

## IDENTIFICATION OF THE NUTRITIONAL STATUS AND EATING HABITS OF THE POPULATION GROUP “OVERWEIGHT AND OBESE PEOPLE”

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### Abstract

*Obesity is a disease characterized by an increase in body's fat mass, resulting in an excess of weight added to the normal body weight, with implications for the aesthetic, psychosocial and biological condition of the patient. In order to identify the nutritional status of people from this group a market research was performed on a representative sample, at national level of 189 persons, from which 28% of them are suffering from other diseases). The selection of the respondents was made by: simple probabilistic technique, random digital dialing selection; non-probabilistic technique, by „snow ball” selection. Persons' investigation was carried out on the basis of a previously elaborated questionnaire. The market research highlighted the dietary structure of these people, the food categories preferred by them and consumed weekly, as well as the weekly frequency of consumption.*

*The results indicated a hypercaloric diet of those people, containing caloric concentrated foods (eg. pork, sausages, sweets), normally forbidden within the nutrition plan of an overweight/obese person, and insufficient fiber content.*

*Keywords: eating habits, nutritional, obesity, overweight*

### 1. INTRODUCTION

Today, countries around the world are facing an alarming increase in so called lifestyle diseases such as cardiovascular diseases, diabetes, cancer and chronic respiratory diseases, with societal and economic consequences. The key risks involved are high blood pressure, overweight and obesity, hyperglycemia and hyperlipidemia, all associated with unhealthy lifestyles, especially unhealthy diets and insufficient physical activity (Mokdad et al., 2003; Webber et al., 2014; Tobore, 2020).

Promoting lifestyle with a healthy diet and proper physical activity is, therefore of the most importance. An increasing number of people around the world have adopted an unhealthy and unbalanced diet, while in Europe only one in two adults has a sufficient high level of physical activity (Eurostat, 2017).

In August 2018, the World Health Organization (WHO) published the” Healthy diet” document, which emphasizes again the role of food in protecting against various types of malnutrition, as well as against diseases of modern society such as cardiovascular disease, obesity, diabetes or cancer.

In the same context, the Vizion of the Joint Programming Initiative (JPI) a Healthy Diet for a Healthy Life is, on one hand, that by 2030 all citizens will have the motivation, ability and opportunity to consume a healthy diet, selected from a variety of foods, to have an adequate level of

physical activity and on the other hand, the fact that the incidence of diet-associated diseases will decrease significantly (<https://www.healthydietforhealthylife.eu/>).

In recent decades, the demand for healthy foods has increased significantly. Foods are not just made to satisfy the famine of those who eat them or to provide the nutrients needed to maintain the health of consumers. They must also help prevent diseases caused by poor nutrition, but also restore the physical and mental well-being of consumers (Derossi et al., 2019).

Currently there is another real situation: not all individuals belonging to a population are in optimal health, even if they follow the same diets. Unbalanced consumption of calories and various macro and micronutrients, in relation to different lifestyles addressed, leads to metabolic imbalances and even disease (Fay and Bruce, 2008).

The World Health Organization mentioned in its reports in early 2018 that unfortunately, the number of obese people has tripled globally compared to 1975. In 2016, more than 1.9 billion adults were overweight and 650 million out of these were obese. In the same year, more than 340 million children and adolescents between the ages 5-19 were overweight or obese. The WHO recognizes that, in this century, obesity has an equal or higher prevalence compared to malnutrition and infectious diseases. Therefore, in the absence of drastic prevention and treatment measures, in 2025, over 50% of the world's population will be obese.

Most of the world's population lives in countries where overweight and obesity kill more people than malnutrition (WHO Obesity and overweight, 2020). Obesity can cause social, economic and psychological problems as a result of prejudice and decreased self-esteem (WHO, 2013).

Pre-obesity and obesity are important public health issues and need a common strategy, which includes promoting healthy eating habits and a more active lifestyle, as well as appropriate treatment and care (Toro-Martín, 2017).

In Europe, the growing incidence of childhood obesity is a matter of particular concern. Childhood obesity is recognized as a definite predictor of obesity in later adults. Therefore, childhood obesity is currently recognized as an important public health problem and this has been reinforced by the increasing prevalence of adult obesity in both developed and developing countries. Parents can have an important influence on the behavior and weight of their children (Wang and Lim, 2012; Wang et al., 2017).

Although the notion of obesity is assimilated with that of overeating, in practice scientists have identified many deficient elements in the nutrition of the obese people. These could even be the basis for the increase of some pathological conditions retrieved in obese patients. Some studies have concluded that 80-90% of obese people are vitamin D deficient (Galvao and Bressan, 2014).

Unfortunately, the number of overweight people in Romania has also increased a lot in recent years. According to the WHO, in 2016, the prevalence of overweight in people over 18 years of age in Romania was 57.7%, for both sexes, and the prevalence of obesity was between 20-29%. (WHO - Noncommunicable Diseases, 2018).

A worrying fact is that the number of overweight children is raised in our country, one child of three being overweight. According to statistical data presented by the World Health Organization, Romania ranks 3<sup>rd</sup> place at this chapter. For this reason, the prevention of obesity must become a priority for all those involved: authorities, kindergarten, school, family, society.

In this paper, a market research was conducted in order to identify the nutritional status of overweight people.

## 2. MATERIALS AND METHODS

Computer assisted telephone interviews (CATI), using the database of people pre-recruited through face-to-face dialogue were the data collection methodology, used to perform the market research. The selection of the respondents was made by:

- simple probabilistic technique, by random digit dialing selection
- non-probabilistic technique, by „snow ball” selection.

