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The Health Concern Scale: What Results Does the Analysis of this Scale Bring in a Population of Young Participants of a Music Festival?

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Abstract

Introduction: The main factors that influence human health are: biological hereditary factors, the organisation of healthcare, the environment and lifestyle. Sedentary lifestyle leads to obesity which is one of the key risk factors of the diseases of our civilization. To cope with this problem, educational campaigns are created with the aim to promote a healthy lifestyle among young people. However, we have limited knowledge about whether young people pay attention to their health and, if yes, to what extent.

The aim of the study: To evaluate how much attention young participants of the Woodstock music festival (2015, Poland) pay to their health, and to explore the relationship between the level of attention and gender, age, place of residence, education and anthropometric values.

Materials and methods: 1316 participants aged 18-35 took part in the study. The research used the Health Concern Scale developed by Kähkönen and Touril in 1999.

Results: A significant association between the concern for health and the Body Mass Index (BMI) was observed ($p<0.0001$), as well as between the care for health and gender-the results show that women pay more attention to their health than men ($p=0.006$). It was also shown that women keep their care for health stable independently of age, while men tend to increase their care for health with age ($p=0.032$).

Conclusions: Women pay more attention to health than men, regardless of age. Moreover, their care for health rises along with their BMI. Men become concerned about their health when they are older or when they start having problems with body mass. The findings suggest that it would be worth to initiate a pro-health educational plan directed at young men.

Keywords: Health concern; Young people; Care for health; Diet; Lifestyle

Introduction

The main determinants influencing human health were already described in 1973 by the Canadian minister of health, Marc Lalonde. In his ground-breaking report, he mentioned four main factors influencing the state of human health: the biological hereditary factors, the organization of healthcare, the environment, and lifestyle. Out of all the aforementioned determinants, lifestyle (e.g. the diet, the level of physical activity, discipline, alcohol intake, smoking etc.) has the biggest impact on health-its level of influence is as high as 50% [1-6]. Because this influence is so high, the aim of healthcare initiatives should be to raise the awareness of its importance and help in the development of a healthy lifestyle. The fact that, out of all the factors, lifestyle change is the easiest modification should further emphasize its importance. At present, the way of life of young Europeans is far from perfect. According to a research performed by Teleman et al. [7], a high percentage of young people do not consume enough fruit and vegetables, and they do not eat frequently enough, preferring energy drinks and sweets [7]. The study of young people living in Norway shows that the biggest motivation for following a rational diet was health. However, young women were the ones who were generally more interested in rational nutrition, and who based their food choices mainly on their benefits to health. It was observed that women more often than men ate fruit and vegetables and light dishes such as salads or yoghurt. It was also noted that younger people had worse eating habits and generally ate more fast food and fewer dishes that included fish [8].

Bad nutritional habits can already be observed among children. Studies show that their daily diets consist of excessive amounts of white bread, crisps, biscuits, and chocolate. At the same time, 20% of the studied children do not eat any fruit, whereas 4% do not consume any vegetables. The same study shows that girls have a general tendency to pay more attention to food [9]. The results of the European research

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HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) show that even if children consume the proper amount of calories, they do not eat enough vegetables, fruit, and dairy food, and their intake of meat products, fat and sweets is too high. Furthermore, they do not drink enough liquids [10-12]. This is alarming because bad eating habits in childhood are continued in next stages of life.

The main causes of death among young people are mostly connected with external factors, such as: transport accidents, deliberate self-harm, accidental falls, and assaults. In comparison, the reasons for death among people over 45 years of age are significantly different. In their case, death is usually caused by such factors as cancer, cardiovascular diseases, respiratory tract illnesses, and other so called diseases of civilization [13].

Unfortunately, the results show that even though only about 12% of young Europeans suffer from chronic diseases, the numbers rise along with age. Similarly, the number of obese people also rises with age, and so does the Waist Hip Ratio (WHR). Both are risk factors of many diseases of civilization, including cardiovascular diseases and diabetes [13,14].

The aforementioned facts clearly indicate that even though international and European health organizations make detailed recommendations concerning a rational diet and a healthy lifestyle, such suggestions do not yield the anticipated results [15-17].

According to WHO, 55% of deaths in 2002 in Poland were related to unhealthy lifestyle. For example, Poland is in 9th place among the EU countries in terms of the number of daily smokers and percent of people with excess body weight increases since 1996. In addition, the problem is very low consumption of fruit and vegetables and low physical activity [18].

