Passionate about food: exploring "foodie" segmentation by nutritional knowledge

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Abstract

Purpose – This paper aims to empirically identify foodie features and examine their relevance in segmenting German consumers. Furthermore, this study explored potential differences between foodie segments in terms of food involvement and food knowledge.

Design/methodology/approach – Data were collected from 500 German respondents in October 2015 by means of two online surveys using a newly developed version of the foodie instrument based on existing literature. Confirmatory factor analysis, cluster analysis, analysis of variance and post hoc tests were applied to analyse the data.

Findings – Six distinct consumer segments were identified: passionate foodies (12.0%), interested foodies (21.5%); moderate foodies (21.7%), traditional foodies (17.1%), light foodies (18.2%) and non-foodies (9.5%). The nutritional knowledge questionnaire suggests that passionate foodies have only an average level of food literacy compared to other segments.

Research limitations/implications – Behavioural traits and socio-demographic characteristics of foodies and other culinary consumer segments could be time-sensitive, thus future research should take a longitudinal approach so that subsequent decision-making is appropriately dynamic.

Originality/value – To the best of the authors' knowledge, this paper is a first step towards the development of a new foodie lifestyle scale which will be useful to identify, characterise and develop effective marketing strategies for targeting highly involved food consumers.

Keywords Foodies, Exploratory factor analysis, Nutritional knowledge, Consumer segmentation, Germany

Paper type Research paper

Introduction

Over the past decade, consumers' attitudes towards food have changed dramatically; health consciousness is becoming an increasingly important factor driving the agro-food market. Consumers are also increasingly aware of and concerned with the nutritional value, safety and production attributes of their food (Caswell, 1998). However, with the rapidly ageing population, busy lifestyles, health concerns and more women in the workforce, demand for convenience foods has also increased in recent years (AAFC, 2010; McCullough *et al.*, 2003). Not surprisingly, these foods are often high in fat, salt and sugar and have led to an increase in diet-related problems such as secondary malnutrition, diabetes and obesity (Smith *et al.*, 2013; Swinburne *et al.*, 2004; Willett *et al.*, 2019). A new health consciousness has started to emerge among consumers. This countermovement concerns not only sustainable and healthy eating, people are also increasingly interested in how and what food they choose and cook.

Food is central to everyday life. Food is not only a basic need; its connotations extend far beyond sustenance. Nowadays, consumers are more interested in the symbolic or cultural value of food than its function and utility. Food consumption extends across several activities surrounding provision, eating and disposal, extending across economic, social, cultural and environmental realms in the developed world (Kniazeva and Venkatesh, 2007). Food is prepared with the expectation that it will be shared and enjoyed with friends and family (Kniazeva and Venkatesh, 2007). It plays a profoundly important role in creativity, pleasure, love and comfort (Block *et al.*, 2011; Bublitz *et al.*, 2013). The multi-sensory nature of food can make people happier with less food and promote greater food well-being (Cornil and Chandon, 2016; Bradford and Grier, 2019).

In this context, terms such as "Foodie" have emerged as a counterpoint on the one hand to fast food consumption and on the other to the world of high-cultured food snobs (Johnston and Baumann, 2010). As indicated in some qualitative studies, foodies are individuals who are "passionate about the pursuit of good food" (Johnston and Baumann, 2010, p. 591), with a long-standing enjoyment of eating and exploring food (Cairns *et al.*, 2010). Furthermore, foodies generally love to share their dining experiences and cooking techniques via social media (e.g. Facebook, Twitter, Instagram and Pinterest), food blogs, online magazines and YouTube. Thus, a medium has been created and maintained to engage in a virtual foodie culture.

Moreover, foodies experiment with their culinary skills, imitate their past dining experiences and at the same time take extra effort to ensure that the dishes prepared are enriched with nutrients to take care of the family's well-being (Cairns *et al.*, 2010; Johnston and Baumann, 2010). Given the unique

The current issue and full text archive of this journal is available on Emerald Insight at: **https://www.emerald.com/insight/0736-3761.htm**

Journal of Consumer Marketing
 [ISSN 0736-3761]
[DOI 10.1108/JCM-10-2019-3470]

Received 27 October 2019
Revised 1 April 2021
27 July 2021
13 January 2022
27 May 2022
Accepted 28 June 2022

characteristics of foodies, their expectations and behaviours can be expected to differ from others due to the adaptation of various food choice motives, as well as decisions and actions in their food purchases and consumption. Therefore, the foodie trend is an important postmodern consumer culture and warrants further exploration.

Germany represents the largest retail market for food and drink in Europe with retail sales totalling €243bn in 2018 (GTAI, 2019). Domestically, there is fierce competition in the German food sector. A few large supermarkets as well as discounters have strongly developed their market share over the past few years. Unlike past price-oriented approaches, now most food markets in Germany are moving towards a quality-oriented approach, because customers have become more knowledgeable and require more variety and better product differentiation. On the one hand, consumers are becoming more sophisticated in their tastes; they are willing to pay more for speciality products and have a strong desire to try new things. On the other hand, Germany's food industry is mainly driven by actively responding to changing consumer wants and needs. Hence, now more than ever before, marketing success depends on how the food industry acknowledges and responds to the new food consumer voice.

Despite substantive media attention, so far, little consumer research has been devoted to the area of foodie culture. Although there have been some qualitative studies in sociology, most are conceptually oriented, seeking, for example, to define the term "foodie". To the best of our knowledge, the present study represents the first quantitative attempt to empirically identify features of "passionate food lovers" and examine their relevance in segmenting German consumers. Furthermore, features of foodies and their knowledge are investigated to examine the relationship between food involvement and food literacy. The results are expected to improve our understanding of the behaviours of German foodies and to serve as a reference for food companies in developing marketing strategies for foodie segments.

The remainder of the paper is structured as follows. The next section reviews the topic "foodie revolution" and previous research applications, followed by an introduction to foodies. Then the research design, data collection process, sample and inferential methodology are described and justified, before presentation of the main findings. The paper concludes with a discussion of the research findings in relation to the purpose of this work.

