National University of "Kyiv-Mohyla Academy"

School of Public Health

Determinants and Correlates of Junk Food Consumption among Students of the National University of "Kyiv-Mohyla Academy"

Thesis submitted in partial fulfillment of the requirements for
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INTRODUCTION

According to World Health Organization (hereinafter WHO) experts, the diets people eat define to a large extent people's health, growth and development. Rapid changes in diets and lifestyles that have occurred with industrialization, urbanization, and market globalization have a significant impact on the health and nutritional status of populations, particularly in developing countries and in countries in transition. While standards of living have improved, food availability has expanded and become more diversified, and access to services has increased, there have also been significant negative consequences in terms of inappropriate dietary patterns, decreased physical activities and increased tobacco use.

One of the most important changes in nutrition patterns in both developed and developing countries is increasing popularity of so called "junk food", which has low nutrient content but is high in salt, sugar and fats, food additives and preservatives. Junk food is widely available around the world, as it is rather inexpensive and easy to preserve. If considering the well-known fact that high consumption of saturated fats, refined carbohydrates, sodium, as well as lack of consumption of micronutrients and fiber, increases the risks of development of such chronic non-communicable diseases as cancer, cardiovascular diseases (hereinafter CDVs), diabetes mellitus etc., it will not be a surprise that increased levels of junk food consumption can obviously be associated with rapidly increasing burden of chronic non-communicable diseases around the world, especially in developing countries and countries in transition (WHO, 2002).

In Ukraine, the prevalence of nutrition-related chronic diseases is alarming. CDVs are major cause of all deaths (60%) among Ukrainians and are accounting for 30% of the disease burden (according to the WHO, deaths from CDV and related problems have increased by 40% over the last decade).

Up to 7% of males and 19% of women are obese and obesity cause 9% of disease burden in the country. 12% of all deaths are due to cancer (WHOSIS, 2005).

Nevertheless, the problems of importance of proper nutrition, junk-food consumption and factors associated with it, along with the diet-related chronic diseases prevention and methods of such prevention are not being addressed by the country's health food policies as well as stay aside of the attention of Ukrainian scientists and medical professionals.

This study has been conducted in order to make some contribution in overcoming of the shortage of analytical evidence-based information concerning eating behaviors of Ukrainians.

Its *purpose* is to explore the determinants and of junk food consumption among Ukrainian youth (on the basis of health behavior survey of students of the National University of "Kyiv-Mohyla Academy" (hereinafter NaUKMA)). Such *study group* was chosen as young adulthood is the age when people establish their adult lifestyles and start making more independent food choices. Moreover, according to international evidence, colleges and universities seems to represent the last opportunity for health and nutritional education for a large proportion of young adult. And it is extremely important to know what factors are associated with junk food consumption to make healthy nutrition promotion campaigns effective.

The study has the following *objectives:*

1. To explore theoretical approaches to food choice process and factors that have some impact on it.
2. To define the main determinants of junk food consumption on the basis of previous studies.
3. To investigate the main determinants of junk food consumption among the study group.
4. To develop the recommendations for health promotion specialists and public health policies makers and in the field of healthy nutrition promotion.

After literature review and analysis the *hypothesis* about the most influential determinants of junk food consumption was formed. These determinants are the following:

1. Perceived barriers to healthy eating: lack of time, lack of money, lack of knowledge, low self-efficacy, perceived tastelessness of healthy food, unwillingness to change habits.
2. Family influences: eating patterns and traditions, level of parents education.
3. The knowledge about the relationship between nutrition and human health as a prerequisite of perceiving food as healthy or unhealthy.

The paper consists of four chapters. The first one is a review of general theoretical approaches (socio-psychological, biological, societal, economical etc.) to exploring the main determinants of food choice and other eating-related behaviors.

The second chapter is devoted to the analysis of published studies in the area of junk food consumption and its determinants, correlates and patterns.

The third chapter describes the methodological aspects of the study while in the fourth one the study results are described and analyzed.

At the end of the paper conclusions and recommendations are presented.

CHAPTER I. THEORETICAL PERSPECTIVE IN STUDYING OF DETERMINANTS OF FOOD CHOICE AND OTHER FOOD-RELATED BEHAVIOR

Food choice involves the selection and consumption of foods and beverages, considering what, how, when, where and with whom people eat as well as other aspects of their food and eating behaviors. Food choices play an important role in social, economic and cultural aspects of human lives by expressing preferences, identities and cultural meanings. From the public health perspective, studying of food choice processes is also essential, because they determine which nutrients and other substances enter the body and subsequently influence health, morbidity and mortality. Many previous studies have explored selected aspects of food choice from a wide range of disciplines and perspectives: biological, sociological, psychological, cultural etc. Let's look to some of these approaches more closely.

1.1. Biological Approach to Food-Related Behavior

Biological approaches to food choice take two forms. One *focuses on physiological mechanisms*, and its focus is explaining, at the moment, what is going on in the body and the brain when a food choice occurs. Most of this research is carried out with animals, particularly the domestic rat. The focus has been on the regulation of energy intake, but there is important information on food choice as well. The physiological approach has two aspects, metabolic and neural. That is, one aspect has to do with the processing of nutrients, and the metabolic events that become the stimuli for action, via communication of nutritional states to the nervous system. The second aspect focuses on the brain, and how and where information about metabolic state is integrated with information about the environment, other motives, etc., to lead to choice. This is very important area, growing in relevance to human food choice with the recent development of non-invasive brain scanning techniques.

One more approach is the *adaptive/evolutionary theory*, which places an animal in its ecological niche, and in the context of its evolutionary history attempts to understand food choice, feeding strategies and the like (Rozin, 2006).

1.2. Social-Psychological Theories in Studying Food Choice Behavior

The following section focuses on research that has investigated the proposed relationship between attitudes and behavior.

Expectancy–value (EV) theory is a general model of human decision making that has been widely applied to understanding food choice. It is based on the assumption that individuals are motivated to maximize the chances of desirable outcomes occurring and minimize the chances of undesirable ones. When choosing between two objects, individuals select those, which he or she associates with the most positive and desirable result. This global evaluation (attitude) is developed from the perceived probability that the object possesses a number of some features (e.g. outcomes associated with purchasing a product), weighted by the evaluation of those outcomes. The studies by Towler and Shepherd (1992) and Armitage and Conner (2001) have demonstrated the utility of the EV model for predicting food choice attitudes. Moreover, this approach is not only useful in studying the decision-making processes basing on attitudes towards food, but also is predicting actual food choice (Conner and Armitage, 2006).

Within the *Theory of Reasoned Actions (TBA)*, the predictor of behavior is a conscious intention to perform the action, and this intention is predicted by attitude and subjective norms (perceived social pressure). These components are influenced in turn by beliefs, beliefs about the outcome of the behavior in the case of attitudes, and beliefs about the wishes of specific other groups in the case of subjective norm (Shepherd, 2008).

The *Theory of Planned Behavior* (TPB) extends the *TBA* model by bringing in a component of perceived behavioral control that predicts intention and also can

have a direct impact on behavior. Along with attitudes and subjective norms, perceived behavioural control also is predicted by beliefs. There have been many studies on food choice using the TPB, mainly related to fat intake, fruit and vegetable consumption, and "healthy eating" (Conner and Armitage, 2006), although some studies have examined the determinants of energy intake (Armitage and Conner, 2001; Baranowski et al., 2003); the TPB also has been used in behavior change programs (Hardeman et al. 2002). In general, there is relatively good prediction of intention by the components of attitudes, subjective norm, and perceived behavioral control, but there are some critical issues on TBA and TBP. Relatively clearly defined behaviors such as fruit and vegetable consumption are predicted reasonably well by the TPB variables (Povey et al., 2000), for more global dietary behaviors such as fat intake, the prediction of behavior tends to be lower; for example, Armitage and Conner (1999) found only 18 percent of the variance in fat intake to be accounted for by the TPB variables. One potential reason for this is may be that the number of ways of achieving a well-defined goal such as fruit and vegetable consumption is limited, whereas there are far more ways in which it is possible to achieve more diffuse goals such as fat intake or energy intake (Conner and Armitage, 2006).

Social cognitive theory (SCT) provides a particularly useful theoretical framework for understanding and describing the multiple influences that have an impact on food behaviors (Baranowski et al., 2002). In SCT, behavior is explained in terms of a 3-way, dynamic, and reciprocal interaction between personal factors, environmental influences, and behavior. Key concepts of SCT are self-efficacy (self-confidence to change behavior), observational learning (modeling), reciprocal determinism (bidirectional influences), behavioral capability (knowledge and skills to change behavior), expectations (beliefs about likely results of action), functional meanings (personal meaning attached to behavior) and reinforcement (responses to a person's behavior that increase or decrease the chances ofits recurrence) (Glanz and Rimer, 2005, Baranowski et al., 2002).

Among the constraints of socio-cognitive theories is their accent on the rational influences on behavior and little attention to emotional component of many behaviors, whereas food choice and consumption have quite affective nature. Moreover, although cognitive/rational models can predict the performance of a behavior, in many cases very often performed actions (including those related to food choice) become more habitual and even automatic, because, the original reasons for adopting the behavior may have been forgotten (Verplanken and Aarts, 1999). A further problem associated with the application of social-psychological models is that for many health behaviors, people do not hold simple attitudes that performing the behavior is either good or bad but rather have a more complex set of beliefs and attitudes, which reflect a degree of ambivalence (Shepherd, 2002; Maio et al., 2007). Ambivalence refers to holding both strong positive and strong negative beliefs simultaneously and this is likely to be common in many food contexts. For instance, people both like the short-term sensory pleasure from consuming certain foods while simultaneously having negative beliefs regarding their impact on health.

1.3. Sociological Approach to Food Choice Behavior

Sociologists have a particular interest in demographic variables as within-culture determinants of food choice. There are modest effects of age and gender on food preferences (for example, meat avoidance is more common in women and, on account of greater weight concerns in women, preferences for low-calorie foods are higher in women) (Rozin, 2006).