Persons' investigation was carried out on the basis of a previously elaborated questionnaire, taking into account the consumption of the main food categories (grouped into 10 categories) in the last 12 months, as well as their frequency of consumption: daily/weekly/monthly.

The market research was performed on a representative sample at national level of 189 persons, having body mass index (BMI) between 25-40, from which 28% of them are suffering from other diseases. Other characteristics of the respondent's group are: age segment between 18-64 years, primary studies (13%), medium studies (50%) and superior studies (37%) with an average household income of 3795 lei.

This market research highlighted the diet's structure of the studied group, the categories of preferred foods and weekly consumed weekly by the group members, as well as their frequency of consumption.

The average somatometric data of the people in this group are:

- Average height: 1.69m
- Average weight: 97 kg

In terms of health, 28% of people in the group suffer from various diseases, the most common of which is high blood pressure. Diabetes, a metabolic disorder with serious consequences for the patient's health, holds an important place in the hierarchy of diseases.

## 3. RESULTS AND DISCUSSIONS

The results obtained after conducting the market study on the population group "overweight and obese people" are presented in this paper.

In the category of meat and meat products, 98% of respondents eat chicken and pork. Sausages are found in the diet of an increased number of people, namely 90%, and salami are consumed by 86% of them. Seafood and canned meat have a limited amount of consumption (fig.1).

Chicken, pork and salami are consumed most frequently, on average 3 times/week, and sausages are consumed 1-2 times a week. Seafood and lamb are eaten not very frequently and fish once a week (Fig. 1). Given the physical and physiological characteristics of the individuals interviewed, it is recommended to limit or even exclude fats from the diet (especially those of animal origin) and replace it by lean fish (cod, pike, pikeperch, horse mackerel, etc.), poultry and beef.

65% of the overweight people from bakery products consumption category, prefer white bread (including croissants, buns, etc.) 2 times a day. Dark bread is consumed by 41% of respondents, on average 2 times/day, for 6 days a week (Fig. 2).

Most respondents indicated that they prefer white bread, rich in sugars and calories, to dark or wholegrain bread.

In terms of cereal consumption, more than half of these people do not eat cereal flakes for breakfast (59%), 30% of them consume 3 times/week cereal flakes without added sugar, and 21% consume sweetened cereals for breakfast, 3 times/week.

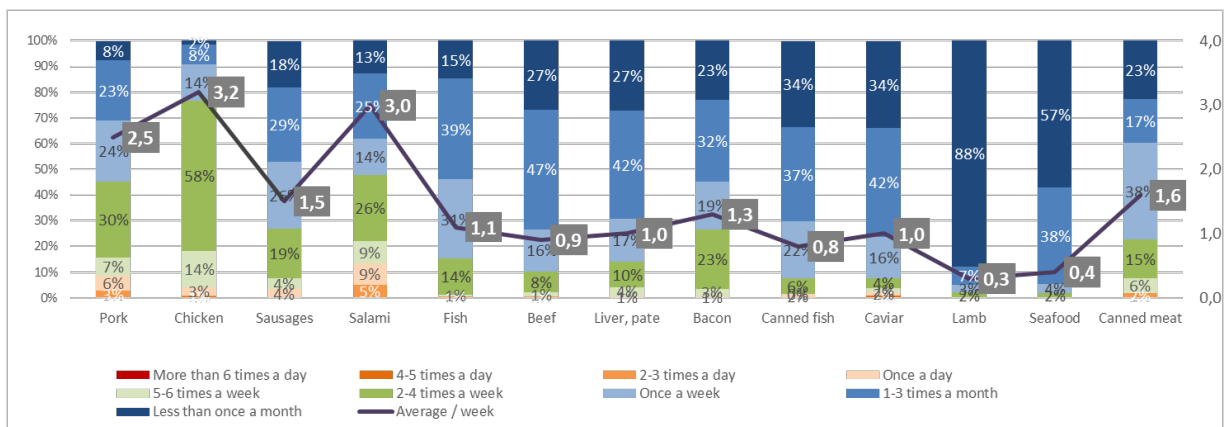
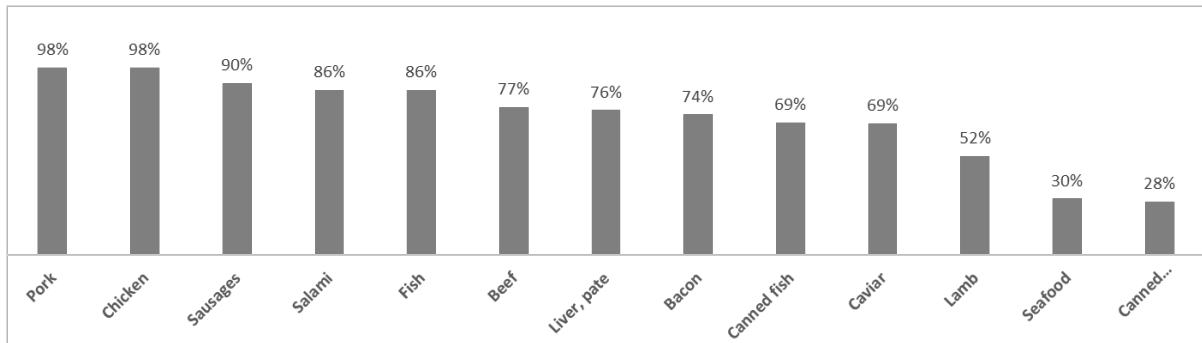


