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Food and health habits of university students. Relationship to food consumption behaviour

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Abstract

This paper presents results that have emerged from research into the food consumption behaviour of university students. This group of consumers was selected for investigation because as undergraduates, individuals begin to select and develop food consumption and purchasing patterns in an independent way. The aim of this study was to analyse the relationship between socioeconomic conditions, food consumption habits, and risk-taking tendencies. We have identified several food consumption styles and highlighted the link that exists between eating habits and some variables associated with risk-taking tendencies.

Introduction

The problem of malnutrition has long been an issue on the political agendas of leading nations, although it has been and dealt with in different ways (Gillespie *et al.*, 2013). In the 1950s, the main aim of politicians was to ensure an adequate level of national self-sufficiency in food. A few decades later, the problem is one of excess food, not only in economic terms (the management of production surpluses) but also in terms of health (Tilman *et al*., 2001; Tilman *et al*., 2002). In the 1990s, legislation was introduced to promote and develop the quality of agricultural practices and consequently food consumption, especially in European Union (Echols, 1998; Murdoch *et al.*, 2000; Parrot *et al*., 2002; Tootelian and Segale, 2004; Hatanaka *et al.*, 2005; Baraldi *et al.*, 2009).

Notwithstanding this, data from the World Health Organization indicate that in recent years there has been a sharp increase in the rates of people who are overweight and obese, especially in groups with a low per capita income and the lowest levels of education, who fail to understand the link between health and human nutrition. In some areas of Europe, the rate of overweight adult males in the population is reaching peak levels recorded in the United States at the end of the 1990s (WHO, 2000). The situation is even more worrying when the data for the youngest members of populations are analysed (Lobstein and Frelut, 2003; Lobstein *et al*., 2004). Adolescents and young adults are strongly influenced by the consumption of poor quality foodstuffs (Chinnici *et al.*, 2013; Duarte *et al*., 2013). Many of them eat high-calorie food with little nutritional value, often eating outside meal times which together with a sedentary lifestyle, increases their risk of health problems (Forshee and Storey, 2006).

Various studies have investigated the consumption patterns of young adults and have suggested that these consumers can be classified on the basis of their preferences and behaviours (Clatworthy *et al*., 2005; Pieniak *et al.*, 2010; Santisi *et al.*, 2014). Several studies have highlighted the links between socioeconomic status and eating habits of young people (Averett *et al*., 2008; Bouis *et al*., 2011). Other studies have proposed an analytical approach based on the definition of eating styles (Brunso and Grunert, 1995). Overall, these analyses have tried to define useful policies to promote public health (Abel, 1991; Slater and Flora, 1991).

In this paper, we present the main results of a study of food behaviour models in a sample of university students, using a segmentation approach. We identified homogeneous segments based on the eating habits of a particular consumer group, university students, and analysed the relationship between socioeconomic conditions, eating habits, and risk-taking tendencies. University students were

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selected for this analysis because in this period of life, young people begin to make choices and develop patterns of purchasing food in an independent manner (Rutelli and Bustreo, 2004).

The study is made up of the following parts. Firstly we describe the way in which the data were collected and the methodology used, then the descriptive statistics used to analyse the sample are presented. The results of the segmentation analysis are described and some conclusions are drawn.

Material and Methods

A questionnaire was designed by the authors based on the Multi-purpose Family Survey, "Aspects of Daily Life" (MFS), a yearly population-based survey conducted by the Italian National Census Bureau (ISTAT, 2014). A semi-structured questionnaire, with open-ended and/or preformed answers, was distributed to a sample of 200 students studying for an Economics degree at the University of Catania. This university, which is situated in the centre of the city of Catania, has about 50,000 students, mainly coming from the province, and therefore include many "commuting" students. The choice of Economica students met the requirement to include subjects who were not familiar with nutrition issues compared with students from other courses[1].

The sampling scheme contained a random system to enrol students according to the selection mode "one in ten" (Kish, 1965). The face-to-face interviews, which included several filter questions necessary for the selection of the sample[2], were carried out in December 2013. The questionnaire covered information about:

—socioeconomic variables, related to the type of person interviewed, covering socioeconomic level, demographic features, and features of the family unit.