Sociological concerns also deal with important influences on food choice and intake at the institutional level, such as in institutions (schools, universities and worksites etc) and restaurants. The whole food system, including the social organization of the growing of foods, delivery to markets and distribution of foods, has major influences on what is chosen (Beardsworth and Keil, 1995; Maurer and Sobal, 1995). So, the sociological perspective is also necessary in understanding food choice.

1.4. Ecological Models of Eating Behaviors

Another relevant model for understanding factors influencing eating behavior is an ecological perspective. Ecological models consider the connections between people and their environments. In this model, behavior is viewed as affecting and being affected by multiple levels of influence.

Brofenbrenner's ecological model divides environmental influences on behavior into 4 interacting levels: microsystems, mesosystems, exosystems, and macrosystems. Microsystems refer to the most proximal contexts in which an individual participates directly, such as family, peers, and school. The linkages among the microsystems form the next level, known as mesosystems. These are the interrelationships among the various settings in which the individual is involved, such as family, school, peer groups, or church. The exosystem refers to forces within the larger social system in which the individual exists, such as the media and community influences. The most distal system is the macrosystem, which consists of culturally based belief systems, economic systems, and political systems (Brofenbrenner, 1979).

A more recent ecological model of food-related behavior is presented by M. Story et al. In this model, eating behavior is viewed as being a function of multiple levels of influence. The framework also emphasizes the interaction and integration of factors within and across levels of influence. The four large levels of influence are individual, social environmental, physical environmental, and macrosystem.

Individual (intrapersonal) characteristics that influence eating behavior include psychosocial factors, such as attitudes, beliefs, knowledge, self-efficacy, taste, and food preferences-as well as biological factors such as hunger. Behavioral factors such as meal and snack patterns and weight-control behaviors and lifestyle factors such as perceived barriers (for instance, cost, time demands, and convenience) are also considered to be a kind of intrapersonal factors that have an effect on eating behaviors.

Social environmental influences (interpersonal) with include environments, which include family, friends, and peer social networks are also strongly influence

on food choices and eating behaviors. Interpersonal influences can affect eating behaviors through mechanisms such as modeling, reinforcement, social support, and subjective norms.

The physical environment (community settings) influences accessibility and availability of foods. Community settings most proximal to adolescents and influential in affecting restaurants, shopping malls, vending machines, and convenience stores.

Macrosystem factors (societal) play indirect role in determining food behaviors. They include mass media and advertising; social and cultural norms around eating; food production and distribution systems, which influence food availability; and local, state, and federal policies and laws that regulate or support food-related issues, such as availability and pricing (Story et al., 2002).

The main limitation in using ecological perspective is a phenomenon of so called reciprocal determinism (Glanz and Rimer, 2005, McLeroy et al., 1988). This means that behavior and environment are reciprocal systems and that influence occurs in both directions. That is, the environment shapes, maintains, and constrains behavior, but people can create and change their environment (Story et al., 2002).

1.5. Cultural (Anthropological) Approaches

In people's food-related behavior, culture is almost certainly the predominant influence. The anthropologists describe the complex of cultural traditions that bear directly on food as cuisine. Some of these traditions are about the particular foods people eat, the kinds of things that appear on the table from day to day, and are described in ethnically faithful cookbooks. Elisabeth Rozin (1982) has provided a framework within which to describe cuisine in this narrower sense, dividing into staple foods, flavouring ingredients and methods of preparation.

So, the cuisine is very complex concept. The notion of cuisine includes appropriate meals, order of serving, and the like. And then there are table manners, the social organization of the meal, food and ritual, and the meaning of food in life

and social intercourse. Moreover, food often assumes symbolic roles. Because it involves shared substance, it is closely connected with the social world, functioning frequently as a homogenizing agent through sharing of food with individuals with whom one is close, and as a heterogenizing agent, as a way of distinguishing oneself from most others by not sharing food with them (Rozin, 2006). So, anthropology is the discipline that pays most attention to the role of food in daily life and the meaning of food.

1.6. Food Choice Process Model

As, one can see from the information given in previous sections, the range of factors potentially involved in choosing foods is very diverse and extensive. Many of the most important components of the construction of food choices are portrayed in the food choice process model elaborated by T. Furst and his team. The model represents the types of factors and the process involved in a single choice event. Factors involved in food choice were grouped into three major components: (1) life course, (2) influences and (3) personal system. The relationship of these components to one another generates the process or pathway (indicated by arrows) leading to the point of choice. Figure 1 illustrates this conceptual model of the food choice.

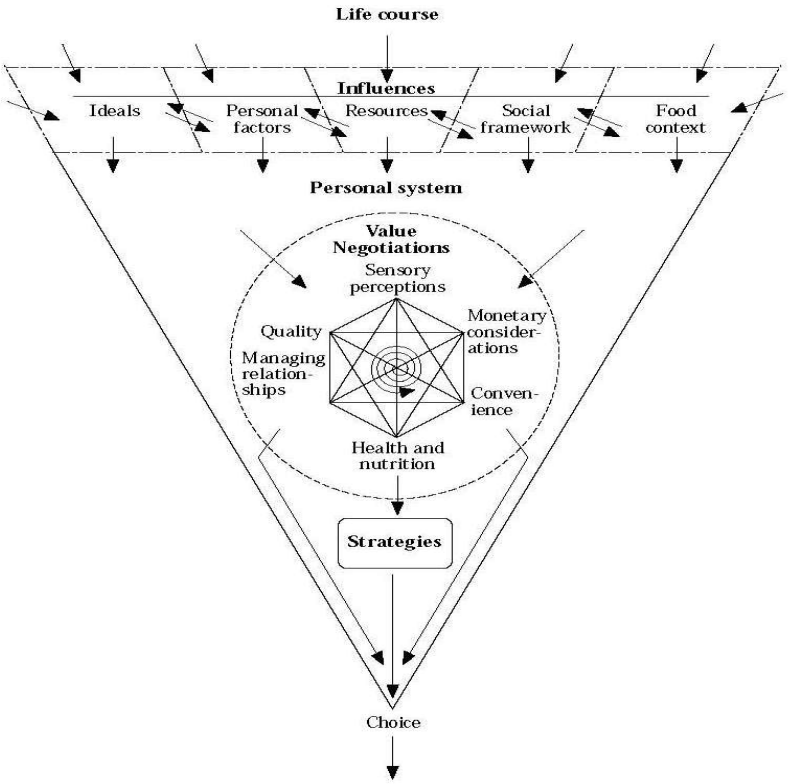

Figure 1. A conceptual model of food choice process (adapted from Furst et al., 1996)

The model's funnel shape illustrates several attributes of the food choice process. First, a single food choice event results from the mixing and separating of the diverse set of personal and environmental inputs. The life course, a major ingredient in the process, gives rise to and shapes the influences that emerge in a food choice situation as well as the manner and extent to which the social and physical settings affect how people construct and execute personal systems of food choice. The value negotiation process within such a personal system is very dynamic, while strategies are more habitual. Finally, the boundaries between components and processes are highly permeable, and much mutual shaping occurs between and within components (Furst et al., 1996).

Nevertheless, like all models, frameworks and theories, this food choice process model has several limitations. In an attempt to broadly consider multiple issues in making food choices, the model does not focus deeply on specific factors and does not explicitly consider some factors. The model was developed to examine individual food choices of consumers, and it needs to be further elaborated when applied to collective food choices of families and other multi-person units involving group decision making (Stratton and Bromley, 1999). The model was developed and has largely been applied in a post-industrial Western society in the late 20th and early 21st century and may require considerable adaptation, elaboration and extension to serve well in other cultures. (Sobal et al., 2006).

To conclude, conceptual models or theories are useful in understanding and explaining the dynamics of health behaviors, the processes for changing the behaviors, and the effects of external influences on the behaviors. So, the determinants of food choice can only be understood by a mixture of biological, psychological, social and cultural perspectives. Only with knowledge of abovementioned theories and frameworks, it is possible to understand the determinants and mechanisms of particular food-related behaviors. As the aim of this paper is to analyze determinates and correlates of junk food consumption, in the

next chapter the main factors that influences unhealthy food choices will be considered.

CHAPTER II. THE NOTION OF JUNK FOOD AND DETERMINANTS AND CORRELATES OF ITS CONSUMPTION

Junk food is a type of food, which has low nutrient content but is high in salt, sugar and fat. Salted snack foods, candies, most sweet desserts, fried fast food and carbonated beverages are some of the major junk foods. Generally, they offer little in terms of protein, vitamins or minerals and lots of calories from sugar or fat. The term "empty calories" reflects the lack of nutrients. Junk food is considered to be very unhealthy. Scientists and medical professionals assume that the impact of eating at fast-junk food is extremely negative and intake of such food is one of the major causes of many non-communicable diseases: obesity, cardiovascular diseases, cancer, type II diabetes etc.

Many different factors (psychological, socio-economical, demographic etc.) obviously or implicitly impact on people's food choice. The studies exploring determinants and correlates of junk food intake helps to understand why people prefer to eat such food. Understanding of motives that lead to the choice of junk food products is vital in order to develop effective public health programs in the field of nutrition, to reduce the consumption of unhealthy food and to change individual's unhealthy behaviors. All this will improve people's health and quality of life.

2.1. Individual (Intrapersonal) Determinants

2.1.1. Food preferences and sensory perceptions of food

Food preferences are formed as a result of the complex interactions of many factors in a person's environment, including early childhood experiences with food and eating, positive or negative conditioning, exposure, and genetics (e. g. sensitivity to a bitter taste) (Birch, 1999). Self-reported food preferences have been found to be one of the strongest predictors of food choices (Woodward et al., 1996; Baranowski et al., 2002; Birch and Fisher, 1998, Drewnowski and Hann, 1999).