The main causes of death in Poland are cardiovascular disease and cancers. In 2006 45.6% of deaths were associated with cardiovascular disease and 24.8% with cancers [18]. The percent people suffering from coronary heart disease, stroke or high blood pressure are at a medium level in Polish population aged 20-39 however rapidly increases in group aged above 40 [19].

Youth is a phase of life in which the opportunities for health are great. In this phase are established future patterns of middle age health. Unfortunately, it is lack of research about health status, eating habits and health concern in the age group 18-35. In the light of these facts, it is paramount to undertake specific measures in order to make young people aware why it is so important to lead a healthy lifestyle. Studies confirm that well-executed health education may contribute to the improvement of the state of knowledge, awareness, and behaviour of a targeted group [20-24]. However, the first step is to consider to what extent very young people pay attention to their health, and what factors have the biggest influence on this situation. This will help understand the causes of unhealthy habits and may help in changing them.

The Aim of the Study

The aim of the study was to analyse the amount of attention young people present at a rock festival paid to their health, and to find correlations between the care for health and gender, age, place of residence, education, and anthropometric data.

Materials and Methods

The study group: The group that took part in the study consisted of participants of the Woodstock festival which took place between 30.07-1.08 2016 in Kostrzyn, Poland. 1316 people aged 18-35 were studied during the three days of the festival. Data collection was performed by reviewers by means of electronic tablets and telephones. The participants of the festival had to fill in the electronic version of the Health Concern Scale (HCS). Questionnaires were collected in 5 randomly selected points marked on the Figure (Figure 1). In addition, questionnaires were collected in the main tent, where took place workshop and lectures. 1316 individuals are approximately 11% of the total of the festival's participants, and 0.012% of the total of Polish population aged 18-35. The sample size covers the total population.

We choose this group because they representative population sample from all areas (both urban and rural) from different polish regions. They also represent variety levels of education and economic status. Advantage of selecting this group is also that people at the festival have time for questionnaires and measures and they agree to participate in the study. This gives a large variety of data. Possible disadvantages are that the direct interview can scare people with higher BMI and people who are less concerned about health may not want to join the study. All participants have agreed to participate in the study.

Bioethical commission: The study was approved by bioethical commission.

The health concern scale: The study was based on the Health Concern Scale, which was developed by Kähkönen and Touril in 1999 (Table 1). The scale makes it possible to establish how concerned the people surveyed are about their health. The questionnaire consists of 10 statements related to patients' concerns about the occurrence of nutrition-dependent illnesses, weight gain, or an improper diet. The 10 questions needed an answer on a scale of 1 (definitely not) to 7 (definitely yes). Next, the points for questions 1, 3, 5, 6, 7 and 9, as well as the inverse points for questions 2 and 4, were summed up for every person individually in reference to HCS-the higher the total number, the bigger the concern for health.

Statistical analysis: For statistical analysis a single multivariate generalized linear model was chosen, where the health care score derived from the Health Concern Scale was taken as response variable and the independent variables were sex, age, education level, size of the place of residence and BMI, adjusted by interviewer (to remove the potential effect of the 10 interviewer groups on the results). The model also included 3 interaction terms: sex and age, sex and education level, as well as sex and size of the place of residence. Reference groups were always those with the largest amount of individuals, i.e., intermediate for education level and large cities for the place of residence. All graphics and statistical analyses were performed in R (version 3.2.3).

Results

1316 people (43% women and 57% men) aged between 18-35 took part in the study. The characteristics of the group are presented in Table 2.

The average of the Body Mass Index is within the middle range of the norm (20-25 kg/m^2) in the case of women, and in the upper values of the norm in the case of men (23.8 ± 6.6 vs. 24.3 ± 6.5). The average of waist circumference is also within expected in both groups (61.9 ± 8.1 vs. 85.6 ± 10.7).

The results suggest that there is a relation between the care for health and gender (Figure 2). Women, with an average score of 27.7 care significantly more for their health than men, with an average of 23.9 (p=0.006).

