

## Article

# The Impact of Lifestyle on Individual's Perception of Urban Agriculture

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**Abstract:** Urban-farming activities can provide durability to an area, ensuring, among other benefits, environmental awareness, access to fresh food, individual health, and, potentially, an increased family income. The purpose of this study was to investigate the correlations between the following benefits of urban agriculture perceived by the inhabitants of western Romanian towns: socialisation and recreation and the avoidance of food waste with their levels of education and financial situations. The data were collected through an online questionnaire, completed by 648 respondents, and processed in SPSS-IBM using an analysis of variance (ANOVA) and a Tukey interval test. The study results demonstrated that a high level of education leads to increased belief in the contributions that urban farming makes to improving the socialisation and recreation of city residents. The income level also significantly shapes opinions regarding the contribution of urban agriculture to the increase in recycling. This study reflected critical lifestyle perspectives that impact people's perception of the benefits of urban agriculture. The findings are expected to provide new insights for regulators and decision-makers, enabling them to develop tailored methods, strategies, policies, and legal measures to achieve sustainable growth in the urban community.

**Keywords:** education level; fresh nourishment; homemade cuisine; family income; leisure and socialising

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## 1. Introduction

Urban agriculture has emerged as a multifaceted solution to the challenges of modern cities, offering benefits such as improved food security, enhanced community engagement, and increased environmental sustainability. This study, conducted in western Romania, investigated the impact of lifestyle factors on the perception of urban agriculture's benefits among city dwellers. The research focused on two key aspects: the relationship between education levels and views on urban agriculture's contribution to socialisation and recreation and the influence of income levels on perceptions of urban agriculture's

potential to reduce food waste. This study aimed to provide valuable insights for policy-makers and urban planners seeking to implement sustainable urban agriculture initiatives by examining these correlations.

This study aimed to expand the knowledge of the sustainable growth of town communities by adding new, relevant, and valuable information for regulators and decision-makers. The information is derived from this assessment of the impact of lifestyle on individuals' perception of urban agriculture. Factors such as education level and income background, which incorporate aspects of an individual's lifestyle, were analysed to the interviewees' visions for implementing particular aspects of urban agriculture (improving socialisation and recreational elements, decreasing food waste, and increasing the resilience of the local economy by engaging in enterprising activities).

### *1.1. Urban Agriculture and Its Place in a Challenged Society*

Every community has specific characteristics, regardless of whether it is rural or urban. These are mainly determined as the community evolves based on geographic, anthropological, historical, and socioeconomic factors, each leaving its mark on their distinctive way of life. Independently of other factors, all past, present, and future actions are focused on ensuring a community's sustainable development.

Urban agriculture, i.e., cultivating food within metropolitan areas and their surroundings, has become a multifaceted solution to various urban challenges. It carries a multitude of benefits, including, but not limited to, improved food security, heightened community engagement, and bolstered environmental sustainability [1]. The practice has roots in ancient civilisations, such as Mesopotamia, Ancient Egypt, and the Aztecs, and has a rich historical significance. During World Wars I and II, the "Victory Gardens" concept further underscored the enduring relevance of urban agriculture. The modern resurgence of urban agriculture, which began in the 1970s, continued to evolve with innovative approaches, such as vertical farming and rooftop gardens (The Green Conspiracy, 2018; History of Urban Agriculture, 2019).

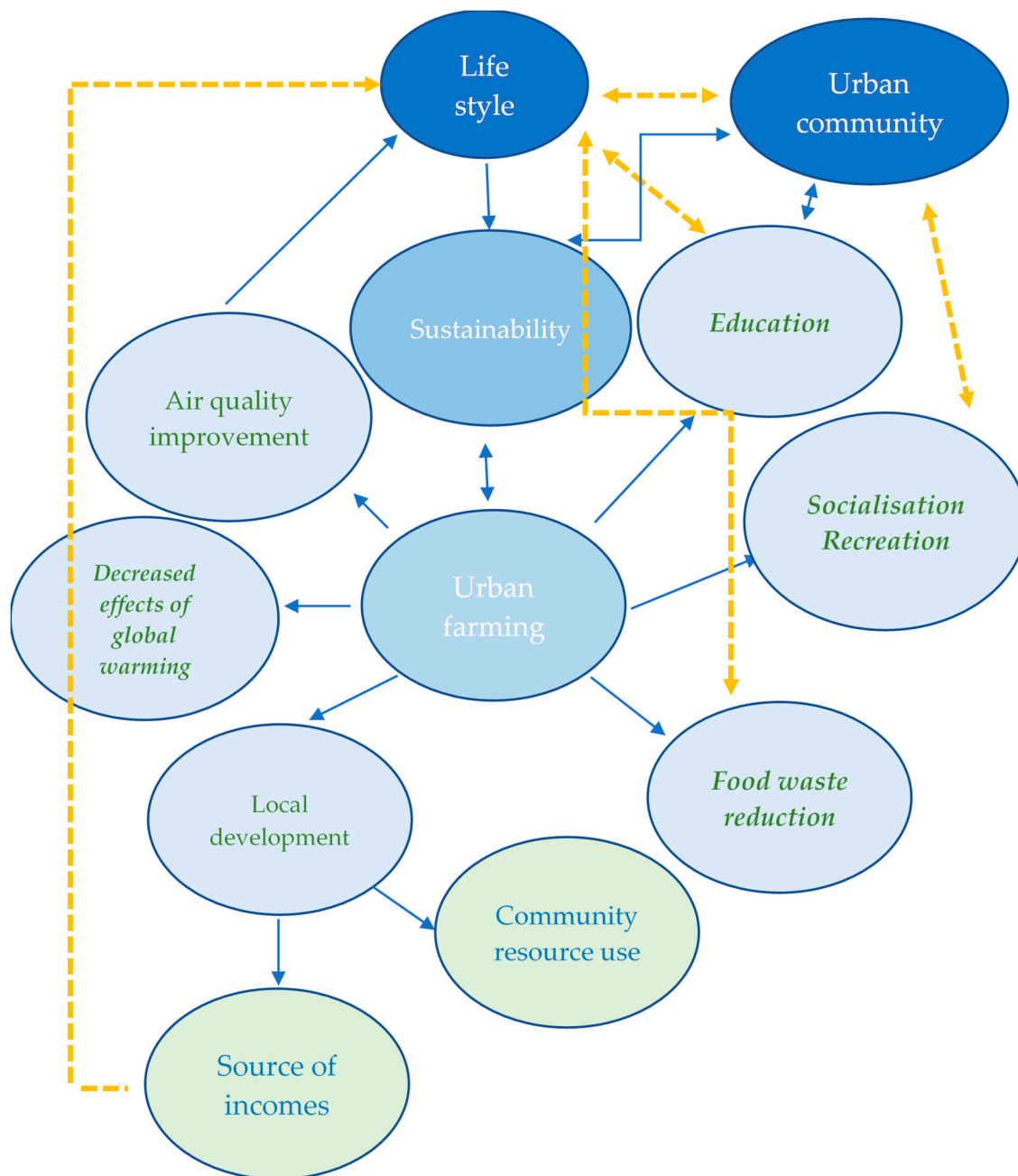
Urban agriculture is a versatile practice encompassing a variety of techniques, each tailored to the specific conditions and opportunities that are found in urban areas. Community gardens, for instance, facilitate collective cultivation, promoting social bonds and enhancing local food accessibility [2]. Meanwhile, rooftop gardens and farms efficiently use underutilised urban spaces, optimising land usage. Advanced technologies in vertical farming systems enable high-yield production within restricted areas. These diverse urban agriculture approaches yield food and educate communities about sustainable practices and nutrition [3]. Urban agriculture initiatives significantly contribute to local food systems and urban sustainability, from modest backyard gardens to larger-scale commercial endeavours.