Literature review

The term "foodie" was first used in 1982 in the British magazine *Harpes & Queen* and then popularised in *The Official Foodie Handbook* by Barr and Levy (1985). Over the subsequent 35 years, use of the term has steadily grown and often encompasses all kinds of food lovers. However, most studies in the food literature have been qualitative endeavours, with a dearth of attention paid to quantitative inquiries. As a rare example of the latter, Mohd-Any (2014) explored food choice motives and delineated foodies in terms of a three-factor solution: *pleasure*, *pursuit of knowledge* and *care work*.

A major characteristic of foodies is that they eat for pleasure. They do not eat simply to subsist, but also to enjoy the experience of adventurous taste (Cairns *et al.*, 2010; Johnston and Baumann). There is a gap between foodies and average consumers when it comes to keeping up with current food trends, with the former being the first to try out novel and exciting foods, always wanting to experience new flavours and ingredients they have never tried, or that they may have never heard of before. Results further show that a preference for gourmet food differentiates foodies from the average consumer (Getz and Robinson, 2014; Johnston and Baumann, 2010). Interestingly, the survey conducted in the USA found that 19.5% of the population are qualified as real foodies, characterised by their desire to try novel food products, more intensive behaviours towards foreign, spicy, gourmet and natural/organic food and their quality food presentations (Sloan, 2013). Green (2015) defines foodies as people trying new restaurants, trying new recipes, cooking with local materials, attending food and beverage festivals, trying food from other cultures, sharing their experiences of eating out or cooking online through blogs and traveling for new food-related experiences. During traveling, the most popular activity is seeking out unique food products such as local food, artisanal or heritage food, and local beverages (Kline and Lee, 2015).

Moreover, foodies enjoy food-related participatory activities such as farmers` markets, ethnic or cultural festivals, wine or food-tasting events, food-themed festivals, visiting expensive restaurants, taking a professional cooking class and attending food competitions (Kline and Lee, 2015; Robinson and Getz, 2014). They participate in these food-related activities not only on vacation but also in their daily lives frequently (Kline and Lee, 2015). Foodies are also described as more enthusiastic about experimenting with various types of cuisine and cultural-specific dishes, without following a recipe (Gad Mohsen, 2016). Thus, understanding the motivations of this type of consumer is especially important, given the nature of cooking and recipes as not only pieces of consumer culture but also as inheritance of larger cultural values and narratives (Brownlie *et al.*, 2005). Furthermore, "upscale" cooking activities reflect a consumer preference for shopping at speciality food stores, attending cooking classes and reading about nutrition (Green *et al.*, 2015).

The rise in social media has shaped the way consumers interact with food (Rutsaert *et al.*, 2014). According to a study carried out in the USA, nearly 66% of foodies share food preferences on social networks, and the younger the foodie, the more common it is. Furthermore, more than one-third of foodies stated that they cooked to impress others and that specifically visual-heavy channels such as Facebook, Pinterest and Instagram enable them to show off their dishes and cooking skills (Heneghan, 2015). Food blogs have also proven to be a tremendous platform for cooks who wish to share their recipes, knowledge, experiences and opinions, becoming involved in online communication with other consumers. Wetherell (2013) found in his survey that "passion for food" is the main driving factor behind blogging about food. Importantly, food bloggers have become the new opinion leaders (influencers) in the food industry, and their recommendations significantly influence consumers" behavioural intentions (Hanifati, 2015).

The celebrity chefs of today are becoming lifestyle experts and "actors in the gourmet foodscape" (Euromonitor, 2013). Foodies are the consumers who pay the most attention to

celebrity chefs in TV shows and books. This highlights how celebrities/experts can influence decision-making processes, attracting foodies to specific areas and getting them interested in particular foods and experiences.

The food-related lifestyle instrument was introduced by Brunsø *et al.* (1996) and has been extensively applied to measure attitudes towards food and behaviours related to the purchase, preparation and consumption of food products. This 69-item questionnaire measures 23 lifestyle dimensions, which cover the most important aspects of dietary habits: *ways of shopping*, *cooking methods*, *quality*, *consumption situations* and *purchasing motives*. All items are rated on a five-point Likert-type scale, ranging from "totally disagree" to "totally agree". The instrument has been employed in several international studies, especially as a means of consumer segmentation (Brunsø *et al.*, 1996; Brunsø *et al.*, 2004; Buckley *et al.*, 2005; Cullen and Kingston, 2009; Grunert *et al.*, 2001; Hoek *et al.*, 2004; O'Sullivan *et al.*, 2005; Scholderer *et al.*, 2004; Wycherley *et al.*, 2008). Hence, this food-related lifestyle instrument has been cross-nationally tested to an extensive degree, i.e. for its ability to obtain results that can be compared even though respondents come from a range of countries, cultures and language regions. More specifically, the method has been applied in Western Europe (Scholderer *et al.*, 2004), Australia (Reid *et al.*, 2001) and also to some Asian economies, e.g. Japan (Reid *et al.*, 2001) and Singapore (Shim *et al.*, 2001). To elaborate on a few of these studies, Buckley *et al.* (2005) applied the food-related lifestyle instrument and identified four consumer segments of the British market: "food connoisseurs", "home meal preparers", "kitchen evaders" and "convenience-seeking consumers". Many of the beliefs of the consumers in the "food connoisseurs" segment are similar to those of foodies. This segment is characterised as a group that takes pleasure from novel foods and experimenting in the kitchen; they enjoy eating out with friends more than any other segment. Furthermore, Brunsø *et al.* (1996) used the food-related lifestyle instrument to segment German consumers into five groups: "uninvolved", who are not interested in speciality shops and are relatively uninterested in product information; "careless" who are less interested in healthiness, the price/quality relation, and whether the product is ecological/natural; "conservative" who are price conscious and have a predilection towards shopping lists; "rational" who are very interested in food, and use speciality shops and "adventurous" who emphasise food healthiness and freshness, and they enjoy eating, buying and cooking innovative foods.