Studies in adolescents and adults have shown that taste is one of the most important influences on food choices. In focus groups with adolescents, taste and the appearance of food were frequently discussed as primary factors influencing food selection (Neumark-Sztainer et al., 1999). French and colleagues (1999) assessed motivations for vending snack choices and found that adolescents rated snack taste as the most important factor to consider, followed by hunger and price. Those who placed greater emphasis on snack taste or price were less likely to report current or intended low-fat vending snack choices (French et al., 1999). The study conducted among the students of the University of Nebraska, USA found that taste of food is one of the most important factors (41% of respondents) influencing food choice among young adults (Driskell et. al., 2006). The European studies confirm the thesis that taste is a very important determinant of food choice. According to the data of pan EU Survey of Consumer Attitudes to Food, Nutrition and Health (1997), taste was perceived to be among the top five influences on food choice in all member states (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the Great Britain). In Ukraine, 47% of people reported taste as a major factor in food choice (Biloukha and Utermohlen, 2001). According to Honkanen and Frewer (2009), sensory motives were the most important determinants of food choice in all socio-demographic groups.

2.1.2. Meanings of Food

It is important to understand the symbolic and functional meanings that people attach to food. Perceptions of healthy eating could be considered as one of the many determinants of eating patterns (Paquette, 2005). Previous studies have shown that foods can be (and often are) categorized as healthy or unhealthy (junk) (Carels, Konrad and Harper, 2007; Oakes and Slotterback, 2001). Various factors may influence the healthy/unhealthy categorization of foods, such as their perceived fat content (Carels, Harper, and Konrad, 2006) as well as some stereotypical beliefs related to their names (Oakes, 2006). Beliefs about the healthiness of foods

significantly affected eating: perceiving a food as healthy increased intake of that food. Furthermore, it has been demonstrated that perceptions about healthiness or ‘‘fattiness’’ of foods may bias estimations of caloric content of foods. Chandon and Wansink (2007) reported that caloric contents of familiar main dishes from restaurants claiming to offer healthy food choices were estimated by consumers as up to 35% lower in calories than when the dish was from a restaurant not making such health claims. Categorization of foods as healthy, then, may mean that a particular food will be eaten in greater amounts because it is assumed to conduce to health (Ross and Murphy, 1999).

The other study, which was conducted among Canadian adolescent girls, showed that eating junk food was associated with pleasure, being with friends, weight gain, independence, guilt, affordability, and convenience. The perceived characteristics of healthy food were in direct contrast to those of junk food: Eating healthful food was linked with family meals and being at home. Eating and liking junk food was seen as normal behavior for adolescents, whereas liking healthful food was viewed as an oddity (Chapman and Maclean, 1993).

All above-mentioned studies clearly demonstrate that norms and believes can influence food intake. More specifically, beliefs about the healthiness of foods could be described as normative, because such beliefs can serve as an indicator of appropriate intake, as according to sensory-normative distinction theory, normative cues affect everyone whereas sensory cues have a more powerful effect in obese and/or restrained individuals (Provencher, Herman and Polivy, 2009)

2.1.3. Heath and Nutrition Knowledge

Knowing how and why to eat healthfully is important, but knowledge alone does not enable people to adopt healthful eating behaviors (Story et. al, 2002). The frequency of fast-food intake was not found to be significantly associated with perceived healthfulness of such food (French et al., 2001; Dave et al., 2009).

In general, association of nutrition knowledge with dietary behavior in children, adolescents and adults was found to be very weak. For instance, the research conducted by Satia and colleagues (2004) demonstrated low association between eating in fast-food restaurants and knowledge of the Food Guide Pyramid. But, there was found a positive association between junk food consumption and poor knowledge in diet and chronic diseases and cancer relationships (Satia et al., 2004).

2.1.4. Self-Efficacy

Perceived self-efficacy for healthful eating has been found to be an improved variable for predicting eating behavior (Gracey et al., 1996). Cusatis and Shannon (1994) found high levels of self-efficacy for making healthy food choices were associated with low consumption of high-fat foods and high-sugar foods. Another study showed that adolescents and adults who had more positive beliefs and higher self-efficacy about low-fat vending snacks, were more likely to report that they usually chose or planned to choose a low-fat vending snack in the future. (French et al., 1999). In contrast, people with low self-efficacy for healthy dietary practices and perceived barriers to healthy eating have poorer dietary profiles. For example, frequent eating at fast-food restaurants was positively associated with low self-efficacy to eat less fat and more fruits and vegetables, and perceived difficulties of preparing healthy meals and ordering healthy foods in restaurants (Satia et al., 2004).

2.1.5. Cost (Price) of Food as a Perceived Barrier to Healthy Eating

Studies of both adults and adolescents have found that cost is considered one of the most important influences on food selection (Lappalainen, Kearney and Gibney, 1998; French et al., 1999; Biloukha and Utermohlen, 2001). According to the data of a Pan EU Survey of Consumer Attitudes to Food, Nutrition and Health, the influence of price upon food choice varied greatly between different European countries (for example, price was mentioned by 62% of the Finnish respondents as

compared to 18% by respondents in Greece), but was the second most frequently mentioned influence when the combined EU sample was considered. In Ukraine, cost of food was the most frequently mentioned barrier to healthy eating (mentioned by 65% of our respondents). This finding is not surprising; the difference in the economic situation between Ukraine and the EU countries is obvious. However, this finding also suggests that Ukrainian citizens perceive a healthy diet to be more expensive than their present diet, which is not necessarily true (Biloukha and Utermohlen, 2001).

Several studies have empirically demonstrated large effects of price reduction on sales of fresh fruits and vegetables and lower-fat vending snacks. For instance, in a large study involving 12 high schools, price reductions on low-fat vending machine snacks of 10%, 25%, and 50% increased sales of these items by 9%, 39%, and 93%, respectively (French et al., 2001). The results of this study clearly show the powerful effect of price on individuals' food choices.

2.2. Lifestyle Determinants and Correlates

2.2.1. Convenience of Food and Perceived Barriers to Healthy Eating Associated with Convenience

Convenience relates to the actual time, physical ability and the mental or physical involvement it takes for a person to acquire, prepare, consume and clean up after eating or drinking. Convenience is also a personal judgment about the opportunity cost of expending time and effort in relationship to the benefits from a particular food or drink (Gofton, 1995). Individuals' food choice patterns develop and change over the life course and differ between people. Thus, the primary meaning of convenience for students and people who are employed is usually time, while for older adults convenience often relates to transportation to acquire food or difficulty in opening a can or lifting a pot. The consideration of convenience also

varies according to cooking skills (Furst et al., 1996; Connors et al., 2001; Smart and Bisogni, 2001; Devine et al., 2003).

It is commonly suggested that convenience is an important factor for people to eat at fast-food restaurants. It was found strong and significant associations between frequency of fast-food intake and perceived convenience of fast food and dislike toward cooking in adults (Dave et al, 2009). The study of Driskell and colleagues (2003), which explored the eating habits of university men and women at fast-food restaurants showed that the primary reasons the students gave for choosing to eat fast food is limited time (71% of respondents). The results of the research by French and colleagues (2001) were in concordance with previously mentioned finding.

2.2.2. Meal Patterns

Skipping meals adversely affects dietary quality. Breakfast is the most commonly missed meal among teens and adults. The 1989-91 Continuing Survey of Food Intakes by Individuals (CSFII) data showed that 24% of adolescent girls and 20% of adolescent boys skipped breakfast on the day of the survey. Both males and females, who consumed a good-quality breakfast, had significantly higher intakes of bread, fruit, vegetables, milk and milk products, and fruit juice, while their intake of soft drinks and snacks was significantly lower than those who consumed a low-quality breakfast (Matthys et al., 2007). Nicklas et al (1998) found that young adults who skipped breakfast had lower total daily energy, vitamin, and mineral intakes compared with those who ate breakfast. Overall, dietary inadequacy was 2 to 5 times higher for those who skipped breakfast than for those who ate breakfast.

2.3. Socio-Demographic Characteristics

Age is always one of the major determinants of different behaviors. The case of unhealthy food consumption is not an exception. In general, frequent junk food consumption is not typical for young children, except the cases when unhealthy food is available from their homes. But between early and middle adolescence, fast food consumption increases nearly twice both in males and females, and continues to increase significantly among males during the transition from middle to late adolescence. The main cause of such situation is the so called developmental factors that include more time spent with peers, independence in meal selection, and disposable income (Bauer et al., 2009). After reaching young adulthood age, the frequency of fast food consumption decreases and becomes less and less common as people become older. For instance, in the study of Satia and colleagues (2004), participants who reported usual/often eating at fast-food restaurants were more often younger and never married than those who did not.

Gender also may be considered among the predictors of junk food consumption. Males are more likely to have diets higher in total fat and saturated fat compared with females (Story et al., 2002; French et al., 2001). There is also some evidence, that females are influenced by social environment to a greater extend that males. Drinkell and colleagues (2006) reported that bigger percentage of women (34%) than men (13%) indicated that 1 of the 2 primary reasons for choosing to eat at fast-food restaurants was to eat with friends and family. Nevertheless, some studies did not find significant associations between eating fast food and gender (Satia et al., 2004).

As for socioeconomic status, American and Western European researchers have found that people with low and middle-low income are more likely to have less healthy diet and consume more junk food (snacks and fast-food meals) (Larson et al., 2008; Bauer et al., 2009). The opposite results were found in the studies,

conducted in countries with low or middle income. In one Chinese study, the intake of fast food and soft drinks were positively and significantly associated with socio-economical status. About 10% of the boys from families with high income ate hamburgers daily compared with 2.8% of the boys from the low income families, while for soft drinks (sodas and cola) the corresponding figures were 21.5 and 4.2% (Shi et al., 2005).

Negative changes in eating patterns occurred also due to profound social changes in family structure and maternal employment. In the USA, for instance, in 2006, 70.9 percent of women with children under 18 years of age were in the labor force (according to the US Department of Health and Human Services). Parents in two-earner households and single parents have less time to prepare family meals. Such trends increase popularity of snacks and fast food (Jabs and Devine, 2006).

According to Satia and colleagues, frequency of eating at fast-food restaurants did not differ significantly by educational and urban versus rural residence.