Engaging in urban agriculture yields a host of benefits. It encourages community cohesion and social connections, provides valuable educational opportunities, and promotes health and wellbeing [4–6]. Urban farms and gardens also serve as cultural exchange and preservation centers, creating diversity and traditions [7]. Urban agriculture has economic and environmental benefits, including job creation, reduced food transportation costs, and improved resource usage. It also supports biodiversity and climate resilience [8], mitigating urban heat island effects and enhancing air quality. Figure 1 highlights the possible synergetic interconnections and dependencies that can be established at the urban community level. The graph has two organisational ranks marked with specific arrow types. First, the main advantages of urban-farming activities are marked in blue. Double arrows emphasise the two-way connections that can be formed in a city dedicated to a sustainable approach, accomplishing this objective through urban agriculture,

as can be observed in Figure 1. The associations between the discussed concepts and citizens' lifestyles are viewed as the second stage, highlighted with yellow discontinuous lines. We focused on particular aspects of these dynamics in this study.

Education and income levels determine a community's way of living [9,10]. Their specific customs will directly contribute to ensuring local sustainability. Between these variables, there are potentiating or diminishing influence relationships. Recent studies demonstrate that education significantly impacts an individual's life [11,12]. An increasing amount of research interest is directed toward understanding the impact of individuals' educational attainment on their income levels and lifestyles. Empirical studies have shown that lifestyle and educational attainment are closely linked because education influences individual choices and behaviours. Individuals with the highest level of education, tertiary education, make healthier lifestyle choices, and associations between education, health, and healthy behaviours have been reported. For example, research by Kari J.T. et al. (2020) identified positive relationships between educational attainment and physical activity. The study's results suggested that education may lead to more physically active lifestyle choices and a better health status for individuals [13]. Educational differences are reflected in a wide range of impacts, from the gap in knowledge and skills between highly educated and less educated individuals to healthy behaviours, health information, and action potential. Therefore, lifestyle and educational attainment are correlated in that highly educated individuals are interested in a healthy lifestyle and choose healthy behaviours, as opposed to less educated individuals who, according to the existing research, generally report poorer health [14].

Individuals' poor educational attainment is generally linked to a low financial income, limiting their access to healthy choices, which are more expensive than unhealthy alternatives. Healthy eating and physical activity at clubs, which entail additional expenses for memberships and sports equipment, are both costly. Such a situation potentially creates a vicious circle, where low educational levels lead to low financial incomes, making healthy choices and a healthy lifestyle impossible. Ultimately, for these people, there is an increased risk of poor health, both because of the lack of access to healthcare due to financial obstacles and because of a lack of information and a greater focus on problem-solving. In addition, there is a crucial lack of proper education for a healthy lifestyle. Therefore, the level of education and financial income have a significant influence on individuals' lifestyles.



**Figure 1.** The interdependences between urban community customs and urban farming. The blue arrows indicate the main functions of urban agriculture and its possible contribution to sustainable city community development, considering some general lifestyle elements based on the information presented in the literature. The orange arrows highlight the aspects discussed in this study, particularly certain socioeconomic factors that may impact city dwellers' perceptions of urban agriculture's role in developing sustainable towns.

Urban agriculture is gaining global traction, propelled by several driving forces, such as the need for food security and the quest for environmental sustainability. This trend significantly influences the lifestyles of practitioners, as it actively promotes the adoption of sustainable living practices and fosters community engagement. However, challenges exist due to high initial costs and the need for appropriate mechanisation to improve productivity [15].

Food security and self-sufficiency are primary motivators for urban agriculture, particularly in regions with unstable food supply chains. Despite challenges such as unclear legislation and high resource costs, urban farming in Latvia is perceived as a means to address the food needs of households [16]. This perspective transcends basic sustenance needs, as middle- and high-income urban farmers in Mumbai use agroecological farming methods to produce local, organic food [17]. The focus on self-sufficiency meets immediate food requirements and fosters a sense of autonomy and resilience within the urban community.

Urban-farming practices have a significant impact on environmental sustainability, primarily through the reduction in food miles and the promotion of organic cultivation methods. In Montreal, users of community-supported agriculture often embrace more ecologically conscious behaviours, such as utilising non-motorised transportation to collect produce. This shift toward sustainable practices extends beyond food production, influencing broader lifestyle choices and fostering a reconnection with nature. Socially, urban agriculture catalyses community engagement and cohesion [18]. Allotment gardens in Andalusia exemplify this, supporting social sustainability by enhancing community relations and promoting environmental initiatives [19]. These spaces facilitate shared activities and collective decision-making, creating a sense of belonging and shared purpose among urban dwellers. The practice also fosters the exchange of knowledge and intergenerational learning, thereby contributing to the social cohesion of metropolitan areas.

As a practice, urban agriculture yields substantial health benefits, encompassing both physical and mental wellbeing. Engagement in gardening provides avenues for physical exercise, stress reduction, and access to fresh, nutritious produce. In Anuradhapura, Sri Lanka, urban agriculture is intricately linked to spiritual and physical wellbeing, integrating agricultural practices with the sacred landscape to promote holistic health [20]. From an economic standpoint, urban farming can serve as a viable livelihood strategy, particularly in regions with significant economic disparities. It holds the potential to mitigate food expenses and generate supplementary income, presenting an attractive option for urban residents seeking to improve their financial circumstances [21].

The practice of urban agriculture is intricately interwoven with the daily routines of urban dwellers, significantly shaping their interactions with the surrounding environment. In Anuradhapura, Sri Lanka, agricultural activities seamlessly coexist with spiritual experiences, creating a distinct "performing system" that engages individuals with the topography and sacred landscape of the city [20]. This cohesive integration goes beyond food production, fostering a comprehensive approach to urban living that encompasses physical, mental, and spiritual wellbeing. Urban farming demonstrates adaptability to specific urban contexts, reflecting practitioners' diverse lifestyles and preferences. In Baeza, Spain, urban allotments are tailored to support sustainable city development, addressing local needs and conditions [19]. Nevertheless, the assimilation of urban agriculture into daily life does present challenges. For instance, new COVID-19-era users in Montreal often integrate produced pick-ups into car-based trips due to the weight of large baskets and set collection times [18].

### *1.2. Urban Agriculture as a Lifestyle*

Lifestyle is a concept that has "made history" in recent decades, particularly in discussions at the everyday, economic, and political levels and in the scientific approaches that are utilised in research, studies, articles, and reports. In this context, "lifestyle" receives particular attention and visibility [22].

Currently, the concept has acquired a broader meaning, so it is now considered to refer to the specific way of life of people and groups in a geographical, economic, religious, and cultural area [23], with particularities, influences, and interdependencies from the

personal to the global level [24]. It should be noted, however, that the terms lifestyle and way of life, although they have similar meanings and both refer to aspects that make up and characterise the life of a person/collective or their organisation to meet their material and spiritual needs, the two concepts are not identical. Way of life generally refers to the objective aspects of life, i.e., to the material, economic, and social conditions of people's lives, such as the nature of work, housing, professional qualifications, and the traditions and culture of the society that they are part of [25]. In this respect, a distinction can be made between a way of life that is specific to urban areas and one that characterises rural agrarian communities. Lifestyle refers to the individual, subjective aspect of how a person chooses to live their life. It is the life strategy that a person opts for, based on certain beliefs and world views, based on which they make different choices and decisions on how to behave, act, and protect their health. These choices also include the risks that the person takes. Lifestyle, therefore, reflects a person's attitudes, beliefs, and actions.

