PERCEPTIONS OF NUTRITION AND FOOD INSECURITY AMONG VULNERABLE GROUPS IN BRAȘOV, ROMANIA

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Abstract. *Food insecurity remains a global issue, driven by economic, political, social, and environmental factors that directly affect food availability and accessibility at the local level. This study explores nutrition perceptions and food insecurity among vulnerable groups in Brașov as part of the FOODCLIC project, focusing on early identification of vulnerabilities and solutions to support healthier, more sustainable diets. The research included 300 participants, 80% of whom belonged to vulnerable categories such as schoolchildren from disadvantaged neighborhoods, institutionalized elderly, homeless individuals, and low-income students. The sample was gender-balanced (52% female, 48% male). Data were collected in Noua and Bartolomeu neighborhoods using the Food Insecurity Experience Scale (FIES) and the Diet Quality Questionnaire (DQQ). Results indicate that food insecurity is moderate rather than severe, manifested through reduced access to high-quality food rather than lack of food altogether. Most participants (95%) reported skipping meals or lacking structured eating schedules, often due to financial constraints or irregular routines. Despite low incomes (48% earning under 400 EUR/month), self-perceived health was generally "satisfactory," suggesting limited awareness of nutrition-related risks. Eating habits showed a high preference for fried foods (38.3%), frequent snacking (61%), and low fruit and vegetable consumption, indicating low dietary diversity. To reduce food insecurity and improve diet quality, the study proposes several measures: increasing access to financial resources and fair food distribution systems, supporting sustainable agriculture, expanding social protection programs (e.g., meal vouchers, free school meals), and strengthening nutrition education. In conclusion, while severe food insecurity is not widespread, its moderate presence highlights structural vulnerabilities. Addressing these through coordinated local actions can strengthen food security and promote healthier eating behaviors in vulnerable urban communities.*

Keywords: food insecurity, self-perceived health, vulnerable groups, nutrition and health.

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1. Introduction

Three-quarters of Europe's population lives in urban areas, where finding safe, affordable, and sustainably produced food is a huge concern. About 33 million people in Europe live in food poverty, meaning they can't afford a healthy meal every other day, and many of them don't have the motivation to follow sustainable diets [4, 20, 5, 17]. Over half of European adults are overweight, and diet-related ailments like diabetes and cardiovascular disorders are becoming more prevalent [8]. Small producers, meanwhile, find it difficult to make a decent income [6, 13]. With 20% of food wasted, the food system damages biodiversity, pollinators, soil, and water, all of which contribute to environmental deterioration [7]. 10% of EU greenhouse gas emissions come from agriculture, and 17% come from food systems; if diets stay the same, this percentage is predicted to rise [22, 12, 19]. Although availability, affordability, and attraction influence food choices in urban areas, the food environment rarely defaults to sustainable, healthful options [6,11]. Planning frequently ignores underprivileged metropolitan areas, leaving them to the whims of the market, forcing locals to rely on processed, unhealthy meals from unsustainable systems marked by high emissions, extensive pesticide usage, degraded land, and subpar animal care. The vulnerability of these lengthy, homogeneous supply chains was made clear by the COVID-19 pandemic [10].

As a result, European towns are reconsidering their food surroundings in order to increase access to sustainable, healthful, and locally produced food [14]. Pilot ventures utilizing novel retail models, procurement techniques, and marketing methods have been aided by research funding. However, the majority of projects are still small-scale and hardly involve vulnerable populations [9]. Space rivalry, competing interests, a lack of funds, and lax advertising and fiscal regulations are some of the main obstacles. Stronger planning and policy assistance are necessary to scale successful experiments. Planning systems continue to prioritize land, housing, and infrastructure, despite the growing importance of food on urban agendas. To guarantee sustainable access, food policy must be integrated with planning instruments such as zoning [2]. Planners need to learn to be "food sensitive," understanding the connections between sustainability in the environment, health, and food. Comprehensive frameworks for food planning are still lacking in most cities. Few focus on the Food 2030 priorities (health, climate, circularity, inclusion) or all three aspects of sustainability: social/health, economic, and environmental. Policies frequently lack evidence and support from stakeholders [18, 15, 16, 21, 3, 1], and siloed approaches make it more difficult to comprehend local systems. Deeper change is hampered by the underrepresentation of enterprises, specialists, civic society, and individuals. In this regard, the city of Brașov is a part of the FOODCLIC initiative, which has a nutrition and health component. It seeks to increase knowledge of the negative

effects of diet on health, focusing on the dangers associated with consuming too much refined sugar, saturated fat, and additives. The initiative targets vulnerable groups such as residents of disadvantaged neighborhoods (Noua, Bartolomeu Nord), students from School No. 9 and School No. 14, and elderly people in care homes. It promotes nutritional education through brochures, monographs, and leaflets developed with the faculties of Food and Tourism and Medicine.

