

# Perceived functions of allotment gardens and their importance during the COVID-19 pandemic in Poland

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## ABSTRACT

This article describes the changes taking place in the functions of allotment gardens, their perceived value, reasons for purchasing allotments and subjective (self-reported) assessments of their importance during the pandemic. A questionnaire survey was conducted among 203 owners of allotment gardens located in three highly urbanised cities in the Silesian Voivodeship (Southern Poland). Semi-structured questionnaires and non-standardised questionnaires were used to collect the data. The results demonstrate that the respondents aged above 61 years (38.5%) have observed a generational change in the function of allotments, from cultivating fruits and vegetables to recreational purposes. Regardless of age, the owners of allotment gardens did not notice any technological progress or new crops. The young respondents (21–30 years) treated allotment gardens as an investment (36.7%), while the respondents aged below 20 years and over 61 years declared that the greatest benefits of allotment gardening are improved health and growing one's own fruits and vegetables. The respondents aged over 41 years (25.9%) also pointed out the importance of growing their own produce. Allotments were especially important during the pandemic as a private space free from COVID-related restrictions. Extended interviews with the respondents revealed that allotment gardening was perceived as a coping strategy for the stress generated during the lockdown. This study showed that allotment gardens are important sites not only for food production but also for maintaining mental health, social capital and environmental engagement.

**Keywords:** cultivation, gardening, health, pandemic, urban horticulture

## INTRODUCTION

Allotment gardens are an important part of the urban green system in every European country. Depending on their origin, allotment gardens have different characteristics and involve different traditions, aspirations, communities and forms of activity (Keshavarz and Bell, 2016). Allotment gardening is

different from traditional gardening in the sense that it is an activity in a public space separated from the home, requiring the rental of a plot, and it is focused on food production as well as the relationship between neighbours and the land (Delshammar et al., 2016). Nonetheless, all of them share a similar historical background: allotment

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gardens were used to protect the working class and city dwellers from material deprivation and to support the family budget. The name ‘allotment’ has its origin in England, where, in the sixteenth century, small plots of land were ‘allotted’ to landless peasants to enable them to graze their cattle and produce their own food. Allotment gardens, as we know them nowadays, were created in the late eighteenth and early nineteenth centuries, alongside the development of industry, the expansion of urban areas and the migration of agricultural populations to the cities (Keshavarz and Bell, 2016). The main goals of the first allotments during the industrialisation period (1700–1910) were to produce fruits and vegetables for poor working-class families and to provide outdoor recreation after monotonous work in the factories (Groening, 2005; Keshavarz and Bell, 2016). Apart from the utilitarian ones such as these, there were also other reasons why allotments were made in European countries. For instance, in Germany, the first garden association promoting allotments to improve health and the quality of life was founded in 1861 near Lipsk after the name of Dr. Moritz Schreber, who advocated public playgrounds. Even today allotment gardens are called Schrebergärten in Germany. Similarly, the first allotments in Sweden were considered to strengthen social and family bonds as well as support the availability of healthy food. In Holland, among other advantages, allotments were considered as a preventive tool against alcoholism and depression (Keshavarz and Bell, 2016). The first allotment garden in Poland was created in Grudziądz (Central Poland) in 1897, as a result of the trend, prevailing at that time, of a natural way of life, promoted by Dr. Jankowski (Duś, 2014).

Later, the crisis of the 1920s, and then the period of World War II, contributed to a significant increase in allotment gardens throughout Europe (Keshavarz and Bell, 2016). Through the decades allotments gained more interest, especially during times of crisis. Today allotment gardening is still a very popular leisure activity in many EU countries and the United Kingdom (Groening, 2005; Genter et al., 2015; Keshavarz and Bell, 2016) and Japan (Soga et al., 2017a).

Allotment gardening has an almost 120-year-old tradition in Poland. At the beginning of the twentieth century, allotment gardens were mainly established in Silesia (Śląsk) and Wielkopolska for the working class and cultivated primarily to produce fruits and vegetables (Bellows, 2004; Pawlikowska-Piechotka, 2009; Szczurek and Zych, 2012). The recession of the 1980s led to the most intensive development of allotment gardens observed up until that time point in Poland, and they became an important source of food. In the 1990s, the allotments began to play a more recreational and hobby-driven role, rather than being used simply for food production (Bellows, 2004, Duś, 2014; Mokras-Grabowska, 2020). Family Allotment Gardens (in Polish, *Rodzinne Ogrody Działkowe, ROD*) allowed the members of local communities to satisfy their leisure,