—variables related to eating habits. This section included a series of questions related to the food normally consumed during the week and the methods of preparing the food.

—variables related to risk-taking tendencies. This section consist of several questions to ascertain whether the interviewee tended to behave in a manner that entailed health risks, such as smoking, failure to use a helmet, failure to use a safety belt in a car, failure to respect the speed limit, practicing dangerous sports, and betting (Weber *et al*., 2002).

The data collected by personal interview in the initial phase of the study were processed, interpreted, and analysed with descriptive statistics to obtain a comprehensive picture of the sample. Several homogeneous behavioural groups were then identified using the methodology applied in previous studies (Gulisano and Platania, 2003; Platania and Privitera, 2006). In particular, factor analysis (calculated with SPSS 15.0) was used to reduce the types of consumption behaviours to a few categories. Subsequently, on the basis of the factors obtained, segments of consumption based on the aggregation of marks were defined. Each segment contains the answers that had the strongest links with the factors obtained from the factor analysis.

Results and Discussion

Sample

The composition of the sample was strongly biased towards women, because courses offered in the Economics Department are often preferred by female students (Table 1). The age of the sample was also influenced by the characteristics of the degree course. Undergraduates in their first year are most numerous compared to subsequent years. The secondary-level schooling of the students interviewed was divided equally between professional institutes and senior schools[3] .

The percentage of students who commuted to university, i.e., those students who did not actually live in the city centre of Catania, was very high. To analyse the features of this sample in more depth, information was obtained about their family units.

Segmentation analysis

Factor analysis was used to evaluate several variables regarding food consumption habits which the university students replied to on a scale from 1 to 5. This allowed six components[4] to be established

[1]In several other departments, such as Pharmacy, Medicine, Chemistry, Law, Agricultural Studies, etc., courses include subjects on nutrition.

[2]Students who indicated a diet that was restricted for health reasons (allergies, intolerances) or ideological reasons (vegan, vegetarian, etc.) were excluded.

[3]The professional institute is a school that offers a form of secondary education oriented towards practical subjects (engineering, agriculture, gastronomy, technical assistance, handicrafts), whereas the education received at a senior school is predominantly theoretical, with specialization in a specific field of study (humanities, science, or art).

[4]We used traditional procedures to identify common factors. After verifying the statistical significance of the data with KMO (with value 0.734), and Bartlett's test (with sig. .000), the factors were drawn from the correlation matrix using principal components analysis. The six components identified with these methods were unclear and not univocally described. Therefore, we applied orthogonal rotation using the Varimax method, which made the matrix of extracted components easier to read (Sharma, 1995). The six components extracted accounted for 56% of the overall variance, with a loss of information equal to 44% of the variability observed.

Table 1. Main features of the sample examined

	Frequency	Percent
Sex		
Female	109	54.5
Male	91	45.5
Age		
19	27	13.5
20	32	16.0
21	61	30.5
22	41	20.5
23	20	10.0
24	6	3.0
25–35	8	4.0
No reply	5	2.5
Type of school attended		
Classical or scientific lyceum	101	50.5
Other type of school	94	47.0
No reply	5	2.5
Commuting students	149	74.5
Marital status		
Married	1	0.5
Father's job		
Manager/freelance professional/businessman	62	31.0
Clerk	50	25.0
Workman	25	12.5
Shopkeeper	19	9.5
Retired	19	9.5
Other	15	7.5
No reply	10	5.0
Father's education		
Senior school	104	52.0
Middle School	45	22.5
Degree	24	12.0
Preparatory School	15	7.5
No reply	12	6.0
Mother's job		
Housewife	95	47.5
Clerk	41	20.5
Teacher	28	14.0
Manager/freelance professional/businesswoman	12	6.0
Other	19	9.5
No reply	5	2.5
Mother's education		
Senior school	105	52.5
Middle School	52	26.0
Degree	23	11.5
Preparatory school	13	6.5
No reply	12	6.0
Mother's job		
Housewife	95	47.5
Clerk	41	20.5
Teacher	28	14.0
Manager/freelance professional/businesswoman	12	6.0
Other	19	9.5
No reply	5	2.5
Mother's education		
Senior school	105	52.5
Middle School	52	26.0
Degree	23	11.5
Preparatory school	13	6.5
No reply	7	3.5
Components of the family unit		
4	102	51.0
5	49	24.5
3	29	14.5
6	6	3.0
2	4	2.0
1	3	1.5
7	1	0.5
No reply	6	3.0

