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## **Evaluation of dietary habits and physical activity level monitoring as basis for a new health promotion strategy in Republic of Macedonia**

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### **Abstract**

Research evidence on health determinants have led to develop a national strategy for health promotion in order to reduce NCD mortality in Macedonia. The aim was to analyze and evaluate the results obtained from the new "cross-sectional" study for dietary habits and physical activity levels monitoring (2011). The results indicate that the promotion of health through improving physical activity and dietary habits should be focused on younger age groups and adults over 50. Concerning the changes in dietary habits, most important are radical change in the food market and food production including availability of whole grain bread and eliminating "fast food."

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**Keywords:** health promotion strategy, prevention, dietary habit, physical activity level, noncommunicable disease, lifestyle intervention.

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## 1. Introduction

### 1.1. Background

Significant fundamental conditions and resources to improve population health are nutrition education, then finance and stable eco-system under the "Declaration on the promotion of health" of the World Health Organization (Ottawa declaration, WHO, 1986). The WHO HEPA (Health-Enhancing Physical Activity) European network is focused on developing a national strategy and program by publishing European physical activity recommendations. Also, the WHO adopted the "Global Strategy on Diet, Physical Activity and Health in" (WHA, 2004) in order to reduce noncommunicable diseases (NCD) mortality. An implementing act on European Health Information System (EHIS) is expected to come into force in 2014 as a useful tool for determining priorities in health policy (1).

The epidemiological and experimental evidence on health determinants have led to numerous initiatives to develop national strategy for health promotion through diet and physical activity in Republic of Macedonia. Numerous studies and experiences have confirmed the role of nutrition and physical activity in preventing main NCD such as cardiovascular diseases (2), type 2 diabetes, cancer, obesity and co-morbidities. NCD are included in category of nutrition-related diseases and represent the enormous public health problem.

The presence of total NCD mortality was 75%, while cardiovascular disease morbidity, according to the State Institute for Statistic of Republic of Macedonia amounted to 57% of the total morbidity (2001). In terms of risk factors for NCD, overweight and obesity were prevalent among 58.3% of the population in Republic of Macedonia (2001) (3).

It is recognized that balanced nutrition and physical activity (4) are the basic intervention measures in the concept of an integrated approach for prevention of NCD. From a public health perspective, investments in organized work in the field of food, nutritional education primarily at the universities are multiple investments which are returned to the existing policy and community (5).

On the other hand, specialized medical professionals in the field of nutrition and medical dietetics is highly deficient, as well as researchers in the clinical nutrition. Nutritionists/dietitians with a completed undergraduate and graduate study are still missing. Ministry of Health has no component in developing national public health strategy, in part: "Health promotion through nutrition recommendations based on traditional food and balanced nutrition."

Because of the above facts are imposed, it's necessary to develop and implement a national strategy for health promotion through balanced diet and increased physical activity level, including directional transfer of system knowledge for nutrition. The need for higher education of health professionals in the field of nutrition and medical dietetics was emphasized by the experts in the Committee for Advancement of Health System Reform in the Ministry of Health of the Republic of Macedonia (Simovska V, 2009). First cycle (undergraduate) study in nutrition have been introduced in 2010 year in order to create synergy between higher education and practice linking food technology with medicine and health. Application of population-based prevention, acting on changes in dietary habits and other risk factors associated with the lifestyle of the whole population is the most stable and effective way to reduce the NCD and health promotion related to high risk strategy.

### 1.2 Purpose of the paper

The purpose of the study was to perform situational analysis of dietary habits and level of physical activity among the population as a basis for developing a new national strategy for health promotion in Republic of Macedonia.

## 2. Methods:

The survey was conducted using self-designed questionnaire. Dietary habits were surveyed using a questionnaire to monitor the frequency of consumption of various foods during the week (Food frequency questionnaire, FFQ). According to the survey, regular consumption of certain foods mean 5 and/or several

times a week. Occasional consumption of certain foods mean 2-4 times a week and the third group included respondents who were once a week or do not consume certain foods. Leisure time physical activity (LTPA) was a priority measure in this study because the categories include a comprehensive list of examples of organized sports, brisk walking and cycling known as physical activity with moderate intensity, and walking, household activities, gardening and other activities known as activities with low intensity.