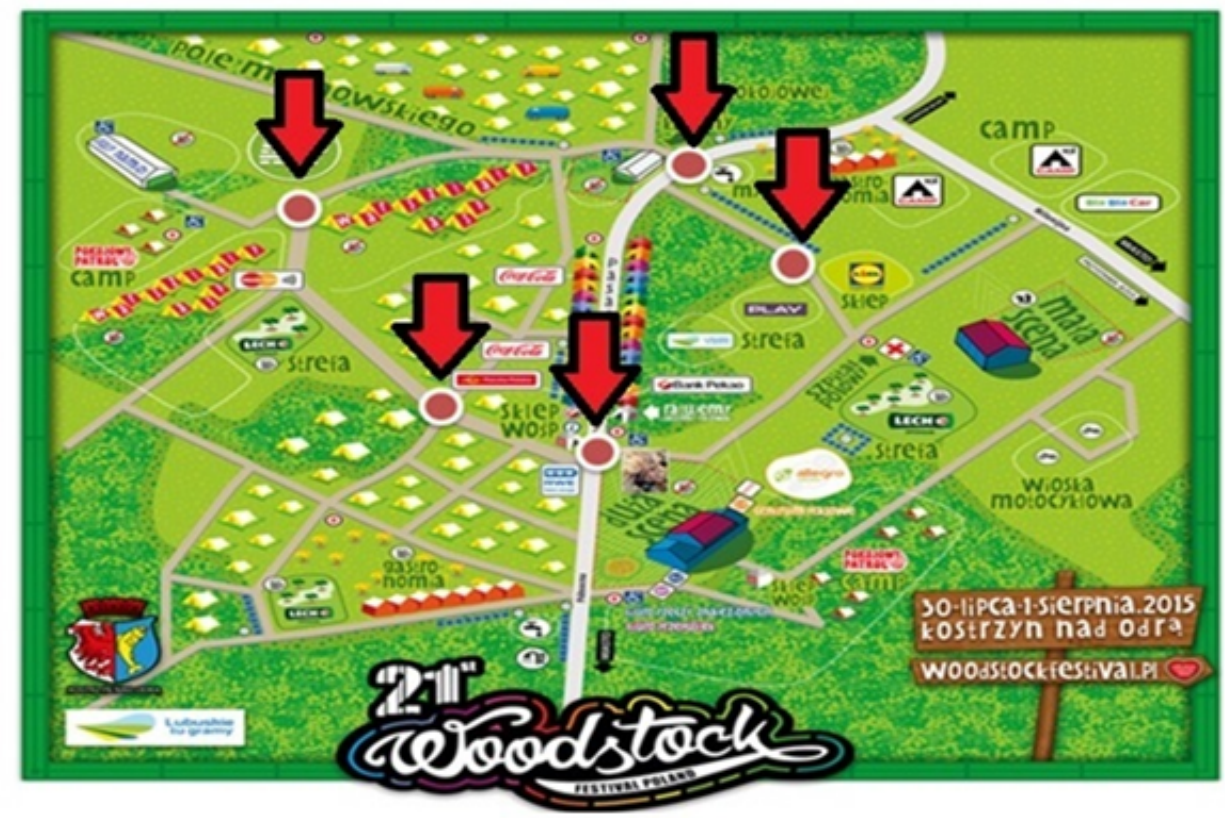

Figure 1: Collection points surveys.

The Health Concern Scale							
	Definitely No (1)	No (2)	Rather No (3)	Neither Yes or No (4)	Rather Yes (5)	Yes (6)	Definitely Yes (7)
I am concerned about gaining weight	-	-	-	-	-	-	-
I am concerned about having hypertension	-	-	-	-	-	-	-
I am concerned about coronary artery disease	-	-	-	-	-	-	-
I am concerned about the high amount of energy I provide with my diet	-	-	-	-	-	-	-
I am concerned about the high amount of fat I provide with my diet	-	-	-	-	-	-	-
I am concerned about the high amount of cholesterol I provide with my diet	-	-	-	-	-	-	-
I am concerned about the high amount of sugar I provide with my diet	-	-	-	-	-	-	-
I am concerned about the amount of energy I provide with my diet	-	-	-	-	-	-	-
I am concerned that I consume food products that contain additives	-	-	-	-	-	-	-
I am not concerned that I provide a lot of salt with my diet	-	-	-	-	-	-	-

Table 1: Health concern scale.

The results suggest the place of residence and the level of education could also be relevant factors for the care for health. The size of the place of residence (Figure 3) seems to correlate positively among men and not at all or even slightly negatively among women. The interaction term was suggestive for the contrast between men and women and village vs. large cities, but inconclusive (p=0.065).