(Table 2). From these, homogeneous consumer segments were identified and the consumer choices in the segments were compared. From a methodological perspective, we calculated the factor scores and then used them to sort the questionnaires hierarchically. Then we considered only cases that showed strong ties with the components identified. A value ≥ 1 was considered to indicate a particularly "strong" tie, so all cases with lower or negative values were discarded (Gulisano and Platania, 2003; Platania and Privitera, 2006). Only factor loadings 18 (During the week, do you usually pay attention to use of salt or food with salt?) and 19 (During the week, do you usually use salt enriched with iodine?) showed no large loading on one component, but their results were distributed to several components. So they have been eliminated, according to the common procedure (Sharma, 1995)[5].

To analyse the characteristics of the segments, prevalence ratios (PR) were calculated as the ratios between the frequency of a specific variable value in the segment and the frequency of the same value in the remaining sample (Conti *et al.*, 2004).

The first component selected, which accounted for 12.9% of the variance extracted, was linked the relative choices to the consumption of vegetables (FAC9 and FAC10), fruit (FAC11), pulses (FAC12), and olive oil as a seasoning (FAC17) (Table 3). In this component, even though the values were low and shared with another two components, the variable was related to the preference for savoury foods and the use of salt enriched with iodine. This, together with the choices made, was referred to as a "Mediterranean" diet. The segment of consumers corresponding to this component, which represented 15% of the sample, was called the "traditionalists". It was largely made up of female students (PR 1.62) whose mothers were housewives (PR 1.3). Both parents usually had a low–average level of schooling (PR 1.14 and PR 1.60). The food consumption style of these consumers included, above all, an adequate breakfast (PR 1.59) and two main meals, lunch (PR 1.29) and dinner (PR 1.42), which were always consumed at home (PR 1.53). These students did not use the university canteens (PR 1.19) and did not drink fizzy drinks (PR 3.39). As far as food choices were concerned, this segment was characterized by students who ate green vegetables (PR 24.24), pulses (PR 12.85), and especially vegetables (PR 36.65). Moreover, many of them preferred to use olive oil as seasoning (PR 3.03). It is worth noting that many of the students displaying this healthy style of food consumption had a very low risk-taking profile and played sport regularly (PR 1.18).

The second component selected was linked to the habit of consuming alcoholic aperitifs (FAC21), "amaro"[6] (FAC22), liquors (FAC23), and alcohol in general outside meal times (FAC24), and accounted for 12% of the extracted variance (Table 3). The segment corresponding to this component, which represented 9% of the sample was mainly made up of male students (PR 1.95) from families whose parents

[5]This is probably attributable to the significance of these variables (which were linked to the consumption of salt and iodized salt), which are characteristic of types of different foods and therefore not easy to attribute to a single component.

[6]Amaro is an Italian herbal liqueur that is commonly drunk as an after-dinner digestive

Table 2. Rotated components matrix

Variables of the consumption frequency used for segmentation *	coding	Component					
During the week do…		1	2	3	4	5	6
…you usually eat greens?	FAC9	0.802					
…you usually eat vegetables?	FAC10	0.872					
…you usually eat fruit?	FAC11	0.698					
…you usually eat pulses?	FAC12	0.622					
…you usually eat with olive oil as a seasoning?	FAC17	0.657					
…you usually drink alcoholic aperitifs?	FAC21		0.821				
…you usually drink "amaro"?	FAC22		0.799				
…you usually drink liquors?	FAC23		0.833				
…you usually drink alcohol outside meal times?	FAC24		0.755				
…you usually eat white meat?	FAC3			0.588			
…you usually eat red meat?	FAC4			0.653			
…you usually eat pork?	FAC5			0.719			
…you usually eat eggs?	FAC8			0.620			
…you usually eat fish?	FAC13			0.487			
…you usually eat bread, pasta, rice?	FAC1				0.733		
…you usually eat cold cuts?	FAC2				0.432		
…you usually eat food cooked with olive oil or vegetable fats (fried)?	FAC16				0.622		
…you usually eat snacks?	FAC14					0.799	
…you usually eat sweets?	FAC15					0.694	
…you usually drink non-alcoholic aperitifs?	FAC20					0.525	
…you usually eat milk?	FAC6						0.727
…you usually eat cheese?	FAC7						0.557
% of variance		12.9	12.0	10.1	7.5	7.5	5.5

