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Nutritional status, self-identification as a traditional food consumer and motives for food choice in six European countries

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Abstract

Purpose – The aim of the study is to analyse whether self-identifying as a traditional food consumer is associated with obesity or overweight, and to investigate the motives for consuming traditional food among people with normal weight, overweight and obesity.

Design/methodology/approach – Cross-sectional data were collected through a pan-European consumer survey (n = 4,828) with samples representative for age, gender and region in Belgium, France, Italy, Norway, Poland and Spain. Data analyses included multivariate logistic regressions and a multi-group structural equation modelling analysis.

Findings – Individuals with overweight or obesity attach more importance to weight control when purchasing food, and tend to self-identify themselves more as consumers of traditional foods. Among individuals with obesity, importance attached to the natural content of food is directly associated with traditional food consumption, and importance attached to sensory appeal in food choice is indirectly associated with self-identification as a traditional food consumer. Among individuals with normal weight, importance attached to healthiness in food choice associates negatively with self-identification as a traditional food consumer.

Originality/value – This study provides a unique approach for testing the motives for consuming traditional food among people with different nutritional status, particularly with normal weight, overweight and obesity. The strength of this paper pertains further to its international scope and large representative data set.

Keywords Food, Consumers, Obesity, Food products, Europe, Consumer behaviour

Paper type Research paper

1. Introduction

Traditional foods, which are an important part of European culture, identity, gastronomic heritage and food consumption habits (Trichopoulou et al., 2007), were defined from the consumers’ perspective by Guerrero et al. (2010, p. 225) as “products frequently consumed or associated with specific celebrations and/or seasons, normally transmitted from one generation to another, made accurately in a specific way according to the gastronomic heritage, with little or no processing/manipulation,”...
distinguished and known because of their sensory properties and associated with a
certain local area, region or country”. Adherence to traditional foods including the
Mediterranean diet was shown to have a protective effect against the burden of chronic
non transmissible diseases, such as metabolic syndrome, type 2 diabetes,
cardiometabolic and some neurodegenerative diseases and cancers in Europe
(Panagiotakos et al., 2007; Benetou et al., 2008; Sofi et al., 2008). However, recent
studies (Vanhonacker et al., 2010a; Vanhonacker et al., 2010b) have shown that in some
countries traditional foods have received a speciality character and are consumed on
festive occasions rather than on a daily basis. Because of their special character and
special taste people may associate traditional foods with high caloric content. For
instance, in Poland people perceived authentic traditional food products as rather
heavy and rich in terms of fat and energy content, whereas in Norway consumers
associated traditional food products with a relatively low healthiness.

According to self-perception theories, individuals act in accordance with their own,
and others’ expectations of them (Bem, 1967). Self-schema is determined by perceiving
related behaviours not only as self-descriptive but also as important to the way a person
sees himself or herself (Kendzierski, 2007). Self-concept is an individual’s idea and feeling
for him- or herself (Sirgy, 1982). Tajfel and Turner (1985) defined self-concept to be
composed of a personal identity and a social identity. Self-identity has been found to
have an effect on intentions and expectations related to nutrition and pro-environmental
(action) issues. Some studies highlight the link between identity and behaviour. For
example there is a relation between self-identification as “green consumer” and intention
to eat organic vegetables (Sparks and Shepherd, 1992). Pro-environmental self-identity
has been also found a significant determinant of carbon offsetting behaviour (Whitmarsh
and O’Neill, 2010). Additionally, healthy eating self-schema has been positively
associated with healthy eating behaviour (Noureddine and Stein, 2010; Kendzierski and
Costello, 2004) and a significant predictor of intention to follow a low-fat diet (Armitage
and Conner, 1999). Self-identity has also been found to be a significant predictor of
behaviour over and above the classical Theory of Planned Behaviour concepts, including
in relation to pro-environmental action. However, the link between self-identity and
behaviour was mostly indirect through behavioural intentions (Sparks and Shepherd,
1992). Differences in ethnic self-identification have been reported as predictors of obesity:
self-identified Mexicans living in the USA are less likely to be obese than those
self-identifying as Mexican-Americans, and this independently of their socio-economic
differences (Barger and Gallo, 2008). In the present study, the focus will be on
self-identification as a traditional food consumer, assuming that people who self-identify
as a traditional food consumer intend to and actually eat traditional foods frequently,
which may in turn be associated with different motives and nutritional status. There is
no agreement among researchers on the extent to which attitudes determine self-identity
or self-identity defines attitudes. Nevertheless, there are indications of a relatively strong
association between the two (Dunn et al., 2011; Cook et al., 2002).

