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Social Demand for Healthy Food for Pupils in Ukraine: Case of Kharkiv Region

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ABSTRACT
The relevance of the sustainable development concept is increasing in modern society. The aims of the concept cover a wide range of issues including the issue of healthy nutrition and human health. The issue of healthy food in Ukraine namely a social demand for healthy food and, as a consequence, demand for food system reforming are examined in the article. The focus of the research is on pupils for several reasons: food habits are formed at school age; pupils are a social group, which is especially influenced by media-marketing technologies and the advertisement industry. Mass media marketing predominantly promotes fast food and other types of junk food thus contrary to the formation of a healthy lifestyle. By analyzing the research of nutrition in the schools of the Kharkiv region, the authors conclude that there is a demand for healthy food in schools. Such a conclusion has set the following research question: how this demand could be satisfied. Based on common directions of the sustainable development concept and social cohesion theory the authors propose Innovative Living Labs Implementation. The article is published within the framework of the Fostering the Urban Food System Transformation through Innovative Living Labs Implementation (FUSILLI) project under Grant Agreement No.101000717 (HORIZON2020).

Keywords: *healthy food, pupils' nutrition, social demand, sustainable development, social cohesion, Food2030, living labs.*

1. INTRODUCTION

The modern world considers nutrition problems from different angles. In some regions, the problem of hunger among the population is still not solved - according to the Food and Agriculture Organization of the United Nations, in 2020, 720 to 811 million people in the world faced the problem of hunger [1]. At the same time, the relevance of not only nutrition sufficient for full-fledged life, but also healthy nutrition is increasing. Rapid urbanization, globalization processes, the spread of the logic of capitalism to all spheres of human life, and, as a result, a changing lifestyle lead to shifts and changes in nutrition patterns. While healthy nutrition contributes to the prevention of all sorts of noninfectious diseases and health disorders as such [2].

Among other measures to promote healthy food and protect public health, the World Health Organization highlights *"…establishing standards to foster healthy dietary practices through ensuring the availability of healthy, nutritious, safe and affordable foods in pre-schools, schools, other public institutions, and the workplace"* [2]. However, the formation and implementation of new state standards does not always lead to the successful formation of new practices, new habits, and so on. In this process, social cohesion is also important for the successful implementation of a social request and, accordingly, the social request itself is important too: the need of a society/community for certain changes. This article is devoted to the determination of the presence or absence of a social demand for healthy food.

Since the formation of eating habits begins at birth [2] and continues through the process of socialization, we will turn our attention to such an important agent in the formation of ideas about healthy food as school and school nutrition. At school age, children form their independent eating habits; they are especially susceptible to the influence of advertising of fast food and other types of "unhealthy" food. At the same time, food habits also begin to form under the influence of the social environment: to eat that kind of food that opinion leaders

eat, etc. Accordingly, the purpose of this article is to characterize the social demand for a radical transformation of school nutrition.

2. MATERIALS

The issues of healthy nutrition and health in the modern world at the global level began to be actively raised and developed within the framework of the concept of sustainable development. The concept is interpreted in modern literature quite broadly and proceeds from two basic concepts. At first, it is the concept of development. The way to elaborate a modern concept of sustainable development was laid by the theory of globalization (development as the expansion and integration of economic ties in the world and cultural homogenization). Secondly, it is the concept of sustainability. The generalized essence of modern theories of sustainability boils down to "*integrating social, economic and environmental models in solving human problems in such a way that they always benefit humanity"*.

The combination of these approaches resulted in the concept of sustainable development. The most common definition of sustainable development in the literature is *"development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs*" (UNESCO definition). The foundations of sustainable development are economic growth, ecological integrity, social well-being, but the main thing is the balance between these three components [3]. Although the ideas of sustainable development have arisen since the end of the 20th century, the concept acquired a new and modern round of development with the adoption in 2015 of the UN Agenda for the period up to 2030, specifically: with the adoption of the Sustainable Development Goals [4]. Second on the list of seventeen goals is the goal of ending hunger, ensuring food security, and improving nutrition [5]. At the same time, the implementation of sustainable development, according to some researchers, largely depends on the human resource and the process of such development is a collective responsibility. The logic of sustainable development is based on the principle of participation, which requires a positive attitude from people [3]. Study Saint-Supéry Ceano-Vivas et al. showed that achieving sustainable development requires a supportive social context, which can only be achieved through social cohesion [6, 7].

As part of the path to achieving the Sustainable Development Goals, the European Union is implementing Food 2030 – a research and innovation policy. In general, the essence of this policy is that to maintain a healthy lifestyle for everybody, it is necessary to transform food systems in all regions and provide everyone with affordable and nutritious food [8].

