

## GENDER DIFFERENCES IN NUTRITION AND LIFESTYLE ATTITUDES FOR A SAMPLE OF ROMANIANS

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Nowadays, the impact of nutrition science is different, in terms of such variables as gender, age, level of education influencing the “appetite” for diet and lifestyle information in an essential way. In the present study, we followed mainly the gender influence, in order to draw practical conclusions to be used in the design of Health Education Programs. The results showed that women pay a greater importance to the roles of food and physical exercising in gaining and maintaining wellness and health ( $p < 0.01$ ). Even more, if men buy food mainly by convenience, for female customers other factors (like the nutrients or taste) are decisive ( $p = 0.03$ ). The main conclusion is that women and men behave differently when it comes to make dietary and healthy lifestyle choices. Men are less interested in nutrition topics and hardly ever ready to believe and apply sanogenetic models.

*Keywords:* lifestyle, gender, nutrition, daily physical activity, BMI

### 1. Introduction

Nutrition and food technology are some of the most dynamic science sectors, with a great importance in the contemporary world. There have elapsed several decades since people realised that food exerts a decisive influence on their health. Scientists from all over the globe started a real race in order to identify dieting factors with a positive action on human health but also negative factors determining the onset and evolution of the most feared diseases of the 21<sup>st</sup> century: the chronic degenerative ones. Of course, there were also some exaggerations, the average person having frequently inappropriate beliefs regarding the curative or poisonous actions of certain elements included in the diet. After all, it is a reality that nutrition information is very diverse and changes sometimes from a study to another, so it is rather difficult for a person of a non-medical training to receive only correct and trustful information. (Rowe, 2002; Fineberg, 1998). In this “maize” of healthy and non healthy food, media plays a central role, as the main interface between the scientists and the consumers. One aspect to be taken into account is that media is also a place for food advertising, or, unfortunately the latter is often on enhancing physical energy, nutrient-low products driving the consumers towards an unhealthy direction (Henderson, 2006). We can notice that sometimes advertising is gender-oriented, some spots being dedicated to women (more those with an accent on the healthy components of a certain product) and others, to men (the well known spots for

different beer brews). Marketing research has already discovered the importance of gender in food selection. The question is if this finding can be extended and used efficiently in health education. The impact of nutritional science is different, variables like gender, age, level of education, locality of origin (and many other) influencing the appetite for diet information in an essential way (Mirmiran, 2003).

From the huge number of factors that have an action on the lifestyle and on the nutrition preoccupations of a person, we selected, in the present study, the gender and followed its influence in making lifestyle and nutritional decisions in a sample of Romanians from the Southern counties of the country and from the capital, of Bucharest. Of course, apart from gender, other demographical elements have been taken into account, in order to describe better the difference in lifestyle patterns in our country. It is already known that age and level of education are the main factors to have in mind when carrying out a health information program (Elbom, 1997). However, we chose gender related aspects in order to conclude if gender-specific elements have to be taken in account into the design of a health education program, thus maximising the program's efficiency in the target population. Do we really need to have differentiated designs for programs addressed to men and for those addressed to women? This is the main question to which our study tried to answer.

## 2. Materials and methods

Between October and December 2008, we carried out a descriptive cross-sectional pilot study on a sample of 511 Romanians originating in Southern counties of the country and in the capital, of Bucharest. Each member of the group had to answer to a questionnaire of 47 questions, regarding lifestyle and general nutrition knowledge.

The questionnaire was a shortened variant of the IFIC (International Food Information Council) questionnaire (IFIC, 2008), adapted to the necessities and to the material resources available in the present study. We kept in our questionnaires 5 types of questions:

- a) demographical questions;
- b) health questions: questions about the objective/perceived degree of health of the respondents;
- c) nutrition questions: questions regarding the self-evaluation of the nutrition status, the nutrition knowledge, the food intake and the interest (and importance) paid to nutrition topics;
- d) lifestyle questions: questions regarding the food selection process and the level of physical exercising;
- e) food-safety questions.

The questions had answers either in the form of a 5-points Likert scale of agreement, or in the form of ready-provided multiple answers form of which the respondents were supposed to select the most suitable for them.