Figure 1. Meat and meat products consumption and frequency of consumption

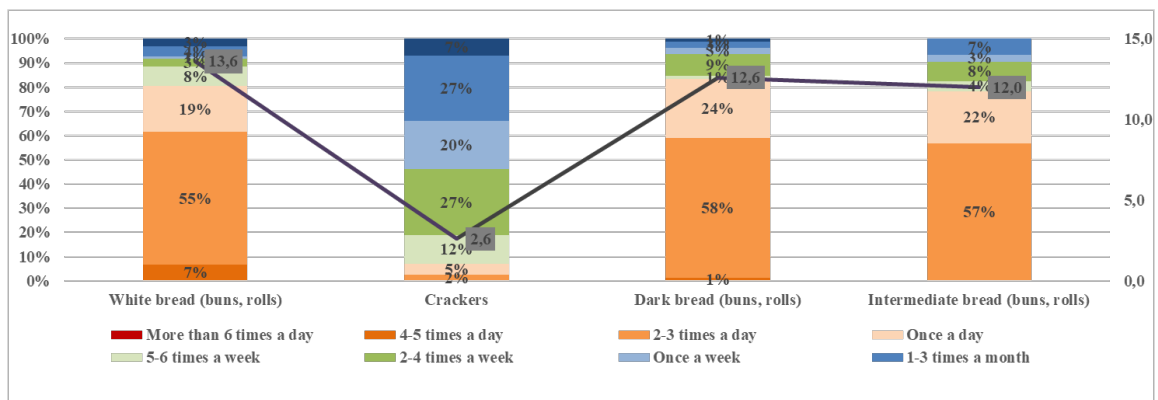
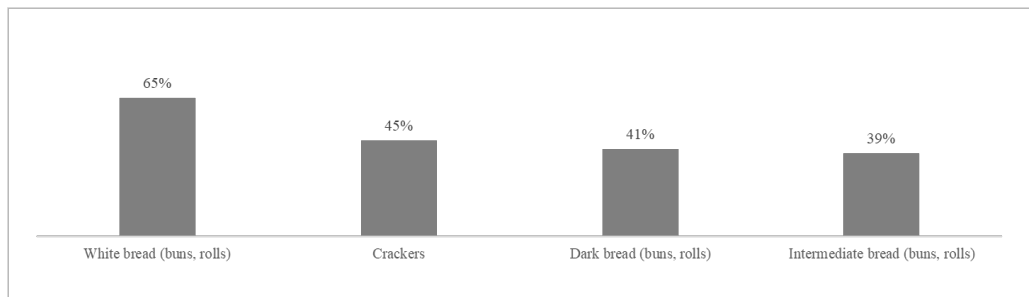


Figure 2. Bakery products consumption and frequency of consumption

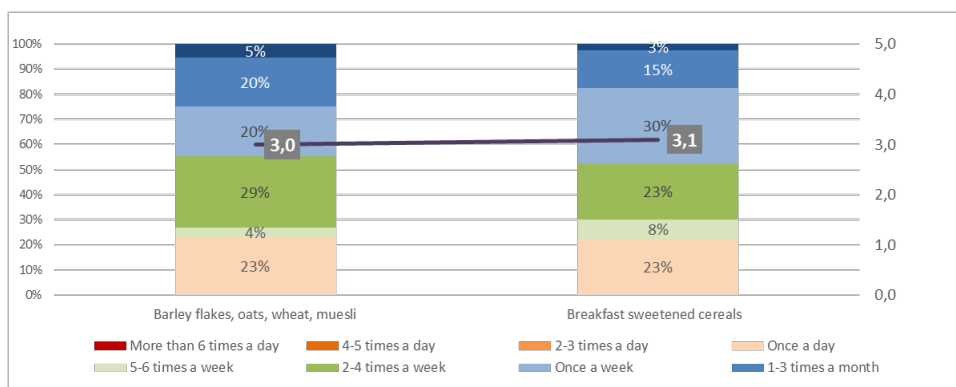


Figure 3. Frequency of consumption for cereals and flakes

A category of food rich in slow-burning carbohydrates (potatoes, rice, pizza, pasta, polenta) is found in the diet of over 80% of people in this group. The frequency of consumption of these foods is not high, most often, 2 times/week boiled potatoes are consumed, while french fries and rice are consumed 1-2 times/week. Pizza is consumed on average once a week by 80% of respondents.