In the era of globalisation, consumers might perceive standardised foods as
“organoleptic boredom”, thus foods with little variation in taste/flavour, colour and
texture. Increasing homogenisation of foods might be contributing to the gradual loss
of peoples’ cultural identity, which may explain why consumers are increasingly open
for what could be considered as typical and traditional foods (Nosi and Zanni, 2004).
Traditional food consumption has been a topic of increased attention recently
(Chambers et al., 2007; Guerrero et al., 2010; Guerrero et al., 2009; Hersleth et al., 2011; Molnar et al., 2011). However, all of those studies investigated traditional food consumption without looking in detail at consumers’ nutritional status. It is recognised that overweight and obesity result from an imbalance between energy consumption and/or energy expenditure through physical activity. For each individual, body weight results from a combination of genetic, metabolic, behavioural, environmental, cultural, and socio-economic influences (Miljkovic et al., 2008). Thus, key issues related to growing obesity include lifestyle and diet. Self-identification as a traditional food consumer might be associated not only with intention and actual behaviour towards traditional foods but also different lifestyle (e.g. Bach-Faig et al., 2011). For example, there is evidence that a dietary intervention promoting the Mediterranean food pattern has led to a decrease in fast-food consumption. Previous research has found an association between ready-meals (as the opposite to traditional food) consumption and overweight. People who exhibited a high adherence to a Mediterranean diet were 10 per cent less likely to become overweight or obese. However, there is no clear consensus whether traditional food consumption is associated with people’s nutritional status.

The first objective of this paper is to analyse whether self-identification as a traditional food consumer is associated with obesity or overweight. On the basis of the literature review, it was proposed that there is no association between self-identification as a traditional food consumer and the likelihood of being overweight or obese ($H_1$). The second aim of this study is to investigate whether the general motives for food choice are related to self-identification as a traditional food consumer among people with normal weight, overweight and obesity. Specifically, it is proposed that different motives for food choice will be important (will be related) when self-identifying as a traditional food consumer, to people with obesity, overweight or normal weight ($H_2$). Additionally, in accordance with the view that attitudes are linked with self-identity, it is hypothesised that people who hold positive attitudes towards traditional foods, will identify themselves as traditional food consumers (without distinguishing their nutritional status) ($H_3$).

2. Methods
2.1 Research approach
Quantitative descriptive data ($n = 4,828$) were collected in October-November 2007 through a cross-sectional web-based survey with samples representative for age (range 20-70 years), gender and region in Norway, Belgium, France, Spain, Italy and Poland. Participants were randomly selected from the TNS European Online Access Panel (Malhotra and Peterson, 2006, p. 190). Details about the research approach have been described by Pieniak et al. (2009).

2.2 Questionnaire content and pre-testing
Participants completed a self-administered structured electronic questionnaire. First, potential motives for choosing food were based on the Food Choice Questionnaire (FCQ) (Steptoe et al., 1995) and on findings from exploratory focus group discussions (Guerrero et al., 2010; Guerrero et al., 2009). Eight FCQ dimensions were included, namely weight control, price, ethical concern, convenience, natural content, health, sensory appeal, and familiarity. Participants were asked to endorse the statement “It is important to me that food I eat on a typical weekday is…” for each of the 24 items (three items per dimension)
by scoring on a seven-point scale ranging from “not important at all” (1) to “extremely important” (7). For instance, participants were asked “It is important to me that food I eat on a typical weekday is low in calories” or “It is important to me that food I eat on a typical weekday is produced/packaged in an environmentally friendly way”. The eight considered dimensions have been cross-culturally validated across the national study samples. Cronbach’s alphas for the different factors ranged between 0.74 and 0.90 (for further details see Pieniak et al., 2009).

Second, four items with regard to subjective health were included, each to be answered on a seven-point Likert scale anchored from “totally disagree” (1) to “totally agree” (7): “Compared with people at my age, my health is excellent”; “Compared with people at my age, my current physical health is excellent”; “I am as healthy as anyone I know at my age”; and “Compared with people at my age, my current mental health is excellent”. Cronbach’s alpha for the scale was 0.87.