2.4. Interpersonal.and Environmental Influences

2.4.1. Family-Related Determinants and Correlates

The family is a major influence on children' and adolescents' eating behavior. The family mediates adolescents' dietary patterns in two distinct ways: the family is a provider of food, and the family influences food attitudes, preferences, and values that affect lifetime eating habits. The availability of unhealthy food at home appears to be a robust predictor of consumption of obesity-promoting foods/beverages for both sexes, but particularly for girls (Campbell et al., 2004). Grimm et al. (2004) noted that 8- to 13-year-olds who reported that soda was available in their homes were nearly three times more likely to report consuming soft drinks five or more times per week. According to the research of French et al. (2001), frequency of eating in fast-food restaurants was significantly associated with availability of unhealthy foods in the home environment ($P<0.0001$). In addition, the availability of

less healthful food choices at home has been reported as an important barrier to choosing fruits and vegetables (O'Dea, 2003), while the strongest correlates of fruit and vegetable intake in adolescents are reported to be the availability of these foods at home (Hanson et al., 2005).

Moreover, according to the data of the National Health Interview Survey conducted in the USA, consumption of foods high in fat was inversely associated with parental education among adolescent girls.

2.4.2. Peers Influence

The influence of peers and conformity to group norms are often considered hallmarks of adolescence and young adulthood. They spend a substantial amount of time with friends, and eating is an important form of socialization and recreation and it is assumed that peer influence and group conformity are important determinants in food acceptability and selection; however, the role of the peer group in influencing food choices has rarely been explored and the few studies done have not found a strong association. A few studies among adolescents in the Netherlands investigated the resemblances in fat and food intake within social networks that included adolescents, their mothers and fathers, and their best friends. They found clear resemblance in habitual fat and food intake between adolescents and their parents but not between adolescents and their friends. For almost all food items significant associations were found between the food frequency of parents and adolescents (76% to 87% of the items), but only 19% of the foods were significantly associated for adolescents and friends. The foods that were correlated among friends were primarily snacks (Feunekes et al., 1998). French and colleagues (1999) examined 13 motivations regarding vending snack selections among 419 adolescents. Influence of friends was rated as the least important motivation for snack choice. At the same time, Hertzler and Frary (1996) reported that socializing with friends and a chance to get out were the top two choices of college students for eating fast foods. Also, one third of the participants of the study conducted by

Driskell and colleagues (2006) indicated that one of the two primary reasons for choosing to eat fast foods was to eat with friends and family.

2.4.3. Community and Societal Influences

The community food environment can have a large impact on people food choices and dietary quality because nowadays people consume a large proportion of their total daily energy out of home. The number of fast-food outlets around the world, including Ukraine, has risen steadily over the past decades. Expanding the number of outlets increases accessibility, thus making it more convenient for consumers to purchase fast food. Fast-food outlets hold great appeal for the adolescent and young adult population. They usually want quick, good-tasting, convenient, and relatively low-cost meals, which are the main features of fast food. Unlike many other restaurants, fast-food restaurants welcome adolescents and provide a clean and friendly atmosphere and a socially acceptable place to spend time with friends, which make a contribution to increasing of unhealthy food intake among young people. Local stores also provide a wide range of junk food products, like sweet and savory snacks, sweet soft drinks etc. It should be mentioned, that convenience stores and fast-food outlets are often located near school buildings and recreation centers, making them convenient and accessible food sources (Story et al., 2002).

Societal influences have more distal impact on people but have the potential to have a substantial effect on individuals, families, peers, and the community in which they live. Factors within the larger society, which can affect people's eating behavior, include the media, cultural and social norms, food production and distribution systems, and food accessibility and availability. Nowadays people live in a media saturated environment. Media exposure begins early in life with an average of 4 hours of daily media exposure among children aged 2 to 4 years, and it increases rapidly with age. In the United States, the average junior high student

spends more time with media than he or she devotes to any other activity (more than 8 hours) (Story et al., 2002).

A huge number of studies have consistently shown a positive association (although weak in some cases) between television viewing and junk food consumption, especially in children and youth (Coon and Tucker, 2002; Lobstein and Dibb, 2005; Dixon et al, 2007; Powell, Szczypka and Chaloupka, 2007; Barr-Anderson et al., 2009). The impact of television on obesity is believed to be mediated by two primary mechanisms: reduced energy expenditure from displacement of physical activity and increased dietary energy intake, either during viewing or as a result of food advertising (Story et al., 2002).

It is not surprising, because television is the favorite advertising medium used by the food industry. For example, American fast-food restaurants spend more than 95% of their advertising budgets on television advertisements (Gallo, 1999). Exposure to food advertising - especially commercials for fast food, convenient foods, and soft drinks - may influence viewer's food choices toward higher-fat or high energy foods. Besides television, marketers also use other advertising techniques and channels to reach people. Magazines, Internet sites, sales promotions, free gifts and cross-selling campaigns are also commonly used methods to reach youth (Story et al., 2002; Cowburn and Boxer, 2007).

To sum up, the identification of main determinates and correlates of junk food consumption at different levels of influence is essential. The knowledge of factors that are the most important and influential on junk food consumption helps to design further studies in this field more correctly and to form the way to deeper scientific knowledge as well as it can be a foundation for planning interventions aiming at changing of unhealthy behaviors and lifestyles.

CHAPTER III. METHODOLOGY

3.1. Sampling and Questionnaire

The questionnaire was developed for a lifestyle survey of undergraduate and graduate students of NaUKMA, which was initiated by the NaUKMA School of Public Health in its attempt to document peculiarities of students' health-related behaviors, identify determinants of such behavior and to observe effects of potential interventions aimed to improve students' health condition through educational programs and other measures. The participation in the survey was voluntary and the confidentiality of respondents was guaranteed.

The data was collected between February 2007 and February 2009. The questionnaire consisted of 200 questions on healthy life style, health-seeking behavior, demographics, health knowledge, oral health, reproductive health, smoking and alcohol consumption as well as dietary questions. The questionnaire was pre-tested with a help of 15 students of School of Public Health not involved in its preparation and was further adjusted.

The nutritional component of healthy lifestyle was assessed by 53 questions divided into the following blocks.

Perceived barriers towards healthy nutrition measured by multiple-choice question "Which factors prevent you from eating a healthier diet?" with eight options available: (1) lack of time, (2) lack of money, (3) lack of knowledge, (4) lack of self-control, (5) unpleasant taste of healthy food, (6) lack of importance of diet within persons perception, (7) no desire to change diet, and (8) perception of diet as healthy with a possibility to choose up to three options.

The questionnaire also contained nutrition and health and knowledge scale, which measured the respondents' knowledge about diets' influence on general health:

- ✓ Choosing a diet with lots of fresh fruits and vegetables is good for one's health.
- ✓ Eating a lot of sugar is good for one's health.
- ✓ Eating a variety of foods is good for one's health.
- ✓ Choosing a diet high in fat is good for one's health.
- ✓ Consuming a lot of animal products daily (fish, poultry, eggs and lean meat) is good for one's health.
- ✓ Reducing the amount of fatty meat and animal fat in the diet is good for one's health.
- ✓ Consuming milk and dairy products is good for one's health.
- ✓ Consuming beans and bean products is good for one's health.
- ✓ Lard is a healthful product, which contains useful nutrients

Each of the abovementioned questions were estimated with a help of 5-point Likert scale: (1) absolutely disagree (2) disagree (3) neither agree nor disagree (4) agree (5) absolutely agree.

The *knowledge about diet-disease relationship* was measured using the following questions:

- ✓ Which problems with health are caused by lack of fruit and vegetable consumption?
- ✓ Which problems with health are caused by lack of fiber consumption?
- ✓ Which problems with health are caused by overconsumption of sugar?

The diseases proposed for choice were cardiovascular diseases, cancer, infectious diseases, gastritis, diabetes and overweight/obesity.

Two questions assessed the respondent's *knowledge about the potential of healthy dieting in prevention* of cardiovascular diseases and cancer:

- ✓ What do you think these helps to reduce the chances of getting certain kinds of cancer?
- ✓ What do you think these help prevent heart disease?

The *food frequency questions (FFQ)* (15 items) that had eight answer options available: never, once a month or less, once a week or less, 2-4 days a week, 5-6 days a week, once a day, 2 times per day, 3 times per day. The food products to FFQ list were selected from basic group of foods, recommended as components of healthy diet as well as some frequently consumed junk food options and drinks in order to assess students everyday diet.

Family eating traditions were studied using the questions on parent's family traditional patterns of fruit and vegetables, meat and oils consumption. There was also a question about parents' level of education.

Socio-demographic factors were assessed with the help included items about age, gender, year of studies, department/major specialization, income status, marital status, place of living etc.

3.2. Main Outcome Measures and Methods of Analysis

The design of the present research is nested case-control study incorporated in a cross-sectional survey of NaUKMA students.

The basic study group, which included all the students participating in the survey, was divided into three outcome measures, according to the type of junk food they consume.

As one of the outcome measures were considered the *consumers of unhealthy snacks*, such as hamburgers, hotdogs, pizza, potato crisps, pop-corn or sweets to be a preferred choice for snacking during the day. The second outcome measure was the frequent (more than one time per week) *consumers of carbonated soda drinks*, such as "Coca-Cola", "Pepsi" etc. As *fast food consumers* were considered whose respondents, who reported intake of fast-food meal more or less frequently.

Based on the literature review, the following variables were considered as determinants of junk food consumption:

1. Unhealthy nutrition patterns (e.g. breakfast skipping).

2. Perceived barriers to healthy eating: lack of money, lack of time, lack of knowledge, lack of self-efficacy, perceived tastelessness of healthier food, considering diet not so important to pay attention to it; unwillingness to change habits.
3. Perceived risk to have cardio-vascular and other chronic diseases in the future.
4. Family influences: family eating traditions (main patterns of fruit and vegetable consumption, meat consumption and tendency to overeating) and level of parents' education.
5. Health and nutrition knowledge: impact of different foods on human health and the potential of diet in prevention of non-communicable chronic diseases.
6. Socio-demographic factors: age, gender, socio-economic status, marital status, place of living (big city or countryside).