Lifestyle and its constituent actions contribute significantly to psycho-physical health and human longevity. In contemporary society, studies have highlighted that certain aspects of the modern lifestyle can negatively affect an individual's health status [26]. Thus, in recent decades, lifestyle has been increasingly discussed and promoted as an essential factor of health and wellbeing, a context in which the concept of a "healthy lifestyle" emerged. The relationship between lifestyle and health is being increasingly addressed as significant changes have occurred in the lives of members of different communities. Malnutrition, alcohol consumption, and an unhealthy diet based on fast food products or intensively cultivated agricultural/vegetable products with the use of substances that are toxic to the human body are typical parts of an unhealthy lifestyle [23]. WHO studies show that 60% of the factors affecting an individual's health and quality of life are correlated with their lifestyle. This evidence from recent research is especially significant when considering that parents' healthy or unhealthy lifestyle practices are passed on to future generations. Recent studies illustrate that if the mother of a child aged 0–3 years has a healthy lifestyle, the child is 27% more likely to adopt the same lifestyle [27,28]. Recognised lifestyle risk factors include smoking, an unhealthy diet, a lack of exercise, and high alcohol consumption.

Individuals increasingly express an interest in a healthy lifestyle with all its benefits, including home cooking and using organic and unprocessed plant products from local producers. Urban living, the barriers to sourcing unprocessed plant products, the costs/waste, and people's desire to practice a healthy lifestyle have led to the development of another concept, namely "urban agriculture". From one point of view, urban agriculture is an extension of traditional agriculture. To a certain extent, it can be understood as a kind of substitute for it in a different setting.

Changing eating habits to achieve a healthy lifestyle is a concern not only at the individual level but also at the level of communities or states. For example, Canada's Food Guide has been developed, providing a healthy eating model that most adults could adopt [29]. The concept of a healthy lifestyle also appears to be supported by the health status of older adults in hunter-gatherer populations [26].

However, as well as diet, a healthy lifestyle entails other variables: exercise, as some studies show a link between an active lifestyle and happiness [30,31]; sleep and rest, as there is a reciprocal influence between sleep and health; socioeconomic factors, such as education, income, and social status; social influences, such as groups of friends and family, which can significantly influence an individual's lifestyle; and new technologies and online environments, which can lead to sedentary lifestyles. Healthy lifestyles can, therefore, vary from culture to culture or be adapted from person to person and are generally associated with disease prevention and desired longevity. As parents, we consider it essential to be aware of passing on our eating habits and lifestyle to the next generation.

## 2. Theoretical Background and Research Hypotheses

This study provides a comprehensive overview of how the practice of urban agriculture is becoming increasingly relevant in modern urban development. As cities expand at an unprecedented rate, particularly in developing countries, the importance of urban agriculture is rising, especially as it can address pressing food security challenges that are faced by densely populated areas [32]. Urban farming is not merely a trend; it is emerging as a viable strategy for enhancing climate resilience in urban environments. By incorporating agricultural practices within city limits, urban farming helps mitigate the detrimental effects of extreme weather events. It significantly reduces the carbon footprint associated with long-distance transportation of food products.

This study's emphasis on urban agriculture is closely linked to several key United Nations Sustainable Development Goals (SDGs). Notably, it aligns with SDG 2 (Zero Hunger), which aims to end starvation and ensure food security and improved nutrition. It also relates to SDG 11 (Sustainable Cities and Communities), which focuses on making cities inclusive, safe, and sustainable, and SDG 13 (Climate Action), which addresses the necessity of combating climate change through innovative solutions [33].

Integrating advanced technologies, such as precision agriculture, Internet of Things (IoT) devices, and artificial intelligence (AI) into urban farming represents a significant shift toward a digital transformation in the agricultural sector [34]. This transformation is expected to become even more prevalent by 2025, enhancing productivity and efficiency in urban-farming practices.

Furthermore, urban agriculture's ability to recycle organic waste and minimise food waste aligns with the growing emphasis on circular economy models. These models prioritise sustainability by reusing and repurposing materials, thus reducing overall waste and promoting environmental responsibility [35]. This article also underscores the critical importance of fresh produce availability in urban settings, linking it to the rising focus on health and nutrition among urban populations, who often face challenges in accessing affordable and nutritious food options.

In addition to addressing health concerns, urban agriculture presents substantial opportunities for job creation and entrepreneurial ventures in cities. It is pivotal for diversifying urban economic models, which is essential in a rapidly changing global economy. The potential for individuals to engage in urban farming provides food security and stimulates local economies by fostering innovation and supporting small businesses [36].

Finally, focusing on sustainable farming practices within urban settings complements the broader trend towards regenerative agriculture and sustainable food systems. These practices contribute to environmental sustainability and enhance community well-being and resilience. By thoroughly addressing these critical issues, this article offers valuable insights into how urban agriculture could shape the future landscape of cities, redefine food systems, and promote sustainable development in the years to come [37].

The awareness of the repercussions of human activities on the environment is increasing. These activities are modified to model the values on which the inhabitants of different regions' lifestyles are built [38]. Developing a sustainable living environment also implies adapting to new living conditions and the shifting feasibility of different practices from one environment to another.

Considering these premises, the novelty of the present research is that it examines the views of town inhabitants, who have a particular lifestyle, concerning the possible gains of performing farming activities in city areas that these inhabitants bring up. Their education level and income background were considered to understand better the possible relations and factors impacting the interviewees' visions for implementing particular aspects of urban agriculture. The investigation was initiated based on two hypotheses to explore the potential associations between city dwellers' social status and their views on

the advantages of urban agriculture activities at the community [2] and environmental levels [39]. Several previous studies have highlighted the significant benefits of such actions [40]. The willingness of implication and perceptiveness could be conditioned by factors such as education [41] and/or financial status [42,43].

H1 assumes that the respondents' education levels significantly influence their opinions regarding the contribution of urban agriculture to improving the socialisation and recreational aspects of urban life.

H2 supposes that the respondents' income levels influence their opinion on whether urban agriculture contributes to decreasing food waste.

To the best of authors' knowledge, in Romania, little research has been conducted on this topic, especially research that incorporates the economic and social aspects of lifestyle and the perspective that they offer on the particularities of the implementation of urban agriculture that is oriented toward the sustainable growth of the town community (improving the socialisation and recreational aspects, decreasing food waste, and increasing the resilience of the local economy by engaging in enterprising activities). Therefore, this study is significant, since it contributes to the limited prior research in Romania on urban agriculture as a lifestyle element.

### 3. Materials and Methods

This study empirically evaluates two independent variables that are associated with a particular lifestyle, which arises from the economic and social aspects of human existence in urban environments. To investigate the influence of lifestyle on individuals' vision regarding the implementation of urban agriculture, we used the independent categorical variables of education level and family income. We chose these variables because active participation in the educational process of the adult population is essential for building a sustainable and competitive local/regional economy. Additionally, the level of family income, as reflected by a high rate of activity of labour resources, practically denotes an active lifestyle in which an individual is dedicated to the community and open to new challenges.

The survey was conducted using Google Forms, and the instrument utilised was a sociological questionnaire. The sampling procedure used in this study was non-random and non-probabilistic, with independent quotas [44]. A five-point Likert scale was used for four of the questions to quantify the probability that respondents agreed or disagreed with the assertion. In the other two questions, the periodicity of specific actions was assessed based on a five-point scale [45]. The responses were anonymous, and no personal data were collected. The participants voluntarily participated in this scientific work.

The fault we considered was  $\pm 5\%$ , with 95% feasibility and optimum dispersion. The questions referred to different characteristics of a town's residents and their impact on their individual views on urban agriculture. The attention was mainly directed toward identifying and establishing the lifestyle-specific factors of a city dweller engaged in urban agriculture. The questions were simple and direct, requesting that respondents choose a single option from the list. The inputs were statistically analysed using the IBM SPSS Statistical Standard, provided by IBM Corp.