The selection of the group was web and phone based. We used posts asking for collaboration put on 4 sites (of general information, of pet-lovers, of gardening and a tourist forum) and also got phone numbers and emails of individuals having their medical records in the practices of 10 general practitioners from the urban and rural areas of the Southern Romania (the doctors were asked to join during the conference). From the individuals accepting to answer the questionnaire, we eliminated: those with occupations linked to medicine (doctors, nurses, dietitians, medical students, veterinarians) and those who were living, in the period of the study, outside the country for at least 1 year. We admitted those who were seasonally working in foreign countries, on the condition to have been absent from Romania for a maximal period of 6 month/year. Upon the final analysis, we eliminated unfinished questionnaires.

Unfortunately, in spite of the shortness of the questionnaire (it had almost a quarter of the number of questions of the original IFIC questionnaire), 21% of the initial number of respondents failed to finish it (the maximal proportion of giving up: was represented by those who responded on the internet).

The composition of the sample, classified on age, sex and level of education is presented in table 1.

**Table 1.** Education/age/gender in the sample

	Education							
	High school		College		Academic		Post-academic	
	Women	Men	Women	Men	Women	Men	Women	Men
18-24	51	32	2	9	30	12	0	0
25-34	18	17	6	1	34	16	14	9
35-44	23	18	5	3	15	7	5	3
45-54	23	9	8	6	8	4	5	3
55-64	18	12	7	6	4	5	3	0
65-74	12	10	2	7	3	2	0	2
> 74	7	5	3	1	1	4	0	0

From the point of view of the size of the town inhabited, 39.3% dwelled in Bucharest, 23.9%, in a big town (over 100 000 inhabitants), 7.2% in a small town (under 100 000 inhabitants), 23.3% in a village (rural inhabitants) and 6.2% were working temporarily abroad. The answers to the questionnaire were statistically analyzed by SPSS program (Jaba, 2007; Leech, 2005; Hill, 2006) and by Latent Gold Pack (Vermunt, 2005). We used descriptive statistics, tests of association (Pearson chi square test), latent class and cluster analysis. For the test of association, several variables were considered, among which: gender, body mass index (BMI), age, level of education, associated diseases, opinions about the personal diet, beliefs regarding the importance of nutrition, factors influencing the purchase of a certain food or beverage, etc. In the latent class and cluster analysis, we considered the following covariates: age group, gender, educational level, marital status, economical status and BMI class.

### 3. Results and discussions

The body mass index (BMI), as a mirror for a very general impression regarding nutritional status, had the following distribution (table 2).

**Table 2.** Gender/BMI Classification

		BMI Classification				Total
		Underweight	Normal	Overweight	Obese	
Gender	Women	31 6.1%	164 32.1%	51 10.0%	61 11.9%	307 60.1%
	Men	12 2.3%	79 15.5%	76 14.9%	37 7.2%	204 39.9%
Total		43 8.4%	243 47.6%	127 24.9%	98 19.2%	511 100.0%