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser normalization.
(*) scale used: 1 = never; 5= always

had an average cultural level (PR 1.49 and PR 1.23) and who both worked (PR1.95 and PR 1.77). Most of these students never had an adequate breakfast (PR 2.28), often preferring to have a coffee (PR 2.73), did not habitually eat lunch at home (PR 1.58), and had just a roll for lunch (PR 2.08). For many of them, it was normal to consume alcoholic drinks outside mealtimes (PR 29.33), aperitifs (PR 58.83), and liquors (PR 118.00). Their meals included red meat (PR 3.50), pork (PR 7.00), and cold cuts (PR 2.65). Members of this segment usually displayed high-risk profiles. Many of these students often smoked (PR 2.84), often bet (PR 2.28), and often exceeded the speed limit (PR 2.96). Consequently, this segment was called "the dissolutes".

The third component to be selected, which accounted for 10% of the extracted variance, included the variables related to the consumption of meat (white, red, and pork, FAC3, FAC4, FAC5), eggs (FAC8), and fish (FAC13) (Table 4). The students with this eating style accounted for 12% of the sample. They were mainly male students (PR 1.42) and commuters (PR 1.11). Many of them preferred two main meals (PR 1.29, PR 1.28) and an adequate breakfast (1.16). They mainly consumed white meat (PR 6.11), red meat (PR 16.00), and pork (PR 79.67). Many of them also often ate eggs (PR 43.50). In this segment, many students had a high risk-taking profile, practicing dangerous sports (PR 3.00), often betting (PR 2.15), and often exceeding the speed limit (PR 2.52). This segment was called "the starving".

The fourth component selected (7.5% of the extracted variance) contained variables related to the habit of eating bread/pasta/rice (FAC1), cold cuts (FAC2), and fried foods (FAC16), with little savoury food (Table 4). When we analysed the characteristics of this segment, which represented 10% of the sample, we basically found young students (19 years old PR 3.14), from family units with low–average incomes (father's job PR 2.70, mother's job PR 1.67) and a low level of education (PR 2.10 and PR 1.16). This group also included students who came from other cities (PR 1.11). Many of them preferred to concentrate their main meal at lunch time (PR 1.44) and at home (PR 1.66), and the food they consumed was mainly cereals (bread, pasta, rice PR 2.93), cold cuts (PR 7.73), and above all, fried food (PR 12.53). Many of them smoked, but not frequently (PR 2.70), and had an average risk-taking profile: they did not exceed the speed limit (PR 1.57) or use motor scooters

Table 3. First and second segments: percentage frequencies of variable values within the group and corresponding percentage frequencies within the remaining population sample; prevalence ratios (PR)