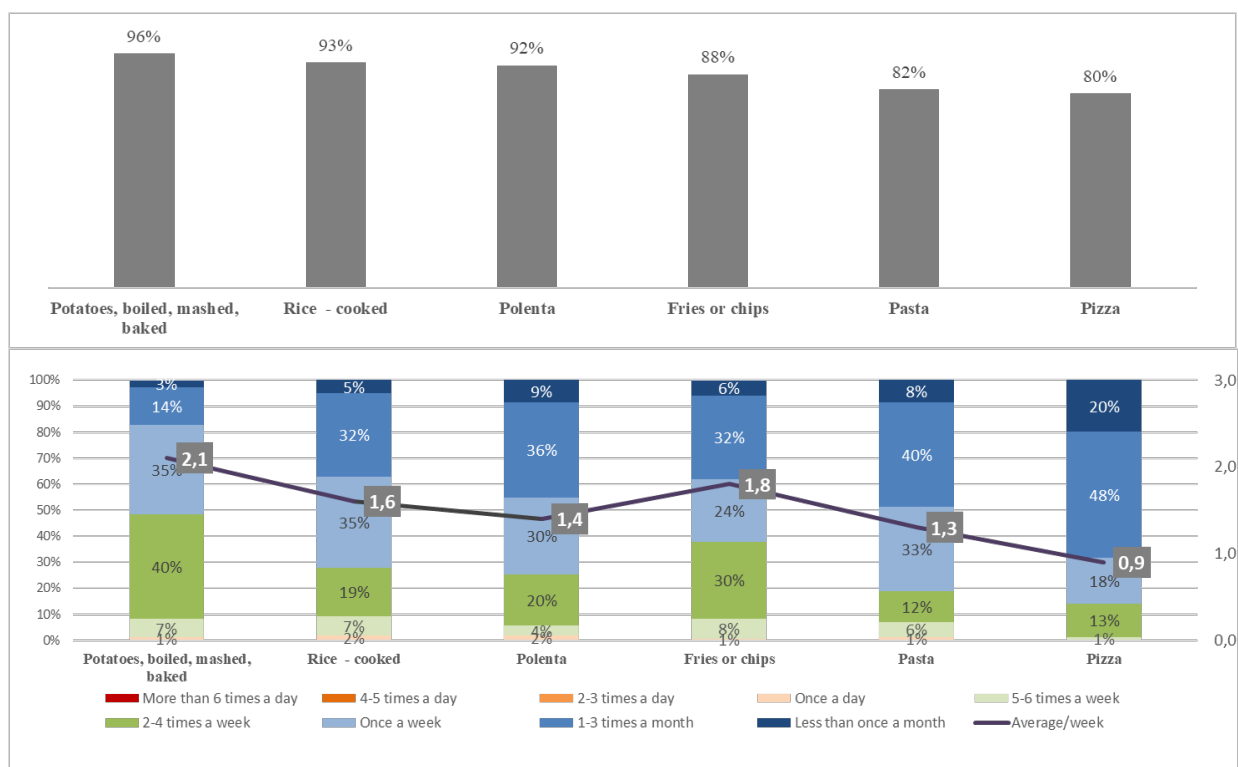


Figure 4. Consumption of carbohydrate-rich foods. Weekly consumption frequency

Regarding milk and dairy products category, 93% of respondents consume fat cheese 3-4 times/week and 82% of them consume cottage cheese an average of 3 times a week. Fat yogurt is preferred by 57% of people in the group and consumed an average 2 times a week. 97% from

respondents consume eggs 2-3 times/week. The market research pointed out the consumption by the respondents of fat foods like: mayonnaises, fat sour cream, sauces etc. (Fig.5) It is recommended to consume defatted dairy products (milk, yogurt, fresh cheese).

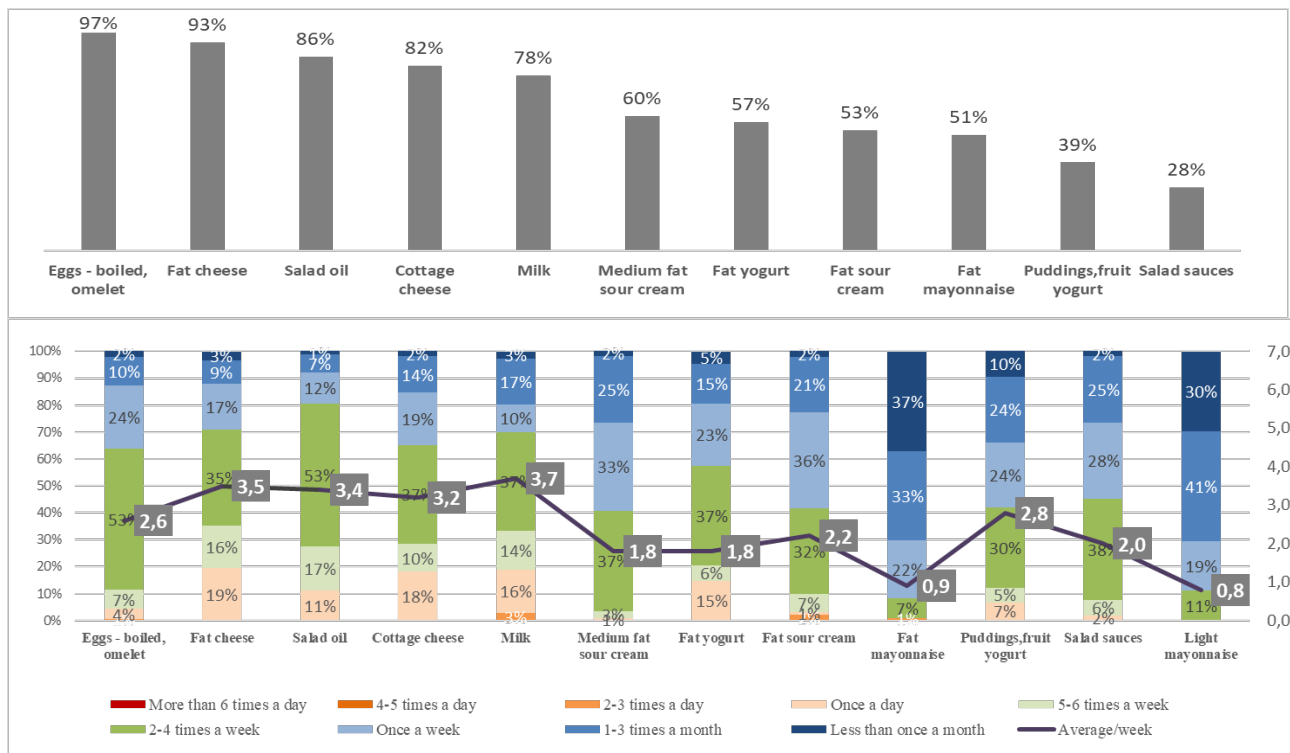


Figure 5. Dairy, eggs and derivatives consumption. Weekly consumption frequency

Sandwiches with butter, margarine, cream cheese and cream, all with high calories content are liked by people from this group. Thus, 68% of respondents consume butter 2-3 times/week, and a smaller percentage of 36% consume spreadable cream cheese with cream/butter 3 times/week. A quarter of respondents consume margarine twice a week (Fig. 6).