recreational and other social needs, by providing common access to gardens and plots where produce could be grown for their private needs and where people could work towards improving the ecological standards of their surroundings (Act of 13 December 2013 on Family Allotment Gardens, Polish Journal of Laws of 2017, Item 2,176, as amended). The allotment gardens in Poland are located in large cities relatively close to residential areas and constitute an integral part of the Polish urban landscape (Bellows, 2004; Pawlikowska-Piechotka, 2009; Duś, 2014). According to statistical data collected by the Polish Association of Allotment Gardeners (2019) (in Polish: *Polski Związek Działkowców*), in 2019, there were 917,000 allotment gardens in Poland, a country with 37.9 million residents. Considering that each allotment is maintained by a family of three or four people, this means that 10% of the population benefits directly or indirectly from gardening. Although the allotment gardeners are a very diverse group, the gardens are mainly cultivated by seniors; in fact, allotment gardening is the favourite hobby and the most popular leisure-time physical activity among people aged over 65 years in Poland (Kondracki, 2014; Rowinski et al., 2015; Janus et al., 2020). Nowadays, allotments provide a wide range of benefits to the residents: fresh produce that is pesticide free, fresh air, relaxation and recreation. Their value exceeds that of simple vegetable plots; in particular, they are helping to create more environmentally friendly cities in modern times (Perez-Vazquez et al., 2005). Allotment gardens are an important part of urban green spaces and urban planning. They provide a high amount of biodiversity in the urban environment by breaking up the monotony of dense residential areas, reducing noise, filtering the air and acting as shelters for flora and fauna (Langemeyer et al., 2016). They also help to achieve food sustainability, disseminating the farming culture and protecting the country’s cultural heritage (Niala, 2020). In recent years, studies have proved that allotment gardens demonstrate significant health-promoting potential and are natural remedies offering support to mental and physical health (Genter et al., 2015).

The advantages of allotment gardens are closely related to the activities of gardening, which improve people’s quality of life and overall health, as demonstrated by numerous reports and extensive reviews. Cultivating a garden elevates overall health and quality of life, physical strength, fitness and flexibility, and vigour and life satisfaction. Gardening is an activity that promotes cognitive function, generates a sense of happiness and meaningfulness and encourages personal and intra-personal relationships (Wang et al., 2013; Soga et al., 2017b; Eng et al., 2019; Park et al., 2019; Ambrose et al., 2020; Spano et al., 2020; Chalmin-Pui et al., 2021). The implementation of various aspects of gardening has led to the development of therapeutic horticulture and the social prescribing of green activities (Husk et al., 2018; Thompson, 2018; Nicholas et al., 2019; Garside et al., 2020; Howarth et al., 2020).

In a study by van den Berg et al. (2010), it was shown that owning and cultivating an allotment can promote an active lifestyle and contribute to healthy ageing. The same group of researchers demonstrated the stress-reducing effects of using an allotment (van den Berg and Custers, 2011). Gardening is classified as a moderate- to high-intensity physical activity and it can be an effective form of regular exercise for improving health (Hawkins et al., 2015). Allotment gardening also contributes to higher self-esteem and vigour as well as lower mood disturbance, fatigue and depression in active gardeners compared to non-gardeners (Wood et al., 2015). Gardeners who regularly cultivate their allotments report feeling more connected to nature and having an opportunity for a meaningful activity, and they notice improved physical and mental health (Webber et al., 2015). According to other studies, allotment gardening has a significant positive effect on stress reduction (Hawkins et al., 2011).

Allotments represent a means for enhancing citizen well-being, contributing positively to feelings of happiness and life satisfaction, changing behaviours and developing personal capacities (Mourão et al., 2019). Another advantage of allotment gardening is that it fosters social connections that cannot be achieved by working in home gardens. In this respect, allotment gardening may become an efficient strategy for improving general public health and can be recommended as a form of occupational therapy for people with health problems (Genter et al., 2015).

The pandemic in Poland began slightly later than in other countries across Europe and the world. The first cases were reported in the beginning of March 2020. During the pandemic, the Polish government decided to restrict mass events and department store activity, suspend lessons at schools and close down the country's borders. An epidemic state was announced on the 20th of March. On the 25th of March a total lockdown was introduced, with a ban on going outdoors except for utility, health and occupational purposes. Forests and parks were also closed to the public. With effect from 20 April 2020, restrictions began to be lifted, albeit gradually. The allotment gardens in Poland were the only green areas, with the exception of home gardens, that people were allowed to enter. The popularity of allotment gardens rose greatly during the time of the pandemic in 2020 and 2021. Currently, allotment gardens are considered a luxury good due to the increased demand, and consequently, the prices have risen by several times (Bednarz, 2021).

The benefits of allotment gardens are particularly important today due to the Coronavirus crisis. In such a time, people feel safer outside and seem to enjoy the outdoors more (Sachs, 2020; Szkup, 2020; Dobson et al., 2021). Furthermore, media reports have started focusing on our personal experience of nature. Establishing a relationship with nature, being outside and cultivating a garden have all become privileges. During the pandemic

and the global slowdown, people were connecting with nature more than they had done in previous years (Sachs, 2020). Gardening has been described as a 'new-found treasure', something that was overlooked before (Lemmey, 2020). Researchers have also noticed the role of social and allotment gardens in functioning as places where people are able to combat the crisis and as a source of social resilience (Lewis, 2021, Marsh et al., 2021; Schoen et al., 2021).