The variance analysis and differences between groups were determined because we only aimed to highlight whether perceptions differed between groups, taking the educational and income levels of the respondents into account. As this was an initial study, it was intended to be based on a simple model. Considering that the sample was sufficiently large, the assumptions of normality were respected. The differences between the various media were evaluated based on linear modeling, which was returned using the ANOVA methodology. Further, the significance between the groups was reviewed using the Tukey



test. The default ANOVA was the full factorial model used here because fewer than five factors existed.

Analysis of variance tests the hypothesis that the group means of a dependent variable are equal. The dependent variable of this study (perception of the benefits of implementing urban agriculture activities: socialisation and recreation or the avoidance of food waste) was interval-level, and two categorical variables defined the groups (education, family income). These categorical variables were termed factors. Once we had determined the differences between means, post hoc range tests and multiple pairwise comparisons were used to determine which means differed. Comparisons were then made based on the unadjusted values. In the present study, we tested several pairs of means using the Tukey test, which is more powerful than the Bonferroni test. Moreover, the Tukey test allows for detecting homogeneity subsets, which other tests do not. It is a multiple comparison test that uses the standardised interval statistic to carry out pairwise comparisons between groups. It sets the experiment-wise error rate to the error rate to collect all pairwise comparisons [46].

#### 4. Results and Discussions

This study was conducted in the spring of 2024 with 648 registered and validated respondents. Their socio-demographic characteristics are presented in Table 1. The family's income level reflects the interviewee's evaluation of their status.

**Table 1.** Interviewees' socio-demographic characteristics.

Feature	Category	Share [%]
Education Level	Primary school	1.22
	Gymnasium	0.00
	Vocational school	3.05
	High school	3.66
	Post-secondary	1.83
	Higher education	90.24
Family Income	Not enough for necessary items	1.83
	Only enough for necessary items	6.71
	Enough for a decent living	41.46
	Occasionally, we manage to buy some more expensive things	15.85
	We always have everything we need	34.15

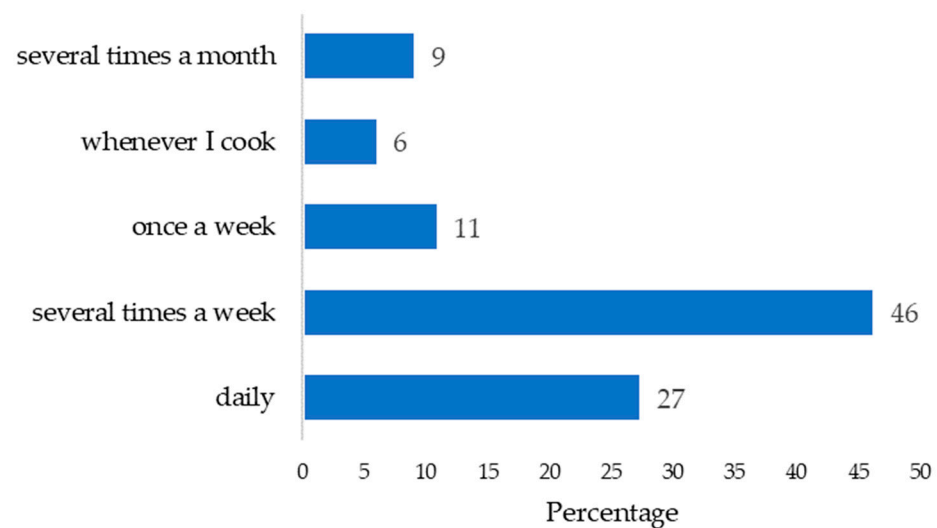
Source: Data from field questionnaires, 2024.

From Table 1, we can see that most respondents have a higher education (90%). For the majority, their monthly income ensures an adequate lifestyle. These two situations could have a synergetic dependency, a fact that has been highlighted in several recent investigations [47–50]. An additional link is the opportunity to benefit from schooling services in finances [51].

##### 4.1. Evaluation of the Respondents' Frequency of Cooking Homemade Food

One of the primary attributes of urban agriculture is the provision of fresh, safe [52] products for town citizens [53], thus contributing to the sustainable development of towns [54]. Homemade food has been proven to have a linked dependency on family income [55], the preferred source of raw products, and/or a person's age range and educational level [56]. Considering these premises, we evaluated the respondents' frequency of preparing different dishes using locally produced and unprocessed goods. It was observed that 46% of respondents used fresh ingredients from local producers several times a week,

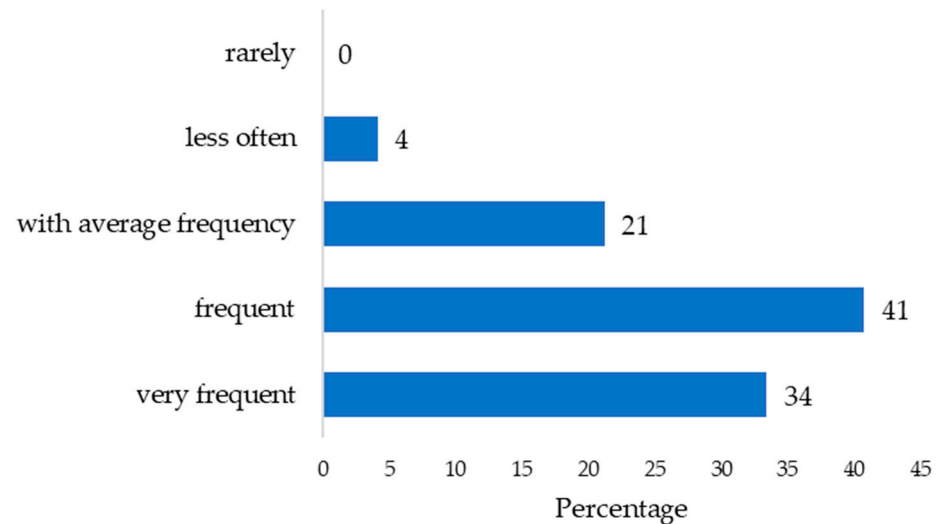
and 27% used these ingredients daily when preparing food at home. It is worth noting that 6% of respondents claimed to use fresh ingredients every time they cook, and 11% only once a week, as shown in Figure 2.



**Figure 2.** Interviewees' predilection for using community-produced green products. Source: Data from field quizzes, 2024.

These results illustrated that urban agriculture, a possible alternative way to obtain fresh ingredients, could have a significant market demand. In this way, town inhabitants' intake of healthy food could also increase since it was proven that accessibility to such products directly influences the periodicity of their consumption [57].