Supporting activities include school campaigns, partnerships with local markets, and a nutrition-focused research symposium in September 2024. The program also features hands-on learning via an educational greenhouse at School No. 14 and farm and hypermarket visits to strengthen food literacy. These efforts address the lack of nutritional education in Brașov, encouraging collaboration among local authorities, schools, businesses, and healthcare institutions to promote healthier diets and strengthen food security. The Diet Quality Questionnaire (DQQ) was used to measure dietary quality, while the Food Insecurity Experience Scale (FIES) was used to measure food insecurity among 300 participants. There were no further techniques used, such as meal diaries or food literacy surveys.

2. Materials and Methods

The study sample included 300 participants. The largest age group was 8–17 years (33.3%), followed by 18–24 years (25.3%), 45–64 years (14.7%), over 65 years (19%), and 25–44 years (7.7%). Gender distribution was balanced, with 52% female and 48% male participants. A mixed sampling strategy was applied, combining purposive and convenience sampling. Vulnerable groups were deliberately targeted—such as homeless individuals, institutionalized elderly, schoolchildren in underserved areas, and low-income university students. Specific locations were selected in Noua and Bartolomeu neighborhoods (e.g., church, elderly home, schools, canteen) to reach these groups directly. Within these sites, participants were recruited based on availability and willingness to participate. Eighty percent of the sample consisted of vulnerable individuals. The distribution was as follows:

- 50 institutionalized elderly from Noua Elderly Home;
- 50 homeless individuals attending a weekly social canteen organized by an NGO and an Orthodox church;
- 50 pupils from School No. 14 (Bartolomeu);
- 50 pupils from School No. 9 (Noua);
- 50 students from Memorandului dormitory, eating daily at the Bartolomeu student canteen;

- 50 randomly selected residents from both neighborhoods, recruited during recent food walks.

Gender balance was encouraged throughout data collection by deliberately approaching a diverse mix of participants in each setting (church, elderly home, schools, university canteen). While Romanian legislation prohibits direct payments or gifts to respondents, participants were occasionally rewarded through partnerships with local sponsors—members of the Brașov Food Policy Network—who provided free fruits and vegetables.

3. Results and Discussions

3.1. Subsection Self-perceived health

The biometric analysis revealed a wide range of height (120–197 cm) and weight (30–120 kg), indicating the presence of both underweight and overweight individuals. These extremes can influence perceived health, particularly among vulnerable groups—schoolchildren (56.7%) and pensioners (19.7%)—many of whom have low incomes (48% under 2,000 lei/month). Although most respondents consume at least three meals a day, food quality is limited by purchasing power (nearly half spend under 400 EUR/month). Despite this, health perception remains mostly "satisfactory," reflecting low health literacy and weak food culture. Lifestyle data show irregular health habits: few respondents report daily physical activity or healthy eating, and only 21.7% recognize the link between diet and lifestyle. Schoolchildren mainly eat with their families or bring home-prepared food, which could support healthy habits, but awareness of diet-related risks is low. Dietary behaviors highlight further gaps: 38.3% prefer frying, 61% snack frequently, and only 17.3% use media for nutrition information. Around 8% of participants consider their health "poor," likely including elderly or chronically ill individuals. These findings underline the need for local health education campaigns focusing on the effects of unbalanced diets and the benefits of active lifestyles. Promoting regular physical activity, structured meal patterns, and better nutritional awareness could improve both actual and perceived health. Because self-assessed health is shaped by social, psychological, and cultural factors, building a strong food culture, especially among youth is essential for disease prevention and healthier communities.