Bell and Marshall (2003) define food involvement as "The level of importance of food in a person's life". They developed the food involvement scale to capture food involvement characteristics related to the five stages of the life cycle of food (acquisition, preparation, cooking, eating and disposal). They found that food involvement is typified by time involvement in the food choice decision and preparation method. In addition, food involvement varies with gender, experience with food over the lifetime and with interest in aspects linked to eating. According to Pliner and Hobden (1992), individuals are reluctant to try new and unfamiliar products. They have designed the food neophobia scale, which is composed of 10 items used to measure the trait of food neophobia in humans and predict the willingness to try new foods. Numerous factors including age, education level and degree of urbanisation have been closely linked to neophobic responses (Tuorila *et al.*, 2001; Flight *et al.*, 2003).

Consumers must have sufficient knowledge to have a favourable impact on food choice (Verbeke, 2008). Perry *et al.* (2017) identified 15 attributes of food literacy and organised them into five categories: food and nutrition knowledge, food skills, self-efficacy and confidence, ecological and food decisions. Even though there is an extant body of literature which explores differentiating consumers based on food and cooking, as noted above, most have used a qualitative approach. To fill a gap in the literature, this study investigates key features of foodies in Germany and further examines their relevance in segmenting consumers. Therefore, this study is conducted with four main objectives. First, we develop a new version of the foodie instrument based on existing qualitative literature. Second, we explore foodie segments and their characteristics in Germany, comparing the foodie segment based on results from the food-related lifestyle instrument. Third, we compare nutritional knowledge differences between specific food groups, and cooking skills between foodies and other consumer segments.

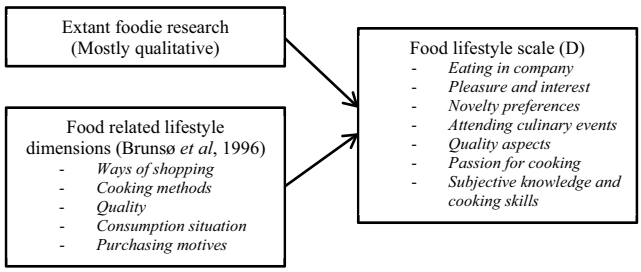
Methods

Questionnaire design

The questionnaire used in this study consisted of three parts. The first part elicited participants' socio-demographic characteristics such as *age*, *gender*, *household size* (number of people in the same household), *highest completed education level* (from no school to university training, categorised into five classes), *gross household income* (from below €1,000 to >€4,000, categorised into four classes) and *marital status*.

The second part is intended to identify culinary consumer segments. The food-related lifestyle scale was developed and adjusted in accordance with specificities of German food culture. Thus, 38 items (statements) were selected based on the literature review and a survey pre-test. Eleven items were chosen directly from the reduced food-related lifestyle scale items of Brunsø *et al.* (1996) and Grunert and Grunert (1995). In addition, new items were included regarding eating and nutrition behaviour that we thought to be related to foodies. This part includes the importance of eating together with friends and family, the pleasure of taste and eating habits. Moreover, items related to attending culinary events such as food fairs, food tasting events, street food festivals and attending cooking classes were added. Consumer interest in food blogs was considered. In addition, quality aspects were covered in terms of preferences for products that are fresh (vs canned), animal welfare-friendly, regional, hand-crafted, traditional and trustworthy. Furthermore, consumer passion for cooking was investigated, including items such as "Is cooking considered a hobby?", "Is cooking considered as a joy?", "Is it a way to self-realisation?" and "Have you found passion in cooking?" Cooking skills and the ability to create one's own recipes, to prepare delicious dishes without recipes and to create meals with ingredients already available in the kitchen were also examined. Furthermore, subjective knowledge on food and its preparation methods were explored (Figure 1).

Figure 1 Lifestyle characteristics relevant to measuring foodie characteristics



Note: D = measure developed during the research process

Most statements were measured on a five-point Likert scale, with answers ranging from "totally disagree" (1) to "totally agree" (5). In addition, respondents were also asked a number of questions relating to their behaviour with respect to grocery shopping and meal preparation activities. They were asked *who is responsible for grocery shopping*, *what the major shopping outlets are*, *how they rate their cooking ability* and *how they learned to cook*.

The third part of the questionnaire was designed for investigating consumers' objective knowledge about food and nutrition (i.e. how much they actually know) and thus contrasts with part two where the focus was on subjective knowledge (i.e. what individuals think they know). The objective measurements consist of four parts. I: identifying foods (13 food items; Figure 2), II: identifying organic labels (six labels; Figure 2), III: types of diet (six statements) and IV: cooking skills (four statements). The questions in part I were subdivided into three separate questions for leafy and root vegetables, seeds and protein sources. Each correct answer was assigned one point, and zero was awarded for incorrect answers. The total knowledge score of each respondent was based on simple summations: the maximum scores for parts I, II, III and IV were 13, 6, 6 and 4, respectively. Hence, the maximum possible overall score was 29.