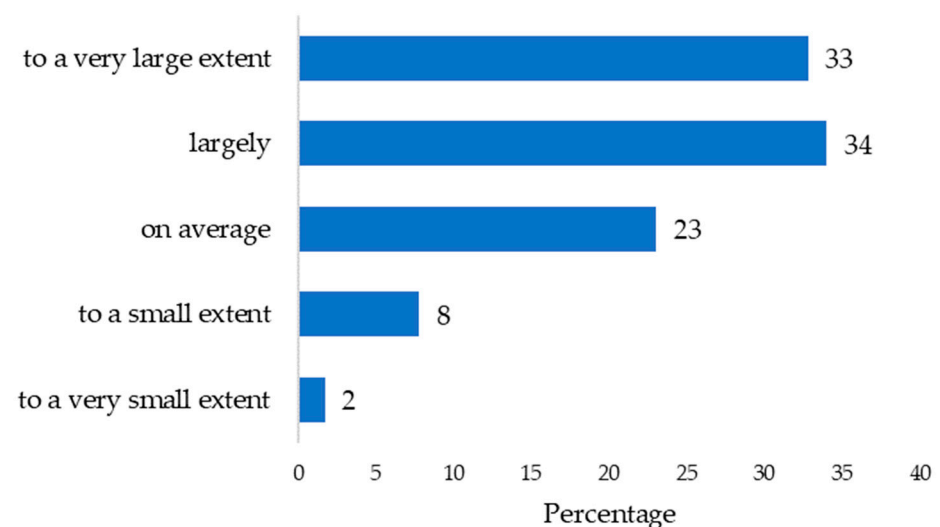
The underlying principles of rural life usually respect the simplicity and naturalness of carrying out all activities in communion with nature, with minimum anthropic interference. Such an idea is also reflected in the nutritional aspects of rural life. The dishes are, most of the time, unlikely to be processed. The emphasis is on the use of fresh products and home-grown vegetables. We also focused on determining the frequency of use of fresh products. The interest in investigating and promoting such habits is based on the current trend of including unprocessed or less-treated goods in the daily diet. The data presented in the literature demonstrate similar practices since such foods have a less negative influence on the environment and determine human preferences [58]. In this study, the respondents mostly claimed that they consumed cereals, vegetables, fruits, and fresh seeds frequently and very frequently, with a percentage of approximately 75%. In comparison, 21% stated that they consumed these foods with average frequency, while others reported consuming this category less often (Figure 3).



**Figure 3.** Interviewees' frequency of using unprocessed vegetables, fruits, and cereals. Source: Data from field quizzes, 2024.

#### 4.2. Evaluation of the Influence of the Respondents' Education Levels on Their Perceptions Regarding Specific Community and Environmental Aspects of Improvement

Aspects relating to recreation and socialisation are elements of reference for the inhabitants of urban environments. Several studies have highlighted the importance of designing recreative environments in metropolitan areas [59,60]. Such spaces increase the citizens' happiness and, simultaneously, their interactional life and sense of membership, engagement, and acceptance [61]. For this reason, we wanted to identify the respondents' opinions and the extent to which they thought urban agriculture could improve socialisation and recreation. Almost an equal proportion (33%, 34%) of respondents believed that implementing urban agriculture activities would improve the socialisation and recreational aspects of the lives of city dwellers from a large to a very large extent. In comparison, 23% believed that to an average extent, and only 8% claimed it would contribute to these aspects to a very small extent (Figure 4).



**Figure 4.** Interviewees' views on the possibility that urban agriculture can influence their socialisation and recreational aspects. Source: Data from field quizzes, 2024.

We based the first hypothesis (**H1**) on the condition that the previously discussed aspects of people's lives could influence their daily choices and views. We argue that the respondents' education levels significantly influence their opinion regarding the contribution of urban agriculture to improving the socialisation and recreational aspects of urban life. The existing literature also underlines an essential correlation between respondents' educational status and opinions on different topics [62,63].

Following the application of the ANOVA test, this hypothesis was confirmed. There were significant differences in opinion depending on the education level regarding the extent to which urban agriculture improves urban life's socialisation and recreational aspects, with  $F = 3.294$  and  $p = 0.011$  (Table 2).

**Table 2.** ANOVA test of correlation between the respondents' educational levels and their evaluation of the contribution of urban agriculture to improving the socialisation and recreational aspects of urban life.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.435	4	3.359		
Within Groups	656.578	644	1.020	3.294	0.011
Total	670.012	648			

Based on multiple comparisons using the Tukey HSD test, there were significant differences in opinion depending on educational level regarding the extent to which urban agriculture contributes to improving the socialisation and recreational aspects of urban life. Thus, those who graduated from a vocational school gave more credit to the contribution of urban agriculture to these previously mentioned improvements compared with those who graduated from a high school, with the mean difference being 0.867, and  $p = 0.038$ .

Those who had a high school education attributed significantly less value to how urban agriculture contributes to the improvement of the socialisation and recreational aspects of urban life compared with those who graduated from a vocational school, with a mean difference of  $-0.867$  and  $p = 0.038$ , compared with those who graduated from higher education: mean difference of  $-0.578$  and  $p = 0.048$ . At the same time, those who graduated from a higher education believed that urban agriculture contributes to improving the socialisation and recreational aspects of urban life and gave it a worse score than those who graduated from a high school: mean difference of 0.578 and  $p = 0.048$ , as shown in Table 3.

**Table 3.** Multiple-comparison Tukey HSD test of the correlation between the respondents' educational levels and their evaluation regarding the contribution of urban agriculture to improving the socialisation and recreational aspects of urban life.

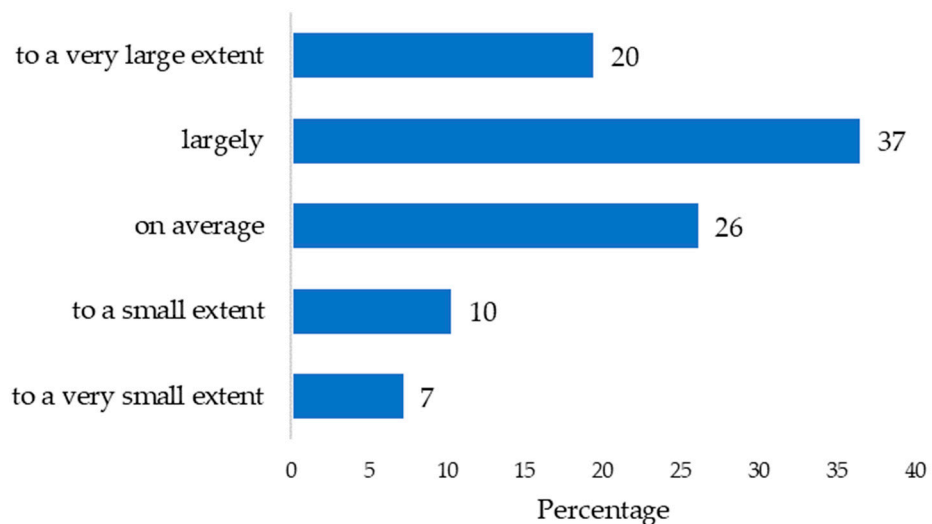
(I) Educational Level	(J) Educational Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Primary school	Vocational school	-0.200	0.422	0.990	-1.36	0.96
	High school	0.667	0.412	0.487	-0.46	1.79
	Post-secondary	0.667	0.461	0.598	-0.59	1.93
	Higher education	0.089	0.359	0.999	-0.89	1.07
Vocational school	Primary school	0.200	0.422	0.990	-0.96	1.36
	High school	0.867 *	0.306	0.038	0.03	1.70
	Post-secondary	0.867	0.369	0.131	-0.14	1.88

High school	Higher education	0.289	0.230	0.717	-0.34	0.92
	Primary school	-0.667	0.412	0.487	-1.79	0.46
	Vocational school	-0.867 *	0.306	0.038	-1.70	-0.03
	Post-secondary	0.000	0.357	1.000	-0.98	0.98
Post-secondary	Higher education	-0.578 *	0.210	0.048	-1.15	0.00
	Primary school	-0.667	0.461	0.598	-1.93	0.59
	Vocational school	-0.867	0.369	0.131	-1.88	0.14
	High school	0.000	0.357	1.000	-0.98	0.98
Higher education	Higher education	-0.578	0.294	0.286	-1.38	0.23
	Primary school	-0.089	0.359	0.999	-1.07	0.89
	Vocational school	-0.289	0.230	0.717	-0.92	0.34
	High school	0.578 *	0.210	0.048	0.00	1.15
	Post-secondary	0.578	0.294	0.286	-0.23	1.38

\*: The mean difference is significant at the 0.05 level.