In our study, we aimed to determine the importance of cultivating allotment gardens for health and well-being and to experience them as an outdoor leisure activity, especially during the time of the pandemic. The study was conducted in allotment gardens located in three densely populated cities in the Silesian Voivodeship (district). The authors of this study designed a questionnaire to register the generational and cultural changes taking place in the usage of allotment gardens according to their owners' age and the length of ownership. The study assessed the motivations for purchasing and the importance of the allotments for their owners, according to each age group. The obtained results and personal explorative interviews with the gardeners shed light on the significance of allotment gardens, as gleaned from the personal views of their owners. Furthermore, the results indicated the role that the allotments have had for their owners during the COVID-19 pandemic.

## MATERIALS AND METHODS

The main objective of this study was to explore how owners viewed their allotment gardens' function in the context of the pandemic. The following research questions were posed in order to achieve the main research aim:

1. Would the perception of changes in the function of allotment gardens over the last 5 years differ according to the respondent's age?
2. Would the respondent's age affect what they would indicate as the benefits of owning an allotment garden?
3. Would the respondent's age affect how they would encourage other people to cultivate an allotment garden?
4. Would the reasons for purchasing an allotment garden differ according to the length of ownership?
5. Would the respondent's age affect whether they consider their allotment garden to be an escape from everyday problems?
6. What was the significance of owning an allotment garden for the respondents during the pandemic?

An original non-standardised questionnaire interview was designed to collect the data. The study took place from April to June 2020 among owners of allotment gardens in three of the most populated and urbanised regions of Poland: Ruda Śląska and Chorzów (Silesian conurbation) and Rybnik (Rybnik agglomeration). Since the study was conducted during

the pandemic, appropriate sanitary guidelines were followed when collecting the questionnaires. The respondents were recruited whilst they were present in their gardens, and their answers were recorded by the interviewer.

### Participants

The study participants consisted of 203 allotment garden owners (99 women and 104 men). The participants lived in the following three cities in the Silesian Voivodeship: Two of the cities, Ruda Śląska and Chorzów, belong to the highly urbanised Silesian conglomerate, while the third, Rybnik, belongs to the Rybnik agglomeration, which has, since the nineteenth century, had a highly developed industry, especially mining and metallurgy. The population of the three cities ranged from 108,000 (Chorzów) to 137,800 (Rybnik). All three contained many actively cultivated family allotment gardens: 10 in Rybnik, 26 in Ruda Śląska and 27 in Chorzów (source: website of the Silesian Branch of the Polish Association of Allotment Gardeners, 2021. <https://slaski-ozpzd.pl>). The area of the individual allotments ranged from 200 m<sup>2</sup> to 500 m<sup>2</sup> (about 2,000–5,000 sq. ft.).

### Procedure

Both the data collection and the analysis used a mixed quantitative–qualitative approach (Babbie, 2001). The research tool was a questionnaire survey designed by the authors of this study. The questions asked about the reasons for cultivating an allotment garden, changes observed in the function of the allotment gardens over

**Table 1.** Individual characteristics of the study participants – allotment garden owners (gender, age profile and length of garden ownership).

Category	N (203)	%
<b>Gender</b>		
Female	99	48.77
Male	104	51.23
<b>Age (years)</b>		
<20	8	3.95
21–30	30	14.78
31–40	42	20.69
41–50	58	28.57
51–60	39	19.21
61–70	26	12.80
<b>Length of allotment garden ownership (years)</b>		
<5	32	15.76
6–10	73	35.96
11–15	60	29.56
16–20	17	8.37
21–25	15	7.39
>26	6	2.96

the last 5 years, the benefits of cultivating an allotment garden and the use of an allotment garden as an escape from everyday problems, among other topics. At the end of the questionnaire, the respondents were asked to provide their basic sociodemographic data. The largest group among the respondents were aged between 41 years and 50 years (28.57%). Most of the respondents (35.96%) had owned their allotments for between 6 years and 10 years. The detailed sociodemographic data of the respondents is shown in Table 1.

In addition, an in-depth uncategorised interview was conducted with each respondent about the personal significance of their allotment garden during the pandemic. This open-ended question was introduced to derive and examine the respondent's personal beliefs and concepts, in relation to the roles that their allotment garden had held for them during the pandemic. Consequently, additional data for a quantitative analysis was obtained. The survey responses were put through a thematic analysis. The data had a heuristic value set and were not tested statistically. The relationships between the respondents' statements were analysed within the concept maps which enabled the categorisation of the gathered responses (Babbie, 2001). It is worth highlighting that the respondents were happy to share their observations and suggestions concerning the current epidemiological situation.

### Statistical analysis

The responses obtained in the questionnaire underwent a statistical analysis based on Fisher's exact tests, performed using the IBM SPSS Statistics 23 package. Differences were considered statistically significant at  $\alpha = 0.05$ . However, results within the range  $0.05 < p < 0.1$  were interpreted as approaching significance.

