



(RESEARCH ARTICLE)



## The importance of nutrition and overweight as a risk factor in family medicine

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### Abstract

Improper nutrition leads to changes in the body that are not only an aesthetic problem, but also lead to chronic diseases. The goals of the research are to analyze knowledge, habits and attitudes about nutrition and knowledge about obesity, to determine the body mass index (BMI) of all respondents, to analyze the connection between nutrition, excess body weight and the frequency of chronic non-communicable diseases. The study was cross-sectional epidemiological, descriptive-analytical, was conducted on a sample of 200 respondents of patients Family medicine, Public Health Center of the Sarajevo Canton. The survey was conducted by interviewing respondents using a modified questionnaire, made up of 27 questions. Analyzing the results, it was determined that the respondents' knowledge of nutrition is satisfactory, but that the majority of respondents (121) have a BMI over 25. For men in the age group of 46-55 years, the average BMI is 29.3, and for women in the same age group, it is 27.5, which shows that they do not apply their own knowledge about nutrition. The majority of respondents (32%) whose BMI is over 25 have one or more chronic non-communicable diseases. Most respondents stated that they get information about proper nutrition through the media, although many of them suffer from some chronic diseases, they do not get information at the health center. In the family doctor's clinic, it is very important to recognize excess body weight, bad eating habits of patients in time, plan a prevention strategy, and prevent the further development of chronic diseases with professional counseling.

**Keywords:** Nutrition; Obesity; Knowledge; Mass non-contagious diseases; Family medicine

### 1. Introduction

Quality nutrition, balanced food intake, in combination with regular physical activity are the basis of good health. Low-quality nutrition can lead to a number of health problems, such as decreased immunity, increased susceptibility to diseases, reduced physical and mental development, and reduced fertility (1). Proper nutrition helps prevent the occurrence of malnutrition or excess body weight, as well as the prevention of chronic non-communicable diseases, such as diabetes, cardiovascular diseases, hypertension, stroke, cancer. Healthy eating habits should be developed at an early age. According to the World Health Organization (WHO), nutrition is the intake of food in the quantities that the body requires. The amount of ingested food, that is, the energy intake of food, needs to be balanced with.

The amount of ingested food, that is, the energy intake of food, must be balanced with energy consumption. The spread of processed food as well as reduced physical activity, as well as rapid urbanization and changes in lifestyles have led to changes in eating habits. A balanced and healthy diet varies depending on individual needs (gender, age, lifestyle, level of physical activity), cultural code, locally available foods and eating habits (2). Excessive food intake causes overnutrition or obesity, which are a prerequisite for the development of a number of diseases in later life (3). Obesity is the oldest and still the most common metabolic disorder in humans. Excessive sugar intake increases the risk of excess body weight, diabetes or cardiovascular diseases (4).

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The results of population surveys conducted by the Institute of Public Health of the Federation of Bosnia and Herzegovina (FBiH) warn of unfavorable trends in the lifestyle and habits of the population, where addiction diseases, inadequate nutrition, overweight and obesity, as well as insufficient physical activity dominate. All of them represent key risk factors for the health of the population of the FBiH (5).

The Center for Disease Control and Prevention in the United States conducted a survey (telephone interview) on a total of 75,103 respondents, aged 18-70 and older, adults from 12 countries. Their research showed that almost one in three Americans are overweight and have increased risks that have negative health consequences. The research also showed that improper nutrition and excess body weight are more prevalent in the population with lower incomes. 17.2% of respondents were overweight, almost a quarter of respondents 24.7% were obese (6). The epidemic of excess body weight is a global problem. The increase in the number of overweight people occurs at every age, in all races and both sexes. Worldwide, overweight and obesity are on the rise. Obese people have higher morbidity and mortality (7).

In the framework of health care programs aimed at the prevention of chronic non-communicable diseases, which includes the prevention of obesity, it is extremely important that primary health care implements the necessary preventive programs on nutrition and physical activity, healthy lifestyle, physical activity together with other institutions. Maintaining a healthy balance between energy intake and expenditure from an early age is the best way to protect against excessive weight gain. The only safe way to achieve and maintain a healthy body weight is to permanently change eating habits, making sure that the calorie composition is balanced (8).

In this study, the objectives of the research are to analyze knowledge, habits and attitudes about nutrition and knowledge about obesity, to determine the body mass index (BMI) of all respondents, to analyze the connection between nutrition, excess body weight and the frequency of chronic non-communicable diseases.