Third, general attitude toward traditional food was measured using three items scored on seven-point semantic differential scales. Participants were presented the statement: “Please indicate which word best describes how you feel when you eat traditional food”. The bipolar adjectives were unhappy/happy, dull/exiting, and terrible/delightful (Pieniak et al., 2009). Cronbach’s alpha for the scale was 0.87.

Fourth, traditional food consumption was a self-reported single item measure: “To what extent do you consider yourself a consumer of traditional food?” scored on a seven-point scale ranging from “not at all” (1) to “very much” (7).

Fifth, the questionnaire included socio-demographic information, such as gender, age, household size and subjective assessment of the household’s financial situation. Additionally, self-reported height and weight were assessed for calculating body mass index (BMI). BMI is a simple index of weight-for-height commonly used to classify underweight, overweight and obesity in adults. It has been defined as the weight in kilograms divided by the square of the height in meters (kg/m$^2$) (WHO, 1999). Participants were classified according to their nutritional status in the categories of overweight (25 $\leq$ BMI $< 29.99$ kg/m$^2$) and obese (BMI $\geq 30$ kg/m$^2$) applying the CDC’s cut-off points (Centers for Disease Control and Prevention, 2009).

2.3 Statistical analyses
First, data were analysed using the statistical software SPSS version 15.0. Pairwise deletion was used as the method for treating missing values. Multivariate logistic regressions were fitted in order to explore the associations between each of the categories of nutritional status and socio-demographic characteristics, subjective health, and potential motives for food choice. Dummy variables were created for obesity (yes/no) and overweight (yes/no), and further used as dependent variables in logistic regressions. Socio-demographics and considering oneself a consumer of traditional food were introduced as independent variables. Age (years), subjective health (unit increments), weight control, price, ethical concern, convenience, natural content, health, sensory appeal, and familiarity (all unit increments) were included as continuous covariates. Gender (female, male), country (Norway, Belgium, France, Spain, Italy and Poland), and education (lower, secondary, higher) were included as categorical covariates. Statistical significance was set at $\alpha = 0.05$ for the multivariate logistic regressions.
Second, a multi-group structural equation modelling analysis was performed using the robust maximum likelihood procedure in LISREL 8.72 in order to analyse differences between groups with different nutritional status (obese, overweight, and normal weight) in the association between general food choice motives and traditional food consumption. Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI) and Comparative Fit Index (CFI) were used as measures of goodness-of-fit. Values below 0.08 for RMSEA (Browne and Cudeck, 1993) and above 0.90 for GFI and CFI suggest an acceptable model fit.

3. Results and discussion

3.1 Sample characteristics
Detailed socio-demographic characteristics of the national and pooled samples are provided in Table I. Gender is equally distributed, which reflects that the population was intentionally not restricted to the main responsible person for food purchasing. Age distributions, mean age and mean household sizes match closely with the national census data of the respective countries. Table I also presents a proxy of socio-economic class, which was a subjective assessment of the household’s financial situation given on a seven-point interval scale ranging from “difficult” to “well off”. Half of the sample (52.6% per cent) received education beyond the age of 18 years (high school or university), while 47.4 per cent had a lower level of education (primary or secondary school education). The sample is herewith slightly biased towards higher education, which may be attributed to the use of an electronic survey method.

3.2 Associations with obesity and overweight
In order to analyse the associations between obesity, overweight and socio-demographic characteristics, subjective health, and potential motives for food choice multivariate logistic regressions have been performed. Table II presents the odds of being obese and overweight in the pan-European sample, depending on personal characteristics, attitudes and self-identification as a traditional food consumer. The Hosmer and Lemeshow Goodness-of-fit-Tests provided p-values higher than 0.05, implying that the models’ estimates fit the data at the acceptable level.

Each unit increment in the importance attached to weight control adds to the odds of being obese by 1.19. Importance attached to price and to familiarity when purchasing food are also positively associated to being obese. Attaching importance to convenience reduces the odds of obesity by 10 per cent while attaching importance to health reduces the odds of being obese by 18 per cent. The effect of age is as expected and concordant with most previous studies; each year of age adds 3 per cent to the likelihood of obesity. Higher education associates with a lower likelihood of being obese. Subjective health is significantly lower (odds = 0.58) among participants with obesity.