3.2. Food (In)security

Food insecurity is a global issue referring to the lack of stable and sufficient access to safe, nutritious food for a healthy life. Its causes—economic, political, social, and environmental—must also be addressed locally, as they directly shape food availability and accessibility for individuals and communities. Survey data

from Brașov show that, within the project's target groups (schoolchildren from disadvantaged neighborhoods and institutionalized elderly), food insecurity is moderate, not severe. It is characterized mainly by reduced access to quality food, which can lead to inadequate nutrition and a compromised health status. Respondents experience food insecurity during certain periods but do not face extreme malnutrition.

Key underlying factors include economic and social inequality, relative poverty, and limited access to education and health services, which increase vulnerability, particularly regarding food quality. Patterns in meal regularity also signal moderate insecurity: 95% of participants reported skipping meals or lacking a structured eating schedule. This may reflect time constraints, irregular appetites, or difficulties obtaining or preparing food. Only 5.7% said they eat "on the run," which can be interpreted in two ways: either they can eat calmly at home or at work, or they skip meals entirely when busy. With only 5% maintaining consistent eating habits, irregular meal patterns appear common and may reflect economic or logistical barriers. Regarding financial constraints, those with lower incomes or precarious situations (Fig. 3.1) show that this percentage of 21% is not very significant but suggests a potential limited access to culinary variety or convenient eating options, making it possible to skip meals.

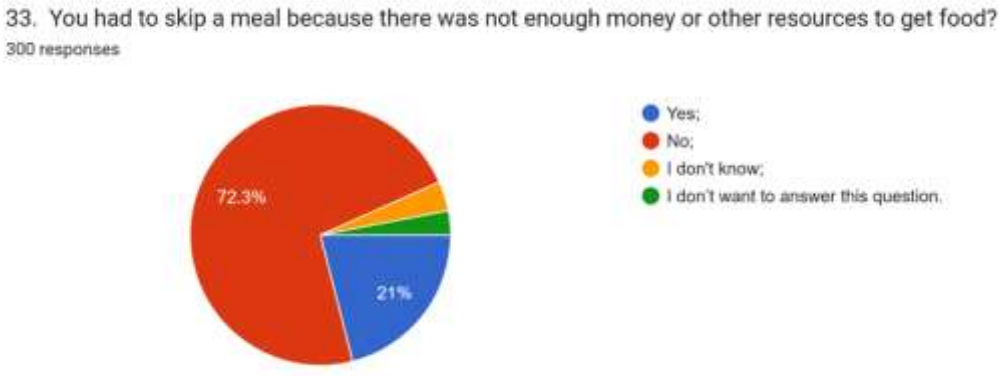

Fig. 3.1. The relationship between financial structure and the unwiseness of missing meals

Another point made by the respondents' responses is that there is some room for improvement in the participants' varied eating habits. The decreased intake of raw foods and/or protective foods (fruits, fresh vegetables, and fish) is mentioned, suggesting an imbalanced diet. The quality of what is cooked matters, even if most of the meal is prepared at home, which is frequently good. However, it is

reassuring to see that around 80% of the respondents reported no issues with any of the different illnesses or conditions (Fig. 3.2).