## RESULTS

### Perception of changes in the function of allotments over the last 5 years

The respondents' perceived changes in the function of the allotments during the last 5 years differed between the age groups. A statistically significant result,  $p < 0.001$ , was observed. As is shown in Table 2, the respondents of a greater age observed more changes, where the older owners noticed a shift in the function of the allotments from utility to recreation purposes. A generational change among the active owners was also observed. The respondents aged 41–50 years noticed an increase in anonymity among the owner community. Interestingly, the respondents did not notice any technological progress in the cultivation or new variations of vegetables, regardless of the age group. The respondents also did not observe an increase in the number of unused allotments. The results showed that only young people, aged up to 30 years, treated their allotment gardens as an investment. This correlation was moderately strong, with  $V = 0.39$ .



### ***Benefits of allotment gardens based on the owners' subjective observations***

The respondents' age affected what they chose as benefits of owning an allotment garden (Table 3). Fisher's exact test yielded a statistically significant result,  $p = 0.003$ . An overall improvement in health was usually indicated by the respondents from the two extreme age groups, i.e. those aged below 20 years and those above 61 years. An opportunity for relaxation was mainly mentioned by the respondents aged 21–30 years (70% of all responses) and 31–60 years, although the share of this response within the latter age group was lower, ranging from 33% to 43%. Another frequently mentioned benefit of owning an allotment was the possibility to grow one's own fruits and vegetables. This was mentioned by the respondents in all age groups, but mostly by the youngest respondents (aged below 20 years) and the oldest ones (aged above 61 years). Only a few of the respondents indicated the importance of the opportunity for more contact with nature, aesthetic experiences or spending time with their families. The respondents also did not mention physical activity as a benefit. This correlation was weak, with  $V = 0.24$ .

### ***Respondents' personal reasons for purchasing an allotment garden***

The respondents provided different reasons for purchasing an allotment garden depending on their age (Table 4). Fisher's exact test yielded a statistically significant result,  $p = 0.031$ . One of the reasons was related to the COVID-19 restrictions, with as many as 30.0% of the respondents aged 21–30 years and 19.2% of the respondents aged 61–70 years indicating that

an allotment garden was a private space where the restrictions did not apply. The respondents, usually those aged 41–70 years, also mentioned the allotments as a source of their own produce. The young respondents, aged below 20 years, viewed the allotments primarily as a place for spending time with family and friends. For the respondents aged 31–40 years, an allotment was an attractive investment.

### ***Relationship between length of ownership and the reasons for purchasing an allotment garden***

This study tested the correlation between the time spent as an owner of an allotment garden and the reasons for its purchase. Fisher's exact test yielded a statistically significant result,  $p < 0.001$ . As is shown in Table 5, in the case of the respondents that had owned an allotment garden for 11–15 years and 6–10 years, their purchase was predominantly motivated by a need for contact with nature. The respondents who had owned an allotment for 16–20 years usually mentioned growing their own fruits and vegetables; whereas those who had been owners for the longest time, i.e. more than 20 years, mentioned having a place to meet with family and friends. The respondents who had owned allotments for the shortest time provided diverse answers, with the most popular reasons being relaxation, social gatherings and investment. In this case, the correlation was weak, with  $V = 0.24$ .

### ***Importance of allotment gardens as an escape from everyday problems***

The final step of the analysis tested whether a correlation occurred between the respondents' age and

**Table 2.** Respondents' perception of changes in the functions of allotments over the last 5 years (2015–2020) by age ( $N = 203$ ).

Answer		Age group (years)					
		<20	21–30	31–40	41–50	51–60	61–70
No change observed	<i>N</i>	<b>5</b>	11	9	4	1	0
	%	<b>62.5</b>	36.7	21.4	6.9	2.6	0.0
Generational change	<i>N</i>	0	0	<b>11</b>	<b>15</b>	<b>13</b>	10
	%	0.0	0.0	<b>26.2</b>	<b>25.9</b>	<b>33.3</b>	38.5
Functional shift from utility to recreation purposes	<i>N</i>	1	3	9	19	12	<b>12</b>
	%	12.5	10.0	21.4	32.8	30.8	<b>46.2</b>
Increase in unused allotments	<i>N</i>	0	0	4	1	1	0
	%	0.0	0.0	9.5	1.7	2.6	0.0
Increase in owner anonymity	<i>N</i>	0	2	1	<b>15</b>	9	4
	%	0.0	6.7	2.4	<b>25.9</b>	23.1	15.4
New decorative plant and vegetable variations	<i>N</i>	1	0	5	0	0	0
	%	12.5	0.0	11.9	0.0	0.0	0.0
Technological progress	<i>N</i>	0	3	3	4	3	0
	%	0.0	10.0	7.1	6.9	7.7	0.0
Allotment treated as an investment	<i>N</i>	1	<b>11</b>	0	0	0	0
	%	12.5	<b>36.7</b>	0.0	0.0	0.0	0.0

The bold letters show the highest scores obtained in the given response categories.