One of the innovative projects aimed at implementing the Food 2030 policy is Fostering Urban food System Transformation through Innovative Living Labs Implementation (FUSILLI). It is a Food and Natural Resources project funded by the European Union's Horizon 2020 Research and Innovation Programme. Twelve cities are participating in the project implementation, and twelve Living Labs will be organized (platforms for open and responsible innovation, based on the broad participation of various segments of the population. Living Labs was created to define and implement experimental governance to make innovative decisions and transform cities into agents of food system transformation) (https://fusilli-project.eu/). Among the countries participating in the project, there is also Ukraine (Kharkiv city), which also positions itself as committed to the implementation of the Sustainable Development Goals. In the report at the Food system summit 2021, T. Kachka draws attention to three national priorities in the transformation of food systems: healthy nutrition, ecological production, and resilience to market volatility, accessibility for all [9]. Among the innovations and reforms that imply the transformation of the food system is the project "New School Nutrition" - implemented in 2019, and its goal is to change the culture of school nutrition. This actualizes the issue of the state and organization of food in schools, defining the range of problems that exist in this area and determining the social demand for reforming the school food system to provide opportunities and promote the ideas of healthy food in schools. Having such a demand and looking for solutions to satisfy it – opens up opportunities for an innovative approach to the sustainable development of food systems - Living Labs.

3. RESEARCH METHODOLOGY

The Department of Science and Education of the Regional State Administration in collaboration with V.N. Karazin Kharkiv National University conducted a survey of pupils in grades 8-11 of general secondary education institutions of the Kharkiv region on their nutrition at school and home. The online survey of pupils lasted from March 10 to April 12, 2021. Pupils' parents and teachers survey was conducted from April 26 to July 1, 2021. The online survey was carried out using the LimeSurvey-3 – online survey platform. It is a quantitative (standardized) computer-assisted web survey (CAWI). The respondents had the opportunity to take part in the survey anonymously using computers or gadgets. The link to the online questionnaire was provided by education departments to schools and distributed among students in grades 8-11. The volume of the general population is 68,486 pupils of 8-11 grades of the schools of the Kharkiv region. The sample was formed by the main array method. The sample size of students is 14,000 respondents (20.44% of all students in grades 8-11 of the region). The sample size of parents - 9111 respondents, teachers - 4327 respondents.

4. ANALYSIS AND RESULTS

To obtain the most accurate picture of the state of affairs in the field of pupil's nutrition in the Kharkiv region, the results of the study were analyzed in three main areas: the organization of school nutrition, the assessment of school nutrition by pupils / parents / teachers, and healthy food in pupils' life.

4.1. The organization of school nutrition

First, it should be noted that there is a solid organizational base for school meals. Almost all schools in the region (99%) have their canteen, a significant part of them (44%) have a buffet in addition to the canteen. Some schools in the villages are problematic in this regard: according to the results of the study, 4% of pupils in rural schools noted the absence of a canteen or a buffet.

At the same time, even if there is a canteen or a buffet, a significant part of pupils does not use them. In general, among the pupils of schools (where canteens or buffet work), the share of "refusers" is 18%. About half of pupils (49%) eat in school canteens or buffets every day, 16% - not every day, but often, 17% - sometimes.

There are significant differences in the "popularity" of school canteens between Kharkiv (only 10% of pupils do not use their services) and the region (in villages, 22% of pupils never eat in school canteens, and in cities and towns of the region, the share of such pupils reaches 28%). More than half of the pupils in Kharkiv (57%) and the villages of the region (51%) use the services of school canteens or buffets every day. At the same time, in cities and towns of the region, the share of such persons is only one-third (34%).

Among pupils who eat in school canteens or buffets, the overwhelming majority (83%) purchase food on their own. Here again, we see a clear bias towards the regional center: in Kharkiv, the share of such persons reaches 93%, in cities and towns of the region 79%, and villages only 55%.

Free meals are provided for preferential categories of pupils. According to the study, 12% of the surveyed pupils receive free meals. At the same time, the share of such persons is higher in villages - 16%. In cities and towns of the region - 12%, in the regional center - 10%. However, free meals do not fully meet their food needs, so a significant proportion of beneficiaries (63%) purchase food on their own.

In addition, about a third of pupils (30%) who use school canteens noted the fact that their parents paid for their meals in an organized manner. This practice is typical largely for rural schools, where the share of such respondents reaches 57%. In cities and towns of the region - 37% of pupils stated that they used the practice of organized payment for meals by their parents. The share of such persons was only 19% in Kharkiv. However, even if parents pay for meals, the majority of pupils (73%) additionally buy food on their own.

The bulk of pupils who independently purchase food in school canteens spend from 16 to 30 UAH daily. According to the answers of the pupils, the proportion of such persons is 59%; 22% of pupils spend on school meals a day 15 UAH; 10% of students spend a day from 31 to 45 UAH; 9% of pupils allow themselves to spend more than 46 UAH on food at school daily.