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## 2. Material and methods

### 2.1. Study Design

The study was cross-sectional epidemiological, descriptive-analytic, was conducted on a sample 200 respondents of patients Family medicine (FM), Public Health Center of the Sarajevo Canton. The research was conducted in October 2018.

### 2.2. Research methods

The research was conducted in the family medicine clinic of the Public Health Center of the Sarajevo Canton. 200 respondents were included, using the method of random selection. The respondents are members of the working-age population group aged 18-65.

The survey was conducted by interviewing respondents using a modified questionnaire, made up of 27 questions, divided into three parts: general information, nutrition knowledge and obesity knowledge. The survey questionnaire was anonymous.

Anthropometric measurements were used: Body Mass Index (the ratio between body mass and body height in (m)<sup>2</sup> body mass (kg) / body height (m)<sup>2</sup>. Body height (cm) was measured with an anthropometer three times and the mean value was recalculated Body mass (kg) was measured with a decimal scale (100 g tolerance), which was calibrated before the measurement, with as little clothing as possible, and the average value was calculated.

The respondents were classified into groups according to the definition of the World Health Organization as follows:

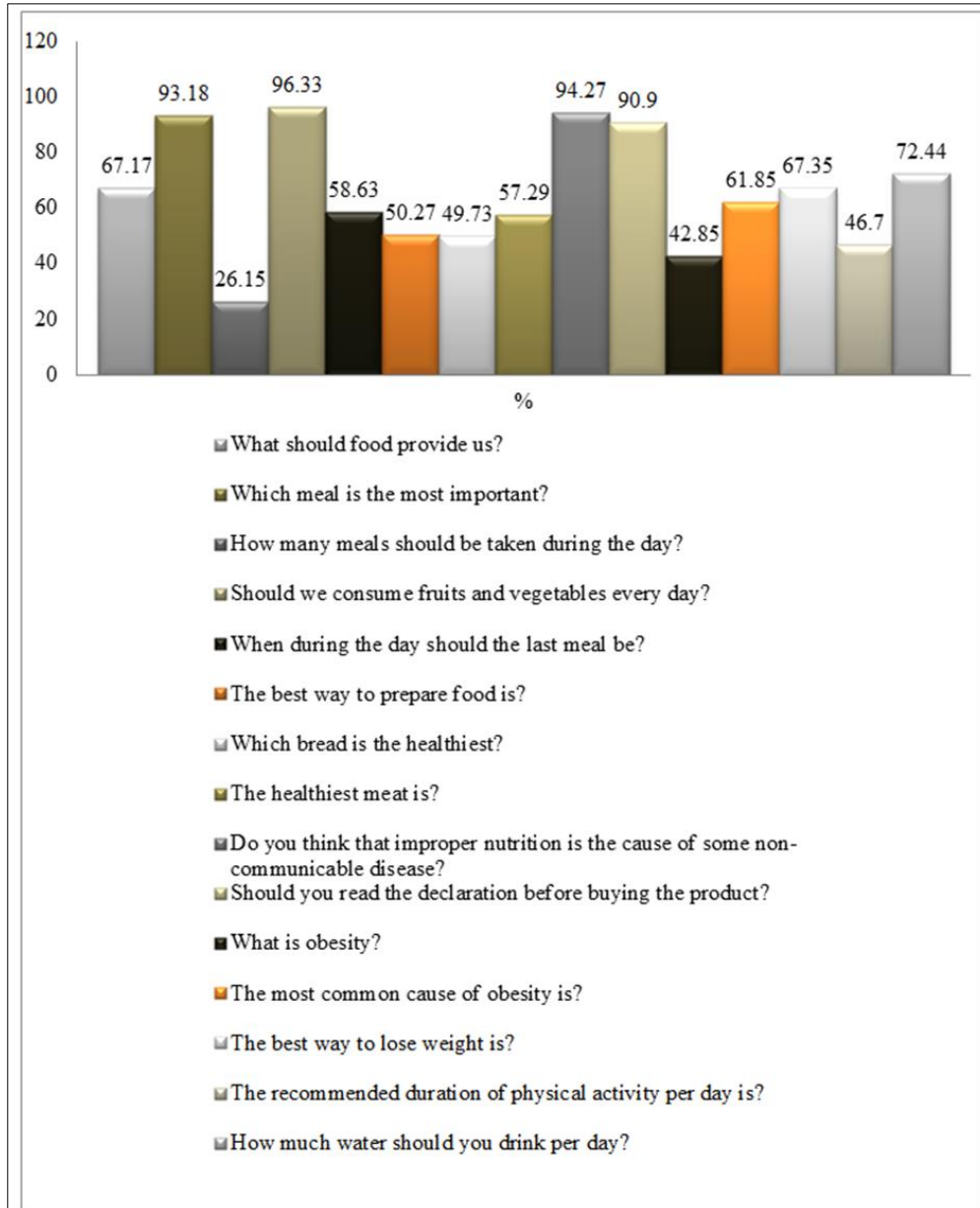
- BMI < 18.5 kg/m<sup>2</sup> – malnutrition
- BMI 18.5-25 kg/m<sup>2</sup> – normal body mass
- BMI 25-30 kg/m<sup>2</sup> - excessive body mass
- BMI > 30 kg/m<sup>2</sup> obesity (obesity) (7).