Importance attached to weight control when purchasing food is positively associated with the likelihood of being overweight. Importance attached to price of food products as well as subjective health are negatively associated with overweight. Finally, being a woman reduces the odds of being overweight by 52 per cent.

3.3 Self-identification as a traditional food consumer and food choice motives
In order to provide insights in differences between groups with different nutritional status (obese, overweight, and normal weight) in the association between general food
Table I. Selected socio-demographic characteristics of the samples

<table>
<thead>
<tr>
<th></th>
<th>Pooled sample</th>
<th>Norway</th>
<th>Belgium</th>
<th>France</th>
<th>Spain</th>
<th>Italy</th>
<th>Poland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n = 4,828 )</td>
<td>( n = 798 )</td>
<td>( n = 826 )</td>
<td>( n = 801 )</td>
<td>( n = 800 )</td>
<td>( n = 800 )</td>
<td>( n = 803 )</td>
</tr>
<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>49.2</td>
<td>49.1</td>
<td>49.4</td>
<td>51.9</td>
<td>47.4</td>
<td>47.3</td>
<td>50.2</td>
</tr>
<tr>
<td>Male</td>
<td>50.8</td>
<td>50.9</td>
<td>50.6</td>
<td>48.1</td>
<td>52.6</td>
<td>52.7</td>
<td>49.8</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 35</td>
<td>34.1</td>
<td>34.1</td>
<td>28.5</td>
<td>33.7</td>
<td>35.5</td>
<td>35.0</td>
<td>37.9</td>
</tr>
<tr>
<td>35-55</td>
<td>46.4</td>
<td>47.5</td>
<td>46.4</td>
<td>46.4</td>
<td>47.4</td>
<td>45.8</td>
<td>44.8</td>
</tr>
<tr>
<td>&gt; 55</td>
<td>19.5</td>
<td>18.4</td>
<td>25.1</td>
<td>19.9</td>
<td>17.1</td>
<td>19.2</td>
<td>17.3</td>
</tr>
<tr>
<td>Mean</td>
<td>41.5</td>
<td>41.4</td>
<td>43.7</td>
<td>41.4</td>
<td>40.7</td>
<td>41.2</td>
<td>40.6</td>
</tr>
<tr>
<td>SD</td>
<td>12.8</td>
<td>12.5</td>
<td>13.3</td>
<td>12.8</td>
<td>12.3</td>
<td>12.8</td>
<td>12.8</td>
</tr>
<tr>
<td>Household size (number)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.9</td>
<td>2.6</td>
<td>2.7</td>
<td>2.7</td>
<td>3.1</td>
<td>3.2</td>
<td>3.0</td>
</tr>
<tr>
<td>SD</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.2</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Financial situation (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult – moderate</td>
<td>24.6</td>
<td>24.8</td>
<td>17.8</td>
<td>35.5</td>
<td>18.9</td>
<td>29.8</td>
<td>21.3</td>
</tr>
<tr>
<td>Moderate</td>
<td>32.1</td>
<td>31.5</td>
<td>28.6</td>
<td>32.5</td>
<td>36.2</td>
<td>32.8</td>
<td>31.0</td>
</tr>
<tr>
<td>Moderate – well off</td>
<td>43.3</td>
<td>43.7</td>
<td>53.6</td>
<td>32.0</td>
<td>44.9</td>
<td>37.4</td>
<td>47.7</td>
</tr>
</tbody>
</table>

Source: Pieniak et al., 2009
choice motives and self-identification as a traditional food consumer, a multi-group structural equation modelling analysis has been performed. In general, the model performed well with $\chi^2 = 5539.3$, df = 954; $p < 0.001$; RMSEA = 0.056; NNFI = 0.98; CFI = 0.98 (see Figures 1-3).

