

## SHORT FOOD SUPPLY CHAINS AND YOUNG PEOPLE'S ATTITUDE TOWARDS HEALTHY EATING

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### Abstract

*The purpose of this paper is to identify: short supply chains (SFSC) in Sibiu County, Romania, in the context of the need of transformation for the current food chains; young people's attitude towards food and a healthy lifestyle and their behavior in the current context of the Covid pandemic 19. Data were collected from public authorities, local organizations and websites of manufacturers and processors. A questionnaire was developed and was applied online between October 30 and November 20, 2021, among students (bachelor's and master's) from faculties with an agri-food profile. It was completed by a number of 222 people, and the data were synthesized, tabulated and analyzed. In Sibiu County, 17 types of short food supply chains (SFSC) have been identified, which can be examples of good practice in the necessary transformation of the current food system towards sustainability. Young consumers have a positive attitude towards food and a healthy lifestyle, without having significant behavioral changes in the current context of the pandemic. The results of this study may have implications for establishing marketing strategies for young people.*

**Key words:** short food supply chain, food, attitude, consumption, young people, Covid-19 pandemic, Romania

### INTRODUCTION

Sustainability is one of the major societal challenges, especially in the food supply chain, from production to consumption [22]. Food sustainability contributes to global sustainable development, being able to improve the efficiency and sustainability of the use of the resources involved, while reducing food waste [8].

The transition to a more sustainable food system requires changes and innovations along the food value chain. These changes are mainly aimed at cooperation between different actors in the food system and innovative production, processing, and distribution technologies.

Food security and safety are closely linked to the sustainability of the food system and environmental protection. The food system directly influences the production and

consumption of food, but also the way consumers perceive the quality of food and its effect on human health [31].

Promoting a sustainable and resilient food system is a priority for many international organizations [20, 22], simultaneously with the existence of a favorable political environment to support it [27].

There is a growing trend towards a diet based on local, fresh, seasonal products based on environmentally friendly technologies with a low economic, social and environmental impact [17]. Various authors report that there is a tendency to change diets towards a plant-based diet and dairy products, especially observed among the generation of millennials (24-39 years old) and people with higher incomes [2]. This trend of transforming the current food system towards sustainability also depends on the attitude and eating habits of consumers, in line with the concerns of the

U.E. to meet the targets set for the 2030 Sustainable Development Goals (SDGs), in particular SDG 2 “Zero Hunger” and SDG 12 “Sustainable consumption and production”. Achieving these goals requires concrete action at the local, national and global levels by all actors involved in the food chain, from production to consumption [34].

Young Europeans are concerned about the sustainability of the food system, proposing 6 future courses of action: the use of regenerative farming practices for at least 25% of EU agricultural land and supporting farmers in the transition to sustainable agriculture; defining uniform regulations on food labeling, presentation of their nutritional composition and environmental impact; developing a policy of social inclusion that allows access to the entire population of quality food and nutrition; life cycle analysis of food, assessment of its impact on the environment and calculation of the real cost; implementing strategies to reduce food waste and the production of packaging waste in the retail sector and addressing them in the context of the bioeconomy; carrying out nutrition education programs closely related to the care of human health and the environment [23].

Recently published studies on young Romanian consumers show that in the choices made by them, social norms and behavioral control prevail. They affect their behavior which has a major impact on the future intention and behavior of sustainable food choices. That is why it is important for young people to have a positive attitude towards sustainable products and brands [3, 28].

Cantaragiu (2019) pointed out that there are some significant differences in the behavior and attitude of Romanian consumers in terms of food consumption and food waste, which vary by gender [11].

In Romania in the last two years the level of food expenditures has increased, although the food consumption per capita has remained relatively at the same level [17]. Although the level of household income in Romania has increased, it is still well below its average in the European Union, and a large part of it is intended for food consumption expenditure

[30]. Consumers' food choices are influenced by many psychological factors (perception, motivation, attitude, needs and preferences), educational, economic (income level), cultural and lifestyle [6, 10].

The Covid-19 pandemic has had a deep impact on consumers' attitudes regarding food choices, purchase habits. Online platforms have appeared helping the development of the virtual markets and sustained both the producers and consumers [24].

In this context, this paper has two objectives: (i) Identifying existing SFSCs in Sibiu County, Romania;

(ii) Identifying young people's attitudes towards food and healthy living and behaviour in the current context of the Covid pandemic 19.