List of variables	Frequency within the segment (a)	Frequency within the remaining sample (b)	PR (c = a/b)
First segment			
Socioeconomic variables			
Sex: female	80.0	49.30	1.62
School attended: professional institute	53.3	45.4	1.17
Family unit: 4 components	63.3	48.7	1.30
Father's job: manager, freelance professional, businessman	40.0	28.9	1.38
Mother's job: housewife	66.7	40.8	1.63
Father's education: senior school	60.0	52.6	1.14
Mother's education: middle school	36.7	23.0	1.60
Variables on food consumption behaviour			
Always has an adequate breakfast	90.0	56.6	1.59
Always has lunch at home	43.3	28.3	1.53
Dinner is often the main meal	46.7	32.9	1.42
Lunch is often the main meal	56.7	44.1	1.29
Doesn't drink fizzy drinks	40	11.8	3.39
Always eats greens	80	3.3	24.24
Always eats vegetables	73.3	2.0	36.65
Always eats fruit	73.3	19.1	3.84
Always eats pulses	16.7	1.3	12.85
Always eats with olive oil dressing	40.0	13.2	3.03
Always eats being careful about salt	70.0	38.2	1.83
Variables for risk tendency			
Doesn't bet on sports	70.0	59.2	1.18
Doesn't ride a motorbike	50.0	32.2	1.55
When driving, never goes over the limit	43.3	26.3	1.65
Regularly plays sport	60.0	50.7	1.18
Has never played extreme sports	86.7	79.6	1.09
Second segment			
Socioeconomic variables			
Sex: male	82.4	42.2	1.95
Family unit: 4 components	64.7	49.7	1.30
Father's job: clerk	47.1	24.2	1.95
Mother's job: clerk	35.3	20	1.77
Father's education: senior school	76.5	51.5	1.49
Mother's education: senior school	64.7	52.7	1.23
Variables on eating habits			
Never has an adequate breakfast	23.5	10.3	2.28
Only has coffee for breakfast	52.9	19.4	2.73
Sometimes has lunch at home	35.3	22.4	1.58
Never has a roll for lunch	35.3	17	2.08
Drinks 1–2 glasses of wine a day	17.6	3	5.87
Always drinks alcoholic aperitifs	35.3	0.6	58.83
Always drinks liquors	11.8	0.1	118.00
Always drinks alcoholic drinks outside mealtimes	17.6	0.6	29.33
Always eats cold cuts	35.3	13.3	2.65
Always eats red meat	52.9	15.1	3.50
Always eats pork	29.4	4.2	7.00
Variables for risk tendency			
Often smokes cigarettes	41.2	14.5	2.84
Often bets on sports	23.5	10.3	2.28
Often exceeds the speed limit	41.2	13.9	2.96

(PR 1.59). They were called "the provincials".

The fifth and sixth components selected (accounting for 7.5% and 5.5% of the extracted variance, respectively) consumed specific foodstuffs rather than displaying any real style (Table 5). The fifth component ate snacks and sweets (FAC14 and FAC15), and drank non-alcoholic aperitifs (FAC20). The consumers tied to this component represented 18% of the sample and were called "the gluttonous". They were basically 20 years old (PR 2.43) and belonged to family units in which both the father and mother had very low levels of schooling (PR 1.71 and PR 4.21, respectively). Many of them did not habitually eat lunch in the same place (at home PR 1.82; in a restaurant PR 1.93), never had an adequate breakfast (PR 2.11), and considered dinner their main meal (PR 1.40). In this segment, many students consumed snacks (PR 32.64), fizzy drinks (PR 1.96), sweets (9.00), and above all, non-alcoholic aperitifs on a daily basis (PR 171.00).

The sixth component was linked to the habitual consumption of milk (FAC6) and cheese (FAC7)

Table 4. Third and fourth segments: percentage frequencies of variable values within the group and the corresponding percentage frequencies within the remaining population sample; prevalence ratios (PR)

List of variables	Frequency within the segment (a)	Frequency within the remaining sample (b)	PR (c = a/b)
Third segment			
Socioeconomic variables			
Sex: male	60.9	42.8	1.42
Mother's job: teacher	26.1	13.8	1.89
Commuting student	82.6	74.1	1.11
Variables on food consumption behaviour			
Always has an adequate breakfast	56.5	35.2	1.61
Sometimes has lunch in a restaurant	34.8	17	2.05
Never has lunch in a cafè	34.8	27	1.29
Never has a roll for lunch	34.8	16.4	2.12
Lunch is always the main meal	39.1	30.2	1.29
Dinner is often the main meal	43.5	34	1.28
Doesn't drink fizzy drinks	30.4	14.5	2.10
Always eats white meat	34.8	5.7	6.11
Always eats red meat	30.4	1.9	16.00
Always eats pork	47.8	0.6	79.67
Always eats eggs	26.1	0.6	43.50
Variables for risk tendency			
Often bets on sport	21.7	10.1	2.15
Often exceeds the speed limit	34.8	13.8	2.52
Has played dangerous sports	43.5	14.5	3.00
Fourth segment			
Socioeconomic variables			
Age: 19 years old	33.3	10.6	3.14
Father's job: workman	28.6	10.6	2.70
Mother's job: clerk	33.3	19.9	1.67
Father's education: preparatory school	14.3	6.8	2.10
Mother's education: middle school	38.1	23.6	1.61
Commuting student	81	72.7	1.11
Variables on food consumption behaviour			
Always has lunch at home	47.6	28.6	1.66
Lunch is always the main meal	42.9	29.8	1.44
Drinks more than ½ litre of mineral water a day	90.5	80.7	1.12
Always eats bread, pasta, rice	85.7	29.2	2.93
Always eats cold cuts	28.6	3.7	7.73
Always eats fried food	23.8	1.9	12.53
Variables on risk tendency			
Sometimes smokes cigarettes	28.6	10.6	2.70
Doesn't ride a motorbike	52.4	32.9	1.59
Doesn't exceed the speed limit	42.9	27.3	1.57