Regarding “sweets/snacks” food category, 88% from respondents consume ice-cream 2-3 times/week, and 87% of them consume chocolate, on average 2 times a week. 70% of individuals add sugar to coffee, tea, etc. 6 times/week. The following graph shows that more than half of the people in the group (58%) consume pastries 2 times/week. These sweet foods should not be part of the diet of an obese individual who wants to improve their health. At the same time, 82% of respondents eat snacks (peanuts, salted pistachios, peanuts, seeds) 1-2 times / week (Fig. 7).

Regarding the category of beverages (soft drinks, alcohol, coffee, tea), the market study showed that 92% of respondents consume coffee 8 times / week, but only 12% of them use coffee cream 5 times/week. Tea is preferred by 72% of people in the group and consumed 3-4 times/week. 69% of people in this group consume soft drinks with added sugar, on average 3 times/week.

Alcohol beer is consumed 3 times/week, and wine and hard drinks are consumed at least once a week (fig.8).

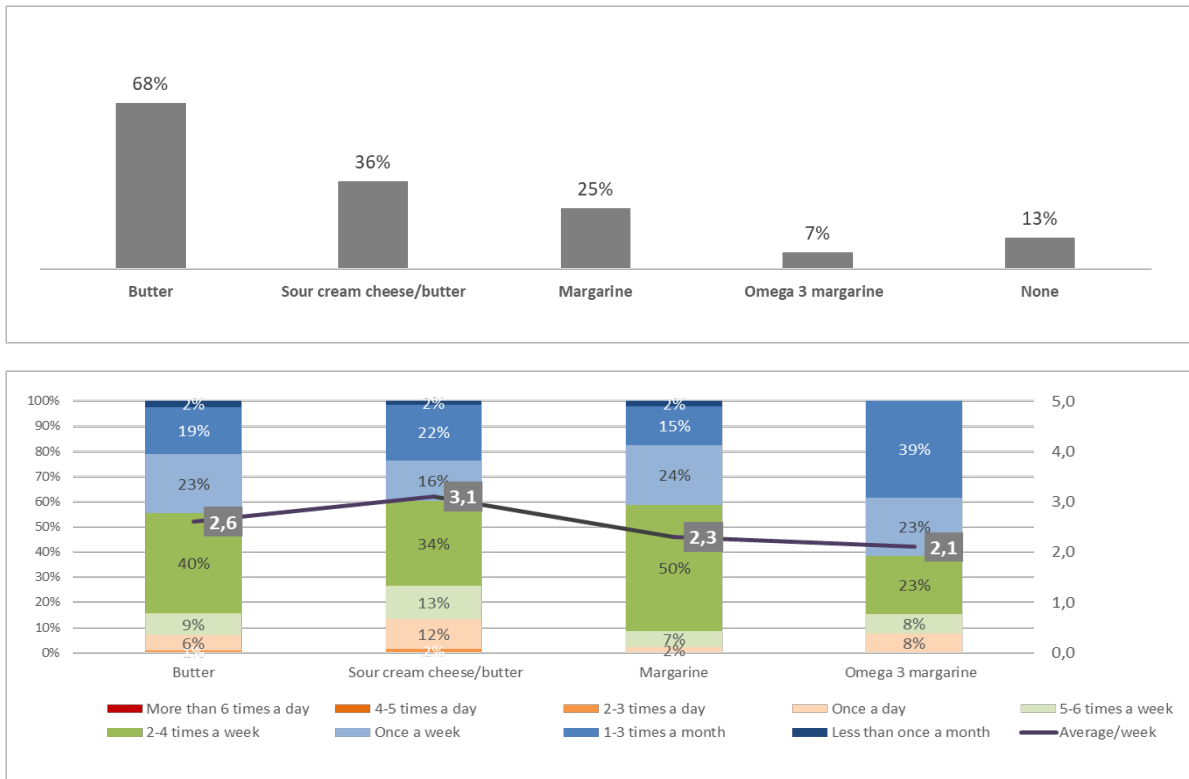


Figura 6. Consumption of spreadable ingredients and weekly frequency of consumption