Concerning participants with obesity, importance attached to the natural content of food is positively associated with general attitude and self-identification as a traditional food consumer. Furthermore, importance attached to sensory appeal is associated to general attitude. Positive associations between importance attached to

<table>
<thead>
<tr>
<th>Variables</th>
<th>Obesity (OR 95.0% C.I. p-value)</th>
<th>Overweight (OR 95.0% C.I. p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight control</td>
<td>1.19 (1.07 1.32 0.001)</td>
<td>1.16 (1.08 1.24 &lt;0.001)</td>
</tr>
<tr>
<td>Convenience</td>
<td>0.90 (0.82 0.99 0.038)</td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>1.11 (1.00 1.24 0.045)</td>
<td>0.90 (0.85 0.96 0.002)</td>
</tr>
<tr>
<td>Familiarity</td>
<td>1.14 (1.03 1.25 0.011)</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>0.82 (0.71 0.94 0.005)</td>
<td></td>
</tr>
<tr>
<td>Self-identification as a traditional food consumer</td>
<td>1.08 (0.99 1.18 0.069)</td>
<td></td>
</tr>
<tr>
<td>Subjective health</td>
<td>0.58 (0.53 0.63 &lt;0.001)</td>
<td>0.89 (0.84 0.96 0.001)</td>
</tr>
<tr>
<td>Age</td>
<td>1.03 (1.02 1.04 &lt;0.001)</td>
<td>1.02 (1.02 1.03 &lt;0.001)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary (Reference)</td>
<td>1</td>
<td>0.003</td>
</tr>
<tr>
<td>Upper Secondary</td>
<td>0.79 (0.58 1.09 0.150)</td>
<td></td>
</tr>
<tr>
<td>Higher</td>
<td>0.62 (0.45 0.85 0.003)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (Reference)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.48 (0.42 0.56 &lt;0.001)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Variable(s) entered on step 1: Age, Country, Gender, Education. Reference category is a category of a non-metric variable that is omitted when creating dummy variables and acts as a reference point in interpreting the estimates of the other dummy variables (Hair et al., 2006). Empty cells in the table mean that the respective coefficients did not reach statistical significance.

Table II. Odds ratio for obesity and overweight by characteristics of interest.
familiarity and general attitude as well as familiarity and self-identification as a traditional food consumer are found. Importance attached to convenience has a negative, whereas general attitude has a positive link with self-identification as a traditional food consumer.

For participants with overweight, importance attached to familiarity with food is associated with general attitude as well as self-identification as a traditional food consumer. Importance attached to convenience has a negative relationship with self-identification as a traditional food consumer. Similarly to the other two groups, general attitude is positively related with self-identification as a traditional food consumer.

Finally, in the group of people with normal weight, importance attached to price has a positive relationship with general attitude, whereas importance attached to convenience has a negative relationship with both general attitude and self-identification as a traditional food consumer. Importance attached to natural content of food is positively related to self-identification as a traditional food consumer, whereas importance attached to healthiness is negatively associated with self-identification as a traditional food consumer. Importance attached to familiarity is positively related to self-identification as a traditional food consumer. Furthermore, a positive association between general attitude and self-identification as a traditional food consumer is confirmed.

4. Discussion and conclusions
This study has shown that self-identification as a traditional food consumer has not been found significant in determining the likelihood of being obese or overweight.

Figure 2.
Structural model (standardised solution) linking FCQ dimensions with attitude towards traditional foods and self-identification as traditional food consumer for overweight respondents

Figure 3.
Structural model (standardised solution) linking FCQ dimensions with attitude towards traditional foods and self-identification as traditional food consumer for obese respondents
thus accepting $H1$. This finding can be explained by the fact that the definition of traditional foods might differ from consumer to consumer (Vanhonacker et al., 2010a). Even though a link between ready-meals consumption (as the opposite of traditional food) and overweight has been reported or the link between Mediterranean diet and lower likelihood of becoming overweight or obese, our study did not allow to conclude that similar associations between self-identification as traditional food consumer and nutritional status are valid in this sample. Our results show a significant association between attaching more importance to weight control when purchasing food and the likelihood of being overweight or obese, which is in line with previous research (Sun, 2008). One explanation could be that people with excess weight are conscious about their nutritional status and therefore paying more attention to weight control, eventually following advice by their physician and/or dietician to lose weight. In contrast, people who attach more importance to health when making food purchasing decisions are less likely to be obese. Contrary to what one could expect, people in this sample who attach more importance to convenience when purchasing food are also less likely to be obese. This observation conflicts with a previous study where obese participants were found to be more likely to prefer snacks and convenience foods instead of meals (that can be considered more traditional) (Perez-Cueto et al., 2010). However, it is worth noticing that both studies measured constructs relating to convenience using different scales. The present study used items from the FCQ (Steptoe et al., 1995), measuring the perceived importance of factors when eating food on a typical day, such as convenience, whereas the other study used scales from the food-related lifestyle (Brunsø and Grunert, 1998), focusing rather on the usage of convenience food products, such as ready-to-eat foods, mixes, and frozen foods.