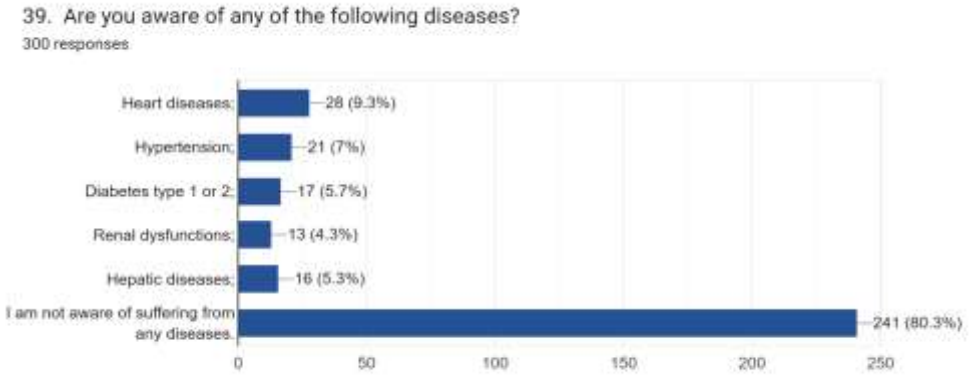

Fig. 3.2. The structure of health and the existence of illnesses or disorders

Although the problem of food insecurity identified through the survey is not severe, its potential presence requires concrete preventive measures. To address and eliminate food insecurity, the following actions are recommended: Increase access to financial resources: Economic policies that support low-income groups and improve general economic conditions can reduce food insecurity. Better infrastructure and fairer food distribution systems can also enhance access for vulnerable populations. Support sustainable agriculture: Investments in sustainable practices and technologies especially in climate-vulnerable areas can strengthen local food production and availability. Implement social protection measures: Initiatives such as meal vouchers, free school meals, or direct financial support for vulnerable families can significantly reduce the risk of food insecurity. Promote nutrition education: Teaching communities about balanced diets and healthy eating can encourage better food choices, even with limited resources. To ensure widespread access to sufficient and nourishing food, governments, international organizations, the commercial sector, and civil society must work together to address the complex and multifaceted problem of food insecurity.

3.3. Dietary Diversity

The world's diverse cultures, customs, and geographical locations are reflected in the variety of eating habits. Every society has unique food-related customs that are shaped by socioeconomic history, religion, climate, and natural resources. In light of this, we have found a number of factors from the survey that demonstrate the variety of eating customs that we also experience in the Brașov region: eating

customs based on age and social standing, eating customs based on culture, religion, customs and meal patterns, and cultural holiday customs.

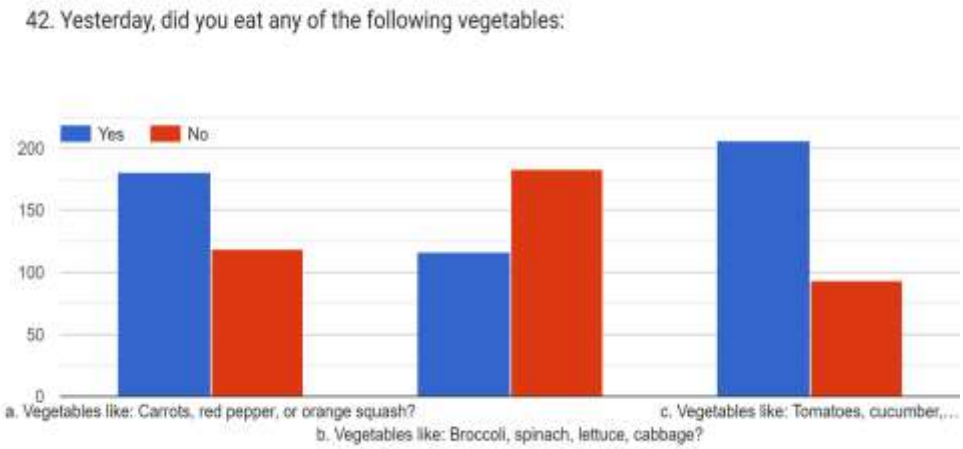

Fig. 3.3. Eaten plant-based foods

Diversification of food sources should be encouraged – perhaps through local events, accessible fresh produce markets or even partnerships with restaurants offering healthy menus at reduced prices, to accustom the population to other types of food. The goal would be to prevent nutritional deficiencies and diseases linked to a monotonous diet by promoting more varied and balanced eating habits. According to the survey, a variety of local foods, including both plant and animal products, were consumed (Figures 3.3, 3.4, and 3.5).