Of course, people’s lifestyles are determined to some extent by their educational level, and both could indicate their attitude toward different aspects of life. To build on the previous topic, we wanted to investigate the respondents’ approaches and test whether urban agriculture could contribute to an increased recycling yield. Here, the query was based on urban agriculture activities, including home compost production and urban vegetable waste decomposition [64–66].

According to the data presented by RetuRo, a national entity that monitors the level of specific recycling products, the citizens of the towns where the survey was implemented had a significant interest in this procedure. Following the general data presented, the respondents indicated that the implementation of urban agriculture could lead to the benefit of increasing the degree of recycling in their cities to a large extent (37%), on average (26%), and to a very large extent (20%), as shown in Figure 5.



**Figure 5.** Interviewees’ views on how urban agriculture could contribute to recycling-yield increases in urban areas. Source: Data from field quizzes, 2024.

The ANOVA test showed significant correlations, with  $F = 3.375$  and  $p = 0.010$ , when we tried to determine the relationship between the respondents’ views on the benefits of implementing urban agriculture in terms of increasing the degree of recycling in their cities and their levels of education (Table 4). The choice to determine the possible correlation

between the respondents' levels of education and their perceptions regarding certain environmental aspects was based on previous studies [67]. Many of these emphasised the significant amount of knowledge gained through advanced studies can have on individuals' attitudes toward waste reduction through recycling [68]. Besides this element, other factors, such as the accessibility of different recovery mechanisms [69,70], specific legislation [71], or public awareness campaigns [72], could be considered.

**Table 4.** ANOVA test of the correlation between the respondents' educational levels and Their opinions regarding the contribution of urban agriculture to increasing recycling activities.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.292	4	4.323		
Within Groups	824.926	644	1.281	3.375	0.010
Total	842.219	648			

Following the Tukey HSD multiple-correlations test, it was demonstrated that the respondents who had a primary school education responded with significantly higher positive values than the group of respondents who had post-secondary education regarding the extent to which they appreciated the benefits of implementing urban agriculture in terms of increasing the degree of recycling in the city, with a mean difference of 1.833 and  $p = 0.004$ .

The responses of respondents who graduated from a post-secondary school and those who graduated from primary school were contrasting. The latter group assigned significant negative values regarding the extent to which they appreciated the benefits of implementing urban agriculture in terms of increasing the degree of recycling in the city, with a mean difference of  $-1.833$  and  $p = 0.004$  (Table 5).

**Table 5.** Multiple comparisons Tukey HSD test of the correlation between the respondents' educational levels and their evaluation regarding the contribution of urban agriculture to increasing the amount of recycling.

(I) Educational Level	(J) Educational Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Primary school	Vocational school	0.900	0.473	0.318	-0.40	2.20
	High school	1.167	0.462	0.086	-0.10	2.43
	Post-secondary	1.833 *	0.517	0.004	0.42	3.25
	Higher education	0.985	0.403	0.105	-0.12	2.09
Vocational school	Primary school	-0.900	0.473	0.318	-2.20	0.40
	High school	0.267	0.343	0.937	-0.67	1.20
	Post-secondary	0.933	0.413	0.160	-0.20	2.06
	Higher education	0.085	0.257	0.997	-0.62	0.79
High school	Primary school	-1.167	0.462	0.086	-2.43	0.10
	Vocational school	-0.267	0.343	0.937	-1.20	0.67
	Post-secondary	0.667	0.400	0.456	-0.43	1.76
	Higher education	-0.181	0.236	0.940	-0.83	0.46
Post-secondary	Primary school	-1.833 *	0.517	0.004	-3.25	-0.42
	Vocational school	-0.933	0.413	0.160	-2.06	0.20
	High school	-0.667	0.400	0.456	-1.76	0.43
Higher education	Higher education	-0.848	0.330	0.077	-1.75	0.06
	Primary school	-0.985	0.403	0.105	-2.09	0.12

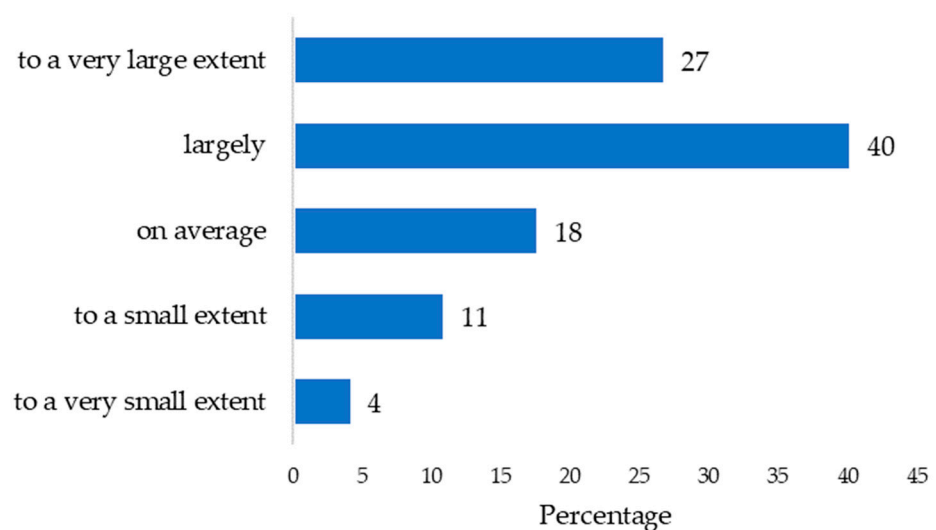
Vocational school	-0.085	0.257	0.997	-0.79	0.62
High school	0.181	0.236	0.940	-0.46	0.83
Post-secondary	0.848	0.330	0.077	-0.06	1.75

\*: The mean difference is significant at the 0.05 level.

#### 4.3. Evaluation of the Influence of Respondents' Income Levels on Their Perceptions of Specific Waste Issues and Local Resilience

Another interesting question relating to the present overall investigation topic and the previous discussion was the respondents' opinions concerning the possible function of urban agriculture as a vector to reduce food waste, which is relevant in the current struggle with the potential causes of climate change. This question was based on the idea that the development of urban agriculture could provide enough fresh produce to change the paradigm of needing to have too many supplies. Additionally, the premise of having a shorter production-consumption chain could contribute to lower prices. Starting from these ideas, we formulated the second hypothesis (**H2**), which presumed that the respondents' income levels influence their opinions regarding the possibility of urban agriculture contributing to decreased food waste.

The respondents' responses were quite surprising because 40% indicated that urban agriculture could lead to a decrease in food waste to a large extent. In comparison, another 27% said it could contribute to this to a large extent (Figure 6).



**Figure 6.** Interviewees' opinions on the possibility that urban agriculture could contribute to decreasing food waste. Source: Data from field quizzes, 2024.

The ANOVA test results indicated significantly different responses, with  $F = 7.342$  and  $p = 0.000$ , from the respondents regarding their family income situation (Table 6). This study considered the possible correlations between the respondents' income levels and their views regarding the possibility of urban agriculture reducing food waste. The investigation of this correlation was chosen based on different studies that underline an inconsistency between the financial status of households and the actual decrease in food waste [73,74].

**Table 6.** ANOVA test of the correlation between the respondents' income levels and their opinions regarding the contribution of urban agriculture to reducing food waste.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.280	4	8.570		
Within Groups	751.748	644	1.167	7.342	0.000
Total	786.028	648			

The Tukey HSD multiple correlations test highlighted the different opinions of the respondents depending on the income group of which they considered themselves to be a part. Those who claimed they did not have enough for necessary items attributed much lower values to the examined measures than all the other income categories and were the most pessimistic regarding food waste. Excluding members of this group, respondents who indicated that their income was sufficient only for necessary items exhibited a mean difference of  $-1.612$ , with  $p = 0.000$ , compared with ones that had enough for a decent living, with a mean difference of  $-0.946$  and  $p = 0.026$ . Regarding the group that could occasionally manage to buy some more expensive products, the mean difference was  $-1.56$ , and  $p = 0.001$ . The mean difference was  $-1.101$ , and  $p = 0.006$  for respondents who always had everything that they needed.