**Table 3.** Respondents' perceived benefits of owning an allotment by age ( $N = 203$ ).

Answer		Age group (years)					
		<20	21–30	31–40	41–50	51–60	61–70
Improved health	<i>N</i>	2	2	4	4	7	6
	%	25.0	6.7	9.5	6.9	17.9	23.1
Relaxation	<i>N</i>	2	<b>21</b>	<b>14</b>	<b>25</b>	<b>13</b>	4
	%	25.0	<b>70.0</b>	<b>33.3</b>	<b>43.1</b>	<b>33.3</b>	15.4
Growing fruits and vegetables	<i>N</i>	<b>3</b>	3	8	19	10	<b>9</b>
	%	<b>37.5</b>	10.0	19.0	32.8	25.6	<b>34.6</b>
Contact with nature	<i>N</i>	0	4	3	3	5	4
	%	0.0	13.3	7.1	5.2	12.8	15.4
Aesthetic experiences	<i>N</i>	1	0	1	4	1	0
	%	12.5	0.0	2.4	6.9	2.6	0.0
Spending time with family	<i>N</i>	0	0	9	3	3	3
	%	0.0	0.0	21.4	5.2	7.7	11.5
Physical activity	<i>N</i>	0	0	1	0	0	0
	%	0.0	0.0	2.4	0.0	0.0	0.0
No benefits	<i>N</i>	0	0	2	0	0	0
	%	0.0	0.0	4.8	0.0	0.0	0.0

The bold letters show the highest scores obtained in the given response categories.

**Table 4.** Respondents' reasons for purchasing an allotment garden by age ( $N = 203$ ).

Reasons for purchasing an allotment		Age group (years)					
		<20	21–30	31–40	41–50	51–60	61–70
Private space free from COVID-19 restrictions	<i>N</i>	1	<b>9</b>	6	8	8	<b>5</b>
	%	12.5	<b>30.0</b>	14.3	13.8	20.5	<b>19.2</b>
A way to spend time	<i>N</i>	0	8	7	<b>12</b>	7	4
	%	0.0	26.7	16.7	<b>20.7</b>	17.9	15.4
Physical activity	<i>N</i>	2	3	3	7	6	2
	%	25.0	10.0	7.1	12.1	15.4	7.7
Relaxation in natural surroundings	<i>N</i>	1	3	5	4	5	3
	%	12.5	10.0	11.9	6.9	12.8	11.5
Growing one's own produce	<i>N</i>	1	2	2	<b>12</b>	<b>10</b>	<b>5</b>
	%	12.5	6.7	4.8	<b>20.7</b>	<b>25.6</b>	<b>19.2</b>
An investment	<i>N</i>	0	1	<b>12</b>	2	1	2
	%	0.0	3.3	<b>28.6</b>	3.4	2.6	7.7
A place to meet with family and friends	<i>N</i>	<b>3</b>	4	7	13	2	5
	%	<b>37.5</b>	13.3	16.7	22.4	5.1	19.2

The bold letters show the highest scores obtained in the given response categories.

the importance of their allotment garden as an escape from everyday problems (Table 6). Fisher's exact test yielded a statistically significant result,  $p = 0.002$ . Most of the respondents across all of the age groups from 20 years to 70 years answered that they 'Strongly agree' to the question 'Do you agree that an allotment garden is an escape from everyday problems?'. Only the very young respondents, aged below 20 years, answered that they 'Mostly agree', with 'Strongly agree' being an equally popular answer. Interestingly, however, none of

the youngest respondents felt neutral or disagreed. The correlation was weak, with  $V = 0.24$ .

### ***Importance of allotment gardens during the COVID-19 pandemic***

The obtained quantitative data were complemented with data collected via the uncategorised interview. The interview was primarily concerned with the importance of owning an allotment garden during the pandemic. The obtained answers were analysed and six main categories

**Table 5.** Reasons for purchasing an allotment by length of ownership ( $N = 203$ ).

Argument	Length of ownership allotment garden (years)						
		≤5	6–10	11–15	16–20	21–25	26–30
Growing one's own fruits and vegetables	<i>N</i>	3	9	6	<b>7</b>	4	0
	%	10.0	12.3	10.0	<b>41.2</b>	23.5	0.0
Having a place to meet with family and friends	<i>N</i>	<b>8</b>	10	9	0	<b>5</b>	<b>3</b>
	%	<b>26.7</b>	13.7	15.0	0.0	<b>29.4</b>	<b>50.0</b>
I inherited the allotment	<i>N</i>	0	7	2	0	0	0
	%	0.0	9.6	3.3	0.0	0.0	0.0
Spending free time	<i>N</i>	<b>8</b>	17	19	2	1	3
	%	<b>26.7</b>	23.3	31.7	11.8	5.9	50.0
Need for contact with nature	<i>N</i>	<b>8</b>	<b>28</b>	<b>21</b>	4	2	0
	%	<b>26.7</b>	<b>38.4</b>	<b>35.0</b>	23.5	11.8	0.0
An investment	<i>N</i>	<b>5</b>	2	3	4	3	0
	%	<b>29.4</b>	2.7	5.0	23.5	10.0	0.0

The bold letters show the highest scores obtained in the given response categories.

**Table 6.** Respondents' perceived importance of their allotments as an escape from everyday problems by age ( $N = 203$ ).