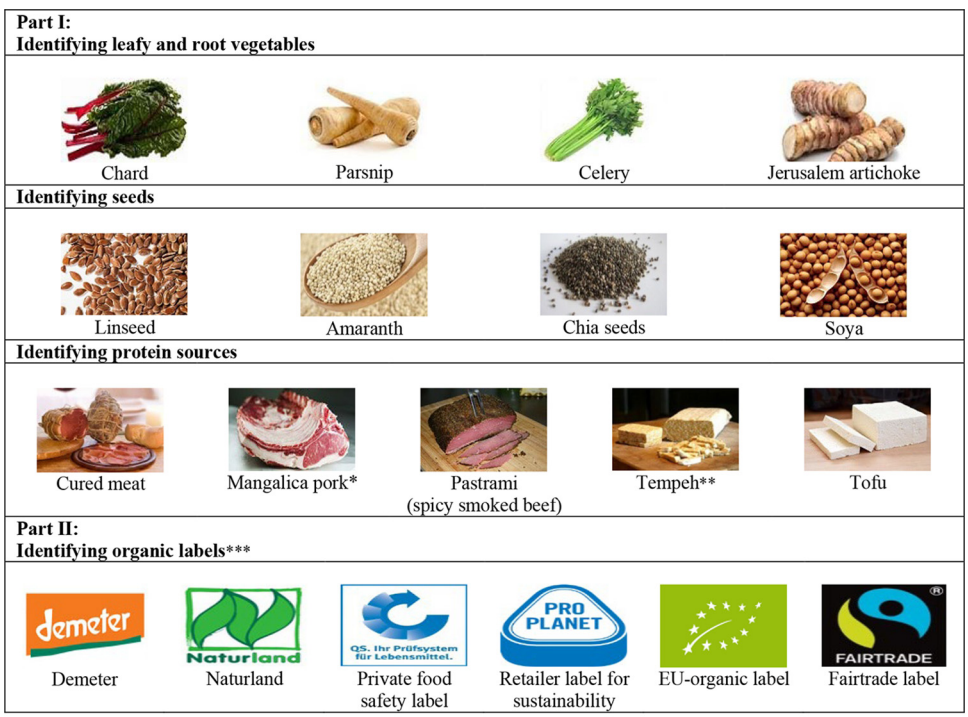
Data collection

Data were collected between September and October 2015 by means of two online surveys. To ensure a nationally representative sample, respondents were recruited by an independent market research agency using quota sampling with quotas for gender, age and education based on demarcations derived from the Federal Statistical Office of Germany (2014). As this study mainly focused on the growing consumer interest in nutrition, specifically foodies, participants who initially stated that nutrition was either unimportant or very unimportant to them were excluded from the study. Five hundred people were surveyed which ultimately led to a total of 451 usable responses after questionnaires with missing data were excluded.

Data analysis

Data analyses (descriptive statistics, exploratory factor analysis, reliability analysis, cluster analysis and analysis of variance

Figure 2 Visualisation of questions in parts I and II



Notes: *The Mangalica or Mangalitsa is a Hungarian breed of pig. Mangalitsa pork is rich in fat, which makes it well suited for the production of various sausages and bacon. **Tempeh is a fermented food typically made from soybeans, most popular in Indonesia and other parts of Southeast Asia. ***QS-label, Pro Planet and Fairtrade are not organic labels

[ANOVA]) were carried out using SPSS version 24.0. Socio-demographics are presented as proportions, while "foodie values" are presented as means (standard deviations). Confirmatory factor analysis was used to investigate the validity of statements regarding food-related lifestyles. Cronbach's alpha was used to assess the reliability and internal consistency of each of the factors. Cronbach's coefficients ranged from 0.81 to 0.93. All reliability coefficients were thus acceptable (i.e. >0.5) according to the threshold posited by Hair *et al.* (1998). Factors, statements and average variance extracted are presented in Table 2.

Cluster analysis was subsequently conducted to segment consumers using the seven identified foodie factors. Cluster analysis is "a useful technique for describing lifestyle as relatively homogeneous patterns of market-related behaviour" (Granzin *et al.*, 1998). To identify the optimal number of foodie clusters, a hierarchical clustering algorithm based on Ward's method was used, which maximises the sum of the squared distances among clusters (Hair *et al.*, 1992). The six-cluster solution was identified to be the most appropriate to understand the food-related lifestyles of German customers. Finally, mean scores on the derived factors were compared between consumer groups via one-way ANOVA (two-tailed) with Scheffe's post hoc tests. A p-value of 0.05 was used as the threshold for statistical significance. The mean value of all dimensions (factors) was calculated and named "foodie index".

Results

Socio-demographic characteristics of the sample

Table 1 displays the most important socio-demographic characteristics of the total population. As indicated, the sample represents German consumers well. More than half of the respondents in the sample were women. The average age of respondents was 50.8 and more than 50.0% of the respondents in the total sample were married. In terms of monthly income, 51.2% of respondents ranged from €1,001 to €2,500. This income group can be regarded as middle class in society.

Modified foodie instruments

Factors, statements and reliability coefficients are presented in Table 2. According to the results of factor analysis (principal component analysis), the foodie instrument can be divided into seven factors: *eating in company*, *self-fulfilment in food*, *novelty preferences*, *attending culinary events*, *quality*, *cooking methods* and *subjective knowledge/cooking skills*. In terms of reliability, the Cronbach's alpha coefficients of these factors ranged from 0.81 to 0.93, surpassing the threshold for reliability.

Six culinary segments are identified and labelled according to their primary characteristics: "passionate foodies" (12.0%), "interested foodies" (9.5%), "moderate foodies" (21.7%), "traditional foodies" (17.1%), "light foodies" (18.2%) and "non-foodies" (9.5%). Table 3 presents a categorisation of all segments, based on a comparison of their mean scores across all factors.

The "passionate foodies" segment was distinguished by the highest mean scores on pleasure and interest (mean = 4.50, $p < 0.001$), passion for cooking (mean = 4.44, $p < 0.001$) and quality (mean = 4.34, $p < 0.001$) in the first survey. Consumers in this segment genuinely enjoy food and take the most pleasure in all good food and drinks. In terms of passion for cooking, compared to other segments, passionate foodies are most keen on cooking and trying diversified creative recipes, new techniques and new ingredients. Moreover, they place high importance on food quality – mainly on freshness of food (e.g. fresh is preferred over canned products), naturalness of food and non-GMO food products. They have a strong preference for buying food products labelled as "organic" or "fair-trade" and are willing to pay more for products from farms that are audited to higher animal welfare standards. In comparison to other segments, "passionate foodies" seemed to be most concerned with taste, nutrition and food safety. In addition, they usually gather information before eating at a certain restaurant. In general, these consumers like to buy foods not only in supermarkets and discount stores but in speciality shops with the assistance of a qualified sales person.

The "interested foodies" exhibited similar trends to the "passionate foodies". Nevertheless, they had statistically significant lower mean scores on the factors eating in company, novelty preferences and, most notably, attending culinary events ($p < 0.001$). The "moderate foodies" segment is constituted by consumers who again placed importance on pleasure and interest, cooking and quality. Interestingly, this segment placed more emphasis (mean = 2.71, $p < 0.001$) on foodie events and festivals than the light foodies. The "traditional foodies" are generally conventional in their beliefs toward food and seldom dine out with friends. Even though this group enjoys cooking, they are less likely to seek new food experiences and try unfamiliar foods. Members of this group also placed importance on food quality aspects such as freshness, price-quality-relation, healthiness and labels. In fact, they exhibited higher price consciousness than any other segment. This consumer shows greater appreciation than all other segments for products and services offered at discount supermarkets. In addition, they eat with all their senses and immensely enjoy food.

