÖRING, 2002; WIDMER, 2006). Table 2 displays the results of the factor analysis related to sensory preferences.

Table 2. The five factors and their indicators belonging to the category sensory analysis

KMO (Kaiser-Meyer-Olkin criterion): 0.76; Total variance explained: 67.15%		
Factors and statements	Factor loading	Cronbach's Alpha
<i>Natural taste</i>		
I avoid all types of taste enrichers	0.853	0.797
I avoid all types of additional ingredients if possible.	0.847	
I enjoy only natural food products	0.677	
Regarding taste I am very sensible i.e., I am able to discern among minimal taste differences.	0.578	
Before buying a specific food product (fish, meat) I taste it	0.506	
<i>Willingness to experiment with taste</i>		
I think that taste of food products is very important	0.864	0.805
For me, eating is always a taste experience.	0.858	
Eating is for me tasting, smelling, touching and seeing. It embraces all senses.	0.712	
<i>Sweetness</i>		
The sweeter the better	0.847	0.569
The dessert is the best part of the dinner	0.797	
<i>Perfect appearance</i>		
I only like food products if they are free from appearance failures (e.g., bruises on fruits and vegetables).	0.806	0.540
I do not care if fruits or vegetables do not have a perfect appearance	-0.802	
<i>Richness of taste*</i>		
Fat is important for a food to taste good	0.811	0.222
I like the taste of low-fat products	-0.637	

* This factor could not be included in the cluster analysis because of low reliability values.

The factors obtained show that out of the six sensory dimensions identified a priori in the research design, only four could be confirmed statistically (see Table 2). Comparing the theoretically-derived sensory dimensions with the ones calculated by factor analysis, one difference emerged: the factor "natural taste" combines the items from both preference for natural taste and attitude towards flavour enhancers. Furthermore, taste richness could not be included in the follow-up of the analysis due to poor reliability. On the other hand, the outcome of the factor analysis concerning the food-related lifestyle dimensions consists of five factors with satisfactory reliability values (see Table 3).

Table 3. The five factors and their indicators belonging to the category food-related lifestyle

KMO (Kaiser-Meyer-Olkin criterion): 0.80; Total variance explained: 69.51%		
Factors and statements	Factor loading	Cronbach's Alpha
<i>Passion for cooking and variety seeking</i>		
I love cooking or baking	0.814	0.855
I like to try out new recipes	0.809	
I love trying cooking recipes from foreign countries	0.787	
I am an excellent cook	0.775	
<i>Quality</i>		
I prefer to buy meat and vegetables fresh rather than pre-packed*	0.767	0.755
I like buying food products in speciality stores where I can get expert advice	0.727	
I prefer fresh products to canned or frozen products*	0.707	
To me the naturalness of the food that I buy is an important quality	0.684	
<i>Weight-conscious diet</i>		
I choose food products that are low in calories	0.922	0.859
I only buy low-fat food products	0.898	
I aim to eat a balanced diet	0.667	
<i>Eating quickly</i>		
In the rush of my daily routine I often forget to eat	0.803	0.686
I prefer ready-to-eat products	0.739	
For me eating should be quick	0.738	
<i>Planning</i>		
I write a shopping list to guide my food purchases	0.805	0.547
I always plan what we are going to eat a couple of days in advance.*	0.755	

*FRL item

Cluster analysis: validation of the cluster solution and description

The four sensory factors were employed as active (cluster building) variables. The objective of the implemented cluster analysis is to establish groups which are internally homogenous and externally (i.e., in comparison with each other) preferably heterogeneous (GOUGH; SAZIU, 2005). In this context the number of clusters to be built is the central aspect of cluster analysis. By increasing the number of clusters we reduce the dissimilarity within each cluster. However, for the

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description of the data with more degree of freedom it is disadvantageous (EVERITT, 2001; GOUGH; SAZOU, 2005). The question of the optimal number of clusters to use remains an active research topic (SUGAR; JAMES, 2003).