Consumers who attach more importance to price as a motive for food choice are more likely to be overweight or obese, which is consistent with the socio-economic gradient of obesity. People with lower socio-economic status spend a higher proportion of their income on food (Powell et al., 2010). They also purchase cheaper, often less healthful foods. Evidence showed that healthful compared with less healthful foods cost more (Powell et al., 2010). Miljkovic et al. (2008) suggested that a price increase of additive foods via additional taxes could prevent some of the currently normal weight population becoming overweight or obese. Additionally, lower fruit and vegetables price, higher fast food prices, and greater supermarket availability were related to lower BMI (Powell et al., 2010).

Our findings related to the association between BMI and socio-demographic characteristics are consistent with those of other studies, i.e. an inverse relationship between BMI and education and a positive association between high BMI and age (Rodríguez Martin et al., 2008). In Europe as a whole, obesity is more common among people with lower education. Furthermore, increasing formal education contributes to lowering the levels of BMI in already overweight and obese populations (Miljkovic et al., 2008). Males were more likely to be overweight and obese than females as previously reported in Spain (Rodríguez Martin et al., 2008) and Poland (Panasiuk et al., 2008), which may reflect the generally acknowledged higher health consciousness of women (Duvigneaud et al., 2007).

Our second hypothesis ($H2$) held that different motives for food choice will be important (will be related) when self-identifying as a traditional food consumer, to
people with obesity, overweight and normal weight. For all three groups of consumers (normal weight, overweight, and obesity), people who attach more importance to familiar products are more likely to identify themselves as a traditional food consumers. This finding is in agreement with a previous study that suggested that one of the important elements of the definition of traditional foods is products frequently consumed and for which consumption habits are transferred from one generation to the other (Guerrero et al., 2009). Furthermore, people who found convenience in food choice important indicated a lower consumption of traditional food products, which is also in agreement with past studies (Chambers et al., 2007).

Additionally, consistent with Cook et al. (2002) and Dunn et al. (2011) a positive relationship between attitudes and self-identity has been found, thus supporting our third hypothesis (H3). It means that people who hold positive attitudes towards traditional foods, identify themselves as traditional food consumers. This holds for individuals with obesity, overweight and normal weight.

Importance attached to natural content, thus foods produced without additives, only consisting of natural ingredients, has both a direct and indirect (through attitude) effect on self-identification as a traditional food consumer among respondents with obesity. This may suggest that people with obesity are less open to foods with reduced salt, sugar, fat or caloric content. They seem to want the real food and may be less interested in innovations towards more healthiness. Furthermore, only among consumers with obesity, importance attached to sensory appeal associates with self-identification as a traditional food consumer. This is consistent with the aforementioned conception of traditional foods as natural, full-taste, full-flavour, and perhaps also full-fat, full-calorie and authentic products (Kuznesof et al., 1997). Individuals with obesity in this sample seem to be pleasure-seeking (hedonists) for whom there is no association between their liking of traditional foods and their own involvement with weight loss. This suggests that even though consumers with obesity attach importance to weight control, there is little translation in terms of food choices and their identification as traditional food consumers. As reported previously, people with obesity appear to be less involved with food than consumers with normal weight, while nevertheless finding fulfilment in food, hence impairing a change of eating habits (Perez-Cueto et al., 2010). Furthermore, this study confirmed that a possible higher price of healthier foods will put an additional burden on healthier food choices for people with obesity.

Only among consumers with normal weight, importance attached to healthiness associates negatively with self-identification as a traditional food consumer. This is also consistent with the conception of traditional foods as less health foods, i.e. suggesting that they perceive traditional foods as matching less with a healthy eating pattern than non-traditional foods.