It is noteworthy that a comparison of the answers of pupils with the answers of parents to the question about the amount of money allocated to a child to buy food at school shows significant differences. Thus, the share of parents who allocate up to 15 UAH for food for their children was only 12%; 63% of parents give their children from 16 to 30 UAH for food; 10% of parents give from 31 to 45 UAH per day (here the testimony of children and parents agreed); 15% of parents provide for food more than 46 UAH per day to their children. This discrepancy in the assessments of parents and pupils is because parents give more than children spend. By saving on food, children save money for other needs.

In general, school nutrition occupies an important place in the general structure of pupils' nutrition. Largely, this applies to lunches: 61% of the surveyed students noted lunch at school as a regular meal on the days of school attendance. At the same time, 46% of pupils have lunch outside of school. As for breakfast at school, only 21% of pupils called it a habitual meal. Breakfast at home is a more common option for morning meals (72% of pupils).

It is noteworthy that in the answers to the question about the main meals, suggesting the greatest volume and/or the greatest variety of dishes, it is lunches at school that come out on top: 41% of pupils consider them to be among the main.

An important aspect of the quality of nutrition is its regime. In particular, the availability of a well-defined mealtime remains a topical issue. Research data show that almost half of pupils (46%) eat all meals every day at approximately the same time. For 28% of pupils, only meals at school are ordered, which undoubtedly adds relevance to the issue of organizing school meals: thanks to organized school meals, the correct diet is maintained. An insignificant part (7%) observe the same meal times only outside of school. And 19% of pupils have no specific meal times.

The greatest concern is the fact that the existing system of organizing meals for pupils is not able to completely protect students from food shortages. Thus, according to the study, 8% of pupils remain hungry at school almost every day, 19% from time to time, 36% rarely, and only 37% have never faced this problem. This issue is less relevant for Kharkiv, where 6% of pupils go hungry every day, and sometimes 14%. The situation is

much worse in cities and towns of the region (12% go hungry every day, 24% from time to time) and villages (10% go hungry at school every day, 21% from time to time).

4.2. Evaluation of school nutrition by pupils, parents, and teachers

To reveal the opinion of pupils, parents, and teachers about the work of school canteens, the respondents were asked to evaluate several parameters: 1) the attitude of the canteen staff, 2) work schedule, 3) sanitary condition, cleanliness, 4) quality, the taste of dishes, 5) prices, 6) variety of choice (assortment), 7) serving size. In this case, a four-point rating scale was used: 4 – "very good", 3 – "rather good", 2 – "rather bad", 1 – "very bad".

The pupils themselves assess the nutritional situation in schools in general rather positively. For all assessed parameters, the average scores are in the range of 3.1-3.5. At the same time, pupils in Kharkiv rate the work of school canteens somewhat higher than pupils from regional schools. Primarily, the differences in estimates relate to the variety of choices and the size of the portions.

Overall, portion size and assortment can be considered the most problematic aspects of school canteens. Thus, the portion size was negatively assessed by 20% of pupils (6% - "very bad", 14% - "rather bad"), and the variety of choice was rated by 19% (6% - "very bad", 13% - "rather bad"). Somewhat less problematic aspects are prices (6% - "very bad", 12% - "rather bad"), quality, taste of dishes and sanitary condition, cleanliness (5% - "very bad", 11% - "rather bad").

Parents have less information about the work of school canteens, a significant proportion found it difficult to answer (according to various parameters, from 17 to 20%). But in general, positive assessments also dominate in their answers: the range of average scores is 3.0 - 3.4. Among parents, the most discontent is caused by such aspects of school canteens' work as assortment (5% - "very bad", 13% - "rather bad"), portion size and quality, taste of dishes (3% - "very bad", 12% - "rather bad").

The work of school canteens received the highest marks among teachers: average scores vary in the range of 3.3 - 3.7. A small proportion of teachers associate the problems of school canteens mainly with a variety of choices (2% - "very bad", 7% - "rather bad") and the size of portions (1% - "very bad", 6% - "rather bad").

The respondents were also asked an open-ended question about the disadvantages of school canteens. The pupils' answers to this question shift the emphasis somewhat. So high prices come out on top (5.2%). Also among the main shortcomings were often bad food (4.4%), poor assortment, monotonous dishes, lack of choice (4.4%), long queues, many people (3.9%), unsanitary conditions, dirt (3.7%).

According to parents, the main disadvantages are a poor assortment, monotonous dishes, lack of choice (7.3%), bad food (5.7%), long queues, many people (4.4%), small portions (3.5%)), unsanitary conditions, dirt (3.5%).

Teachers are generally less inclined to list the shortcomings of school canteens. Among the answers to the open-ended question, the most common is a poor assortment, monotonous dishes, lack of choice (7.4%), unsanitary conditions, dirt (5.1%), high prices (2.6%), bad food (2.2%).