For each outcome measure groups, namely; soft drinks consumers, unhealthy snacks consumers and fast food consumers, the bivariate analysis using chi-square test was performed in order to check the associations between the above-mentioned variables and outcome measures. Those variables significantly associated with the outcomes in bivariate analysis were further included into multivariate binary logistic regression models for deeper analysis of their associations with all the outcome measures (see Table 3.1).

Table 3.1. Independent Variables Included into Logistic Regression Analysis

	Fast-food Consumers	*Unhealthy Snacks Consumers*	*Soft Drinks Consumers*
How often one feels hungry and does not have possibility to have a meal because he/she cannot afford it	+		
Skipping breakfast	+	+	+

	Fast-food Consumers	*Unhealthy Snacks Consumers*	*Soft Drinks Consumers*
Perceived barrier to healthier diet: lack of money, lack of time, lack of knowledge, lack of self control, perceived tastelessness of healthy food, considering diet not so much important, to pay attention to it, unwillingness to change habits	+	+	+
Considering one's diet as healthy	+	+	+
Living with parents or separately		+	+
Level of parents education	+		
Socio-economical status of parents		+	+
Perceived risk to develop cardiovascular diseases in future		+	+
Traditional for one's family fruit and vegetables consumption patterns	+	+	+
A traditional meal in one's parents' family is considered incomplete if there is no pork/beef/chicken for a main dish for dinners		+	+
Tendency to overeating in one's family		+	+
Belief that consuming lots fruit and vegetables is good for one's health		+	
Belief that eating a variety of foods is good for one's health	+	+	+
Belief that choosing a diet high in fat is good for one's health	+	+	+
Belief that reducing the amount of fatty meat and animal fat in the diet is good for one's health		+	+

	Fast-food Consumers	*Unhealthy Snacks Consumers*	*Soft Drinks Consumers*
Belief that lack of fruit and vegetables consumption can cause CVD	+		
Belief that lack of fruit and vegetables consumption can cause obesity		+	
Belief that eating more fruit and vegetables can prevent CDV			+
Belief in association between overconsumption of sugar and CVD			+
Belief in association between overconsumption of sugar and overweight/obesity	+	+	+
Belief that eating a lot of sugar can cause diabetes	+	+	
Belief in association between lack of fiber consumption and obesity	+		
Belief that eating less preservatives helps to reduce the risk of getting certain kinds of cancer	+	+	+
The sources of information about healthy nutrition: newspapers, magazines, radio, TV, Internet, lessons in school and other educational institutions, medical professionals, contacts with family, friends and colleagues	+	+	+
Age	+	+	+

The analysis was performed separately for men and women using binary logistic regression function of SPSS 15 software.

CHAPTER IV. STUDY RESULTS

4.1. Description of Study Results

There were found strong associations between junk food consumption and ***perceived barriers to healthy eating***, namely: perceived lack of money, perceived lack of time, considering diet not so important to think about it etc in both males and females.

Girls who reported *perceived lack of money* are more likely to eat unhealthy snacks during the day (OR=1,422 95% CI 1,001-2,021) (see Table 4.4), while males who reported money scarcity as a barrier to healthier nutrition are less likely to be consumers of soft drinks and fast-food meals (OR=0,429 95% CI 0,258-0,716 and OR=0,387 95% CI 0,204-0,734 respectively) (see Tables 4.1 and 4.5). It may be due to the fact, that it takes additional money to buy soft drinks and fast-food, but it may be cheaper to eat a sandwich than a healthy salad. Influence of money scarcity on food choice is also demonstrated by the analysis of a variable "How often you feel that you are hungry and do not have possibility to have a meal because you cannot afford it, and you have no reserve?" Those people who report that they had confronted with such difficulty even once in a while are almost twice higher odds to eat fast food (OR=1,999 95% CI 1,291-3,095) (see Table 4.6)

Boys with perceived *lack of knowledge* about healthy nutrition are almost three times more likely to choose unhealthy snacks (OR=2,629 95% CI 1,108-6,238) (see Table 4.3).

Unpleasant taste of healthy foods is one of the major predictors of all kinds of junk food among females (OR=1,957 95% CI 1,196-3,201 for soft drinks, OR=3,103 95% CI 1,698-5,700 for snack food and OR=1,890 95% CI 1,024-3,490 for fast-food consumption (See Tables 4.2, 4.4 and 4.6).

Those respondents who considered their ***diet as healthy*** are less likely to choose unhealthy snacks during the day (OR=0,527 95% CI 0,290-0,957 in females and OR=0,142 95% CI 0,060-0,339 in males) (see Table 4.3 and 4.6).

An example of ***socio-demographic factors'*** influence on unhealthy patterns in food choice is the finding that the older are people the less are their odds to be among snack food and soft drinks consumers (OR=0,861 95% CI 0,786-0,979 and OR=0,846 95% CI 0,746-0,958 respectively), but the significant associations were found only among males (see Tables 4.1 and 4.3).

Family influences on diet behavior are illustrated by a number of questions about family nutrition patterns. For instance, if traditional for parents' family home prepared food includes mostly boiled, stewed and dried fruit vegetables (with are healthier methods of their preparation in comparison with salting or frying), students are less likely to prefer junk snacks and carbonated drinks, yet in case of preferring dried fruit and vegetables, the association is marginal (OR=0,090 95% CI 0,007-1,092 for dried and OR=0,594 95% CI 0,407-0,868 for boiled or stewed fruit and vegetables) (see Tables 4.2 and 4.3). At the same time, consumption of mostly marinated fruit and vegetables increase the odds to be among consumers of fast food (OR=2,085 95% CI 1,059-4,106) (See Table 4.6).

Girls, in whose families overeating happens on holidays or special occasions, tend to consume more carbonated sweetened drinks and junk snacks in comparison with respondents from families for which overeating is not typical (OR=3,934 95% CI 1,855-8,343 for soft drink consumption and OR=1,609 95% CI 1,100-2,351 for junk snacks intake). The same pattern can be observed when considering the variable “A traditional meal in one’s parents' family is considered incomplete if there is no pork/beef/chicken for a main dish for dinners”. The respondents who reported agreement with this statement are twice more likely to be consumers of unhealthy food than people who strongly disagree with it (OR 1,867 95% CI 1,125-3,097) (see Tables 4.2 and 4.4).

The other side of family influences on students' nutrition behaviors is represented by found association between level of parents' education and food choices of their children. Respondents, whose parents (one parent) have scientific degree, have more than twice lower odds to be fast-food consumers, but in female subsample the association is less significant (OR=0,527 95% CI 0,207-1,279 in females and OR=0,121 95% CI 0,031-0,474 in males) (see Tables 4.5 and 4.6).

The results of analysis show that the ***basic knowledge about healthy diet*** is also a quite important factor that influences individuals' choice of healthy or unhealthy food.

Those people who consider diet as not important for human health have more than three time higher odds to choose unhealthy food for snacking (OR=3,496 95% CI 1,656-7,382) (See Table 4.4).

The females, who report agreement with a statement that eating a lot of fruit and vegetables is good for one's health, are less likely to prefer unhealthy snacks or fast-food meals (OR=10,220 95% CI 1,300-80,350) (see Table 4.4). Also, the higher is a level of agreement with the notion that eating a variety of foods is good for one's health, the lower are the odds to be carbonated beverages consumers (OR=4,361 95% CI 1,265-15,030 for those who absolutely disagree with this notion and OR=2,076 95% CI 0,969-4,445 for those who slightly disagree) (see Table 4.2).

Those females, who think that reducing the amount of fatty meat and animal fat in the diet is good for one's health have lower odds to be among the consumers of soda drinks and fast food (OR=0,429 95% CI 0,258-0,716 and OR=0,387 95% CI 0,204-0,734 respectively) (see Tables 4.2. and 4.6). Also, belief that consuming a lot of fat is unhealthy and reducing the amount of fatty meat and animal fat in the diet is good for one's health reduces the chances to be fast-food consumer in males (OR=6,051 95% CI 1,341-27,300) (see Table 4.5).

Boys who consider that diet with lack of fruit and vegetables can cause CDV are less likely to consume sweet soda drinks frequently, but this association is not found very significant (OR=0,609 95% CI 0,348-1,065, p=0,082) (see Table 4.1).

Knowledge about the relationships between overconsumption of sugar and overweight/obesity (OR=0,638 95% CI 0,432-0,945) as well as belief that lack of fruit and vegetables consumption can be a cause of obesity (OR=0,628 95% CI 0,448-0,880) make girls less inclined to carbonated beverages and junk snacks consumption for sugar overconsumption and (see Table 4.2 and 4.4).

Belief that eating less preservatives/additives helps to reduce the risk of getting certain kinds of cancer decrease the odds to consume fast-food and soda drinks among women (OR=0,539 95% CI 0,359-0,808 and OR=0,632 95% CI 0,429-0,930 respectively) (see Tables 4.2 and 4.6).

The ***sources of healthy eating information*** were also found associated with junk food consumption**.** Students who reported TV as well as contacts with relatives, friends and colleagues to be the main sources of information about healthy nutrition are more likely to be among junk food consumers (OR=1,748 95% CI 0,926-3,299 for TV and OR=2,434 95% CI 1,346-4,402 for contacts with friends and relatives (see Tables 4.3 and 4.5).

The interesting finding of the study is that students who live with parents are almost twice likely to consume junk snacks and sweet drinks than students who live separately (in the dormitory or rented apartment), but the significant associations were found only in females (OR=0,580 95% CI 0,398-0,845) (see Table 4.4).