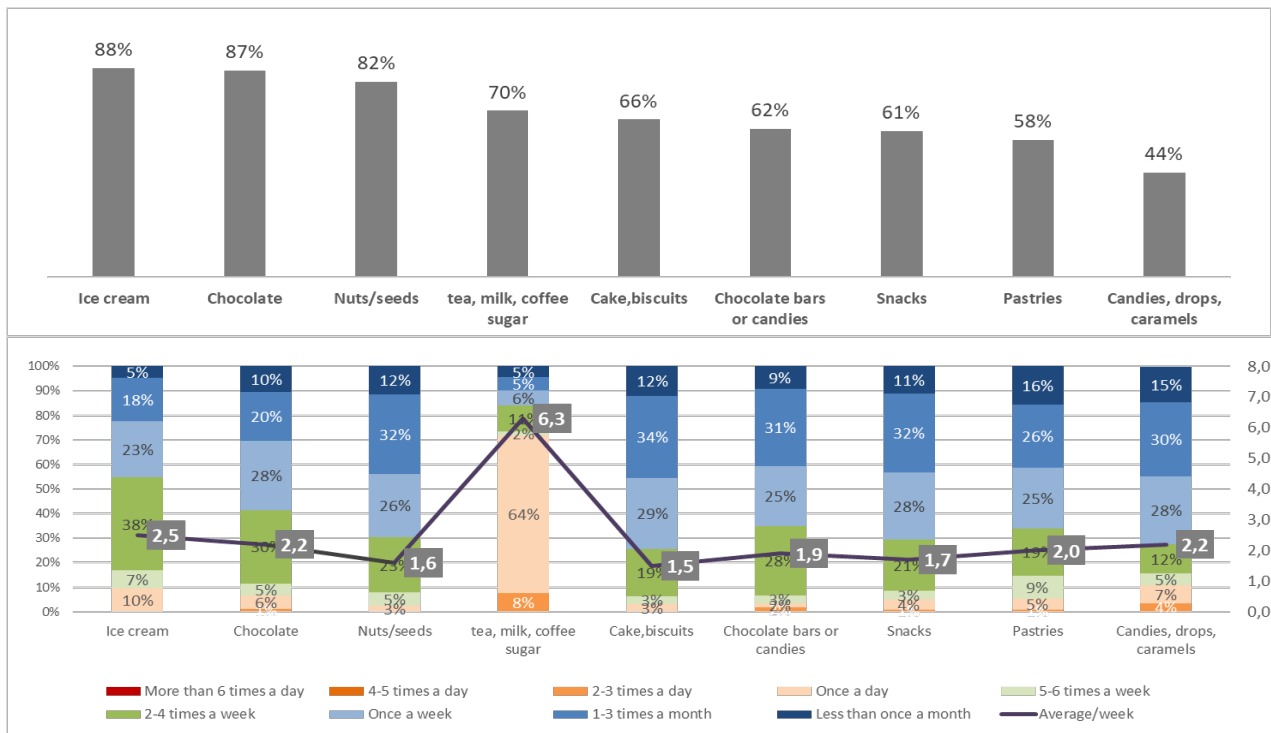


Figura 7. Sweets/snacks consumption and the frequency of consumption

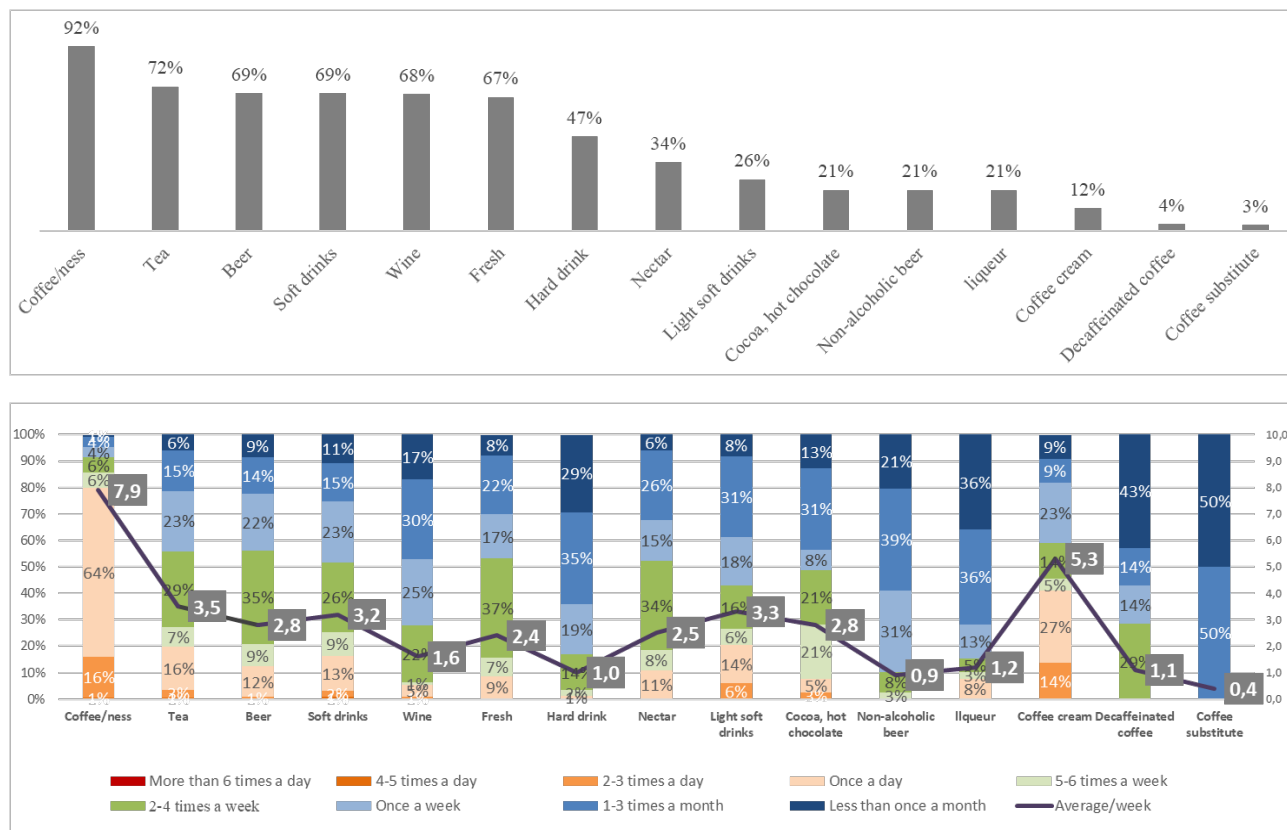


Figure 8. Consumption and frequency of consumption for beverages

Fruits and vegetables play an important role in the group's diet, as they are important sources of vitamins, minerals and dietary fiber, beneficial to the human body health.