## MATERIALS AND METHODS

In order to achieve the objective (i), the data were collected from local public authorities and organizations involved in the creation of SFSC in Sibiu County, Romania (Sibiu County Council, Sibiu County Directorate for Agriculture and Rural Development, Mountain Area Agency - Sibiu branch, NGO-producers' associations, websites of local producers and processors).

In order to achieve the objective (ii), a questionnaire was developed which was applied online between October 30 and November 20, 2021, among students of bachelor's and master's programs at faculties with agri-food profile in the university centers of Sibiu, Bucharest, Cluj, Targoviste, Galați and Timișoara. The questionnaire was developed based on other studies in the literature [20, 29].

The size of the sample of respondents was 222, being determined with Cochran's corrected formula [14] (Cochran W. G., 1977),  $n_1 = n_0 / (1 - n_0 / N)$ , where:  $n_0 = Z^2 pq / e^2$ , for Z tabeled 1.96 for  $\alpha = 0.05$ , 95% confidence interval, an accuracy of 0.05 (5%) și  $N = 528$ .

The questionnaire was distributed to students through the Google Classroom platform and was structured in 20 items: socio-demographic data about respondents; data on

young people's eating habits: attitude towards eating and a healthy lifestyle; behavioral changes during the Covid 19 pandemic and the main aspects of life.

No personal identification data was collected to ensure the anonymity of the participants. The data were synthesized and analyzed. The Excel software (version 365, Microsoft Corporation, Redmond, WA, USA) was used to better view and process the collected data.

## RESULTS AND DISCUSSIONS

### Identification of SFSCs existing in Sibiu County (Romania)

The promotion of LP and those recorded on various quality schemes began around the year 2000, through numerous and various approaches.

Among the types of SFSC identified in Sibiu County, which contribute to consolidating the position of farmers and their cooperation, we mention:

**-Weekly markets of the producers** ("Transilvania" market, "Huet" market of ecological products). In 2021, 200 local producers were accepted in the "Transilvania" market, of which it sells: fruits and vegetables, 81 people (40.5%); dairy, 27 people (13.5%); butchers, 17 people (8.5%) [16]. In 2018, 180 local producers were accepted in this market, being 11.1% less than in 2021 [13];

**-Markets of local producers** organized in villages and farms open to visitors are both forms of SFSC and elements of the local gastronomic tourism offer. They were identified in Rășinari [12];

**-Markets of local producers in the churchyard.** As a novelty, starting with the year 2021 in Sibiu and in the metropolitan area, on the days of religious holidays, producers' markets are also organized in the churchyard. It is another form of direct communication between farmers and buyers.

**-Phone app called "Road Market"**[32];

**-"Country Fair"** at the Open Air Museum in Dumbrava Sibiului, for gastronomic events and exhibitions with food sales;

**-Gastronomic festivals** ("Cheese and Brandy" Festival, Bazna Pork Festival; Cabbage Festival; Peony Festival);

**-Brunch and other alternative gastronomic events** [5];

**-Thematic educational trails:** "Cheese Road" in the Mărginimea Sibiului area; Slow Food Trail [4].

**-Shops of local producers** ("Albota Grocery", "The Old German Man", "Eco-Prod Tradițional", "La Mimi", "Biocoop", "Mangalița from Racovița");

**-Food Hub**, which identified 26 individuals or local businesses that offer for sale: dairy products, meat products, eggs, fruits and vegetables, herbs, edible flowers, bee products, artisanal bakery products, products processed preserves, product packages, beverages and confectionery, pastry;

**-Local gastronomic points (PGL)**

At the national level in the period 1918-2021, 171 PGLs were established, of which 65 (38%) were established in 2021 as a result of numerous courses organized by the Mountain Zone Agency.

In Sibiu County in 2021 are registered 15 LPG, of which 12 are in the mountain area [18]. They represent new opportunities, both for family members of farmers and for tourists passionate about gastronomy;

**-Projects to promote local products under the "Sibiu Tastes" brand.** A number of 210 local producers are grouped by micro-regions: Sibiu - 52 producers; Valea Târnavelor-12 producers; Drought Land - 34 producers; Hârtibaciului Valley - 42 producers; The border of Sibiu - 43 producers and Țara Oltului - 27 producers [15];

**-Registration on the quality scheme and the "mountain product" platform:** 28 producers from Sibiu county located in 19 localities in the mountain area, with: vegetables-fruits, vegetable products, dairy products, meat products, bee products, eggs [1].