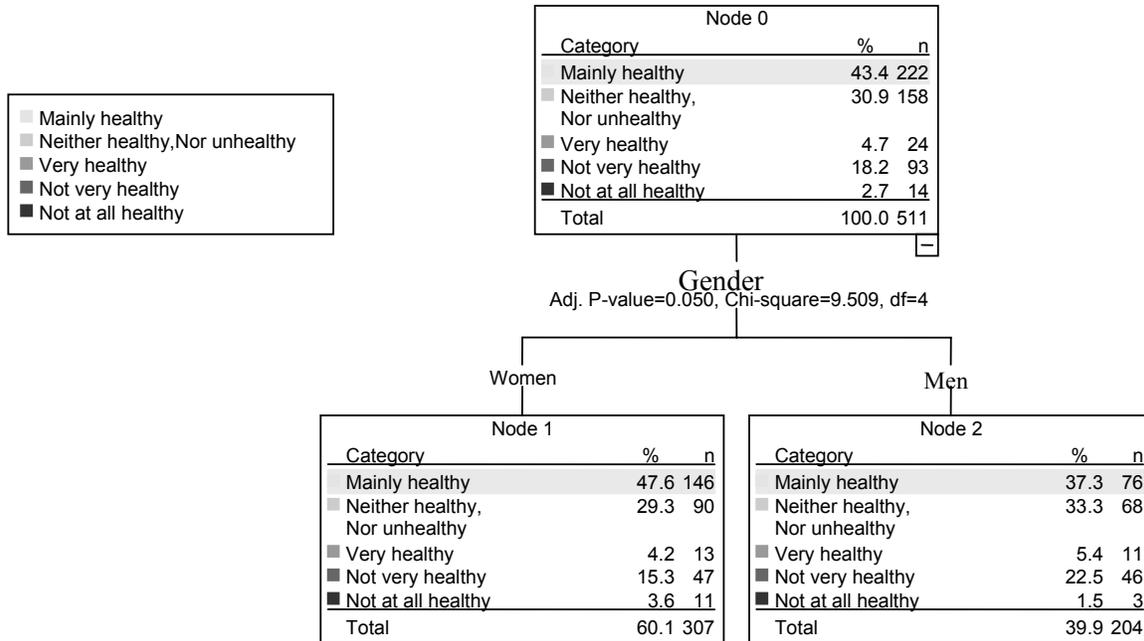
The Pearson chi square test showed a significant association (chi square =29.358, df=3, p=.000) between gender and BMI, with more under-weight and normal-weight women than men. It is already known that the prevalence of the overweight is greater among Romanian males, than among females (IASO 2008). The influence of different factors (besides gender) on the BMI of a person is well known, the value of BMI being the result of the action of a multitude of subjective and objective elements.

There are also some gender-related differences regarding diseases: men have more frequently diabetes and women, food allergies and osteoporosis. The limitation of these findings is mainly the fact that the

personal pathology was self-reported and we don't have any hints about the objectivity of the answers. The satisfaction about the personal health is not connected with gender but with the degree of education (academic studies linked with a higher degree of satisfaction;  $p=0.001$ ) and, obviously, with age ( $p<0.001$ ), with the maximal degree of in satisfaction for the group of 55-64 years.

Regarding the opinion about the personal diet, we found a significant difference between genders. Even if both sexes consider having usually a healthy diet, more women than men think taking healthy and very healthy meals.

What's your opinion about your diet (including food, beverages and supplements):



**Figure 1.** Opinions about the diet

But when it comes to essential factors of influence in the decision of buying food, more men than women declare that they buy food driven mainly by convenience, rather than by other elements (taste, nutritional value) (Pearson Chi-Square 10.102;  $df=4$ ;  $p=0.03$ ) (table 3)

**Table 3.** Gender and convenience, as main determinant of food selection

		Because it's easy to get (convenient)					Total	
		Not important at all	Very low degree of importance	Low degree of importance	High degree of importance	Essential in food choice		
Gender	Women	Count	152	61	35	32	27	307
		% of Total	29.7%	11.9%	6.8%	6.3%	5.3%	60.1%
	Men	Count	84	32	26	30	32	204
		% of Total	16.4%	6.3%	5.1%	5.9%	6.3%	39.9%
	Total	Count	236	93	61	62	59	511
		% of Total	46.2%	18.2%	11.9%	12.1%	11.5%	100.0%

It is a clear connection with the following results of our study and with the results of many foreign researches, which found out that women pay a greater importance to the effects of nutrition on the general wellness of their body, than men do (Bates, 1999; Khor 2002). We carried out a latent class analysis regarding the beliefs of the respondents about healthy nutrition and its consequences. The subjects were required to answer their agreement degree on a 5-level Likert scale dealing with the positive role of nutrition in maintaining the health status, decreasing the risk of certain diseases (heart problems, infections), curing some illnesses, increasing the physical and mental energy and in beauty (skin, nails good looking) keeping. In this respect, 5 correspondent indicator variables were used: Maintain Safe, Curative, Energy and Beauty.

The possible cluster models including a random factor of equal effects analyzed indicated the 3 class model as the best fit model according to the AIC (Akaike Information Criterion) value. Further, this model was inspected by adding the explanatory variables for clustering (covariates): age group, gender, educational level, marital status, economical status and BMI class (table 4).