Based on Punj and Stewart (1983) and Hair et al. (1998), we applied hierarchical cluster analysis to determine the number of clusters. Firstly, using the “single linkage” method of hierarchical cluster analysis we identified possible outliers. However, since the dataset was purified before integrating it, outliers were not found. The next Ward-method of cluster analysis provided us with the Eta^2 , which explained the differences among clusters by means of the variance and helped to determine the optimal number of clusters. With a value of Eta^2 equal to 47.65 %, the six-cluster-solution scored higher than the five- and the four-cluster-solution which displayed 41.55 % and 34.92 % respectively (figure 2).

Factor	4 Cluster Solution	5 Cluster Solution	6 Cluster Solution
	Eta^2	Eta^2	Eta^2
Naturalness	33.1	35.7	36.5
Taste as experience	52.6	63.9	68.3
Sweetness	23.9	31.5	46.4
Appearance	30.1	35.1	39.4
Average	34.92	41.55	47.65

Figure 2- Internal validation of the cluster solution: Eta^2 statistics

Based on an ANOVA test, Table 4 depicts that the mean values of the sensory factors which build the six clusters are significantly different among segments (section a). Overall, the results show that among the cluster building factors the sensory dimensions “taste as experience” and “sweetness” contributed on high level of significance (F-value= 123.89 and F-value=49.95, respectively) most to differentiating the groups, whereas “naturalness” and “appearance” contributed less with moderate significance (F-value= 33.13 and F-value=37.44, respectively).

Next, section b) in the Table 4 characterizes these six clusters showing significant differences among segments with respect to the mean values measuring FRL-factors and the age. Furthermore, section c) focuses on the gender distribution among these clusters and highlights whether some clusters are under- or overrepresented by means of standardized residuals analysis (significant for values above 2).

Table 4: Description of the clusters

	CL 1 (17%)	CL 2 (17%)	CL 3 (21%)	CL 4 (16%)	CL 5 (20%)	CL 6 (9%)	Total (100%)
a)	Cluster building variables: means (standard deviation) of sensory dimensions						
Naturalness	-0.86 (0.74)	0.11 (0.69)	-0.01 (0.93)	0.74 (0.88)	-0.42 (0.77)	1.13 (0.74)	0 (1)
Taste as experience	0.66 (0.77)	-1.52 (0.55)	0.74 (0.56)	0.00 (0.56)	-0.41 (0.46)	0.88 (0.28)	0 (1)
Sweetness	0.88 (0.77)	0.19 (0.67)	-0.52 (0.90)	0.82 (0.78)	-0.71 (0.56)	-0.81 (0.65)	0 (1)
Appearance	-0.42 (1.21)	0.35 (0.78)	1.01 (0.75)	-0.17 (0.48)	-0.39 (0.54)	-1.04 (0.73)	0 (1)
b)	Cluster describing variables: means (standard deviation) of FRL dimensions and age						
Passion for cooking**	0.14 (1.17)	-0.41 (0.86)	0.10 (1.05)	0.26 (0.75)	-0.24 (0.94)	0.35 (0.99)	0 (1)
Quality***	-0.04 (1.04)	-0.3 (0.74)	0.12 (1.00)	0.42 (0.9)	-0.41 (1.01)	0.58 (0.93)	0 (1)
Weight conscious diet**	-0.35 (1.14)	0.06 (0.79)	-0.07 (1.00)	0.13 (0.9)	-0.04 (1.02)	0.60 (0.93)	0 (1)
Eating quickly***	0.08 (0.94)	0.57 (0.87)	-0.25 (0.97)	0.26 (1.25)	-0.16 (0.71)	-0.80 (0.71)	0 (1)
Planning**	-0.23 (1.10)	-0.01 (0.84)	0.04 (1.23)	0.50 (0.72)	-0.15 (0.80)	-0.23 (1.11)	0 (1)
Years***	33 (11)	41 (12)	44 (12)	42 (13)	40 (12)	46 (14)	41 (13)
c)	Proportion of gender as cluster describing variable in the different segments, percentage (standardized residuals above +1/-1)						
Female***	11.2% (1.5)	9.5%	10.2%	7.5%	6.5% (- 1.9)	4.8%	100%
Male***	6.1% (-1.5)	7.5%	10.5%	8.8%	13.6% (1.9)	3.7%	100%