A schema of short food supply chains in Sibiu county is presented in Fig.1.

The distribution of the local gastronomic points, of the producers registered in the food hub and of those with "mountain products" is presented in Fig. 2.

Thus, in Sibiu County there is a trend of organizational innovation along the food chain, which leads to the transformation targeted by the goals of the European Green Pact [19, 21]. This is driven by new technologies and evolving consumer requirements. Strengthening the position of

farmers and their cooperation in food chains are strategic objectives of the Community Agricultural Policy (CAP) 2023-2027 [26]. A short-term challenge will be to better align consumer needs with short food supply chains and increase confidence in the quality of local products [9].



Fig.1. Types of Short Food Supply Chains in Sibiu County  
 Source: Own design.

### Presentation of the socio-demographic profile of the respondents

The socio-demographic profile of the respondents is presented in Table 1. Of the 222 people, who completed the questionnaire, 66.20% were female, and 75 (33.80%) were male.

The respondents are young people, aged between 18 and 34 (86.93%), currently 199 people (89.63%), being students or masters of a faculty of agricultural profile, food industry or environmental protection.

The respondents are generally unmarried (78.8%), and in terms of employment status being students (69.4%) or full-time employees (23%).

The domicile of the respondents is in proportion of 55.4% (123 persons) in a village or commune, respectively, in proportion of 25.7% (57 persons), in a small or medium city. Depending on the size of the locality of residence, it is observed that 64.86% (144 people) stated that they live in a community of less than 50,000 inhabitants.

Depending on the NUTS regions of Romania, 56.3% of the respondents live in the Central Region (Alba, Braşov, Covasna, Harghita, Mureş and Sibiu counties), and 18.5% of them come from the South West Oltenia Region (Dolj, Gorj, Mehedinţi, Olt, Vâlcea counties). The form of ownership of the dwelling house is private in the case of 83.3% (185 persons) of the respondents, 62.2% (138 persons) of them living with their parents, and 19.8% (44 persons) with their spouse. In general, 74.8% (166 people) of the respondents' households did not have adolescents or children under the age of 14. Respondents' households consist of 3 or 4 members for 166 people (60.36%). However, there is also a share of 22.10% of respondents (49 people) whose households consist of 5 or more members. The average

monthly income per household is in the case of 173 of the respondents (78.82%) between 2,000 and 5,000 lei. (The exchange rate of the National Bank of Romania on January 5, 2022 is: 1 Euro = 4.9464 Lei).

Respondents' perception of their own financial situation shows that 133 people (59.5%) consider that they have a good financial situation, while 65 people (29.3%) stated that their financial situation is neither good nor bad.

The distribution of the respondents according to sex, income/household and number of persons/household is presented in Table 1. It is observed that females with incomes between 2,000 and 6,000 lei represent 56.3% of the total respondents.

Table 1. Cross tabulation between gender, average household income and number of persons/household

Average household income (lei)		Number of persons in a household						Total
		1 person	2 persons	3 persons	4 persons	5 persons	6 persons	
2,000-4,000	Total	5	17	31	31	18	10	112
	Male	3	3	9	10	3	2	30
	Female	2	14	22	21	15	8	82
4,001-6,000	Total	4	8	13	24	8	6	63
	Male	1	2	6	4	3	4	20
	Female	3	6	7	20	5	2	43
6,001-8,000	Total	0	2	7	9	3	4	25
	Male	0	0	3	4	2	3	12
	Female	0	2	4	5	1	1	13
8,001-10,000	Total	1	0	3	6	0	0	10
	Male	0	0	3	4	0	0	7
	Female	1	0	0	2	0	0	3
10,001-15,000	Total	0	2	5	5	0	0	12
	Male	0	1	2	3	0	0	6
	Female	0	1	3	2	0	0	6
Total	Total	10	29	59	75	29	20	222
	Male	4	6	23	25	8	9	75
	Female	6	23	36	50	21	11	147

Source: Own results based on questionnaire.