Table 4.1. Main Determinants of Soda Drinks Consumption among Males

Variable	Category	Number of respondents	% of soft drinks consumers	Level of Significance[1]	Odds Ratios	95,0% C.I.[2] for OR	
						Lower	Upper
Skipping breakfast	Never	83	26,2		1,000		
	Rare	87	28,4	0,504	1,272	0,628	2,575
	Frequent	74	37,1	0,021	**2,343**	**1,136**	**4,834**
	Usually	91	33,7	0,067	*1,933*	*0,954*	*3,916*
	No information	3		0,999	0,000		
Lack of money as a perceived barrier to healthier diet	No	194	37,0		1,000		
	Yes	144	22,5	0,001	**0,429**	**0,258**	**0,716**
Age (comparing older respondents with younger ones, per year)				0,022	0,861	0,756	0,979
Belief that lack of fruit and vegetables consumption can cause CVD	No	239	33,5		1,000		
	Yes	99	27,0	0,082	*0,609*	*0,348*	*1,065*

[1] P-value at at the 0.05 level.

2 Confidence Interval

Table 4.2. Main Determinants of Soda Drinks Consumption among Females

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Skipping breakfast	Never	216	11,6		1,000		
	Rare	287	18,6	0,004	**2,307**	**1,313**	**4,056**
	Frequent	156	27,6	<0,001	**4,206**	**2,283**	**7,750**
	Usually	169	30,0	<0,001	**3,712**	**2,054**	**6,708**
	No information	6	0,0	0,999	0,000		.
Unpleasant taste of healthy food is a perceived barrier to healthier diet	No	718	18,6		1,000		
	Yes	116	32,8	0,008	**1,957**	**1,196**	**3,201**
Living with parents or separately	Home with parents	329	22,5		1,000		
	Dormitory or rented apartment	358	16,0	0,080	*0,679*	*0,441*	*1,047*
	Others	144	26,7	0,353	1,275	0,764	2,129
	No information	3	25,0	0,999	0,000		.

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Home prepared vegetables were mostly boiled or stewed	No	369	22,8		1,000		
	Yes	465	18,8	0,007	**0,594**	**0,407**	**0,868**
Frequency of having big family dinners with big variety of dishes which leads to overeating	No information	18	28,6	0,305	2,067	0,516	8,286
	Overeating is typical for our family	53	39,7	<0,001	**3,934**	**1,855**	**8,343**
	Overeating happens on holidays or special occasions	561	19,6	0,167	1,377	0,874	2,168
	Overeating is not traditional in our family	202	17,2		1,000		
Home prepared vegetables were mostly boiled or stewed	No	369	22,8		1,000		
	Yes	465	18,8	0,007	**0,594**	**0,407**	**0,868**

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Family, friends or colleagues as a main source of knowledge about healthy nutrition	No	352	19,8		1,000		
	Yes	482	21,1	0,018	**1,609**	**1,087**	**2,382**
Belief that eating less preservatives/additives helps to reduce the chances of getting certain kinds of cancer	No	307	26,1		1,000		
	Yes	527	17,4	0,020	**0,632**	**0,429**	**0,930**
Belief that eating a lot of sugar may cause obesity	No	295	26,0		1,000		
	Yes	539	17,1	0,024	**0,638**	**0,432**	**0,943**
Belief that reducing the amount of fatty meat and animal fat in the diet is good for one's health	No information	5	16,7	0,122	0,094	0,005	1,877
	Absolutely disagree	18	14,3	0,531	0,635	0,153	2,627
	Disagree	70	26,0	0,066	*2,037*	*0,953*	*4,352*
	Neither agree nor disagree	167	27,0	0,149	1,587	0,848	2,972
	Agree	439	18,6	0,850	0,945	0,528	1,692
	Absolutely agree	135	17,2		1,000		

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Belief that eating a variety of foods is good for one's health	No info	9	30,0	0,028	**8,654**	**1,265**	**59,190**
	Absolutely disagree	15	39,0	0,019	**4,361**	**1,265**	**15,030**
	Disagree	66	34,0	0,060	*2,076*	*0,969*	*4,445*
	Neither agree nor disagree	191	19,3	0,961	0,984	0,519	1,866
	Agree	416	16,7	0,407	1,276	0,717	2,271
	Absolutely agree	137	16,7		1,000		

Table 4.3. Main Determinants of Unhealthy Snacks Consumption among Males

Variable	Category	Number of respondents	% of soft drinks consumers	Level of Significance	Odds Ratios	95,0% C.I. for OR	
						Lower	Upper
Perceiving one's diet as healthy	No	310	82,5		1,000		
	Yes	28	53,5	<0,001	**0,142**	**0,060**	**0,339**
Age (comparing older respondents with younger ones, per year)				0,009	**0,846**	**0,746**	**0,958**
Home prepared food includes mostly dried fruit and vegetables	No	335	79,8		1,000		
	Yes	3	33,3	0,059	0,090	0,007	1,092
TV as a main source of knowledge about healthy nutrition	No	187	75,4		1,000		
	Yes	151	88,4	0,079	*1,682*	*0,941*	*3,006*
Family, friends or colleagues as a main source of knowledge about healthy nutrition	No	170	74,8		1,000		
	Yes	168	84,3	0,003	**2,434**	**1,346**	**4,402**

Table 4.4. Main Determinants of Unhealthy Snacks Consumption among Females

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Lack of money as a perceived barrier to healthier diet	No	530	72,3		1,000		
	Yes	304	73,9	0,049	**1,422**	**1,001**	**2,021**
Lack of time as a perceived barrier to healthier diet	No	321	68,2		1,000		
	Yes	513	76,2	0,001	**1,762**	**1,259**	**2,466**
Considering diet no so important to pay attention to it	No	755	71,4		1,000		
	Yes	79	89,0	0,001	**3,496**	**1,656**	**7,382**
Unpleasant taste of healthy food as a perceived barrier to healthier diet	No	718	70,8		1,000		
	Yes	116	87,8	<0,001	**3,103**	**1,689**	**5,700**
Belief that lack of fruit and vegetables consumption can cause obesity	No	394	77,1		1,000		
	Yes	440	69,4	0,007	**0,628**	**0,448**	**0,880**

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Living with parents or separately	Home with parents	329	77,7		1,000		
	Dormitory or rented apartment	358	68,5	0,005	**0,580**	**0,398**	**0,845**
	Others	144	73,9	0,322	0,784	0,485	1,268
	No information	3	50,0	0,507	0,429	0,035	5,232
Frequency of having big family dinners with big variety of dishes which leads to overeating	No information	18	76,2	0,667	1,359	0,335	5,515
	Overeating is typical for our family	53	69,8	0,759	1,118	0,548	2,279
	Overeating happens on holidays or special occasions	561	74,7	0,014	**1,609**	**1,100**	**2,351**
	Overeating is not traditional in our family	202	69,0		1,000		

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Belief that consuming lots fruit and vegetables is good for one's health	No Information	5	66,7	0,371	0,389	0,049	3,076
	Absolutely disagree	19	91,3	0,027	**10,220**	**1,300**	**80,350**
	Disagree	23	75,0	0,431	*1,529*	*0,531*	*4,404*
	Neither agree nor disagree	41	82,6	0,221	1,743	0,716	4,238
	Agree	355	73,7	0,271	1,213	0,860	1,709
	Absolutely agree	391	70,7		1,000		

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
A traditional meal in one's parents' family is considered incomplete if there is no pork/beef/chicken for a main dish for dinners	Absolutely disagree	113	60,8		1,000		
	Disagree	245	67,9	0,507	1,181	0,722	1,931
	Neither agree nor disagree	257	78,4	0,016	**1,867**	**1,125**	**3,097**
	Agree	176	79,9	0,007	**2,158**	**1,234**	**3,773**
	Absolutely agree	34	74,3	0,595	1,278	0,517	3,158
	No information	9	75,0	0,456	2,093	0,299	14,640

Table 4.5. Main Determinants of Fast Food Consumption among Males

Variable	Category	Number of respondents	% of soft drinks consumers	Level of Significance	Odds Ratios	95,0% C.I. for OR	
						Lower	Upper
Skipping breakfast	Never	82	72,5		1,000		
	Rare	84	82,1	0,036	**2,402**	**1,061**	**5,440**
	Frequent	70	88,1	0,014	**3,160**	**1,264**	**7,903**
	Usually	87	83,8	0,007	**3,247**	**1,382**	**7,631**
Lack of money as a perceived barrier to healthier diet	No	185	87,3		1,000		
	Yes	138	73,0	0,004	**0,387**	**0,204**	**0,734**
Lack of time as a perceived barrier to healthier diet	No	135	77,5		1,000		
	Yes	188	84,0	0,045	**1,917**	**1,014**	**3,627**
Lack of knowledge as a perceived barrier to healthier diet	No	248	79,7		1,000		
	Yes	75	87,1	0,028	**2,629**	**1,108**	**6,238**

Belief that reducing the amount of fatty meat and animal fat in the diet is good for one's health.	No info	1	0,0	0,999	0,000		.
	Absolutely Disagree	9	81,8	0,522	1,905	0,265	13,670
	Disagree	39	87,0	0,019	**6,051**	**1,341**	**27,300**
	Neither agree nor disagree	97	81,4	0,303	1,844	0,575	5,915
	Agree	150	83,2	0,099	2,560	0,838	7,823
	Absolutely agree	27	66,7		1,000		
Level of parents' education	Less than university	109	82,5		1,000		
	University	201	82,7	0,500	0,794	0,406	1,552
	Scientific degree	12	56,3	0,002	**0,121**	**0,031**	**0,474**
	No information	1	0,0	0,999	0,000		.
TV as a main source of knowledge about healthy nutrition	No	180	77,3		1,000		
	Yes	143	86,5	0,085	*1,748*	*0,926*	*3,299*