On average, consumers in the "light foodies" segment attributed higher scores on all factors compared to the "non-foodies" segment, which generally scores lower than "traditional foodies" with the exception of Eating in company and Attending culinary events. In terms of quality, these consumers have somewhat lower-average interest in freshness and natural/animal welfare-approved certified products. Although the "non-foodies" segment is least interested in food or anything related to foodie activities compared to the other segments ($p < 0.001$), it is important to emphasise that this is not a marginal group: 50 respondents who initially stated that they have no interest in food and food-related activities were screened out before they began the survey. Compared to other segments, these individuals scored highest in terms of price consciousness and were very sensitive to price promotions. They care much less about freshness, naturalness, safety and food labels than other consumers. Like the "traditional foodies", this group also placed high importance on discount stores. Not surprisingly, food and food products are least important in their lives and they did not consider dining with friends or family as an important social activity.

The foodies segments derived from the new foodie lifestyle scale show significant differences with respect to socio-demographic variables. As indicated in Table 4, in the "light

Table 1 Socio-demographic characteristics of the study population

Description	Total (n = 451) n	(%)	German Federal statistics[a] (%)
Gender			
Male	207	45.9	49.0
Female	244	54.1	51.0
Marital status			
Single	129	28.6	43.1
Married	229	50.8	41.3
Divorced	70	15.5	7.4
Widowed	23	5.1	8.2
Age (mean, in years)	50.8		
Educational background			
Still in school	10	2.2	3.9
Secondary school	163	36.1	32.9
Intermediate school	129	28.6	22.7
University/technical collage	145	32.2	29.5
Others	14	3.1	11.0
Monthly household income			
Less than €1,000	65	14.5	14.0
€1,001–€2,500	229	51.2	40.4
€2,501–€4,000	115	25.7	23.9
Above €4,001	39	8.7	21.7
Household size			
1	128	28.4	41.0
2	191	42.4	35.0
3	67	14.9	12.0
>4	63	14.0	12.0

Source: [a]Federal Statistical Office (2014)

foodies" group, the ratio of male consumers is approximately 15% more than average; with regard to "interested foodies", female consumers comprise 10% more than the average. In terms of marital status, "non-foodies" comprise a lower proportion of married consumers, while "moderate foodies" and "non-foodies" comprise a higher proportion of single consumers. With respect to age, "passionate foodies" comprise mainly consumers less than 30 years old (27.78%), who are younger than the average age of all segments. In terms of income level, "passionate foodies" and "interested foodies" have a higher income level, whereas the consumers in the "traditional foodies" segment have a lower level of income.

Nutritional knowledge

The percentage of correct responses to questions concerning leafy and root vegetables, seeds, protein sources, organic labels, diet and cooking skills are shown in Table 5. There is no major difference in knowledge between "passionate foodies" and the overall sample, with the former being marginally below average on about half of the questions and marginally above average on most of the rest. However, as the results indicate, the "interested foodies" (mean percentage correct = 63.1%) answered more of the nutritional knowledge questions correctly than the "passionate foodies" (mean percentage correct = 58.8%). Overall results indicated that consumers were familiar with organic labels, and more than 70% of the consumers correctly identified the organic labels.

Discussion

Using a two-step cluster analysis, six distinct segments were identified:

1 "passionate foodies" (12.0%);
2 "interested foodies" (9.5%);
3 "moderate foodies" (21.7%);
4 "traditional foodies" (17.1%);
5 "light foodies" (18.2%); and
6 "non-foodies" (9.5%).

"Passionate foodies" pay close attention to each foodie dimension and are passionate about their cooking to a greater extent than those in other segments. In addition, the survey showed that foodies are willing to devote a considerable amount of time to healthy and creative meal preparation; they also consider cooking as an effective tool for self-realisation. They also exhibited positive preferences for buying organic and fair-trade products which could thus testify to the interplay between food culture and the sustainability of food systems (Willett *et al.*, 2019). However, this finding contrasts with Gad Mohsen (2016) who found that foodies have no particularly strong views *vis-à-vis* organic and fair-trade foods.

In fact taste, freshness and naturalness are the first and foremost important quality aspects for "passionate foodies", yet these individuals also prefer healthy and organic products. Similar results were found by Fang and Lee (2009). Consumers are willing to pay a substantially higher price for safer food, as found by Eom (1994) and Zhang (2005). Therefore, these segments exhibit the highest inclination to pay a maximum premium for food safety, so they offer strong business potential for food-safe companies. A study by Watson (2013) recommends that restaurateurs would benefit from attracting "passionate foodies" to their establishments with special events that acknowledge their skilled consumption knowledge.

"Interested foodies" behave in a similar way to foodies. Nonetheless, their mean foodie value is lower compared to these latter two groups and there are some significant differences regarding participation in culinary events, novelty preferences and social gatherings. Moreover, "passionate foodies" and "interested foodies" are more interested in cooking than other segments. Adams and White (2015) found that home frequency differed by age with younger people spending less time cooking than older ones. Young people may increasingly prefer to eat outside the home, particularly at fast-food restaurants, due to the time saved in home meal preparation (Rahkovsky *et al.*, 2018). Hence, suppliers and retailers of gourmet and epicurean foods have the opportunity to target a non-trivial market segment of highly/reasonably highly involved consumers.

