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THE INFLUENCE OF THERAPEUTIC HORTICULTURE ACTIVITIES ON QUALITY OF LIFE (QoL) ISSUES

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Abstract

It can be stated that during the last two years, the access and activities involvement in nature, public green areas or gardens were reduced or even suppressed by the crisis caused by the COVID 19 pandemic. However, in many countries' gardens were used in global public health crisis as a refuge to find peace of mind, pleasure, respite or relief. Therapeutic horticulture activities as gardening and people-plant interaction can offer them a meaningful time-spending outside. Several research studies indicates that this type of activities can increase people well-being and can reduce fatigue, attention disorder, anxiety, chronic stress or depression, and these long-term effects are frequently identified after an infection with coronavirus. The aim of present research was to analyse the influence of gardening activities in Quality-of-Life Issues like physiological, safety, social, esteem and self-actualization statements. In this regard, a questionnaire has been adapted including 15 statements to which respondents had to choose an answer from two possible options (affirmative or negative answer). The experimental study was conducted based on 27 people, who were involved in gardening activities for 3 days, 10 days or 6 weeks, depending on the group to which they belonged. The results indicated that all participants `enjoyed working outside`, most of them (96.3%) identified that `gardening is working with nature`. Even if 25 people stated that `the green area is a good place to meet people`, not everyone enjoyed working in group, because 63.0% of the said that they `enjoyed working alone`. Regarding the conducted gardening activities during the three study trials, most of them (96.3%) `wish to have the opportunity to attend regularly public horticultural therapy activities (gardening)`.

Key words*: gardening; questionnaire; therapeutic horticulture; well-being.*

INTRODUCTION

Nature exposure can reduce the risk of disease due to chronic stress and improve physical and mental well-being (Abu Dabrh et al., 2022; Haller et al., 2019; Simson & Straus, 1997). Green areas improve the quality of social life, providing a suitable environment in which people can optimize their resources and adaptability (Kasey et al., 2021; Hartig et al., 2014).

Gardening activities are recreational, stress-relieving, relaxing, can influence the tryptophan concentration, induce a lower salivary cortisol level, and improve depressive symptoms and well-being (Mourão et al., 2021; Marcus & Sachs, 2013; Horowitz, 2012; Mynt et al., 2007; Sempik et al., 2005).

Trough the modern times, globalization, the powerful development of the constructed urban environments compared to the decrease in land of rural and natural areas, and the social and sanitary crisis caused by COVID-19 pandemic have resulted in the loss of human-nature contact and direct interaction (Sia et al., 2022; Rivas & Biana, 2021; Marsh et al., 2021; Chaudhury & Banerjee, 2020).

Therapeutic horticulture is a relatively new field of research that has required in recent years a scientific approach to the link between people and nature, in the sense of defining concepts and validating objective methods of measuring the physiological and psychological effects of gardening or activities and relaxation in nature on people (Sachs, 2019; Harris, 2017; Kent, 2015; Gonzalez et al., 2010). Also, the human-nature interaction is an important component in relieving symptoms at people with various health conditions and can have positive effects on their well-being and quality of life.

Evidence-based practice has shown that, for example, several Alzheimer's patients feel more comfortable in a garden where the whole landscape is visible, designing green areas without hidden or confusing zones, which can

cause forgetfulness or the feeling of being lost (Furness & Moriarty, 2006; Sempik et al., 2005; Simson & Straus, 1997).
This research can improve the information about gardens as spaces with benefits for health and wellbeing and highlight the positive influence of therapeutic horticulture activities on quality of life (QoL) issues even in public health crisis.