Note: The exchange rate of the National Bank of Romania on January 5, 2022 was 1 Euro = Lei 4.9464.

### The attitude of young people towards food and a healthy lifestyle

The attitude of young people towards a healthy lifestyle and care for food (Figure 2) is proved by the fact that: 89.2% of respondents (198 people) stated that they try to eat healthier, 79.72% (177 people) of the respondents usually cook, 68% (151 people) say that the food should be ordinary and easy to prepare, 58% (129 people) try to avoid

artificial flavours and preservatives, 41.44% (92 people) try to avoid plastic packaging when buying food, and 31.98% (71 people) try to eat less meat.

It is known that animal production uses approx. one third of the global surface and generates 14% of all greenhouse gas emissions. At the same time, the water footprint of any animal product is higher than that of a vegetable with an equivalent

nutritional value [7]. Sarri et al. (2021) showed that reducing meat consumption and a change in the behaviour of meat consumers

allow the current food supply system to be transformed into a more sustainable and environmentally friendly one [33].

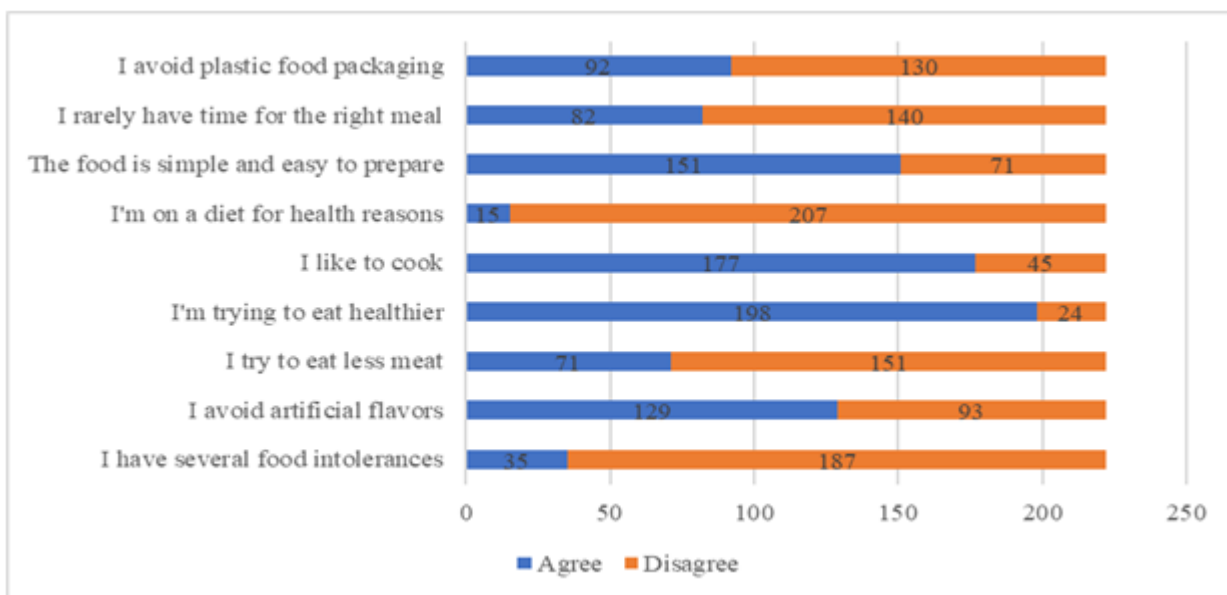


Fig. 2. The attitude of young people towards food (n = 222)  
 Source: Own results and design.

The attitude of young people towards food shows their concern for environmental sustainability, starting from the belief that a diet based on fresh vegetables and fruits, less meat and care for food packaging put less pressure on the resources used in the food chain.

Studies published in the speciality literature identify the main attributes of foods according to which they are chosen.

Thus, a study conducted among consumers in three Asian countries shows that the value of food is perceived in terms of safety, taste and health.

The order of these quality attributes varies by country, and knowing consumer preferences can help producers adopt specific marketing strategies [25].

Based on the answers received from the questioned persons, we identified the main aspects presented below.