The largest segment, the "moderate foodies", expressed clear preferences for cooking methods and quality aspects. The "traditional foodies" have the lowest tendency to eat out as an opportunity to try new and exotic foods. They care most about food quality aspects such as the freshness and naturalness of food yet at the same time they are very price conscious. This contrasts with results from an earlier study which suggested

Table 2 Factor dimensions included in the modified foodie instruments and Cronbach's alpha values

Statements	Mean/SD	Average variance extracted (AVE)	Cronbach's α
I. Eating in company			
We often get together with friends to enjoy an easy-to-cook casual dinner	2.99/1.2	0.520	0.813
Dining with friends is an important part of my social life	3.29/1.2		
When I serve dinner to friends, the most important thing is that we are together	3.61/1.0		
Food tastes much better when I eat in good company	3.88/1.0		
II. Pleasure and interest			
I am very interested in food	3.99/0.9	0.525	0.860
I am a real foodie at dinner	3.55/1.0		
For me, eating is a matter that incorporates all senses of feeling, smell, taste and sight	4.11/0.9		
When I eat, I enjoy food very much	4.02/0.9		
Good drinks and food play a major role in my life	3.86/1.0		
III. Novelty preferences			
I buy and like to eat exotic foods	2.97/1.1	0.560	0.871
I love to try recipes from foreign countries	3.37/1.1		
I only buy and eat foods that are familiar to me	2.83/1.1		
Recipes and articles from magazines from other cooking traditions make me experiment in the kitchen	3.17/1.2		
I look for various ways to prepare unusual meals	2.97/1.1		
I like to try new foods that I have never tasted before	3.33/1.1		
IV. Attending culinary events			
I like to visit food fairs	2.21/1.2	0.508	0.860
I would like to attend food tastings	2.87/1.2		
I love to visit (Street) food festivals	2.27/1.2		
I like to visit cooking classes	2.05/1.2		
I like to read food blogs on the internet	2.37/1.3		
I like to buy food products in specialty stores, where I can get expert advice	2.97/1.1		
V. Quality			
For me, the naturalness of the food is an important factor	3.89/1.0	0.516	0.871
I prefer fresh products over canned products	4.17/0.9		
I would like to pay more money for animal welfare approved meat and eggs	3.76/1.1		
I prefer to buy food from my region	3.63/1.0		
I like to buy foods that have been hand-produced	3.56/1.0		
I prefer to buy foods that were traditionally made	3.59/1.0		
VI. Passion for cooking			
Cooking is my hobby	3.26/1.3	0.646	0.9368
Cooking brings me joy	3.83/1.2		
Cooking is a process of self-realisation	3.21/1.2		
I have a passion for cooking	3.52/1.3		
I like to try new recipes	3.71/1.1		
I invest a lot of time in cooking	3.13/1.1		
I am proud to prepare my own meals and self-devised recipes	3.32/1.2		
VII. Subjective knowledge and cooking skills			
I do not need recipes because I know by experience what combination of ingredients result in a delicious dish	3.34/1.1	0.614	0.862
I am flexible and can make a meal out of all possible ingredients that I have at home	3.69/1.1		
I like to prepare dishes without a recipe and let my creativity flow	3.30/1.1		
I have an extensive knowledge of food and its preparation methods	3.34/1.1		

Table 3 Six culinary consumer segments and their mean factor scores

Factors	Total (n = 451)	Non-foodies (n = 43)	Light foodies (n = 82)	Clusters: Traditional foodies (n = 77)	Moderate foodies (n = 98)	Interested foodies (n = 97)	Passionate foodies (n = 54)
I. Eating in company	3.11	1.78^{a}	2.82^{b}	$2.64^{b,c}$	3.30^{d}	3.58^{e}	4.11^{f}
II. Pleasure and interest	3.67	2.53^{a}	3.27^{b}	3.64^{c}	$3.52^{c,d}$	4.20^{e}	4.50^{f}
III. Novelty preferences	3.06	2.00^{a}	2.42^{b}	2.85^{c}	3.22^{d}	3.47^{e}	4.11^{f}
IV. Attending culinary Events	2.30	1.40^{a}	1.79^{b}	$1.65^{a,b,c}$	2.71^{d}	2.41^{e}	3.79^{f}
V. Quality	3.55	2.55^{a}	$3.24^{b,c,d}$	$3.29^{b,c,d}$	$3.49^{b,d}$	$4.10^{c,d,e,f}$	$4.34^{e,f}$
VI. Passion for cooking	3.32	1.84^{a}	2.24^{b}	3.64^{c}	3.26^{d}	4.09^{e}	4.44^{f}
VII. Subjective knowledge and cooking skills	3.34	2.22^{a}	2.63^{b}	3.60^{c}	3.09^{d}	4.01^{e}	$4.21^{e,f}$
Foodie index	*3.19*	*2.05*	*2.63*	*3.04*	*3.23*	*3.69*	*4.21*

Notes: Items were rated on five-point scales (1 = totally disagree; 5 = totally agree). The "Foodie index" was calculated as the mean value of all dimensions (factors). The values with different superscript letters in a column are significantly different ($p < 0.05$)

that traditional consumers are not sensitive to price fluctuations (Fang and Lee, 2009). According to Wycherley *et al.* (2008), traditionalist consumers indicate greater appreciation for the products and services offered at retail outlets such as farmers markets and specialty shops. Contrary to these findings, our results show that the "traditional foodies" most likely place high importance on cheap discount stores.

By contrast, the "light foodies" segment pays little attention to the various foodie dimensions; they are far less interested in attending culinary offerings, dining out with friends or family members, and cooking. The "light foodies" cook almost as rarely as the "moderate foodies" and their quality standards are in the middle range. The "non-foodies" are generally uninterested in any food-related activities. They are more hesitant to try new cuisines. This could be due to food neophobia or distrust in novel foods. They also show less desire for food-related information such as food magazines, food blogs and food shows. In fact, they do not like shopping or eating out with friends and family. Consumers in this group care much less about taste, healthiness, freshness or the price/quality relationship of food than other groups. They are the least likely to appreciate farmers markets and speciality stores that sell vegan and organic products.

The findings of the nutritional knowledge questionnaire revealed that the overall sample has only an average level of food literacy; assuming this finding generalises to other samples/countries, it clearly raises interesting and important questions about disjoints between subjective (self) proclamations and objective realities. Many stakeholders, including governments, businesses and the health and education sectors, can improve consumers' food literacy by making nutritional information more effective, understandable and accessible for household use.