Answer*	Age group (years)						
		≤20	21–30	31–40	41–50	51–60	61–70
Strongly agree	<i>N</i>	4	26	38	<b>48</b>	28	17
	%	50.0	86.7	90.5	<b>82.8</b>	71.8	65.4
Mostly agree	<i>N</i>	<b>4</b>	0	3	8	5	6
	%	<b>50.0</b>	0.0	7.1	13.8	12.8	23.1
Neither agree nor disagree	<i>N</i>	0	0	1	1	4	2
	%	0.0	0.0	2.4	1.7	10.3	7.7
Mostly disagree	<i>N</i>	0	4	0	1	2	1
	%	0.0	13.3	0.0	1.7	5.1	3.8

\*Answer to the survey question: 'Do you agree that your allotment garden is an escape from everyday problems?'

The bold letters show the highest scores obtained in the given response categories.

were distinguished. In Table 7, these categories are presented according to rank.

As Table 7 shows, the respondents usually described their allotment gardens as a private space at their own disposal that provided a sense of independence during the lockdown and other restrictions due to the pandemic (such as the ban on going outside). Spending time in an allotment garden may also be associated with stress reduction and relaxation, which, according to the respondents, corresponds with a feeling of 'stability and normalcy' and a possibility to relieve the mental tension caused by worrying about one's health, or even one's life. The respondents also stated that cultivating an allotment garden helped them to stay healthy. This opinion appeared numerous times in the context of stress (staying healthy by reducing stress) and physical activity, as well as psychosocial well-being, especially with respect to being able to meet with close ones in a safe environment (due to the perceived lower risk of contracting COVID-19 outside compared with that inside).

## DISCUSSION

The study was conducted in order to document the ongoing changes and ascertain the importance, during the pandemic, of allotment gardens for their owners, stratified for the purposes of statistical analysis into various classes based on age and other parameters. Semi-structured interviews with 203 owners of allotment gardens were conducted, to explore the experiences of different age groups and the perceived value related to allotment gardening. The results showed that allotment gardening played an important and beneficial role for the owners, especially during the lockdown.

Allotment gardeners are generally assumed to be elderly people. However, the results obtained in this study indicate that a generational change is taking place and many allotment gardeners are young, with those aged below 30 years constituting 20% of all respondents. The respondents in this age group usually declared that their allotment gardens were primarily a source of relaxation for them, in addition to making available a

**Table 7.** Categories of answers to the survey question: ‘What does owning an allotment garden during the pandemic mean to you?’, from non-standardised interviews ( $N = 203$ ).

No.	Answer category	Quotes
1	<u>Refuge and freedom</u> Most of the respondents viewed their allotments as a form of refuge that gave them a sense of freedom, especially with the restrictions that forced the population to stay at home.	‘I like this plot and I’m glad that I didn’t sell it, because then I wouldn’t have anywhere to go.’
2	<u>Stress reduction and taking a mental break</u> Visiting one’s allotment garden reduced the stress of uncertainty related to the epidemiological situation.	‘Whenever I’m in my allotment, I get a feeling of stability and normalcy, because this is where I can forget about what’s going on in the country and the rest of the world.’
3	<u>Antidote to boredom</u> An allotment garden was a substitute for work. It provided a meaningful outdoor activity that was associated with good mental health and was an alternative to being productive.	‘I’ve got nothing better to do due to the lockdown, so I go to my allotment. I’m lucky to have one, because otherwise I’d go mad staying inside my house.’
4	<u>Physical exercise and staying in shape</u> An allotment garden provided a means of maintaining physical activity (especially when forests, parks and sport and health facilities were closed down).	‘Visiting my allotment lets me exercise, which is important for me as a senior. The moment you stop exercising, your body starts to ache and your mood drops.’
5	<u>Enjoying family and social integration</u> An allotment garden was a place where children could play and a place to meet with family and friends outdoors.	‘We bought an allotment for twice the price, but we wanted our children to be able to go outside somewhere. It’s a form of investment. We’re not going to grow any produce, but we now have somewhere to go outside and set up a pool. It’s somewhere for the children to run around in. Our family and friends can also come and visit us here. It’s safer outside than at home, of course.’
6	<u>Stability and purpose</u> Spending time in an allotment garden and performing everyday chores and activities provided a sense of normalcy.	‘I’ve had this plot for 20 years and, virus or no virus, I’m going to keep coming here, because this is literally my own piece of land.’

form of spending free time and a place for their social life, and being a good investment as well.

Responses demonstrated a change in the function of allotment gardens, dependent upon the respondents’ age, from a place of utility and as a source of one’s own produce (according to the respondents aged 41 and above), to one of recreation (for those aged 30 and younger). The oldest age group in this study (those above 61 years) noticed a generational change and mentioned an increase in the anonymity of allotment owners. This contemporary trend of treating allotment gardens as a place for leisure and a holiday retreat, rather than as a farm plot, was observed in Poland mostly during comparative research with allotment gardens in Germany (Maćkiewicz et al., 2021).