In the course of the study, pupils who eat in school canteens, as well as their parents, were asked to assess their attitude to school meals. The survey data show the dominance of positive ratings. Thus, the answers "I like it very much" and "I rather like it" were given by 66% of pupils and 49% of parents. A negative attitude (the answers "do not like it at all" and "rather do not like it") is characteristic of only 9% of pupils who use the services of school canteens, and 14% of their parents.

In Kharkiv, positive assessments are higher: 76% of pupils of the regional center gave the answers "like it" and "rather like it". At the same time, the share of such respondents among pupils of rural schools was 57%, and in cities and towns of the region - 52%.

In turn, those pupils who do not eat in school canteens and their parents were asked about the reasons for refusing such meals (the share of such pupils in the total population is 18%, parents - 14%). The two main reasons both pupils and their parents talk about are tasteless dishes in school canteens/buffets (44% of pupils, 45% of parents) and the sufficiency of home meals and snacks from home (43% of pupils, 31% of parents). Unsatisfactory sanitary conditions were mentioned as a reason for refusing to eat in the school canteen by 26% of pupils and 12% of parents.

4.3. Healthy food in pupils` life

In general, among the surveyed pupils, there is a high interest in the topic of healthy food: 70% of respondents noted that this topic is "very interesting" or "rather interesting". At the same time, a higher interest in healthy food is observed in Kharkiv (74% of those interested). In the villages and towns of the region, the share of such persons is 64% and 66%, respectively.

68% of the surveyed pupils consider their food to be beneficial to health (the sum of the answers "definitely yes" and "rather yes" to the question "Do you think that your diet is good for your health?"). However, there are significant differences in the assessments of this aspect of nutrition between pupils in Kharkiv and the settlements of the region. If in the regional center 76% of pupils believe that they eat with health benefits, then in cities and towns of the region this figure drops to 61%,

and in villages, it is 57%. Most parents (73%) also believe that their child is eating healthy food.

It is noteworthy that school nutrition is considered healthy by about two-thirds of the surveyed pupils (only those schools with canteens or canteens were taken into account): 65% rated it as "very healthy" or "rather healthy". 62% of parents agree with this opinion. At the same time, 81% of pupils and 73% of parents evaluate homemade food as healthy.

Here we are also faced with differences in estimates depending on the type of settlement. 71% of pupils in Kharkiv, 66% of pupils in rural schools, and only 56% of pupils in schools in cities and towns of the region consider healthy school meals. As for home food, in Kharkiv, it is assessed as healthy by 85% of pupils, in cities and towns of the region 78%, and in villages 71% of pupils.

5. CONCLUSION

Based on the presented analysis, we can draw several conclusions:

1. Many characteristics of the school food system of Kharkiv and the region revealed in the course of the study have a beneficial effect on the formation of food habits and behavior patterns of pupils. So, in schools, there is a sufficient organizational and material base for the organization of proper and healthy nutrition. For most pupils, school food is one of the main meals during the day. Thus, in many respects, it is school lunches that help to adhere to the dietary regime over time. Thereby positively affecting the health of pupils and determining their eating habits in the long term, contributing to the orientation towards a healthy diet.

2. At the same time, on the way to improving the school nutrition system, several problems arise that require urgent resolution. First, it is the problem of malnutrition. Research has shown that a significant proportion of pupils are regularly hungry during their time in school. In addition, a significant proportion of pupils refuse to eat at school or resort to it from time to time, preferring as an alternative to homemade food brought with them, which is mostly represented by sandwiches, fruits, and cookies, or bought during breaks outside of school. In all cases, these alternatives do not provide wholesome healthy food.

3. Refusal to eat in a school canteen is most often caused by such reasons as poor food in schools, having enough food to take with you, and inadequate sanitary conditions in canteens. With all the conventionality of the characteristics of food from the point of view of taste ("tasteless" is a very subjective characteristic, which does not mean lack of usefulness or objectively poorly prepared food), and the fulfillment of sanitary standards is questionable.

4. According to many analyzed parameters, the situation in the region is worse than in the regional center. Therefore, in the course of implementing programs and projects aimed at improving the school food system, special attention should be paid to cooperation with the united territorial communities.

5. A high assessment of the importance of healthy nutrition and the listed number of problems that pupils face in striving for healthy nutrition testifies to the existence of a social demand for healthy nutrition and speaks of the need to implement this request. As noted earlier, Living Lab is one of the innovative approaches to finding ways to transform the food system. Living labs aim to include more users in evaluating a product or service when compared with other case studies [10]. They include such components as the knowledge community, policy planning, implementation and validation of policies and actions, complexity of solutions, etc. One of the main ideas for creating and managing the Living Lab is to actively engage users and experiment in real life with innovative solutions and a multi-faceted approach.

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