The cluster numbering system is in correspondence with the proportion of individuals included in the cluster. The first cluster, which includes about 41% of the respondents, is the segment where individuals agree with all the 5 food claimed properties, “the nutritionists”. The second cluster, that includes about 40% of the respondents, is the “moderate” one populated by people who are more or less neutral regarding nutrition’s effects on the general health status. Finally, the third cluster of 19% of the subjects is the one of the sceptics. In this cluster, people doubt the authenticity of accepted beliefs of the foods benefits. They strongly disagree with food effect on body and psychical status.

Covariates conditional probabilities indicate that the first cluster is populated by individuals of age up to 34 years or of higher education level. Women are dominant in this cluster. The second cluster is populated with persons over 55 years with men predominance and individuals of a medium economic status. The third cluster is formed mainly by men of a a low economic status originating in the 18-24 and 45-54 year groups.

The analysis shows that the proportions of the moderates and of the believers are almost equal, but among the first ones there are more seniors and men, who need, for sure, an educational effort, in order to pay more attention to their nutrition. Men are generally more sceptic regarding the impact of diet on the overall wellness of the human body and it can be seen that the very young and the middle aged form the third cluster, this position being linked, in a significant way, with the economical status. Healthy food is often more expensive than the so-called „junk food”(“nutrient low food”) and many of us have already observed that eating with respect to the nutrient intake can be overwhelming form the point of view of the price. One prioritary direction of the technologist is, mainly today, in times of economic crisis, to find ways to put on market nutritious food at affordable prices.

At a question asking for interest regarding information about the effects of nutrition on health, there were no differences between genders. The answer seems somewhat contradictory if we take into account the above findings and the contradiction can be motivated only by the intervention of personal psychological factors (Logue, 2005).

Women are more aware of the necessity of a main component of healthy lifestyle namely, physical exercise: 84.6% of them know that at least 30 minutes per day are needed, versus 76% for men. The difference is statistically significant ( $p < 0.01$ ) (Figure 2).

One explanation is that women are more preoccupied than men to maintain their body weight (Pearson chi-square=21.884;  $df=3$ ;  $p=0.00$ ) and we reported a significant association between the interest for maintaining body weight and the knowledge about the necessity of exercising (Pearson chi-square =26.4,  $df=3$ ,  $p=0.00$ ). Trying to comply with contemporary beauty criteria, Romanian women fight currently

overweight and obesity. Unfortunately, the same criteria are not generally applied to men; hence even from the point of view of the social acceptance, overweighed and obese men are less penalized than women. What is often ignored, however, is that body weight is not only a component of our image but also a determinant factor for our health (Wood, 2009). Being normally weighted means having a lower chance to develop hypertension, diabetes, dislipemia and the whole group of cardio-vascular and metabolic diseases that lower, in our days, the quality of life and work capacity of adults in developed and emerging countries (Must, 1999; Ford, 2001).