Unlike the previously analysed group, those who claimed only to have sufficient income for necessary items gave numerically positive values compared with all other income groups. This meant that compared with the group that did not have enough for what is strictly required, we observed a mean difference of  $1.612$ , and  $p = 0.000$ . Compared with the group that had enough for a decent living, we obtained a mean difference of  $0.666$  and  $p = 0.002$ . The mean difference in the group that answered that they always had everything they needed was  $0.511$ , and  $p = 0.037$ .

Those who declared to be part of the group with sufficient incomes for a decent living provided significantly increased values compared with those who stated that they did not have enough for necessary items, with a mean difference of  $0.946$  and  $p = 0.026$ . At the same time, the values of their answers were significantly lower than those of the group who stated that their family income only provides them with funds for necessary items, with a mean difference of  $-0.666$  and  $p = 0.002$ .

The group who stated that their income occasionally allows them to buy more expensive products provided significantly higher values than those who stated that their income is not enough for necessary items. Here, the mean difference was  $1.256$ , and  $p = 0.001$ .

The respondents who indicated that they were part of the group for which their income always provides them with everything they need gave higher values than those who claimed that their incomes were not enough for necessary items, with the mean difference being  $1.101$  and  $p = 0.006$ . At the same time, they provided significantly lower values than the group who indicated that their income provided them with just enough for necessary items. The mean difference was determined to be  $-0.511$ , and  $p = 0.037$ , as shown in Table 7.

**Table 7.** Multiple comparisons Tukey HSD test of the correlation between the respondents' income levels and their opinions regarding urban agriculture's contribution to decreasing food waste.

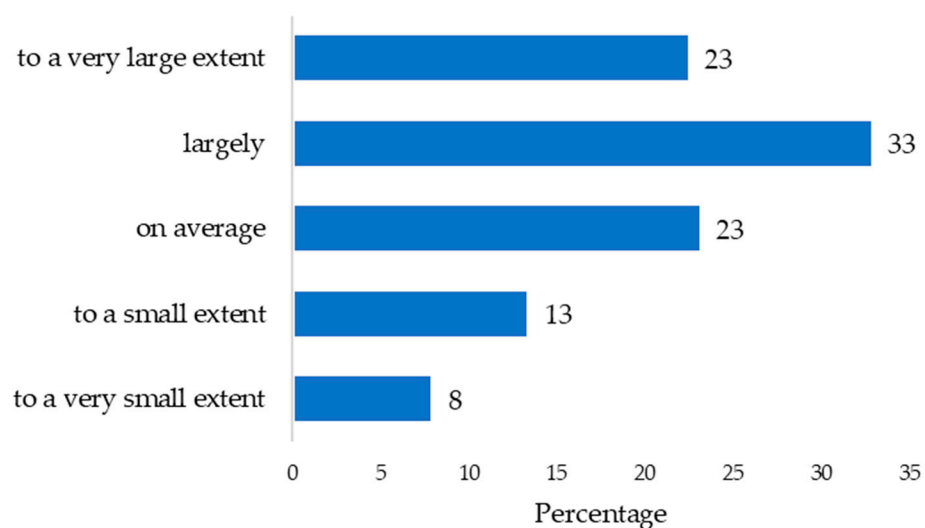
(I) Family Income Level	(J) Family Income Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Not enough for necessary items	Only enough for necessary items	$-1.612^*$	0.353	0.000	$-2.58$	$-0.65$
	Enough for a decent living	$-0.946^*$	0.319	0.026	$-1.82$	$-0.07$



	Occasionally, we manage to buy some more expensive products	-1.56 *	0.329	0.001	-2.16	-0.36
	We always have everything we need	-1.101 *	0.320	0.006	-1.98	-0.23
	Not enough for necessary items	1.612 *	0.353	0.000	0.65	2.58
	Enough for a decent living	0.666 *	0.178	0.002	0.18	1.15
Only enough for necessary items	Occasionally, we manage to buy some more expensive products	0.356	0.196	0.364	-0.18	0.89
	We always have everything we need	0.511 *	0.180	0.037	0.02	1.00
	Not enough for necessary items	0.946 *	0.319	0.026	0.07	1.82
	Only enough for necessary items	-0.666 *	0.178	0.002	-1.15	-0.18
Enough for a decent living	Occasionally, we manage to buy some more expensive products	-0.310	0.125	0.096	-0.65	0.03
	We always have everything we need	-0.155	0.098	0.509	-0.42	0.11
	Not enough for necessary items	1.256 *	0.329	0.001	0.36	2.16
	Only enough for necessary items	-0.356	0.196	0.364	-0.89	0.18
Occasionally, we manage to buy some more expensive products	Enough for a decent living	0.310	0.125	0.096	-0.03	0.65
	We always have everything we need	0.155	0.128	0.745	-0.20	0.51
	Not enough for necessary items	1.101 *	0.320	0.006	0.23	1.98
	Only enough for necessary items	-0.511 *	0.180	0.037	-1.00	-0.02
We always have everything we need	Enough for a decent living	0.155	0.098	0.509	-0.11	0.42
	Occasionally, we manage to buy some more expensive products	-0.155	0.128	0.745	-0.51	0.20

\*. The mean difference is significant at the 0.05 level.

Starting from the idea that producing fresh vegetables and cereals through urban agriculture could contribute to developing small entrepreneurial activities [75], we also wanted to identify the respondents' opinions regarding the possible contribution of such activity to increasing the local economy's resilience by engaging city dwellers in enterprising activities. They proved to be quite optimistic in this regard. Thus, 33% responded that this is possible to a large extent. At the same time, 23% claimed that it was possible to an average and very large extent that implementing urban agriculture would contribute to increasing the local economy's resilience by engaging city residents in entrepreneurial activities (Figure 7).



**Figure 7.** Interviewees' opinions on the possibility that urban agriculture could increase the local economy's resilience. Source: Data from field quizzes, 2024.

Considering that economic activities generate income, the present investigation's next point of interest is related to the possible differences in opinion between the respondents and their financial status. Therefore, we applied the ANOVA test and observed a

significant difference between the income levels of respondents and the extent to which they believed that the implementation of urban agriculture would contribute to increasing the resilience of the local economy by engaging city residents in entrepreneurial activities, with  $F = 9.215$ , and  $p = 0.000$  (Table 8).

**Table 8.** ANOVA test of the correlation between the respondents' income levels and their opinions regarding the contribution of urban agriculture to increasing the local economy's resilience by engaging city residents in entrepreneurial activities.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	50.900	4	12.725		
Within Groups	889.304	644	1.381	9.215	0.000
Total	940.203	648			

The Tukey HSD multiple comparisons test examining the income groups of the respondents indicated a more pessimistic opinion in those who claimed that their incomes were not always sufficient for necessary items, who assigned significantly lower values to the likelihood that the implementation of urban agriculture would contribute to increasing the resilience of the local economy by engaging city dwellers in entrepreneurial activities compared with groups who indicated that their incomes were only sufficient for necessary items. The mean difference was  $-1.698$ , and  $p = 0.000$ . Thus, compared with the group that said they had enough for a decent living, a mean difference of  $-1.320$  was obtained, with  $p = 0.001$ . The mean difference for the group that occasionally bought some more expensive products was  $-1.846$ , and  $p = 0.000$ . The mean difference for the group that always had everything they needed was  $-1.571$ , and  $p = 0.000$ .