Table 4.6. Main Determinants of Fast Food Consumption among Females

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of Significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
Skipping breakfast	Never	209	71,6		1,000		
	Rare	280	74,2	0,371	1,224	0,786	1,907
	Frequent	154	82,1	0,008	**2,147**	**1,220**	**3,777**
	Usually	161	86,0	0,003	**2,396**	**1,347**	**4,262**
Unpleasant taste of healthy food as a perceived barrier to healthier diet	No	411	76,2		1,000		
	Yes	695	85,2	0,042	**1,890**	**1,024**	**3,490**
Considering diet not so important to pay attention to it	No	109	75,8		1,000		
	Yes	728	92,0	0,062	*2,217*	*0,961*	*5,114*
Level of parents education	Less than university	199	75,4		1,000		
	University	573	78,7	0,113	1,407	0,922	2,148
	Scientific degree	31	63,9	0,057	*0,527*	*0,217*	*1,279*

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of Significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
	No information	1	100,0	0,999	0,000		.
Home prepared fruit and vegetables were mostly marinated	No	720	76,5		1,000		
	Yes	84	84,0	0,034	**2,085**	**1,059**	**4,106**
Perceiving one's diet as healthy	No	745	79,0		1,000		
	Yes	59	58,3	0,035	**0,527**	**0,290**	**0,957**
Belief that eating less preservatives/additives helps to reduce the chances of getting certain kinds of cancer	No	296	81,0		1,000		
	Yes	508	75,1	0,003	**0,539**	**0,359**	**0,808**
How often you feel that you are hungry and do not have possibility to have a meal because you cannot afford it, and you have no reserve?	Never	304	73,0		1,000		
	Once in a while	267	82,3	0,002	**1,999**	**1,291**	**3,095**
	Sometimes	154	77,5	0,413	1,228	0,751	2,010
	Frequently or almost every day	76	79,3	0,107	1,772	0,885	3,549

Variable	Category	Number of respondents	Number of soft drinks consumers (%)	Level of Significance	Odds Ratios	95,0% C.I.for OR	
						Lower	Upper
	No information	3	50,0	0,212	0,186	0,013	2,614
Belief that reducing the amount of fatty meat and animal fat in the diet is good for one's health	No information	5	83,3	0,802	1,762	0,021	147,900
	Absolutely disagree	18	61,9	0,197	0,486	0,163	1,453
	Disagree	66	86,3	0,010	**3,128**	**1,314**	**7,445**
	Neither agree nor disagree	162	86,0	0,004	**2,589**	**1,357**	**4,941**
	Agree	421	76,7	0,178	1,395	0,859	2,265
	Absolutely agree	132	66,2		1,000		

4.2. Discussion of Study Results

The results of the analysis show that the factors associated with greater junk food consumption among both females and males included *perceived barriers to healthy eating*, for instance, poor taste of healthier foods, lack of time to eat healthy foods etc., *unhealthy meal patterns*, e.g. breakfast skipping, family influences and general *healthy nutrition knowledge*. Some differences were observed by sex with regard to the junk food consumption among the respondents included in the present study.

Most of the study's findings on **perceived barriers to healthy eating** are in concordance with the results of previous studies (Neumark-Sztainer et al., 1999; French et al, 1999; Driskell et. al., 2006; Lappalainen, Kearney and Gibney, 1998; Story et al., 2002; Satia et al., 2004). For instance, taste of food is one of the major factors which influenced the girls' food choice: *perceived unpleasant taste of healthy food* is strongly associated with greater consumption of all kinds of junk food in females. Thus, the girls who reported poor taste as an obstacle to healthy eating have three time higher odds to eat "empty calories" products during a day as snacks and have twice higher odds to be among regular soft-drink and fast-food consumers. The most influential barriers to healthier diet among males were lack of money, time scarcity, and lack of knowledge about healthy nutrition. In female subsample, these factors are significant only in analysis of unhealthy snacks consumption patterns.

In is interesting, that *perceived lack of money* seems to be not a barrier to healthy eating but rather an obstacle to eating in fast food restaurants and frequent consumption of carbonated drinks. Those respondents who mentioned this factor, have more than twice lower risks to be among the consumers of abovementioned types of unhealthy food. In fact, it takes additional money to buy soft drinks and fast-food, but it may be cheaper to eat a hotdog than a healthy meal like salad. This statement is confirmed by a fact that females who reported that time scarcity

prevents them from choosing healthier food options are more likely to eat junk snacks. In general, this finding is consistent with one of the conclusions made by Biloukha and Utermohlen (2001) in their study of peculiarities of food choice patterns in Ukraine. These authors supposed that Ukrainian citizens perceive a healthy diet to be more expensive than their present diet, which is not necessarily true. Also, such influence of money scarcity can be interpreted as an illustration of widely known statement that in low and middle income countries the main consumers of junk food are people with higher socio-economical status (in contrast to developed countries, where main consumers of junk food are people with low and lower-middle level of income) (Shi et al., 2005; Bauer et al., 2009; Popkin, 1998; Larson et al., 2008). The other interesting finding of the study, which also can be related to economic status and financial resources scarcity, is that students who live with parents are almost twice higher odds to consume junk food than students who live separately (in the dormitory or rented apartment); maybe it is so due to higher incomes of home-living students. But there were found no direct significant associations between variable measuring socio-economic status and outcome measures.

Breakfast skipping was also found to be one of the major factors associated with junk food consumption among both males and females. As known from the available literature, this is a popular method of losing weight among adolescents and young adults (Lattimore et al., 2003; Matthys et al., 2007). Skipping breakfast may lead to hunger in the morning and result in increased snacking. This leads to poorer dietary patterns, because, unfortunately, snack foods commonly consumed by young people tend to be high in sugar and fat, and low in minerals and vitamins. The main cause of such situation is that the large part of the food items available in colleges and universities canteens and most food outlets in the communities could be categorized as “junk food”.

Family eating traditions seem to have more influence on Ukrainian young people nutrition patterns that it was found in the studies conducted in Western

societies (Campbell et al., 2004; Grimm et al., 2004; French et al., 2001; Hanson et al., 2005; Neumark-Sztainer, D. et al., 2003; O'Dea, 2003). Family impacts can be observed not only among children and adolescents but also among representatives of older age groups, like university students. Despite about a half of NaUKMA students live separately from parents' families, the study has found significant associations between family eating patterns, for example, consumption of fruit and vegetables, consumption of meat, tendency to overeating etc., and junk food consumption. Such trends can be explained by stronger impact of traditions on people's lifestyles in general in our country and of some features of traditional Ukrainian diet in particular. Traditional Ukrainian cuisine mostly consists of food, which is rich in calories and fats, such as fatty meat (mostly pork) and lard, floury meals (pancakes, varenyky, different kinds of pastry) and high in fat dairy products. Moreover, Ukrainians tend to consume mostly prepared (marinated, salted, fried, boiled or stewed), not fresh, fruit and vegetables. Apparently, such peculiarities of national diet increase the tendency to junk food consumption, which is also high in saturated fats and carbohydrates, and create a lot of barriers for possible health promotion programs and educational campaigns for healthy nutrition. Another possible explanation is related to the indirect influence of family eating traditions and actually to the understanding of family members of nutrition and health links. Those families which keep to traditional Ukrainian cuisine probably do not discuss which diet is healthy and which is not, consequently their kids are more likely to consume food which is easily available, which is more likely to be junk food.

The other side of family influences on students' nutrition behaviors is represented by found association between level of parents' education and food choices of their children. Interesting, that there was not found significant differences in influence of secondary and higher education of parents on their children' food choices, but respondents, whose parents (or one parent) have scientific degree, have more than twice lower odds to be fast-food consumers.

Junk food consumption is also found to be correlated with **basic health and nutrition knowledge**. The most widespread is a belief that consuming a lot of fat is unhealthy; it is associated with the reduced odds to be among the consumers of junk food both in males and females. The association between understanding of healthfulness of rich in fresh fruit and vegetables diet and consumption of junk food is less evident. It was found significant only in analysis of fast food intake determinants and only in female subsample. Beliefs in diet-disease relationships (e.g. belief that eating less preservatives/additives helps to reduce the chances of getting certain kinds of cancer or that lack of fruit and vegetables consumption can cause CVD) are also found to be inversely associated with junk food consumption. The knowledge about the relationships between unhealthy diet (e.g. overconsumption of sugar and diet with lack of fresh fruit and vegetables consumption) and obesity seems to be a preventive factor to consumption of sweet soda drinks and unhealthy snack food among girls. It is not surprising, as it is a well-known fact that females are more concerned about their weight than males. A very positive finding is that the respondents who considered their diet as healthy are actually less likely to choose unhealthy snacks during a day, which also demonstrates the importance of healthy nutrition knowledge.

It is also worth to be mentioned that knowledge about negative outcomes of unhealthy eating, such as “overconsumption of sugar cause CDV and obesity”, or “diet, which is high in fat, is harmful for health” were found to be more significant determinants than positive beliefs, such as “consumption a lot of fresh fruit and vegetables has positive impact on one’s.

As for the relationships between ***sources of information about healthy nutrition*** and junk food consumption, it was found that students who reported TV as well as contacts with relatives, friends and colleagues to be the main sources of information about healthy nutrition are more likely to be among consumers of junk food and drinks. Due to high prevalence of junk food advertising on TV, it is not surprising that TV seems to be rather a factor of dangerous environmental

exposure that could promote greater junk food consumption than a source of information about healthy nutrition. In the literature, television viewing has been cited as a contributing factor to higher energy or fat intake, may influence viewers' food choices toward higher fat, higher energy foods and more frequent visits to fast-food restaurants among both females and males (French et al., 2001; Coon and Tucker, 2002; Lobstein and Dibb, 2005; Dixon et al, 2007; Powell, Szczypka and Chaloupka, 2007; Barr-Anderson et al., 2009). The positive association of considering friends and family as a main source of information on healthy nutrition and junk food consumption may reflect the low level of knowledge about healthy eating in the whole society.

Nevertheless, additional research is also needed to examine the relationship between television and other media exposure on food choices among young adults, particularly focusing on heavily advertised foods such as fast foods, high-fat snack foods and soft drinks, in order to evaluate the potential of media for healthy nutrition promotion.

Also, further research is needed to better understanding of the nature of family influences as well as of the influences of national eating culture and traditions on eating behavior of contemporary youth. These impacts seems to be much higher than in Western societies.