Overweight and obese people in this group consume a diverse range of fruits on a weekly basis. Thus, over 90% of them consume seasonal fruits, the most frequently eaten fruits are apples / pears 4 times/week.

During summer, Romanian fruits are usually consumed: apricots, peaches, plums, melons, grapes 2-3 times/week, but during winter consumers prefer the citrus fruits (2 times), bananas (2-3 times) and once a week kiwi (fig.9).

In the weekly diet, the respondents also included fruits with a high sugar content: grapes, bananas, melons.

The recommendation for this group is to consume more often berries, apples, apricots, cherries, citrus fruits, but all in recommended quantities.

A diverse range of vegetables is also consumed but out of the 20 categories mentioned in the questionnaire, 10 were voted by over 90% of respondents. Thus, tomatoes and roots (carrots, celery, parsnips, etc.) are eaten about 5 times a week and onions and garlic 4 times. Bell peppers are preferred by 98% of respondents, being consumed 3 times/week.

Lentils, dried beans, soy dishes and chickpeas are consumed less frequent (Fig.10).

It is recommended to eat foods of plant origin, rich in protein (eg mushrooms, lentils, soy dishes), low in calories and rich in healthy nutrients.



The intake of vegetables is high, tomatoes and legumes being preferred by all respondents; this means an increased intake of minerals and dietary fiber and leads to improved digestion and better colon function.

Overweight people usually add salt to home-cooked meal as follows: 41% always add and 24% of them usually are doing it. Although, even if the "not at all" option was mentioned in the questionnaire, it was not checked.

The salt content of the diet should be reduced to 5g/day, the optimal value for any person, according to O.M.S. Respondents always add 65% salt to their food, which is unhealthy, knowing that the salt causes water retention in the tissues and other unpleasant conditions for the individual.

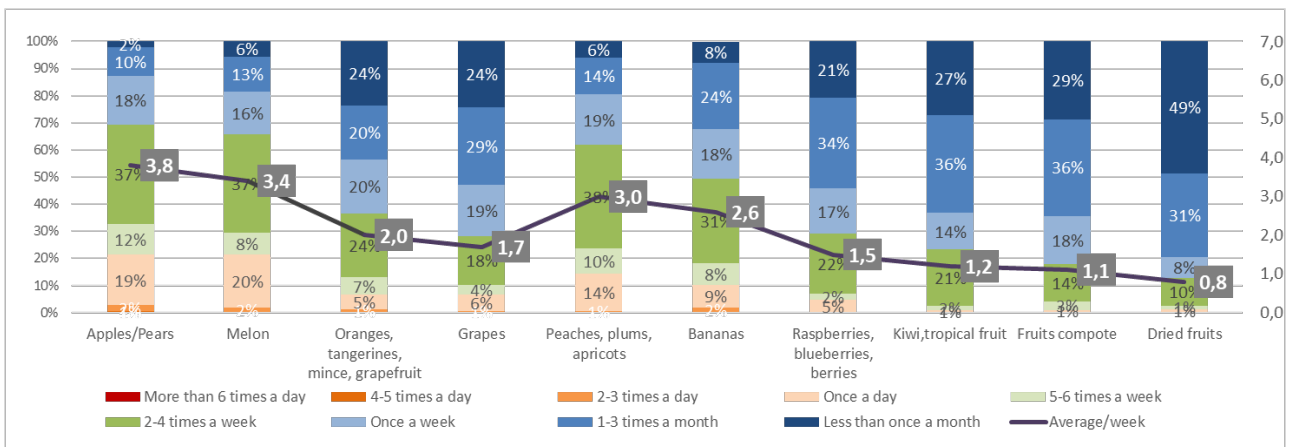
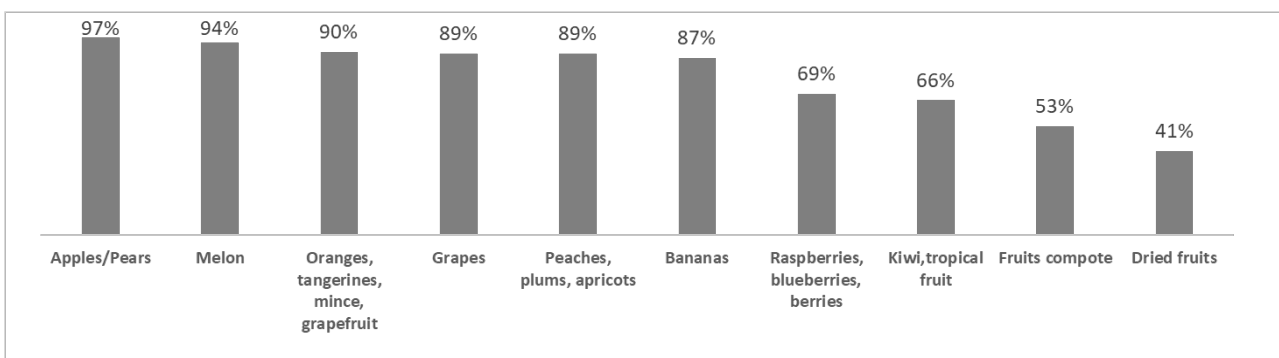