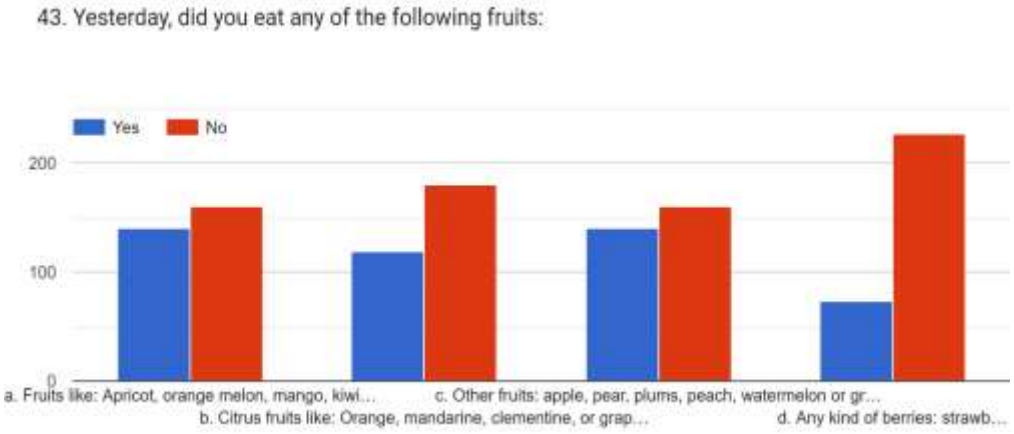

Fig. 3.4. Percentage of fruit consumed or not consumed

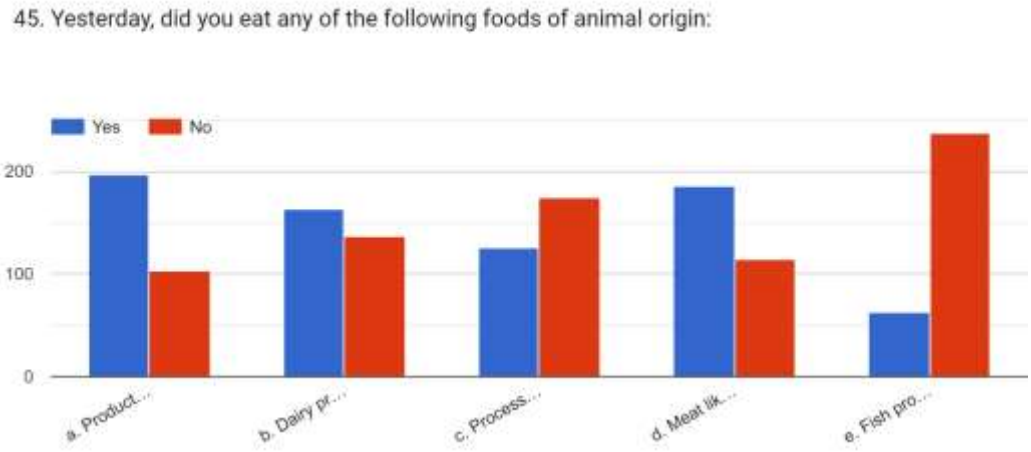

Fig. 3.5. Foods originating from animals

Programs for food education that promote dietary diversity would be beneficial in light of these findings. The current extremely low percentage (5%) of daily consumers could be raised, for instance, by programs that encourage the eating of fresh fruits and vegetables on a regular basis ("5 a day"). Additionally, the community's first healthy cooking classes might demonstrate several appealing methods to prepare veggies, encouraging people to eat them more frequently. Particularly for older persons and those who live longer (over 75 years), more vegetables and lean meats might be incorporated into these meals, while fried foods and excessive salt should be decreased, as many people prefer traditional cooked cuisine.

Conclusions

1. To guarantee that everyone has access to sufficient and nourishing food, food insecurity is a complicated and multifaceted issue that calls for a coordinated response by international organizations, the corporate sector, civil society, and local and national governments (municipalities).

2. All things considered, the study on healthy eating uncovered fresh viewpoints, but it also brought forth difficulties and disputes, making this a dynamic and occasionally unexpected sector that necessitates ongoing local adaptation.

3. Along with highlighting aspects with particular strengths, the Brașov survey offers a useful insight into the population's food behaviors and perceptions. For instance, the majority do not consider themselves to be in very poor health, and very few appear to rely on unhealthy food in the city.

4. Another survey component identifies a number of issues and inadequacies, including a repetitive diet, a lack of fresh fruits and vegetables, sporadic meals, and certain nutritional misunderstandings. Coordinated efforts (education, public health initiatives) and ongoing monitoring are needed to address these issues.

5. The research shows that Brașov has a significant diversity of eating habits, including how customs and cultural background impact day-to-day living. This suggests that practices that can offer a more profound understanding of how people interact with their surroundings and with one another are being explored within the Brașov city-region.

6. Future surveys will be able to monitor progress and better inform public policies for the Brașov community's health in terms of food safety and quality, particularly with regard to vulnerable consumer groups like schoolchildren and the elderly, thanks to improvements in both population knowledge and research tools. These groups are more susceptible to the risks associated with unhealthy diets and low-quality products, and protective measures must be taken seriously in future local actions and policies.

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