(Table 5). The consumers in this segment, which represented 17% of the sample, predominantly belonged to family units of four members (PR 1.32), in which the mother was a housewife (PR 1.41), and the students came from professional institutes (PR 1.48). Many of them always had an adequate breakfast (PR 1.59) and they always had lunch at home (PR 1.50). Most of them drank milk (PR 3.33) and ate cheese (PR 6.57) and bread, pasta, and rice (PR 1.73). Many of these consumers seemed to have low risk-taking profiles: they did not smoke (PR 1.35), they used safety belts (PR 1.11), and they did not play dangerous sports (PR 1.16).

Conclusions

Food choices play a central role in effectively safeguarding the health of a population. It is widely known that healthy eating habits, above all in the younger consumer groups, are a key factor in preventing obesity and the many chronic illnesses related to it (Nestle and Jacobson, 2000; Bisogni *et al.*, 2002; Lobstein *et al.*, 2004). This markedly influences the decisions of policy makers because the development of illnesses associated with inappropriate food consumption is an economic burden on the health service sector and public welfare.

In this context, university students represent an interesting type of consumer because on the one hand, they are still influenced by the food consumption choices of their family units, while on the other hand, they are beginning to make independent food choices.

Notwithstanding the various limitations of this study, such as the size of the sample, our survey established six homogeneous segments based on food consumption habits. Among these, only the first

Table 5. Fifth and sixth segments: percentage frequencies of variables values within the group and the corresponding percentage frequencies within the remaining population sample; prevalence ratios (PR)

List of variables	Frequency within the segment (a)	Frequency within the remaining sample (b)	PR (c = a/b)
Fifth segments			
Socioeconomic variables			
Age: 20 years	31.4	12.9	2.43
Father's education: middle school	31.4	18.4	1.71
Mother's education: preparatory school	14.3	3.4	4.21
Variables on food consumption behaviour			
Never has an adequate breakfast	20.0	9.5	2.11
Sometimes has lunch at home	37.1	20.4	1.82
Sometimes has lunch in a restaurant	31.4	16.3	1.93
Dinner is often the main meal of the day	45.7	32.7	1.40
Drinks 1–2 glasses of mineral water a day	34.3	10.2	3.36
Drinks 1–2 glasses of fizzy drink a day	37.1	18.9	1.96
Always eats snacks	45.7	1.4	32.64
Always eats sweets	48.6	5.4	9.00
Is not careful about savoury food	42.9	18.4	2.33
Always drinks nonalcoholic aperitifs	17.1	0.1	171.00
Variables for risk tendency			
Often bets on sports	20.0	9.5	2.11
Sometimes uses a seat belt	28.6	12.2	2.34
Sixth segments			
Socioeconomic variables			
School attended: professional institute	63.6	43.0	1.48
Father's job: clerk	36.4	24.9	1.46
Mother's job: housewife	66.7	47.3	1.41
Family unit: 4 components	63.6	48.3	1.32
Variables on food consumption behaviour			
Always has an adequate breakfast	54.5	34.2	1.59
Always has lunch at home	42.3	28.2	1.50
Never has a roll for lunch	54.5	35.6	1.53
Doesn't drink wine	63.6	47.7	1.33
Always drinks milk	84.8	25.5	3.33
Always eats cheese	39.4	6.0	6.57
Always eats bread, pasta, rice	54.5	31.5	1.73
Variables for risk tendency			
Doesn't smoke	87.9	65.1	1.35
Often uses a seat belt	87.9	79.2	1.11
Has never played dangerous sports	90.9	78.5	1.16

segment is consistent with the main recommendations for public health, favouring the high consumption of fruit, vegetables, and pulses. The fourth segment (tied to the consumption of carbohydrates) and the sixth segment (tied to the consumption of milk and cheese) involve food consumption habits that can cause weight gain, but on the risk-taking scale, they certainly are not extreme. Segments 2, 3, and 5 are the most "at risk" diets because they are characterized by the high-level consumption of animal proteins, alcoholic drinks, snacks, and aperitifs.