CL = Cluster; ***= significant at the $p < 0.001$ level; **= significant at the $p < 0.01$ level; *= significant at the $p < 0.05$ level;

CL 1 = natural taste opponents CL 2 = timeless neophobics CL 3 = aesthetics and taste adventurous CL 4 = sweet-toothed cooking buffs CL 5 = non cooks CL 6 = real gourmets

Cluster building variables: F-value "Naturalness" = 33.13; F-value "Taste as experience" = 123.89; F-value "Sweetness" = 49.95; F-value "Appearance" = 37.44;

Chi-square: 13.303, female respondents = 146, male respondents = 148

All in all, the clusters can be described as follows (see Table 4, sections a, b and c):

Natural taste opponents (Cluster 1): members of this group are characterized by the lowest interest in natural taste as well as the highest appreciation of sweetness. This group, which is the youngest among the segments, scores the lowest referring to a weight conscious diet as well as for planning.

Hectic neophobics (Cluster 2): members of this cluster are the most conservative regarding experience of new tastes. Furthermore, they show the highest appreciation of a perfect appearance of food after cluster 3. They are characterized by the lowest scores regarding passion for cooking, what is maybe due to their living pace which is the highest among all groups.

Aesthetics and taste adventurous (Cluster 3): members of this group appreciate a perfect appearance of food the most and show a high inclination to experience new tastes as well. On the contrary, the appreciation of sweetness is rather low. They tend to reject a high living pace and, consequently, they plan their food purchases in advance.

Sweet-toothed cooking buffs (Cluster 4): members of this group unfold high scores regarding appreciation of sweetness after the natural taste opponents. However, contrary to the cluster 1, the members of this relatively young cluster appreciate also natural tastes very much and disclose a high passion for cooking, hence sharing many similarities with the real gourmets.

Non cooks (Cluster 5): with an inclination towards negative scores, this segment placed between the others regarding naturalness, appreciation of new tastes and appearance. Much more noticeable is the scoring of sweetness which is the lowest after the realgourmets' group that may be probably explained by the predominant proportion of male respondents. The low proportion of female respondents in this segment can additionally explain the lowest quality orientation as well as the low passion for cooking.

Real gourmets (Cluster 6): this cluster displays "authentic" gourmets features such as the highest appreciation of naturalness and inclination to experience new tastes. On the other hand, this segment displays the lowest interest in perfect appearance as well as in sweet flavours. Hence, it is not surprising that members of this cluster display the highest scores in quality orientation, passion for cooking and weight consciousness. Also the pace of living is the lowest among the members of this cluster. With a mean age of 46 years the real gourmets are also the oldest among all groups.

Overall, these findings show that it is meaningful to build a consumer typology based on both food-related lifestyle variables and sensory preferences. The six clusters resulting from this study differ significantly from each other, both according to the aforementioned cluster building variables and socio-demographic data.

CONCLUSIONS

In this study, based on both FRL variables and sensory preferences a consumer typology was successfully built. Firstly, it was provided the comprehensive literature review in the field of interdisciplinary consumer research, underlining the importance of sensory perception in the decision-making process involved in purchasing food products. However, no consumer typology had been previously attempted with the explicit inclusion of sensory preferences. This study sorted consumers into clusters that differ significantly from one another when using both FRL variables and sensory preferences together. Principally, the assessment of the sensory differences among consumers permits the creation of sensory marketing tactics for target groups. For instance, decisions regarding several marketing issues such as product development, packaging, labelling, promotion and communication could all be tailored upon the sensory preferences of customers.

All in all, more research is needed on the implementation of knowledge about consumer sensory preferences in marketing tactics. For instance, not all the supposed sensory dimensions of the model were shown in the outcome of the exploratory analysis as being reliable factors. Accordingly, further studies should be devoted to refining the understanding of sensory perceptions of consumers with the aim of providing a wider range of instruments for use in marketing. The current study also highlighted the necessity of applying techniques other than just questionnaires to detect all the important sensory variables. It seems that sensory tests are fundamental prerequisites for the assessment of the sensory preferences of consumers and, therefore, for the planning of efficient marketing strategies.

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