Theoretical implications

From a theoretical perspective, the results of this study add to the emerging literature by identifying foodie features and examining their relevance in understanding and segmenting German consumers. This is the first time that knowledge about this high involvement target group has been generated on the basis of an extensive quantitative survey. This study developed a new foodie questionnaire to accord with particularities of consumer culinary culture in Germany and it demonstrated statistical robustness in terms of reliability and construct validity. Eleven items were omitted from the food related lifestyle questionnaire and replaced with new items grounded in the extant literature. Based on this modified food-related lifestyle scale, foodie segments in Germany were empirically explored and segments were subsequently compared on the basis of a series of statements pertaining to their attitudes towards foodie features.

Moreover, the nutritional knowledge questionnaire can be used in future studies as a short but comprehensive instrument. This questionnaire consists of 29 items covering subjective and objective nutritional knowledge. Therefore, it is a very economical instrument for measuring nutritional literacy in larger consumer groups. In terms of contribution to knowledge, this study presents a useful extension to the segmentation literature, specifically in relation to objective knowledge of consumers. However, since there are few studies on the objective nutritional and cooking knowledge of consumers, there is still further research needed to develop a valid measurement scale.

Managerial/practical implications

The study poses many implications for markets and food researchers. The results of the study may enable food companies to identify their target market and develop effective marketing strategies. The six culinary segments of this study can be separated from each other, which identifying and dealing with the certain target group. For example, extending the foodie segment to incorporate the "passionate foodies" accounts for about 21.5% of the German population, and the fact that foodies represent a consumer segment with high

Table 4 Demographic characteristics of consumers in identified foodies segments

Description	Non-foodies (*n* = 43)	Light foodies (*n* = 82)	Traditional foodies (*n* = 77)	Moderate foodies (*n* = 98)	Interested foodies (*n* = 97)	Passionate foodies (*n* = 54)	All (*n* = 451)
Gender							
Male	23(53.49)	50(60.98)	33(42.86)	42(42.86)	35(36.08)	24(44.44)	207(45.90)
Female	20(46.51)	32(39.02)	44(57.14)	56(57.14)	62(63.92)	30(55.56)	244(54.10)
Marital status							
Single	15(34.88)	25(30.49)	20(25.98)	35(35.71)	18(18.55)	16(29.63)	129(28.61)
Married	14(32.56)	43(52.44)	44(57.14)	46(46.94)	53(54.64)	29(53.70)	229(50.78)
Divorced	9(20.93)	13(15.85)	9(11.69)	14(14.29)	18(18.56)	7(12.96)	70(15.51)
Widowed	5(11.63)	1(1.22)	4(5.19)	3(3.06)	8(8.25)	2(3.70)	23(5.10)
Age (mean, in years)							
Under 30	5(11.63)	13(15.85)	9(11.69)	23(23.47)	9(9.28)	15(27.78)	74(16.41)
31–44 years old	6(13.95)	10(12.20)	11(14.29)	17(17.35)	15(15.46)	8(14.81)	67(14.85)
Over 45 years old	32(74.42)	59(71.95)	57(74.03)	58(59.18)	73(75.26)	31(57.41)	310(68.74)
Educational background							
Still in school	19(44.19)	21(25.61)	39(50.65)	41(41.84)	27(27.84)	16(29.63)	163(36.14)
Secondary school	13(30.23)	23(28.05)	23(29.87)	25(25.51)	27(27.84)	18(33.33)	129(28.60)
Intermediate school	10(23.26)	36(43.90)	14(18.18)	25(25.51)	41(42.27)	19(35.19)	145(32.15)
University/technical collage	0(0)	2(2.44)	1(1.30)	6(6.12)	1(1.03)	0(0)	10(2.22)
Others	1(2.33)	0(0)	0(0)	1(1.02)	1(1.03)	1(1.85)	4(0.89)
Monthly household income							
Less than €1,000	7(16.66)	14(17.28)	16(20.78)	15(15.46)	8(8.25)	5(9.26)	65(14.58)
€1,001– €2,500	23(53.25)	38(46.91)	41(53.25)	49(50.52)	50(51.55)	28(51.86)	229(51.35)
€2,501–€4,000	8(16.66)	21(25.93)	18(22.08)	27(27.83)	28(29.89)	13(24.08)	115(25.78)
Above €4,001	4(9.52)	8(9.88)	3(3.90)	6(6.19)	8(14.81)	8(14.81)	37(8.29)
Household size							
1	38(88.37)	71(86.59)	66(85.71)	72(73.47)	81(83.51)	32(59.26)	360(79.82)
2	4(9.30)	7(8.54)	7(9.09)	17(17.35)	14(14.43)	8(14.81)	57(12.64)
3	1(2.33)	3(3.66)	4(5.19)	6(6.12)	1(1.03)	12(22.22)	27(5.99)
>4	0(0)	1(1.22)	0(0)	3(3.06)	1(1.03)	2(3.7)	7(1.56)

purchasing power and should not be neglected. The trend segment of foodies (combination of "passionate foodies" and "interested foodies") is an attractive target group for food branding since foodies have a higher household income than "non-foodies" and spend more money per month on food. For companies, the trend segment of foodies represents an attractive target group because they are very interested in food-related topics beyond enjoyable consumption. This group becomes significant in connection with gastronomic attractions such as cooking courses, food fairs, and other culinary events. Moreover, "passionate foodies" could be a target group for food-related magazines, cookbooks, cooking courses, food blogs and kitchen equipment. In addition, food companies should focus on organic production, naturalness and artisanal production of food. This group, therefore, can be reached primarily through organic natural food stores, speciality stores, supermarkets and weekly markets.

The study findings further indicated that seasonality, regionality and country of origin are essential aspects and criteria for "passionate foodies" when buying food. Also, we can assume that consumers of these segments ("light foodies", "moderate foodies" and "non-foodies") are comfortable purchasing take-away or ready-to-eat foods. These groups could be regarded as the ideal target for companies seeking to develop successful marketing strategies for convenience food.