Various studies have identified a relationship between food consumption choices, socioeconomic factors, and lifestyle (for example see Wang, 2001; Sjöberg, 2003; Deshmukh-Taskar, 2007). In this study, it is possible to draw some conclusions about this. There is clear evidence of a link between eating habits and some variables associated with risk-taking behaviour. In particular, in the first segment, defined as "traditionalists", the consumption of healthy foods was linked to low risk-taking tendencies. However, the risk-taking tendencies were higher in the segments characterized by the high-level consumption of animal proteins and alcoholic drinks.

A second interesting result is that two segments among those displaying detrimental patterns of food consumption, were characterized by large numbers of students who commute, or by students who are decisively more independent than those who still live at home with their parents. Therefore, it seems that the first independent food choices characteristically involve foods with a high carbohydrate content (segment 4) or animal proteins (segment 3). Other interesting correlations involve the social characteristics of the segments. In some cases, there was a link between food choices and the characteristics of the consumer or their family unit (segment 1), whereas in others, there was a clear link between food choices and habits. For instance, not eating an adequate breakfast was present in segments at risk (segments 2 and 5).

In conclusion, this paper offers various points for consideration in the context of developing health policies. Despite the constant commitment of various organizations to the communication and dissemination of information about lifestyles

and healthy foods, consumers and especially the youngest consumers are often badly informed about the beneficial effects of eating certain foodstuffs, the quality of products, their place of origin, and their content.

References

Abel, T. 1991. Measuring health lifestyles in a comparative analysis: theoretical issues and empirical findings. Social Science and Medicine 32(8): 899-908.

Averett, S. L., Sikora, A. and Argys, L. M. 2008. For better or worse: relationship status and body mass index. Economics and Human Biology 6(3): 330-349.

Baraldi, F., Canavari, M., Regazzi, D. and Spadoni, R. 2009. Food and health-contribute of agri-food economics. Italian Journal of Agronomy 4(1s): 163-170.

Bisogni, C. A., Connors, M., Devine, C. M. and Sobal, J. 2002. Who we are and how we eat: a qualitative study of identities in food choice. Journal of Nutrition Education and Behavior 34(3): 128-139.

Bouis, H. E., Eozenou, P. and Rahman, A. 2011. Food prices, household income, and resource allocation: socioeconomic perspectives on their effects on dietary quality and nutritional status. Food and Nutrition Bulletin 32(Supplement 1): 14S-23S.

Brunso, K. and Grunert, K. G. 1995. Development and testing of a cross-culturally valid instrument: Food-related life style. Advances in consumer research 22(1): 475-480.

Chinnici, G., Pecorino, B., Rizzo, M. and Rapisarda, P. 2013. Evaluation of the performances of wine producers in Sicily. Quality-Access to Success 14(135): 108-135.

Clatworthy, J., Buick, D., Hankins, M., Weinman, J. and Horne, R. 2005. The use and reporting of cluster analysis in health psychology: A review. British journal of health psychology 10(3): 329-358.

Conti, S., Masocco, M., Meli, P., Minelli, G., Solimini, R., Toccaceli, V. and Vichi, M. 2004. Eating habits and lifestyles: a multivariate analysis of the data from an Italian population-based survey. Nutrition research 24(7): 495-507.

Deshmukh-Taskar, P., Nicklas, T. A., Yang, S. J. and Berenson, G. S. 2007. Does food group consumption vary by differences in socioeconomic, demographic, and lifestyle factors in young adults? The Bogalusa Heart Study. Journal of the American Dietetic Association 107(2): 223-234.