### 2.3. Statistical analysis

The data were processed statistically and presented tabularly and graphically. In the statistical processing of the results, standard methods of descriptive statistics were used. Student t-test, Chi square test was used to test statistical significance between groups. Values of p<0,05 were taken as statistically significant.

### 3. Results

In the research participated 30 (65%) women and 70 (35%) men. The assessment of the knowledge of respondents at family medicine clinics about proper nutrition as a significant public health problem is shown in figure 1. The most correct answers to questions about nutrition were given by the respondents to the question whether they should consume fruits and vegetables daily (96.33%), do you think that improper nutrition is the cause of some non-communicable diseases (94.27%), which meal is the most important (93.18%) and whether one should read the declaration before buying a product (90.9%).



**Figure 1** Presentation of the correct answers of respondents about proper nutrition

**Table 1** Respondents' attitude about satisfaction with their own nutrition by gender

Are you satisfied with your nutrition?		Gender		Total
		MALE	FEMALE	
YES	Number	48	79	127
	%	68,57	63,2	65,12
NO	Number	22	46	68
	%	31,42	36,8	34,87
TOTAL	Number	70	125	195
	%	100	100	100

Analyzing the attitude about satisfaction with one's own nutrition by gender, the Chi-square ( $\chi^2$ ) test determined that there is no statistically significant difference between the sexes of respondents when it comes to satisfaction with one's own nutrition. When asked if they were satisfied with their nutrition ( $\chi^2=0.57$ ;  $p=0.450$ ), 68.57% of men and 63.2% of women answered yes, 31.42% of men and 36.8% of women answered that they were not satisfied with their nutrition. Five respondents did not answer this question.

**Table 2** Respondents' attitude about satisfaction with their own nutrition by gender

Information on proper nutrition	Number of answers	%
Throught the media (magazines, TV)	99	52,65
Medical staff	54	28,72
I don't get at all	35	18,6
Total	188	100

The largest number of respondents get information through the media (magazines, TV), 99 of them (52, 65%), followed by medical staff, 54 (28.72%), and 35 of them (18.6%) claim that they do not get any information about proper nutrition at all.

Analyzing the answers to the questions - knowledge about obesity, the Chi-square test found a significant difference ( $p<0.05$ ) between educated respondents (higher or secondary education) compared to those who have only primary school, according to the answers to the questions according to your opinion, how many meals should be taken during the day? ( $\chi^2= 15.88$ ;  $p= 0.001$ ), what is obesity? ( $\chi^2= 24.77$ ;  $p= 0.001$ ), the most common cause of obesity? ( $\chi^2= 22.752$ ;  $p= 0.001$ ), the best way to lose weight is ( $\chi^2= 7.414$ ;  $p= 0.05$ ), which bread is healthier? ( $\chi^2= 21.57$ ;  $p=0.001$ ), in your opinion, the healthiest meat is ( $\chi^2= 8.286$ ;  $p=0.040$ ), the recommended duration of physical activity per day is ( $\chi^2= 14.191$ ;  $p=0.002$ ), should you read the declaration when buying a product ( $\chi^2= 23.597$ ;  $p= 0.001$ ).

The average BMI of male respondents according to age groups increases with the age of the respondents, that is, in the age group of 46-55, the average BMI is 29.3, while in the age group of 18-25, the average BMI is 23.4.