4.3. Strengths and Limitations of Study

The study has a number of strengths and limitations worth to be mentioned.

Firstly, to author's knowledge, this is the first attempt to explore the determinants of junk food consumption among youth in Ukraine.

Secondly, a comprehensive survey instrument adapted from questionnaires that have been successfully used in other studies (Center for Science in the Public Interest, 1996; Parmenter and Wardle, 1999) was used. This made possible to examine the majority of factors associated with junk food consumption, which was found in available literature sources. But, of course, some factors were not included in the study and need further exploration.

The main limitation of the study is that the sample was formed on a convenience basis and included only NaUKMA students, so it cannot be considered as representative of all young adults in Ukraine. Nevertheless, baseline information about the determinants of junk food consumption among youth aged 17-25 was certainly obtained and associations found in the study could be used as a basis for further research in this field.

And, of course, the use of cross-sectional design did not allow making any causal interpretations of the associations observed.

CONCLUSIONS

1. The study confirmed that the determinants of junk food consumption belong to the following main groups of factors, which are (1) the perceived barriers to healthy eating; (2) family influences; and (3) health and nutrition knowledge.
2. The level of junk food consumption is inversely associated with the level of health and nutrition knowledge, and namely, not with general perception of a product as healthy or unhealthy, but with the knowledge about the relationships between diet and the risk to have some severe diseases.
3. Knowledge about negative outcomes of unhealthy eating, such as "overconsumption of sugar cause CDV and obesity", or "diet, which is high in fat, is harmful for health" were found to be more significant determinants than beliefs regarding positive outcomes, such as "consumption a lot of fresh fruit and vegetables has positive impact on one's health".
4. Family influences, namely patterns of consumption of some types of food (e.g. meat and vegetables), tendency to overeating and even lower level of parents' education, are also among the major predictors of unhealthy eating choices in young adults. These associations in Ukraine were found to be much stronger than in Western societies, which may be due to some specific features of Ukrainian culture.
5. Among the perceived barriers to healthy eating, the most influential are lack of money, lack of time, lack of knowledge and perception that healthier food has poor taste. Such factors as lack of self-control and unwillingness to change habits were not found to be significantly associated with junk food consumption.
6. Sources of information about healthy nutrition that people considered as the most reliable, namely television and contacts with friends, colleagues and relatives, are in fact, the factors exposure to which increases the risk to be among junk food consumers.
7. Male students are more likely to consume junk food than females.

8. The older are respondents, the lower are their odds to be among junk food consumers.

RECOMMENDATIONS FOR HEALTH PROMOTION SPECIALISTS AND PUBLIC HEALTH POLICY MAKERS

The market of snack foods and soft drinks is developing rapidly and fast food outlets are also becoming more and more popular. It means that consumers may have less control over what kinds of food to eat and they will have to develop new types of skills which allow them to seek out the healthier alternatives. So, interventions to improve the specific food selections are urgently needed. Based on the results of the present study we propose the following recommendations how to make such interventions more effective.

On Intrapersonal (Individual) Level:

Using health communication and health education strategies, people should be taught how to choose foods that are high in nutrient density (e.g. higher in fruit and vegetables, lower in fat and energy), for instance with a help of educational campaigns aimed at increasing of the level of basic knowledge about healthy nutrition. The instruments, whose effectiveness has been proven by international evidence, should be used in planning and implementing of such health promotion programs. An example of such instrument is the Food Guide Pyramid, introduced by the U.S. Department of Agriculture (USDA). This simple illustration conveyed in a flash what the USDA said were the elements of a healthy diet. The Pyramid was taught in schools, appeared in countless media articles and brochures, and was plastered on food labels. The promotion of the WHO "Twelve Steps to Healthy Eating" recommendations will also be very useful. The abovementioned dietary guidelines offer a practical model that may and must be adapted to cultural traditions, eating habits and the environment in different regions. It is very important to emphasize that the guidelines specify particular food groups recommended for healthy eating, with an indication of their proportions, and not on nutrients (protein, fat, carbohydrates). Such approach is more understandable and practical.

The necessity of studying the information on food labels before buying this or that product also cannot be neglected. The consumer information processing model can be used to teach people how to understand such information adequately.

The relationships between diet and health and the potential of healthy eating in prevention of such severe diseases as cancer, diabetes, myocardial infarction should be emphasized using the techniques of correct risk communication.

It is essential to bet the efforts to overcome the perceived barriers to healthy eating, which were found to be among the main predictors of unhealthy food choices. As our results have shown that individuals are primarily eating junk food because of lack of money and time (especially males), lack of knowledge and perceived poor taste of healthy food, future nutrition educational programs should demonstrate that healthy food is not in fact so expensive and time-consuming and tasteless. The strategy to decrease junk-food intake should include interventions aimed on growing self-efficacy by means of teaching how to choose cheaper healthy products and how to prepare from them delicious meals as well as on emphasizing the enjoyment aspect of cooking, because all abovementioned factors are often associated with lack of cooking skills and dislike of cooking. A variety of methods can be used: demonstrations (including TV cooking shows and presentations in different food outlets) and taste-testing, teaching cooking skills personally or in groups and many others.

When planning information and educational programs aimed at the reduction of unhealthy food consumption, their developers should remember that despite people of all ages and social statuses can be among junk food consumers, their motives to make such choice may be very different. So it is better to develop not only programs addressed to the whole population, but also to create more age-, gender- and other factors- specific messages. For instance, to target women audience, the accent on relations of food and overweight and also on the influence of unhealthy food consumption on one’s appearance can be made. The results regarding nutrition and health awareness may be used in shaping messages which

emphasize the susceptibility of junk food consumers towards range of chronic non-communicable diseases.

On Interpersonal Level:

The potential of healthy nutrition programs addressed to families is confirmed by the finding that family eating patterns have significant influence on individuals' (both males and females) food choices. In some cases, targeting families can be the most effective way to healthy nutrition promotion. Family is a primary source of information on healthy eating. The information obtained from family members is proven to be perceived as the most reliable. Moreover, families not only give information and form attitudes, but also teach the food-related skills (e.g. ability to choose healthier food options or cooking skills). Also, family members can help to create a supportive environment for people who decided to change their diets.

Accent on the importance of healthy home-prepared family meals for children future health may be a very effective strategy to raise the awareness of healthy nutrition. For instance, we found that the nutritional profile of Ukrainian youth could be substantially improved by the consumption of a healthy breakfast on a daily basis. As in our country breakfast is usually considered a home-prepared family meal and it is not typical to have breakfast out of home, emphasizing of the importance of breakfast consumption may be included in programs promoting healthy diets and lifestyles targeted on families.

On Organizational Level:

As nowadays people spend lots of time in the environment of different organizations, such as workplaces and educational institutions, it is essential to introduce the healthy nutrition promotion campaigns on institutional level. When it comes to colleges and universities, a large variety of health promotion activities can be provided. Firstly, particular attention to the availability of healthy food option for snacking and main meals (fruit and vegetables, juices, dairy products, fish and lean meat etc) should be paid. The organizations' media channels (radio,

newspapers, informational boards etc) may be used for spreading the information about healthy nutrition and it's relationships with general level of health. As an example of successful intervention on organizational level may be so called breakfast club schemes, which is provided in some schools in the UK. Breakfast clubs are a form of before-school provision serving food to children who arrive early. The main aims of the scheme were to provide breakfast to children who might otherwise not have eaten, to establish a positive relationship at the start of the school day and to offer children a choice of healthy food, which may help to encourage healthier eating habits.

On Community and Environmental Level:

Healthy nutrition campaigns targeted on individuals and families are inseparably linked with the efforts to create healthy nutrition promoting environment. On the one hand, individual changes are more likely to be facilitated and sustained if the macroenvironment and microenvironment within which choices are made support options perceived to be both healthy and rewarding. And on the other hand, food producers and distributors are more likely to provide more healthy food on the market if there will be higher demand on it.

In theory, providing healthier food options could be incentivized through subsidies while provision of unhealthful foods could be disincentivized through higher taxes. If fast food restaurants are utilized, more healthful food choices at such establishments could be promoted by policies requiring nutrition labeling on fast food packages, restrictions on portion sizes of higher fat food choices, or pricing structures that encourage more healthful food choices. Overall goal of these strategies would be to increase the number of healthy options available in the food t market.

The WHO also recommends improving the availability and affordability of fruit and vegetables and other healthy products by providing technical advice and market incentives for local food producers. It is especially relevant for horticultural products, as it was proven that locally grown fruit and vegetables are the most healthful as well as cheaper than imported ones.

Promotion of adequate labeling of food products to improve consumers' understanding of product characteristics will also be helpful for supporting healthier food choices. It can be made by development of regulations and guidelines that reflect best practice (e.g. front-of-pack "signposting"), based on existing Codex Alimentarius standards or the EU legislation on labeling and health claims, and by establishing of efficient methods for assessing the nutrient quality of food products (WHO, 2008).

Regulating food advertizing is an important public policy tool. Law on advertizing could be amended with provisions regarding junk food ads restrictions. Besides certain elements of traditional Ukrainian cuisine should be restricted for advertizing, first of all fatty and fried food; and mentioning that these types of food are healthy should be forbidden.

All in all, healthy nutrition strategies and policies should be coherent and comprehensive. Government and private non-profit and profit organizations, health professionals and scientists, educational institutions and mass-media along with agriculture and food industry should be involved in designing and implementing healthy nutrition programs. Individuals nutritional consultations, educational materials of different kinds (leaflets, brochures, posters etc), social marketing and advertisement of healthy food, economical and fiscal instruments – this is only a short list of methods, which, if to use them properly, make healthy nutrition promotion programs successful. And finally, all stakeholders should remember that only multisectoral approach, when the healthy nutrition campaigns are the part of more complex health promotion strategy addressing all the major health risks for chronic diseases (tobacco and alcohol consumption, low physical activity etc), is really effective in improving people's health and quality of life.

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