In this study, the respondents indicated the following benefits of owning an allotment garden (mentioned in order of importance): relaxation, growing one’s own fruits and vegetables, and an improvement in health. The respondents aged 21–60 years usually mentioned relaxation as a benefit, while in turn, the respondents aged below 20 years and those aged 61–70 years mentioned growing one’s own produce as a benefit. The reasons for cultivating an allotment garden, such as recreation, growing one’s own fruits and vegetables,

social gatherings or health benefits, have also appeared in other studies on allotment gardens. Other research has shown that crop growing is the main reason for the purchase of an allotment garden according to urban gardeners (Smith and Jehlička, 2013). However, an in-depth analysis revealed that cultivating crops includes benefits such as healthy food, satisfaction and pride, as well as a sense of agency and the ability to share crops with other people (Pourias et al., 2016). A study conducted by Soga et al. (2017b) in Japan showed that the primary reason for owning an allotment garden was taking a mental break, followed by growing vegetables. In a study by Nordh et al. (2016), the allotment gardeners in Norway most commonly mentioned meaningful activities. The primary reason for their purchase was investing in the future of their children by giving them a place where they could play in the midst of nature. The respondents in that study did not observe a direct relationship between allotment gardens and good health. However, they mentioned many benefits of allotment gardens that affected their quality of life, including a safe place for children to play, growing one’s own produce and direct contact with nature as a break from city life (Nordh et al., 2016). Extensive research on allotment gardens in seven European countries (Austria, Estonia,



Germany, France, Portugal, Poland and the UK) during 2012–2016 showed a trend similar to the one we have found in our study. The use of allotments for recreation has replaced their use for food production, especially in countries with a long history of urban gardening. Growing of fruits and vegetables is still shown as the main allotment practice in Portugal, Estonia and the UK. Allotment gardeners place emphasis on active recreation, contact with nature and the quality of their food supply as the main reasons for cultivating crops on an allotment (Poniży et al., 2021).

In our study, the respondents were asked how they would persuade someone to purchase an allotment garden. Their reasons why somebody might feel the need or urge to purchase an allotment garden were that allotment gardens provide a refuge or a means of escaping from the lockdown, as well as a form of relaxation. These reasons were mentioned primarily by the respondents aged 21–30 years. The older respondents usually mentioned growing their own produce or making a profitable investment. The pandemic and the resulting uncertainty, forced social isolation and an inability to satisfy the need for contact with nature have created an unusual interest among the population of many countries in purchasing an allotment garden (Bray, 2020; Smithers, 2020; Dobson et al., 2021; Maćkiewicz et al., 2021). Since 2020, in Poland, allotment gardens have been in high demand, which has increased their price significantly, especially in large cities, resulting in their shortage on the real estate market (Kowalik, 2021). The participants in this study mentioned this development: for the younger respondents (aged below 40 years), an allotment garden was also an investment.

For the respondents who had been owners for less than 10 years, the most important reasons for purchasing an allotment garden were a need for contact with nature and for having a place for spending their free time. Contrastingly, only 10% of the respondents who had been owners for more than 20 years gave this answer. Instead, they mentioned maintaining social contact and having a place to meet with their friends as being the primary motivations for purchasing their allotment gardens. A recent study from England demonstrated that these are important sites not only for food production but also for social capital and environmental engagement, due to the high levels of social and community activity, including the sharing of surplus food produced (Dobson et al., 2021). Regardless of the length of ownership, most of the respondents (almost 80%) mentioned that they were treating their allotment gardens as a means of escape from their everyday problems. Allotments gardens can provide a restorative experience, because they meet the conditions for a restorative environment described in the framework of Kaplan (1995), which is constituted by four components: being away, extent, fascination and compatibility (Nordh et al., 2016). Allotment gardening is regarded beneficial in terms of enabling relaxation, stress management and mood improvement (Hawkins et al., 2011, 2013).

Our study also revealed that allotment gardens are very important for maintaining mental health, reducing stress and providing a restorative experience. The respondents mentioned this function of their allotment gardens to a major extent due to the Coronavirus pandemic, especially during the time of lockdown. For the many weeks of the subsequent waves of the pandemic, people had limited rights to leave their homes and the contact with nature served as a ‘green recovery’ from the Coronavirus pandemic (Lemmey, 2020). During the pandemic, allotment gardens have become a form of refuge for many people, as a place where the COVID-19 restrictions were less severe, and the allotment owners were seen as the ‘lucky ones’, with a space at their own disposal (Olszanka and Witkowicz-Matolicz, 2020; Szkup, 2020). This study confirmed these findings. The responses collected during the interviews clearly showed that, according to the owners, an allotment garden constitutes a private space that helps a person detach from the ubiquitous restrictions brought about by the pandemic. By design, allotment gardens offer a readymade socially distanced solution to urban food as well as mental and physical health challenges (Niala, 2020).