**Table 4.** Opinions about the importance of nutrition (cluster analysis)

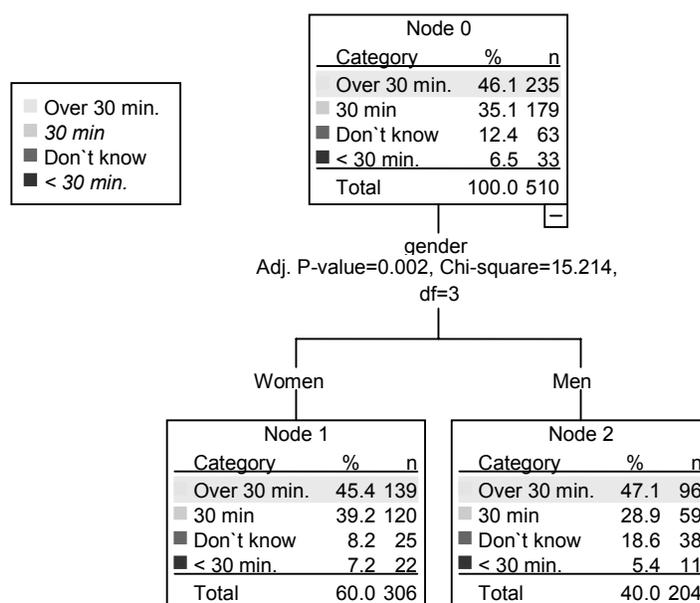
	Cluster1	Cluster2	Cluster3
Cluster Size (%)	0.406	0.402	0.193
Maintain			
Strongly disagree	0.000	0.166	0.834
Disagree	0.000	0.803	0.197
Neither agree nor disagree	0.001	0.921	0.078
Agree	0.417	0.444	0.140
Strongly Agree	0.674	0.176	0.149
Safe			
Strongly disagree	0.000	0.000	1.000
Disagree	0.033	0.911	0.057
Neither agree nor disagree	0.124	0.810	0.067
Agree	0.557	0.427	0.016
Strongly Agree	0.757	0.171	0.073
Curative			
Strongly disagree	0.025	0.116	0.859
Disagree	0.018	0.958	0.024
Neither agree nor disagree	0.284	0.681	0.035
Agree	0.549	0.390	0.061
Strongly Agree	0.824	0.121	0.055
Energy			
Strongly disagree	0.000	0.111	0.889
Disagree	0.000	1.000	0.000
Neither agree nor disagree	0.143	0.856	0.001
Agree	0.455	0.462	0.083
Strongly Agree	0.798	0.131	0.070
Beauty			
Strongly disagree	0.001	0.197	0.803
Disagree	0.027	0.973	0.000
Neither agree nor disagree	0.336	0.664	0.000
Agree	0.584	0.349	0.067
Strongly Agree	0.882	0.059	0.059

#### 4. Conclusions

Women, more than men, are convinced that a healthy nutrition is important, both in maintaining health and beauty, and in solving health problems. They are also more preoccupied regarding the body weight and its maintenance, are ready to exercise more and take into account more the nutritional value, than the

convenience, when it comes to select and buy a certain product. Among women, those of a higher level of education and in the 25-34 age group pay, more than other, a higher degree of importance to personal nutrition and generally, to the curative and prophylactic actions of an adequate nutrition.

How long do you have to exercise in order to be healthy?



**Figure 2.** Opinions about the daily physical activity

Our study was a cross-sectional one, so it had its inherent limitations. The sample we worked on was rather small, but our findings were still similar with those from other studies carried out in other parts of the world. The conclusion is that there is a general significant difference in the lifestyle of nutrition conceptions and behaviours between men and women, having a variety of explanations, as other studies concluded, too (Bock, 1995; Pratala, 2005; von Boten, 2007). Of course, gender is not the only factor that is driving people to behave in certain ways. Neither is the only cause of a greater BMI or of certain diseases. But we cannot ignore that there are specific patterns linked to the identity in terms of a gender or another (ASM, 2008; University of Illinois, 2009), patterns taking their stamp on the nutritional status and on the general health of an individual.

The main lesson-to-be learned is that gender specific educational approaches have to be put in place in order to teach the Romanians:

- the importance of maintaining a normal weight,
- the role of nutrition in the general well-being of the human body,
- the correct factors that have to be taken into account when choosing food,
- the necessity of carrying out a certain amount of daily physical activity.

Men and women can have different points of view and degrees of interest, when it comes to healthy nutrition and lifestyle, but having in mind those differences, valid health education programs can be organised. Different topics or differences in the manner of presenting the topics can be the centre of the maximisation of the efficiency of these types of programs, in order to achieve the final goal of having a population knowing (and practising) the meaning of healthy lifestyle.