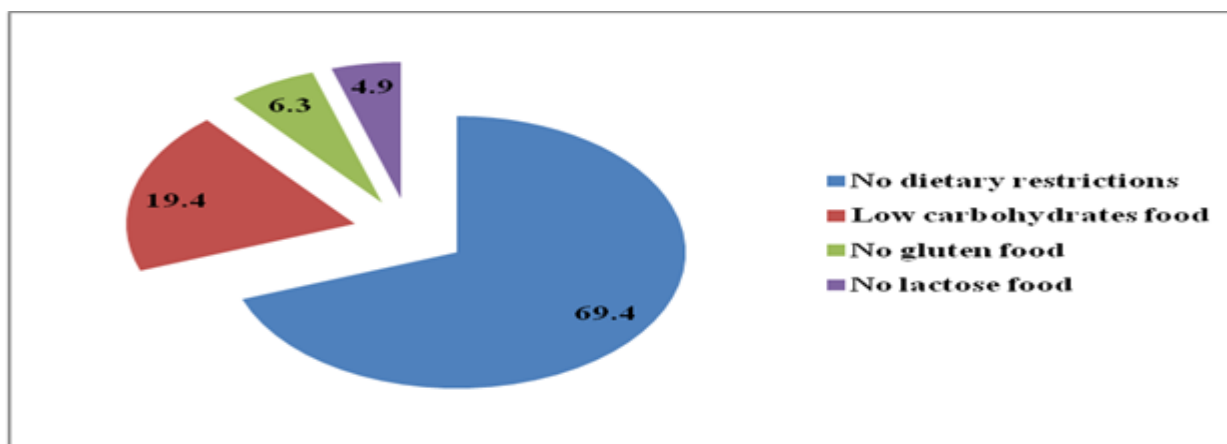


Fig. 3. Respondents structure based on diet restrictions (%)  
 Source: Own results and design.

In general, young people have no dietary restrictions, representing 69.36% (154 people) of total respondents.

But, it deserves to note that there young people who have diet restrictions that they have to respect. For this reason, there were identified the following aspects regarding the restrictions of a few types of food imposed by health problems of the respondents: 19.36% of people (43) eat foods low in carbohydrates, 6.30% (14 people) do not eat gluten foods,

and 4.95% (11 people) do not eat lactose products due to lactose intolerance (Figure 3). In the choice of food, young people pay attention to sugar content 64.86% (144 people), 59% (131 people) to the presence of genetically modified organisms, 54% (120 people) to additives, 53.60% (119 people) to food preservatives, 52.7% (117 people) to the number of calories, 50% (111 people) to the salt level (Figure 4).

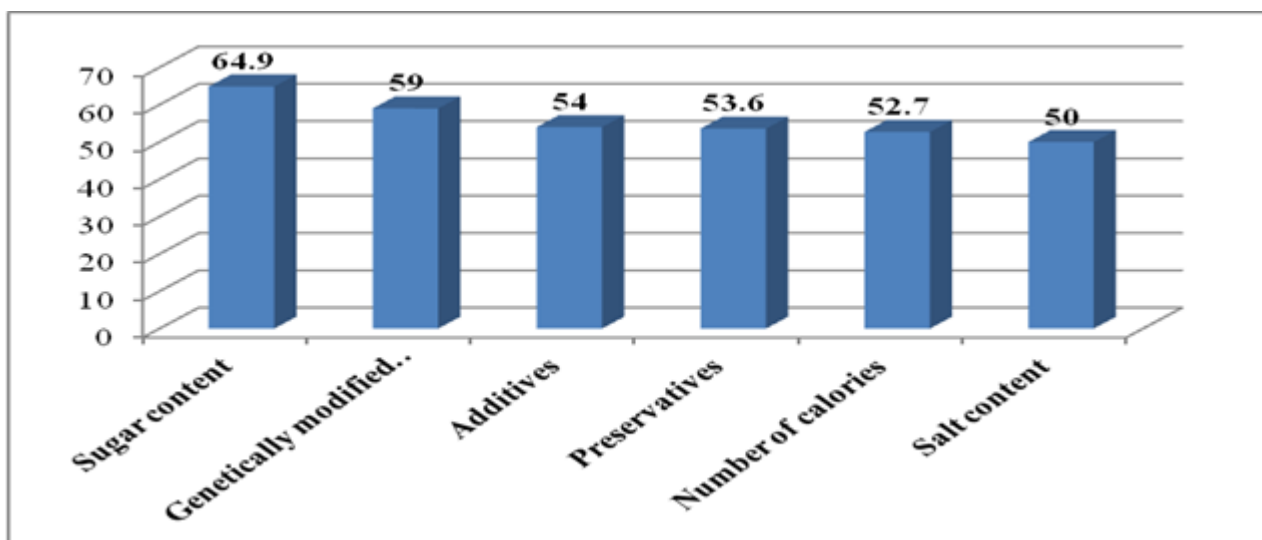


Fig. 4. The share of respondents who pay attention to various aspects of food quality  
 Source: Own results and design.