Figure 9. Consumption and frequency of consumption for fruits

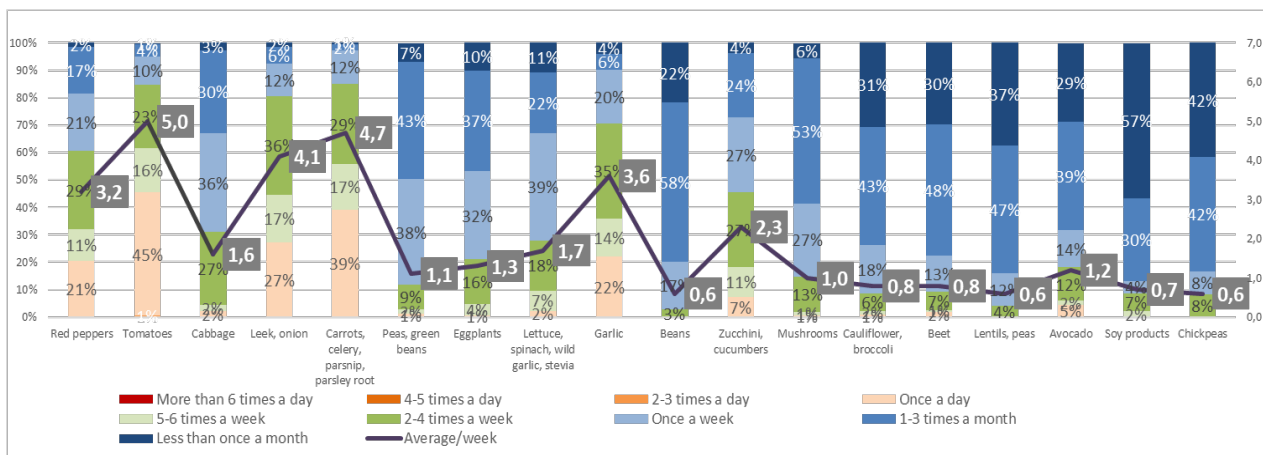
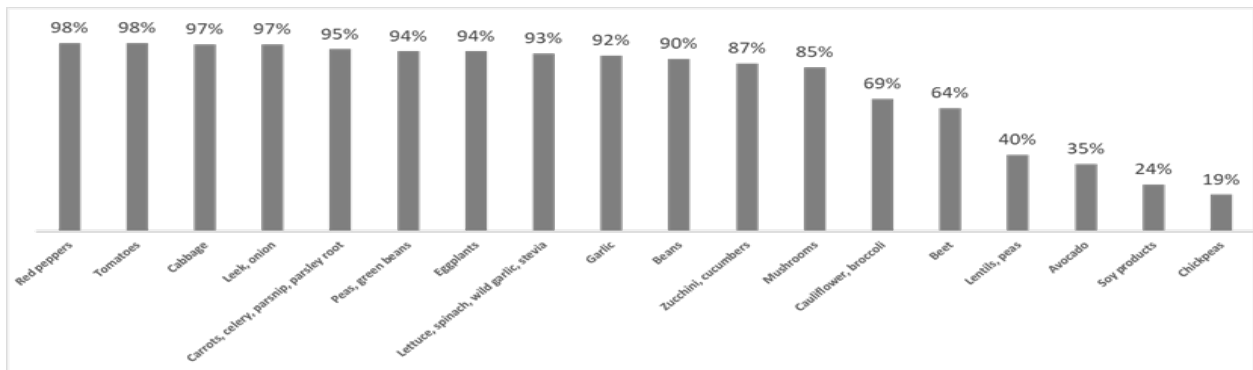
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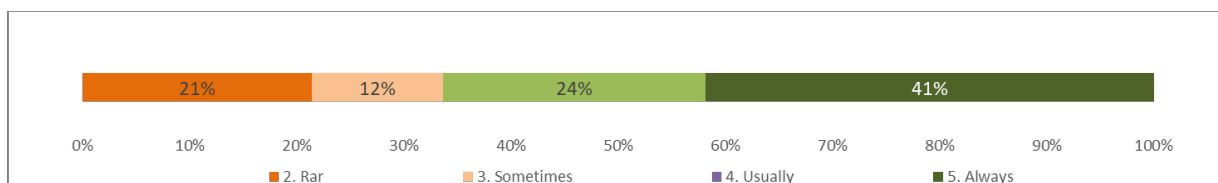
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**Figure 10. Consumption and frequency of consumption for vegetables**



**Figure 11. Frequency of adding salt to food**

## 4. CONCLUSIONS

The results drawn from the previous data has indicated a hypercaloric diet of the observed people, with increased caloric content foods prevalence (eg. pork, sausages, sweets), usually, not recommended within the nutrition plan of an overweight /obese person.

Regarding the salt content, a special attention has to target daily intake which has been far above recommended limit.

The overweight and obese person group is one of the most important population group who must have a personalized nutritional plan.

Scientists, nutritionists, wellness associations, have a great impact on that subject and should promoting health by different means: guides, personalized diets, conferences, online media and some others.

## 5. ACKNOWLEDGEMENTS

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