From an income point of view, the group who stated that they have only enough for necessary items assigned significantly higher values to the topic discussed compared with those who said that they do not have enough even for essential items. The mean difference was  $1.698$ , and  $p = 0.000$ .

In the group who claimed that their incomes were enough for a decent living, we observed that they assigned a higher score to this measure than the group who claimed that their incomes were insufficient for necessary items; thus, the mean difference was  $1.320$ , and  $p = 0.001$ . At the same time, they assigned lower values than the group who stated that they occasionally manage to buy some more expensive products; the mean difference was  $-0.527$ , and  $p = 0.001$ . The previous group of respondents, who stated that they occasionally manage to buy some more expensive products, assigned a significantly higher score for this measure than the group who reported that they did not even have enough for necessary items, with a mean difference of  $1.846$  and  $p = 0.000$ . This differed from the group stating that they had enough for a decent living, where the mean difference was  $0.527$  and  $p = 0.001$ .

Those who claimed that their incomes were always sufficient and that they had everything they needed always provided higher-value responses than those who claimed that their incomes were insufficient for necessary items. The mean difference was  $1.571$ , and  $p = 0.000$ , as shown in Table 9.

**Table 9.** Multiple comparisons Tukey HSD tested the correlation between the respondents' income levels and their opinions regarding the contribution of urban agriculture to increasing the resilience of the local economy by engaging city residents in entrepreneurial activities.

(I) Family Income Level	(J) Family Income Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval
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					<b>Lower Bound</b>	<b>Upper Bound</b>
Not enough for necessary items	Only enough for necessary items	-1.698 *	0.384	0.000	-2.75	-0.65
	Enough for a decent living	-1.320 *	0.347	0.001	-2.27	-0.37
	Occasionally, we manage to buy some more expensive products	-1.846 *	0.358	0.000	-2.83	-0.87
Only enough for necessary items	We always have everything we need	-1.571 *	0.348	0.000	-2.52	-0.62
	Not enough for necessary items	1.698 *	0.384	0.000	0.65	2.75
	Occasionally, we manage to buy some more expensive products	0.378	0.193	0.288	-0.15	0.91
Enough for a decent living	Occasionally, we manage to buy some more expensive products	-0.148	0.213	0.957	-0.73	0.43
	We always have everything we need	0.126	0.196	0.967	-0.41	0.66
	Not enough for necessary items	1.320 *	0.347	0.001	0.37	2.27
Occasionally, we manage to buy some more expensive products	Only enough for necessary items	-0.378	0.193	0.288	-0.91	0.15
	Occasionally, we manage to buy some more expensive products	-0.527 *	0.136	0.001	-0.90	-0.15
	We always have everything we need	-0.252	0.107	0.127	-0.54	0.04
We always have everything we need	Not enough for necessary items	1.846 *	0.358	0.000	0.87	2.83
	Only enough for necessary items	0.148	0.213	0.957	-0.43	0.73
	Enough for a decent living	0.527 *	0.136	0.001	0.15	0.90
We always have everything we need	We always have everything we need	0.275	0.139	0.282	-0.11	0.66
	Not enough for necessary items	1.571 *	0.348	0.000	0.62	2.52
	Only enough for necessary items	-0.126	0.196	0.967	-0.66	0.41
We always have everything we need	Enough for a decent living	0.252	0.107	0.127	-0.04	0.54
	Occasionally, we manage to buy some more expensive products	-0.275	0.139	0.282	-0.66	0.11

\*. The mean difference is significant at the 0.05 level.

This study employed the analysis of variance (ANOVA) and the Tukey interval test to analyse the result, using the data collected from the respondents via an online questionnaire. The findings revealed significant correlations between education levels and perceptions of urban agriculture's social benefits, as well as between income levels and views on its potential for waste reduction. This research contributes to the limited body of work on urban agriculture in Romania, particularly by exploring how economic and social aspects of individuals' lifestyles influence their perceptions of urban farming. The results offer a foundation for developing tailored strategies, policies, and legal measures to promote sustainable growth in urban communities through agricultural initiatives.

## 5. Conclusions, Future Perspectives, and Limitations

The respondents showed an increased interest in practising urban agriculture. Significant differences between the respondents were identified based on their declared group characteristics. Their answers were probably given with consideration for their possible involvement in the main activity.

The respondents' levels of education decisively contributed to all aspects of their lives. Thus, there are significant differences in opinion depending on the level of education regarding the extent to which urban agriculture contributes to improving the socialisation and recreation of the city's inhabitants. Those with higher education and those who graduated from a vocational school believed more in the contribution made by urban agriculture in terms of improving the socialisation and recreational aspects of urban life.

Avoiding food waste is an integral part of an environmentally conscious lifestyle, an aspect highlighted in this study and again highlights the importance and necessity of continuous training.

The respondents' income levels also significantly shaped their opinions regarding the contribution of urban agriculture to the increase in recycling. Those who considered their income to be insufficient believed that urban agriculture can contribute to the increasing level of recycling to a minimal extent compared with the other groups of respondents.

This research underscores that income decisively shapes an individual's idea of their lifestyle. Those who claimed that their income was sufficient appeared to appreciate the benefits that urban agriculture can bring, including the extent to which it can contribute to increasing the resilience of the local economy by employing the city's residents in entrepreneurial activities.

Involvement in urban-farming projects can contribute to community cohesion, encouraging cooperation and social relationships. Implementing and developing green spaces and community gardens can increase interaction among residents from various social backgrounds. Such actions can significantly improve city dwellers' lifestyles by providing access to healthy food, reducing stress, and promoting the common good. Significant achievements in this direction require careful planning and addressing space challenges, soil quality, and resources. Thus, urban agriculture can become vital to sustainable and resilient cities.

This research has several limitations. Firstly, the data were collected through self-reported measurements, which may introduce social desirability bias. This research aimed to exclude individuals specialising in agriculture or related fields and those with expertise in such areas. While this approach allowed us to gather opinions from people within various disciplines, it also posed limitations in the present study sampling method. Secondly, the sample predominantly consisted of respondents with a higher education, which may affect the generalizability of this study results to those with less education. Another limitation of the current research was that it analysed income, which can be a sensitive topic for most respondents. This is why a general formulation was used in this regard. Lastly, the study was confined to the Romanian socioeconomic and cultural context. Since the survey was conducted online, this impacted the sample selection. It was observed that most respondents had a higher education, likely because individuals with advanced degrees are more inclined to use IT tools. In contrast, those without a higher education may only use these tools on rare occasions and are not all necessarily interested in them. Therefore, the research accurately reflects the current situation in the field and maintains a representative sample of the existing conditions in the area.

Future studies should address these limitations, including comparative studies across different countries, and consider that urban agriculture has not reached its maximum development potential. In the future, researchers could determine the quantitative benefits brought to town citizens employing the socioeconomic evolutions of the communities implementing urban agriculture, which could be evaluated simultaneously with the evaluation of health and wellbeing. Future studies will involve developing a more complex model including latent variables, and an attempt will be made to understand the interconnections between the various perceptions and the influence of other variables.

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**Institutional Review Board Statement:** A non-interventional investigation was conducted. Since the survey was completed using digital instruments, the anonymity of all participants was ensured. No identifying data, such as e-mail addresses, were collected. During the research, Regulation 2016/679-Protection of natural persons with regard to the processing of personal data and the free

movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) specifications were considered.

**Data Availability Statement:** Data are contained within the article. The original contributions presented in this study are included in the article. Further inquiries can be directed to the corresponding authors.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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