### Behavioural changes during the Covid 19 pandemic and the main aspects of life

The Covid 19 pandemic did not cause major changes in young people's eating habits, with 56.8% of respondents stating that they had not changed their diet in the last 12 months. At

the same time, 24.2% of young people resorted to a low-calorie diet, and 16.3% chose to eat more fresh fruits and vegetables. Only 2.7% of those surveyed said they follow a lacto-vegetarian diet (Fig. 5).

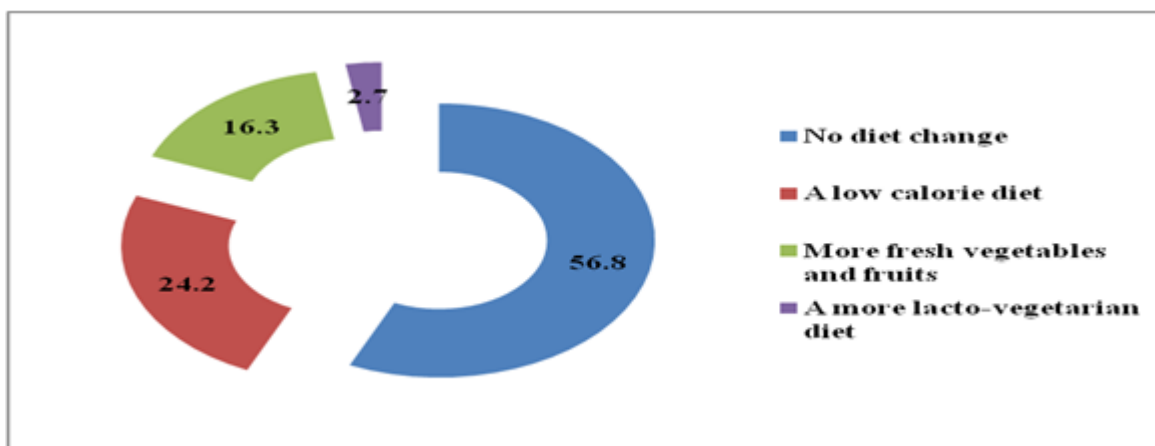


Fig. 5. Respondents' changes in food preference during the Covid-19 pandemic  
 Source: Own results and design.