The results also suggested that the higher the education level, the higher the care for health regardless of sex, but the significance level was not reached (p=0.06) for the contrast basic vs. intermediate level) (Figure 4). The effect was possibly stronger among men than among women for the interaction term for the contrast between sex and basic vs. intermediate education levels, but again inconclusive (p=0.06).

After the analysis of the influence of age on the care for health, a significant positive correlation was observed between the level of care and age for men, while for women the level of care seemed to stay

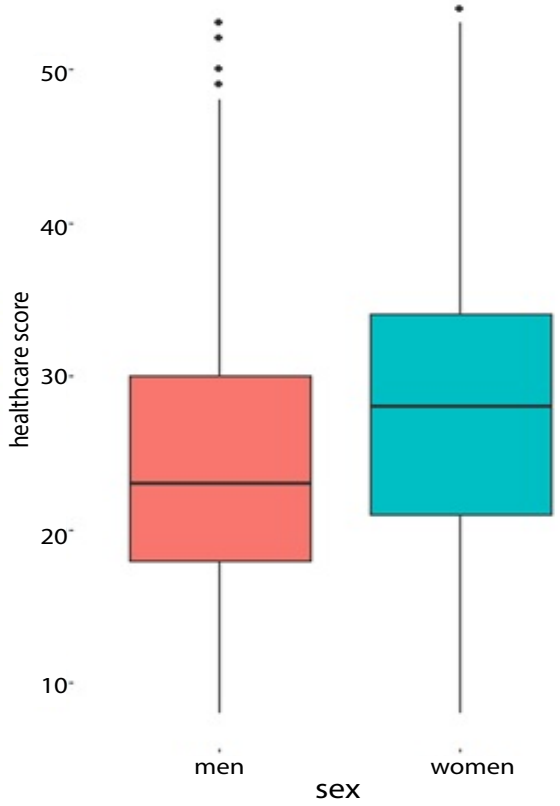

Figure 2: The relation between gender and the care for health.

	n=566	n=750
Age [years]	23.8 ± 6.6	24.3 ± 6.5
Height [cm]	167.3 ± 6.6	180.3 ± 6.7
Body mass [kg]	61.9 ± 9.4	79.5 ± 13.2
Waist circumference [cm]	61.9 ± 8.1	85.6 ±10.7
BMI [kg/m^2]	22.1 ± 2.0	24.4 ± 3.66
Education		
• Primary education	8%	8%
• Secondary education	58%	62%
• Higher education	33%	31%
Place of residence		
• Village	16%	12%
• Town	23%	24%
• City	62%	64%

Table 2: The characteristics of the study group.

similar throughout their whole life (p=0.032 for the interaction term sex and age) (Figure 5).

A significant association was observed between the Body Mass Index and the attention to health (p<0.0001). The higher the BMI, the more attention was paid to health, regardless of sex. Still, variability is very high (Figure 6).

Discussion

According to the research carried out by the European Statistical Office (Eurostat) in 2007, Europeans are rather happy with the state of their health-66% of the studied population claimed their health was good or very good, and only 10% stated that it was bad or very bad. What is interesting is that the way of perceiving health and the satisfaction related to it change and decrease with age-older people more often evaluate their health as bad or very bad. The authors found two factors that had the highest influence on the self-assessment of health. These were physical limitations in performing everyday activities and the occurrence of chronic illnesses. It was observed that 95% of the people who claimed their health was bad or very bad suffered from a chronic illness or had limitations in performing everyday activities [11].

Similar results are achieved on an international scale. The study of people from 132 countries showed that older people are less satisfied with the state of their health and life than the young generation. Furthermore, it was noted that the tendency was weaker in rich countries (the USA, Canada, the UK, Australia, and New Zealand) than in poorer ones, and some of the most unsatisfied groups were the older people living in Eastern Europe and the former states of the Soviet Union. Moreover, in poorer countries, apart from a stronger relation between the perception of personal health and age, the decrease in