It is important to notice that none of the nutritional status groups associates self-identification as a traditional food consumer and related attitude with importance attached to weight control. This suggests that they neither see traditional foods as really conflicting with, nor as potentially contributing to weight control. Summing up, H2 can be partially supported. Some of the motives for food choice are similar for the three groups, such as familiarity with a product and convenience, others differ among the respondents with different nutritional status.
Some limitations of this study should be acknowledged. Firstly, height and weight were self-reported. BMI can be considered to provide the most useful (but crude) population-level measure of obesity and overweight. It can be used to estimate the prevalence of obesity within a population and the potential health risks associated with it. We acknowledge, however, that it does not account for the variation in the nature of obesity between individuals and populations. The use of anthropometry to classify overweight and obesity is further valuable for several reasons (WHO, 1999). In particular, it allows for meaningful comparisons of weight status within and between populations; it allows identifying of individuals and groups that might be at increased risk of morbidity and mortality; it helps in the identification of priorities for public policy interventions as well as at individual level; finally, it constitutes a firm basis for the evaluation of specific interventions. Furthermore, most people underestimate their BMI because they overestimate their height and underestimate their weight (Gorber et al., 2007; Perez-Cueto and Verbeke, 2009). The true percentage of overweight and obesity may therefore be higher, and the present study may report an underestimation. Especially individuals with severe obesity tend to underestimate their BMI more strongly than individuals with moderate obesity (Spencer et al., 2002). We have used self-reported height and weight as a means of segmentation of the participants, and there was not the intention of making an individual medical diagnosis. Despite the fact that self-reporting of heights and weights may present a bias related to the true BMI values, the prevalence levels of overweight and obesity found in this study are of the same magnitude as national data from the six countries available on the WHO Global Dataset on the Body Mass Index (see Table III).

This study presented insights in the way people with overweight and obesity perceive and deal with traditional foods relative to consumers with normal weight. Findings include both opportunities and threats. On one hand, the revealed associations with familiarity, naturalness, taste, frequent consumption and habit inheritance suggest that healthy traditional foods might fit with strategies for body weight regulation and the prevention of obesity. On the other hand, the nutritional value and effective healthiness of traditional foods, which are often low-processed full-fat, full-flavour and high caloric foods may hinder the realisation of such opportunities.

Some implications of this study need to be highlighted. First, our findings show that obese people are more involved in weight control than others. This fact can be valuable for any (public health) intervention aiming at weight loss, particularly if part of the holistic approach includes regular weighing, since weighing is one of the factors for successful weight loss and its maintenance (Linde et al., 2005; Van Wormer et al., 2009). Second, this study confirm an economic burden in making healthy food choices, and herewith suggests that healthier and less costly food items should be made available for obese consumers, particularly those in the most disadvantaged socio-economic categories, for whom use of the healthier options is hindered by their impaired purchasing power (economic access), and their food environments (Ford and Dziwaltowski, 2008; Black and Macinko, 2008; Mikkelsen, 2011). Future research analysing the associations between motives for food choice and actual traditional food consumption among the three nutritional groups in order to validate our findings is recommended.
Table III. Prevalence of overweight and obesity; comparison of the present study sample ($n = 4,828; 2007$) with data from other studies.

<table>
<thead>
<tr>
<th>Country</th>
<th>Present study OVE (%)</th>
<th>OBE (%)</th>
<th>National BMI data (based on WHO Global Dataset on the BMI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age range (years) Date of survey Author</td>
</tr>
<tr>
<td>Belgium</td>
<td>36.2</td>
<td>15.1</td>
<td>15-100 2004 De Vriese et al., 2004</td>
</tr>
<tr>
<td>France</td>
<td>28.7</td>
<td>17.3</td>
<td>29.2 15-100 2006 Basdevant and Charles (2006)</td>
</tr>
<tr>
<td>Italy</td>
<td>31.4</td>
<td>12.3</td>
<td>34.2 15-100 18-74 2005 Instituto nazionale di statistica (2007)</td>
</tr>
<tr>
<td>Norway</td>
<td>37.8</td>
<td>19.5</td>
<td>35.0 15-100 2008-2009 Wilhelmsen (2009)</td>
</tr>
<tr>
<td>Poland</td>
<td>34.6</td>
<td>15.6</td>
<td>34.2 15-100 2000-2001 Sepnar et al. (2003)</td>
</tr>
</tbody>
</table>

Notes: OVE = overweight; OBE = obese
References


**Further reading**


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