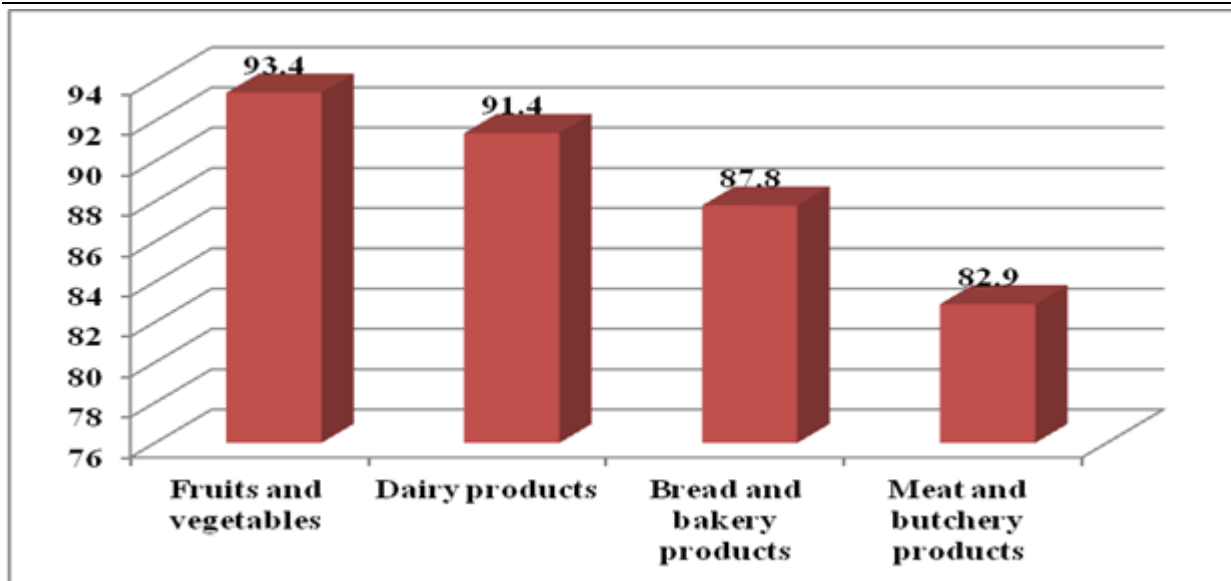


Fig. 6. Respondents' answers regarding food consumed on a regular basis  
 Source: Own results and design.

The main categories of food consumed by young people on a regular basis are: fruits and vegetables 96.39%, dairy products (91.44%), bread and bakery products (87.83%), meat and butchery products (82.88%) (Fig. 6).

The young people surveyed are not used to ordering food online.

The exception is cooked food, which was ordered online in the last 12 months by 41.89% of respondents.

It is noted that 58.1% of respondents stated that they have not ordered food online in the last 12 months, trying to cook at home.

The main general objectives for the life of young people are presented in Figure 6, these

being: to have a comfortable and respectable life (61.7%), to have a happy relationship (43.7%), to be successful (42.3%), to advance in a career (41.4%) and learn new things (37.4%) (Figure 7).

The current Covid 19 pandemic has caused changes in everyone's behaviour. The young people surveyed stated that: they reduced their interaction with others (63.10%), they felt stress and anxiety (32%), they cancelled or changed their holiday plans (42.8%) and they tried to spend less (36.5%), developed more open air activities (sport, walking etc) an intensified virtual communication on mobile phones (Fig. 8).

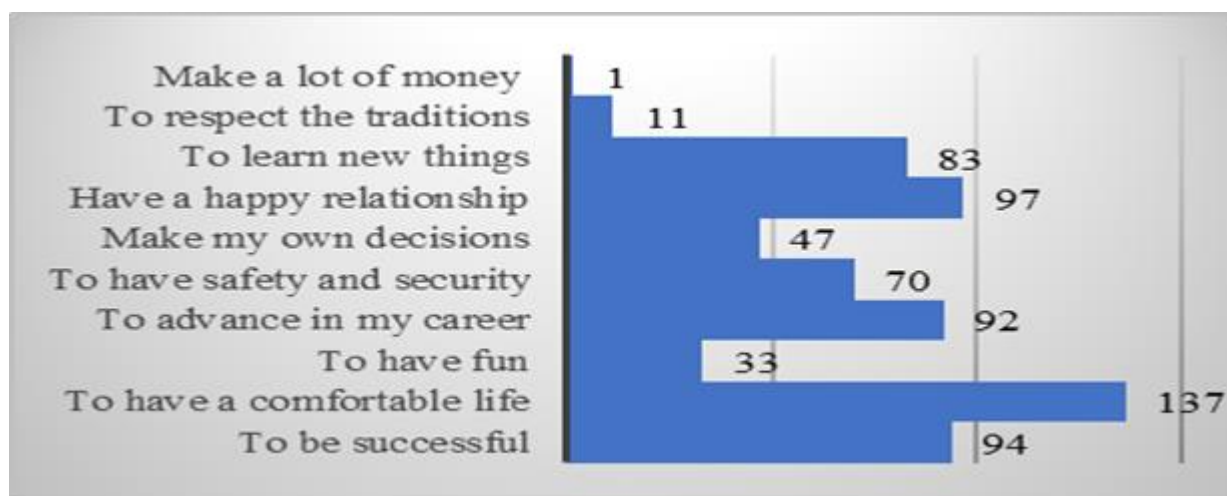


Fig. 7. The general goals of young people for life (n = 222)  
 Source: Own results and design.