The study also provides demographic profiles for each segment, which can serve as a reference for food companies to use when designing marketing strategies and campaigns. For instance, the "passionate foodies" segment mainly comprises consumers less than 30 years old. These young foodies may need different marketing and advertising strategies targeting. Food companies should pay attention to the design of new high-quality and high-status food products, as well as ingredients for "passionate foodies" and "interested foodies". Moreover, the "traditional foodies" segment has a lower-level income, and they place high importance on discount stores. Therefore, food companies could introduce loyalty cards. In addition, communication via monthly online newsletters, advertising upcoming sales and discounts, as well as mailed coupons can boost sales among the "traditional foodies".

Table 5 Correct answers to nutritional knowledge questions by culinary consumer segment

Questions/Statements	Total (*n* = 451)	Non-foodies (*n* = 43)	Light foodies (*n* = 82)	Traditional foodies (*n* = 77)	Moderate foodies (*n* = 98)	Interested foodies (*n* = 97)	Passionate foodies (*n* = 54)
Part I: Identifying leafy and root vegetables							
1. Chard	79.6	57.1	70.4	85.2	79.5	92.0	79.5
2. Parsnip	70.4	52.9	62.0	73.8	71.8	81.8	66.7
3. Celery	78.4	71.4	69.0	80.3	82.1	85.1	76.9
4. Jerusalem artichoke	68.1	47.1	57.7	70.5	71.8	79.3	69.2
Identifying seeds							
5. Linseed	54.6	50.0	52.1	54.2	59.2	62.0	39.5
6. Amaranth	32.5	15.6	25.4	32.8	31.4	44.3	36.8
7. Chia seeds	49.7	53.1	40.8	45.8	53.5	55.7	50.0
8. Soya	58.0	34.4	53.5	57.6	60.6	67.1	63.2
Identifying protein sources							
9. Cured meat	37.1	32.3	30.9	32.1	33.8	47.6	42.9
10. Mangalica pork	52.7	45.2	50.0	51.9	58.2	44.0	69.1
11. Pastrami (spicy smoked beef)	33.2	38.7	27.9	30.4	36.7	27.7	45.2
12. Tempeh	40.8	38.7	37.3	41.1	44.3	37.3	47.6
13. Tofu	73.2	74.1	71.0	76.7	74.6	72.9	69.1
Part II: Identifying organic labels							
14. Demeter (*organic label*)	67.4	69.7	65.8	59.7	72.4	72.1	61.1
15. Naturland (*organic label*)	93.6	97.6	97.5	93.5	91.8	92.7	88.9
16. Private food safety label	40.4	39.5	35.3	37.6	43.8	44.3	38.9
17. Retailer label for sustainability	21.7	16.2	17.0	20.7	29.5	17.5	27.8
18. EU-organic label (*organic label*)	81.2	86.0	78.0	80.5	81.6	83.5	77.8
19. Fairtrade label	35.0	44.1	35.3	35.0	36.7	30.9	31.5
Part III: Types of diet (statements)							
20. An omnivorous diet includes both plant and animal foods (*true*)	63.7	57.5	65.8	57.1	66.3	67.4	63.5
21. Paleo diet does not include meat but it includes animal products such as eggs, milk and cheese (*false*)	54.5	51.2	50.6	55.3	64.9	53.8	44.2
22. A vegan diet excludes all animal products, including eggs, dairy and cheese and vegans thus eat primarily vegetables (*true*)	91.1	87.8	93.8	90.9	86.5	95.8	90.2
23. A raw food diet is based on the diet of the hunter-gatherer and also known as a Stone age diet. It includes meat, fish, seafood, vegetables, fruit and nuts (*false*)	44.6	36.6	40.5	46.8	51.0	46.9	37.3
24. An ovo-lacto vegetarian eats animal products such as eggs, milk and cheese but excludes meat (*true*)	65.7	70.7	59.5	62.3	63.5	66.7	78.4
25. Flexitarians, also called semi-vegetarians, sometimes eat meat, but from organic and sustainable production (*true*)	83.3	75.6	88.6	72.4	83.0	88.4	88.2
Part VI: Knowledge and cooking skills							
26. The scalding of vegetables or meat in boiling water or steam for a short period of time (*Blanching*)	73.9	68.3	67.1	80.0	71.6	85.4	63,0
27. Using a thread to tie poultry, fish and meat in boiling water or steam for a short period of time (*Trussing*)	62.0	62.2	57.9	65.3	60.0	66.0	58.5
28. The browning of onions or garlic in hot fat *(Sautéing)*	50.7	42.5	48.8	50.7	54.6	57.7	38.9
29. Removing the grease layer that builds when making soups or sauces (*Degreasing*)	60.7	47.4	59.2	68.0	58.9	62.9	61.1
Average	*59.2*	*53.9*	*55.5*	*58.9*	*61.2*	*63.1*	*58.8*

Conclusions and limitations

This study confirmed that a new foodie lifestyle scale for the segmentation of foodies is a useful approach to identify, characterise and develop marketing strategies for reaching segments with high food involvement. It was demonstrated that foodies should be regarded as a heterogeneous group with diverse characteristics and wants. Therefore, when approaching the foodies market, these segments should be taken into account. Moreover, because the behavioural traits, lifestyles and socio-demographic characteristics of foodies and other culinary consumer segments could well be time-sensitive, future research is needed to investigate if and the extent to which such changes occur so that, for example, marketing is appropriately responsive.

This study could also be expanded to sample foodies from other online sources such as websites, Facebook groups and YouTube. We suggest that the new scale could be simplified into a small scale, which is easier to apply and still provides useful/enough information for companies to develop marketing strategies.

Several limitations were noted in the study. It is limited to a small sample, which can be further expanded in the future to dig deeper into the concept of foodies on a larger scale. This research sample excluded consumers who stated that they were not interested in food; therefore, the percentage of each segment only represented the percentage of the sample. People should be cautious when using the percentages from this study to infer the size of each segment in the German population. The survey was conducted online; therefore, it limited respondents to internet users. The other limitation of this study is that the findings may not be generalised to other cultures because it only involved consumers in Germany. Therefore, further studies can explore how various cultural contexts shape food-related activities. It might also be interesting to discover foodie features within various ethnic groups and explore the dietary choice and food-related lifestyle activities during the COVID-19 pandemic lockdown.

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