The average BMI of female subjects according to age groups did not differ significantly in the three age groups, namely 15-25, 26-35 and 36-45, where it was 24, while in the age groups of 46-55 and above it was 56 27. Employed men have the highest BMI, and female respondents with the highest level of education showed the most knowledge about nutrition.

The research showed that the majority of the respondents were diagnosed with multiple chronic non-communicable diseases, 28% of the total number of respondents, 27% of the respondents had hypertension, 17% had hyperlipidemia, and 12% of the respondents had diabetes. The analysis of the questionnaire shows that the subjects suffering from

hypertension have the highest BMI of 28.77, while the subjects without diagnoses of chronic non-communicable diseases have the lowest BMI.

In this research, it was determined that the height of BMI significantly affects the development of chronic non-communicable diseases. In the observed sample of respondents who had a BMI of up to 25, 12.5% of respondents had some chronic disease (hypertension 2.5%, diabetes 2.5%, hyperlipidemia 2.5%, multiple diagnoses of chronic diseases 5%). Respondents with a BMI above 25 had 32% of cases (hypertension 11%, diabetes 3%, hyperlipidemia 6%, multiple diagnoses of chronic diseases 12%).

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#### 4. Discussion

The study, which was conducted in West Virginia and New Jersey, included adult patients who were invited to complete a voluntary survey. The aim of the study was to evaluate the basic knowledge of patients about BMI and the knowledge of patients about how much risk for the development of chronic diseases carries an elevated BMI, including hypertension, hyperlipidemia, diabetes and apnea. Most of the patients knew the meaning of BMI and that it refers to obesity, 49.9% understand the medical concern related to increased BMI. Self-awareness about obesity was limited, only 16.4% of patients were aware of their personal BMI. In addition, almost 70% of patients do not remember talking to their doctor about BMI (9,10).

This research in the family medicine clinic showed that 42.85% of respondents know what obesity is, 61.85% of respondents know what causes obesity, but only 28.72% of respondents receive information about healthy eating from medical staff. If obese patients are unaware of their BMI, they may not realize the increased health risk and may therefore be less likely to reduce their weight to reduce their health risk (11). This research showed that the height of BMI significantly affects the development of chronic non-communicable diseases. Of the total number of respondents who had a BMI above 25, 32% of them have chronic non-communicable diseases.

The study was conducted in 22 European countries, in 10 outpatient clinics per country, in each 40 patients aged 30-70, in the period from September 2008 to September 2009. The analysis was based on 7947 respondents (52.2% women and 47.8 men). More than half of the patients think that their lifestyle is important for their health: eating habits 53%, physical activity 55% and normal body weight 59%. When asked what their eating habits are, 2.2% answered that they are very unhealthy, 44.9% relatively healthy, 35.0% healthy, 4.5% very healthy and 0.9% that they have no eating habits at all (12).

In this research in the family medicine clinic, analyzing the attitude about satisfaction with their own diet, a large number of respondents answered that they were satisfied, 36.8% of women answered that they were not satisfied.

Understanding and reading the declaration on foods can be of great importance for patients, especially those with chronic diseases, in order to follow nutritional recommendations. According to earlier research conducted in primary health care, most patients show deficiencies in understanding the nutritional declaration. Poor understanding of the declaration is quite related to low level of literacy and misunderstanding of the signs on it, but even patients with a higher level of literacy have difficulties when interpreting the declaration. People who provide nutritional recommendations to patients should consider patients' literacy and ability to understand the declaration when providing dietary recommendations (13).

The analysis of the survey of this study in the family medicine clinic shows that 91.25% of the respondents with a higher education degree believe that the declaration should be read, as well as 88.34% of the respondents with a completed secondary degree, 50% of the respondents with a primary school education.

Prevention, including lifestyle, advice and screenings for risk factors, is an important and positive component in the daily practice of all family doctors. Out of the total number of respondents in this research, 168 of them (87.5%) believe that they should receive more information about proper nutrition at the health center.

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#### 5. Conclusion

Medical education and recommendations help motivate the patient for changes in behavior, lifestyle changes, proper nutrition, prevention of obesity, especially in those patients who have more risk factors. It is very important to recognize excess body weight in time at the family doctor's clinic and understand it as a serious risk, and with professional advice, plan a preventive strategy to prevent the further development of chronic diseases.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

### *Statement of ethical approval*

The author declares that the research was done in accordance with ethical guidelines.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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