Duarte, P., Raposo, M. and Ferraz, M. 2013. Drivers of snack foods impulse buying behaviour among young consumers. British Food Journal 115 (9): 1233-1254.

Echols, M. A. 1998. Food safety regulation in the European Union and the United States: different cultures, different laws. Columbia Journal of European Law 4: 525-543

Forshee, R. A. and Storey, M. L. 2006. Demographics, not beverage consumption, is associated with diet quality. International Journal of Food Sciences and Nutrition 57(7-8): 494-511.

Gillespie, S., Haddad, L., Mannar, V., Menon, P., Nisbett, N. and Maternal and Child Nutrition Study Group. 2013. The politics of reducing malnutrition: building commitment and accelerating progress. The Lancet 382(9891): 552-569.

Gulisano, G. and Platania, M. 2003. Analysis and market prospects of a traditional calabrian product. New Medit 2: 51-58.

Hatanaka, M., Bain, C. and Busch, L. 2005. Third-party certification in the global agrifood system. Food policy 30(3): 354-369.

Kish, L. 1965. Survey sampling. New York: John Wiley & Sons Inc.

ISTAT. 2014. National Health Interview Survey. Multiscope Survey on the Family Aspects of Daily Life. Rome: ISTAT.

Lobstein, T., Baur, L. and Uauy, R. 2004. Obesity in children and young people: a crisis in public health. Obesity reviews 5(s1): 4-85.

Lobstein, T. and Frelut, M. L. 2003. Prevalence of overweight among children in Europe. Obesity reviews 4(4): 195-200.

Murdoch, J., Marsden, T. and Banks, J. 2000. Quality, nature, and embeddedness: some theoretical considerations in the context of the food sector. Economic geography 76(2): 107-125.

Nestle, M. and Jacobson, M. F. 2000. Halting the obesity epidemic: a public health policy approach. Public health reports 115(1): 12-24.

Parrott, N., Wilson, N. and Murdoch, J. 2002. Spatializing quality: regional protection and the alternative geography of food. European Urban and Regional Studies 9(3): 241-261.

Pieniak, Z., Verbeke, W., Olsen, S. O., Hansen, K. B. and Brunsø, K. 2010. Health-related attitudes as a basis for segmenting European fish consumers. Food Policy 35(5): 448-455.

Platania, M. and Privitera, D. 2006. Typical products and consumer preferences: The "soppressata" case. British Food Journal 108(5): 385-395.

Rutelli, P. and Bustreo, M. 2004. L'impresa del sé. Simboli e significati nella società postmoderna. Milano: FrancoAngeli.

Sharma, S. 1995. Applied multivariate techniques. New York: John Wiley & Sons Inc.

Santisi, G., Platania, S. and Hichy, Z. 2014. A lifestyle analysis of young consumers: a study in Italian context. Young Consumers 15(1): 94-104.

Slater, M. D. and Flora, J. A. 1991. Health lifestyles: audience segmentation analysis for public health interventions. Health Education and Behavior 18(2): 221-233.

Sjöberg, A., Hallberg, L., Höglund, D. and Hulthén, L. 2003. Meal pattern, food choice, nutrient intake and lifestyle factors in The Göteborg Adolescence Study. European journal of clinical nutrition 57(12): 1569-1578.

Tilman, D., Fargione, J., Wolff, B., D'Antonio, C.,

Dobson, A., Howarth, R., and Swackhamer, D. 2001. Forecasting agriculturally driven global environmental change. Science 292(5515): 281-284.

Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R. and Polasky, S. 2002. Agricultural sustainability and intensive production practices. Nature 418(6898): 671-677.

Tootelian, D. H. and Segale, J. 2004. The importance of place of origin in purchase decisions for agricultural products. Journal of Food Products Marketing 10(3): 27-43.

Wang, Y. 2001. Cross-national comparison of childhood obesity: the epidemic and the relationship between obesity and socioeconomic status. International journal of epidemiology 30(5): 1129-1136.

Weber, E. U., Blais, A. R. and Betz, N. E. 2002. A domain-specific risk attitude scale: Measuring risk perceptions and risk behaviors. Journal of behavioral decision making 15(4): 263-290.

World Health Organization. 2000. Obesity: preventing and managing the global epidemic (No. 894). World Health Organization.