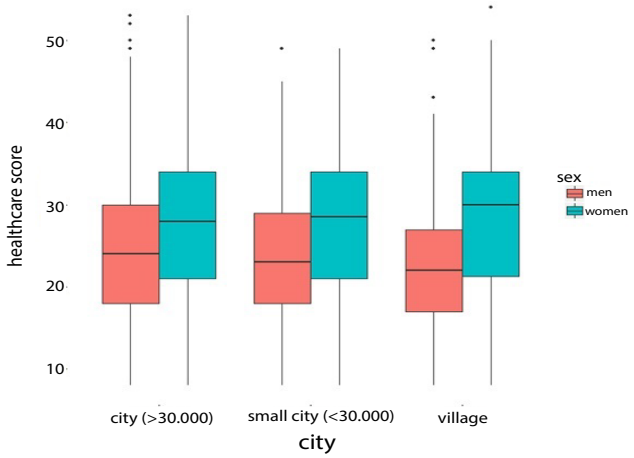

Figure 3: The relation between place of residence and the care for health.

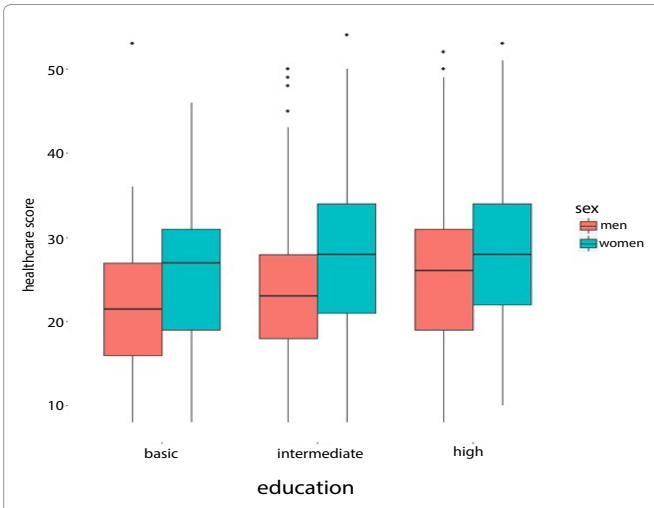

Figure 4: The relation between education and the care for health.

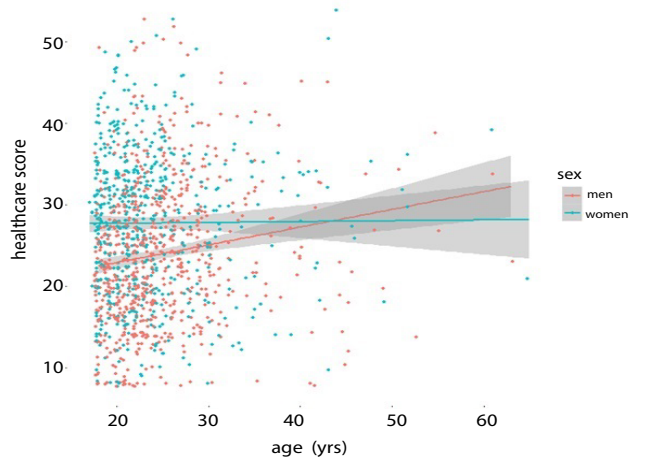

Figure 5: The relation between age and the care for health (the lines represent the linear regression and the shadowed areas the 95% confidence intervals).

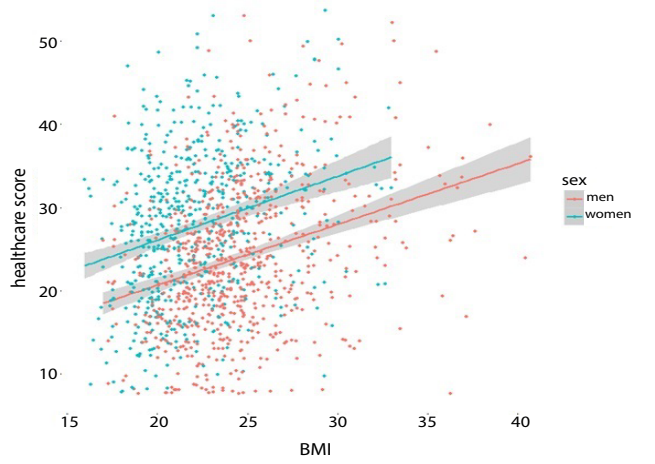

Figure 6: The relation between the Body Mass Index and the care for health (the lines represent the linear regression and the shadowed areas the 95% confidence intervals).

satisfaction happened faster in comparison to rich countries. This phenomenon might be connected to the lower income of poor people because it was observed that those who live in countries where the income is higher were generally more satisfied with their health [12].