The study was conducted in five regions in Republic of Macedonia, including 800 respondents aged 10 to 65 years. They were divided into three age groups: up to 18 years, from 19 to 49 years and third category of respondents had over 50 years. Survey results were presented in percentages (%) of the total number of participants by age and sex.

### 3. Results

Study results showed that 20% of the population consumed bread enriched with whole grain especially participants over 50 years old, while 76% consumed white and/or semi-white bread.

82% of respondents from all age groups regularly consume milk and/or yogurt.

A good indicator is the fact that 71% of participants in all age groups regularly or occasionally consumed fresh fruit and 82% regularly or occasionally consumed vegetables. Nearly 51% of the total population, 5 times a week and more consumed vegetables and fruit. Compared with the results obtained in other European countries (2009), the maximum results showed that 65.8% of European populations at least 4 times a week consumed vegetables, excluding potatoes and juice (6). Similar results were obtained in 2008 under which 71% of youth, aged from 13 to 18 year regularly consumed fruit and vegetables (7).

Regarding consumption of meat and meat products, most of the study participants consumed chicken and pork, less fish, little lamb and veal. With aging, % of people who consume chicken decreased while the trend of those who consume fish grew, whereas 19% of all respondents consumed fish in accordance with the recommendations.

In the manner of preparing food, most respondents were preparing boiled and fried food, but not far behind and baked fresh prepared foods. According to the results, 33% of respondents in the study prepared cooked food, while 66% older than 50 years preparing fried foods. The young population and participants from 18 to 49 years preferred use of fried foods that include "fast food", while older prepared cooked food.

Regarding the factors influencing the decision to purchase food products, most taste, and quality and cost less, and wrapping at least had an impact. 11% of all respondents bought food on the health effects which requires health education of the population. Consumers react to the price of food products. Particularly significant is the impact of taxes on the target food groups such as for example high fat foods with low nutritional value. Potential effects are achieved by introducing taxes on certain nutrients such as sugar, salt, thus preventing major NCD such as cardiovascular disease, stroke and diabetes type 2. The results of the meta-analysis (2009) that included 162 studies worldwide have confirmed the impact of taxes on the consumption of healthy food by changes in dietary habits, weight reduction, and in the prevention of NCD.

In terms of physical activity the results showed that 59% of children and young people, aged 18 years and younger and 28% of respondents aged from 19 to 49 years had moderate or high levels of physical activity such as organized sports activities. 28% of young people had low level of physical activity, especially girls. Half of the participants in the study, in adult age, had low level of physical activity.

Clinical and epidemiology studies conducted over the past ten years in the country had shown that reduced level of physical activity was found in 64.5% of the adult population and in 50% of girls aged from 7 to 12 years (8).

The results of our research showed gender differences. 18% men and 26% of all female participants

were physically inactive, of which 35% were older than 50 years. Compared with results of study conducted in 15 European countries (Eurobarometer study, EU-15 countries, 2002) (9), sedentary were 31% of participants (Source Sjöström et al., 2006).

The most study participants were informed that an undergraduate study for nutrition started in Republic of Macedonia. In terms of health effects of balanced diet, about 50% of the participants were not informed about the relationship of food and health. From that reason is necessary to emphasize health education using the media.

#### 4. Conclusion

It is known that mortality from NCD can be prevented by changes in behavioral risk factors associated with the lifestyle of the population, primarily the reduction of unhealthy eating habits and decreased physical activity.

The first complex results of our study indicate that the national strategy for improving health through nutrition and physical activity should have been focused on younger age groups, especially female and adult population over 50 years, particularly women. In connection with changes in dietary habits, the most radical change in the market and changes in food production, including access to the population of bread with whole grains, fresh fish and eliminate the "fast food" in order to reduce the risk of common NCD in Republic of Macedonia (10).

Also, in Republic of Macedonia does not included taxes on "target" foods, various other food products ("soft" drinks) and nutrients who have low health effects such as products with high energy density and low nutritional value, high percentage of representation of the saturated fat of animal origin and other similar foods. Higher taxes significantly affect the consumption of healthy food and traditional food (11) because we should analyze the impact of fiscal policy on consumption of food on population level (12). Financial funds derived from taxes on these foods would be used to address priority problems in health, as well as modification of food offered.

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