## References

- American Society for Microbiology(ASM),2008. Men and women have different eating habits, study shows. *ScienceDaily*, available at <<http://www.sciencedaily.com/releases/2008/03/080319120318.htm>>.
- Bates, C. J., Prentice, A. and Finch, S., 1999. Gender differences in food and nutrient intakes and status indices from the National Diet and Nutrition Survey of People Aged 65 Years and Over, *European Journal of Clinical Nutrition*, **53**(9), 694-699.
- Bock, B. and Kanarek, R., 1995. Women and men are what they eat: the effects of gender and reported meal size on perceived characteristics, *Sex Roles*, **33**, 109-119.
- Elbom, S.M., 1997. Nutrition knowledge is influenced by education, age, and wellness program. *Journal of the American Dietetic Association*, **97** (9), 87.
- Fineberg, H. V. and Rowe, S. B., 1998. Improving public understanding: guidelines for communicating emerging science on nutrition, food safety, and health for journalists, scientists, and other communicators. *Journal of National Cancer Institute*, **90**, 194-199.
- Ford, E.S., Moriarty, D.G., Zack, M.M., Mokdad, A.H. and Chapman, D.P.(2001) Self-reported body mass index and health-related quality of life: findings from the behavioral risk factor surveillance system. *Obesity Resources*, **9**, 21-31
- Henderson, V. and Kelly, B., 2006. Food Advertising in the Age of Obesity: Content Analysis of Food Advertising on General Market and African American Television, *Journal of Nutrition Education and Behavior*, **37**(4), 191-196.
- Hill Th. And Lewichi P., 2006. *Statistics:Methods and Applications*, Published StatSoft, Inc.Commercial statistics.
- IFIC Foundation, 2008. Food & Health Survey.February/March 2008, available at <http://www.ific.org/research/upload/FINAL-IFIC-Foundaton-2008-Food-Health-Survey-FULL-Data-Tables.pdf>.
- International Association for the Study of Obesity (IASO), 2008. *Overweight & Obesity in the EU27*, available at <http://www.iolet.org/database/documents/v2PDFforwebsiteEU27.pdf>
- Jaba E., 2007. *Statistica, Ediția a III-a*, Editura Economică, București.
- Khor, G., Cobiac, L., and Skrzypiec, G., 2002. Gender differences in eating behavior and social self concept among malaysian university students. *Malaysian Journal of Nutrition*, **8** (1), 75-98.
- Leech, N.L., Barrett, C. K. and Morgan ,G.A., 2005. *Spss For Intermediate Statistics: Use And Interpretation*, Published Routledge.
- Logue, A.W., 2004. *The Psychology of Eating and Drinking*. Contributors. Publisher: Brunner-Routledge. Place of Publication: New York.
- Mirmiran, P., Mohammadi, F., Sarbazi,N., Allahverdian, S.and Azizi, F., 2003. Gender differences in dietary intakes, anthropometrical measurements and biochemical indices in an urban adult population: the Tehran Lipid and Glucose Study *Nutrition, Metabolism and Cardiovascular Diseases*, **13** (2), 64-71,
- Must, A., Spadano, J., Coakley, E.H., Field, A.E., Colditz, G. and Dietz,W.H., 1999. The disease burden associated with overweight and obesity. *Journal of American Medical Association*, **282**, 1523-9
- Rowe, S., 2002. Communicating Science-Based Food and Nutrition Information, *Journal of Nutrition*, **132**, 2481S-2482S.
- Prättälä, R., Paalanen, L., Grinberga, D., Helasoja, V., Kasmel, A. and Petkeviciene J., 2007. Gender differences in the consumption of meat, fruit and vegetables are similar in Finland and the Baltic countries *European Journal of Public Health*, **17**(5), 520-5.
- University of Illinois at Urbana-Champaign, 2009. Study finds gender differences related to eating and body image. *ScienceDaily* available at <<http://www.sciencedaily.com/releases/2006/12/061214142133.htm>>.
- von Bothmer, M. and Fridlund, B., 2005. Gender differences in health habits and in motivation for a healthy lifestyle among Swedish university students.*Nursing & health sciences*, **7**(2), 107-18.
- Vermunt, J.K.and Magidson, J., 2005. *Technical Guide for Latent GOLD 4.0: Basic and Advanced*. Belmont Massachusetts: Statistical Innovations Inc., available at : <http://www.statisticalinnovations.com>.
- Wood, S., 2009. New AHA Obesity statement urges clinicians to think beyond clinical treatment and prevention, available at : <http://cme.medscape.com/viewarticle/577039?sssdmh=dml.486661&src=nl dne>.