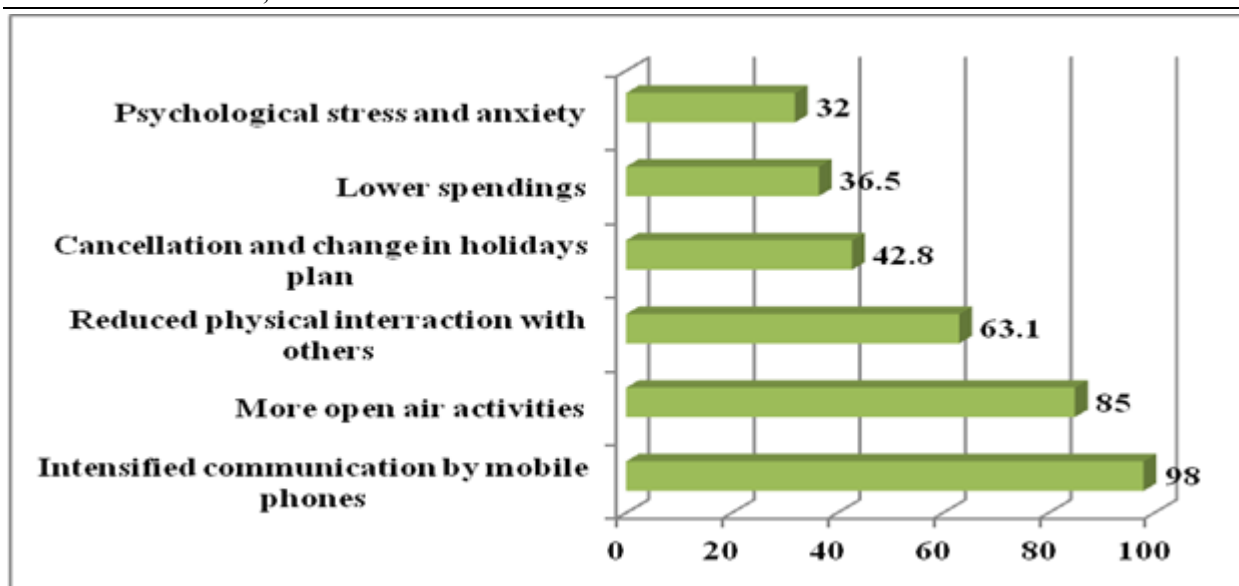


Fig. 8. The effects of Covid-19 on young people different aspects of life

Source: Own results and design.

Only 37.4% of respondents made more purchases online than before the pandemic, and 23% of them perceived that their financial situation had worsened.

## CONCLUSIONS

This paper summarizes the information on the identification of existing short food chains in Sibiu County, Romania and the attitude of young people towards food and a healthy lifestyle. The two objectives are in line with European Union documents (European Union Green Pact, Farm to Consumer Strategy, Biodiversity Conservation Strategy) and the United Nations 2030 Sustainable Development Goals.

The main organizations identified in Sibiu County that support local food systems and short food supply chains are: Sibiu County Council, Mountain Area Agency - Sibiu branch, Food Hub, Adept NGOs, "Mihai Eminescu Trust", My Transylvania and Producers Association of traditional products "Mărginimea Sibiului".

The following types of short food supply chains have been identified in Sibiu County: weekly producers' markets, farms open to visitors,

"Road market" mobile phone application, gastronomic events organized in the "Country Fair" from the Open-Air Museum in

Dumbrava Sibiului, gastronomy festivals, delivery of products to the consumer's door, educational themed trails, producers' shops, Food Hub Sibiu, local gastronomic points, shops of local processors, pages on social networks, projects to promote local producers, local owned brands, product registration on national and European quality schemes.

Short food chains need to be flexible and responsive to new food trends. They help reconnect the consumer with the food source, adding value to the food and building trust. Food quality, provenance, freshness, taste, flavour, traceability, and reliability are a mix of factors that consumers make decisions about when buying food in short food chains.

Young people have a positive attitude towards food and a healthy lifestyle, demonstrated by their care for food composition, emphasis on a diet based on fresh fruits and vegetables, local products and reduced meat consumption. Quite a few young people are accustomed to ordering food online, and if they choose to do so, they order cooked food. Most stated that during the current Covid 19 pandemic they reduced their interaction with others and felt stress and anxiety. Young people want to have a comfortable and respectable life, happy relationships, success and to advance in their career.

The limitations of this study are given by the size of the sample of respondents, which does

not specifically represent the eating habits and attitudes of young consumers in Romania.

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