The respondent’s opinions about the importance of an allotment garden during the pandemic also show that they treat it as a space free from restrictions. Spending time in the garden reduces stress and offers an opportunity for relaxation, which is especially significant considering the experiences of uncertainty and anxiety related to the pandemic. As Heitzman (2020) noted, in the time of the pandemic, needs related to mental comfort and amelioration of the mental burden should not be marginalised. Neglecting these needs may trigger a psychophysiological response to stress and cause a growing number of mental disorders. The participants in this study were able to satisfy these needs by taking advantage of their allotment gardens. Brooke and Clark (2020) reached similar conclusions: during the lockdown, they conducted an inductive phenomenological study on the experience of household isolation in participants aged 70 and over in Great Britain and Ireland (Brooke and Clark, 2020). Their results indicated that for the elderly to maintain a will to live, it was important for them to be able to cultivate a home or allotment garden, as it provided ‘relief from the oppression of the pandemic’ and allowed them to ‘enjoy a sense of normality and the ability to live their lives’ (Brooke and Clark, 2020). In the study of Niala (2020), many residents also cited their allotments as being critical for maintaining physical and mental health and providing food security.

A survey by the Royal Horticultural Society (2020) found that 57% of people who have gardens and outdoor spaces value them more now than before lockdown, and 71% feel that these have helped with their mental health during lockdown; viewed in the light of these findings, it is evident that the results of the present study add to the significance of allotment gardens. A growing evidence

base suggests a strong link between allotment gardening and health benefits in the form of community cohesion, mental health and nature connectedness (Genter et al., 2015; Dobson et al., 2021). Reduced access to green areas or allotment gardens was found to be a significant predictor of stress in deprived urban communities. The lockdown period highlighted the importance of green areas and urban gardens, including allotment gardens. A lack of adequate garden space contributed to increased stress and aggression, especially among the disadvantaged (Thompson et al., 2016; Roe et al., 2017), which suggests the need for new directions in urban planning with a greater emphasis on green areas. The lack of political and institutional support is resulting in an underestimation of the benefits provided by allotment gardens, leading in turn to their gradual shrinkage, in particular from the urban landscape (Drilling et al., 2016). Allotment gardens in particular offer social integration and direct contact with nature, thus improving the quality of life and health of city dwellers. Consequently, they should be protected from urbanistic pressures.

The study by Robinson et al. (2021) shows that the need for a mutually advantageous relationship between humans and the wider biotic community has never been more imperative. We must conserve, restore and design nature-centric environments to maintain resilient societies and promote planetary health (Robinson et al., 2021). In order to increase the food and health resilience in cities, especially in light of a potential future crisis initiated by COVID-19, urban allotments need to be implemented as a possible solution for health and food security concerns (Martens et al., 2018; D'Alessandro et al., 2020; Hanzl, 2020; Niala, 2020; Rudawska, 2020; Dobson et al., 2021).

## CONCLUSIONS

While we have shown that the functions of allotment gardens have changed and that the type of use varies depending upon the age of their owners, it is an unequivocal fact that research has confirmed the importance of allotment gardens and substantiated the need for their existence.

Respondents noticed an increase in the recreational use of allotment gardens as opposed to the previously dominant utilitarian function. Importantly, it has been shown that the youngest (aged under 20 years) and the oldest (aged over 61 years) gardeners stated that the cultivation of fruits and vegetables was the most important use. Middle-aged people (aged 21–60 years) indicated that the recreational function was the most important. The increase in anonymity among users was noticed by the oldest participants in the study. Based on the input from respondents aged under 40 years, it can be inferred that there is a new trend of owning a plot as a financial investment. The youngest respondents (aged under 30 years) declared their garden to be an escape – from the pandemic problems to their own, COVID-free space – and that this was one of the key benefits of owning

a plot. The short-term owners of plots emphasised the importance of their allotments as a family-friendly place with nature connections. More than 80% of the respondents, except for the group containing those aged less than 20 years, strongly agreed that cultivating their plots offered an escape from their problems. Extended interviews with the respondents revealed that allotment gardening was perceived as a coping strategy to deal with the stress generated during the lockdown.

The results suggest that the current popularity of allotments is directly related to the COVID-19 pandemic. Historically, the function of allotments varied depending upon the nature of the crisis causing an acceleration in the demand for them. The present functions of these gardens are to provide mental health balance and a safe place for family meetings and recreation. Therefore, urbanists and authorities, while planning the development of modern cities, should take into consideration the areas designated for allotment gardens, because they are needed now as never, and can be part of the solution to many of the problems faced by people living in urban areas.

## ACKNOWLEDGEMENTS

Not applicable.

## FUNDING

This research was supported by the Ministry of Science and Higher Education of the Republic of Poland from subvention funds for the University of Physical Education in Kraków and the University of Agriculture in Kraków.

## AUTHORS CONTRIBUTIONS

E.J. designed the research concept, collected data and performed analytical measurements. E.J. and B.S.-T. performed data analysis and interpretation, and wrote the article. B.S.-T. and A.S.-R. critically revised the article. All authors shoulder responsibility for final approval of the article.

## CONFLICT OF INTEREST

Authors declare that no conflicts of interest exist.

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Received: December 16, 2021; accepted: March 7, 2022