Our study showed that the care for health rises with age. This tendency may be related to the European and international studies mentioned above in which a relation was observed between age, the perception of health, and the level of satisfaction connected with it. These studies show that worse opinions on health are strongly connected to the fact that the prevalence of chronic illnesses rises with age. Therefore, the negative evaluation of health may cause and explain the increase in the attention given to health, which rises with age. This deterioration of health might be caused by the fact that, with age, our adaptive mechanisms become weaker, our metabolism is slower, and only then people begin to notice the negative effects of an unhealthy lifestyle-the occurrence of excessive weight or obesity and, along with them, lipid disorders, diabetes, or hypertension. Due to the fact that young people less often suffer from chronic illnesses, they may evaluate the state of their health as good, which, in consequence, results in neglecting health until they begin to notice the effects of its deterioration.

The relation between age and the care for health is confirmed by the results achieved from a study by Bezerra et al. [13]. The results show that older people have better nutritional habits than younger generations. Young people consumed more products high in calories and low in nutritional value (higher consumption of non-alcoholic drinks, pizza, and pasta), whereas the older generation ate more fruit, vegetables, and grain products [14]. The research performed by Teleman et al. [7] also showed positive changes in nutritional habits that appeared with age. According to the results, the number of students who ate a minimum of two portions of vegetables a day increased with age [15]. The changes in nutritional habits that appeared with age could also be explained by the study mentioned above. Health deterioration and the attention given to health may lead to better health habits, including improved nutritional habits.

Our study also leads to the conclusion that women worry more about their health than men. To some extent, this can be explained by the results of the research which show that women more negatively evaluate their health than men [8,12,17]. As with age, higher health concern among women may provoke changes in their lifestyle, leading to healthier habits.

Higher concern for health among women may lead to better nutritional habits and physical activity. The fact that women pay more attention to their diet is supported by other studies: Ervin et al. [18] observed that women consumed more fruit, vegetables, legumes, and oils than men. Additionally, they drank less alcohol and their intake of calories from solid fats and sugars was lower [18]. Other studies also showed that women had healthier diets: they ate more meals (85% of women and 79% of men ate minimum 3 meals per day), and consumed fruit and vegetables more frequently. Moreover, women more often had breakfast and they didn't eat so much fast food. In comparison to men, the only criterion that was worse for women was the consumption of sweets-33% of women stated that they consumed at least one portion of sweets a day (the value for men was 23.8%) [15].

The relations between the increase of BMI and the care for health and between the increase of waist circumference and the care for health can be explained in a similar way to the relation between age and the care for health-with the increase of body mass (and hence, the increase of BMI and waist circumference), the risk of acquiring a chronic illness becomes higher, which may lead to the deterioration of health. Therefore, the results of our study might suggest that among many people the care for health rises only when they start experiencing health problems related to their unhealthy lifestyle.

Our study also showed a relation between education and the care for health. According to the research, people with higher education usually have a better opinion about their health than people with lower education. This phenomenon might be caused by the fact that the level of education often reflects the attitudes and the behaviour related to health. The evaluation level may also be affected by the fact that the lifestyle of people with lower education may be worse, with worse eating habits, more frequent smoking, and higher consumption of alcohol [15,16]. Even though the lifestyle of people with higher education is better, they might care more for their health. Even if they evaluate the state of their health as good, they might still be more aware of the risk of the diseases of modern civilization, and thus, they may pay more attention to their health.

Most of the observed factors were related to the deterioration of health which was reflected in the increase of attention given to health. However, the aim should be to make young people aware that healthy habits need to be introduced earlier, when their body mass is still fine, and when they are still healthy. The goal of healthcare policies of European countries should be to promote healthy lifestyles and to emphasize that they play the most important role in the prevention of overweight. The campaigns should be directed especially at young men because, as our results show, they care least about their health. This is particularly important in the light of the data gathered by the World Health Organisation and other studies which show that men do not live as long as women and their lifestyles are less healthy [25-33].

Conclusion

Women pay more attention to health than men, regardless of age. Moreover, their care for health rises along with their BMI. Men become concerned about their health when they are older or when they start having problems with body mass. The findings suggest that it would be worth to initiate a pro-health educational plan directed at young men.

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