MATERIALS AND METHODS

The present research was an experimental study using pre-test assessed with the Beck Depression Inventory (Beck & Steer, 1987) and post-test survey of the influence of horticultural therapy activities on quality of life (QoL) issues (Buru et al., 2019), conducted among randomly selected volunteer subjects at University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania.
Starting with June 2019, a total of 27 surveys were engaged in therapeutic horticulture sessions for 3 days (2 man, 7 women), 10 days (1 man, 7 women) and 6 weeks (1 man, 9 women).
The age range of the volunteers involved in the study (4 men, 23 women) was from 19 and 32 years (Mean value - age = 21.48 years) and BDI score between 10 - mild to moderate depression and 25 - moderate to severe depression (Mean value - BDI = 15.07).
The research study was part of a wide `green care and maintenance` program in the university campus, based on the three TH sessions program types 3 days, 10 days and 6 weeks (excepting Saturdays and Sundays). Through these activities, volunteers practiced `plant-related activities through which they strive to improve their well-being through active or passive involvement` (Hitter et al., 2019; Adevi & Mårtensson, 2013; Kam & Siu, 2010; Gonzalez et al., 2009; Sempik et al., 2003) like seeding, planting, weeding and pruning.
At the end of the TH session, the participants were asked to complete the interpretation survey of the TH activity based on Maslow's hierarchy of needs is used (Desmet & Fokkinga, 2020; Maslow, 1943). The form and content of the material were adapted to serve the specific research study conducted, thus analyzing five existential categories: psychological side, security and personal integrity, social component, self-esteem and emotional sphere. Based on the result obtained by original version of this survey (Table 1) which was established using 24 questions (Waliczek et al., 1996), the current study was design by adjusting a form of 15 statements to test quality-of-life factors (Table 2).

Table 1. The influence of horticultural therapy activities on quality of life (QoL) issues survey (Waliczek et al., 1996)

Statement		Racial/ethnic background	Gender	City size	New York vs. Los Angeles
Physiological					
1	I like to work in the soil.	0.020*z	NS	NS	NS
2	I enjoy working outside.	0.000*	NS	0.031*	NS
3	I need the physical exercise.	NS	NS	NS	NS
4	I like the garden colors, smells, beauty.	0.038*	0.025*	NS	0.006*
5	Gardening is working with nature.	0.019*	NS	NS	0.010*
6	I like to work with my hands.	0.000*	NS	NS	
7	I feel healthier when I eat my own produce.	NS	NS	NS	0.016*
Safety					
8	I feel safe in the garden.	0.002*	NS	NS	0.001 *
Social					
9	It's a good place to meet people.	NS	NS	NS	0.018*
10	I enjoy helping others to garden.	0.011*		0.042*	0.000*
11	The gardens beautify my neighborhood.	0.000*	NS	NS	0.000*
12	I can share my produce with others.	0.004*	NS	NS	NS
13	My gardening experience helps others.	0.001*	NS	NS	NS
14	I care for my garden and community.	0.000*	NS	NS	0.034*
15	I enjoy working alone.	NS	NS	0.003*	NS
Esteem					
16	I can produce my own food.	0.000*	NS	0.002*	NS
17	I can create something of beauty.	0.009*	NS	NS	0.003*

18	Gardening makes me feel good about my own abilities.	0.018*	NS	NS	NS
19	My garden food tastes better than store-bought food.	0.003*	NS	NS	0.044*
20	I'm proud of my garden.	0.005*	NS	NS	0.005*
21	I can handle the work needed.	NS	NS	NS	NS
22	I can save money by gardening.	0.021*	0.019*	NS	NS
Self-actualization					
23	My garden gives me a feeling of peace.	NS	NS	NS	NS
24	I can teach my children to garden.	0.003*	NS	NS	NS

Nonsignificant (NS) or significant (*) at $p = 0.05$.

Similar studies were conducted by Marsh et al. (2021) and the obtained results shown that people found respite and other positive benefits for the physical, mental, and emotional challenges of COVID-19 through gardening. Some of respondent who contributed to study told that gardening can appear to be, almost the panacea to COVID- 19 or indeed to other major health crises. The survey structure developed for this research study is based on 15 questions, each with a single answer with Yes / No (affirmative / negative), and the choice of the right answer is influenced by the experience gained during the gardening program through therapeutic horticulture sessions. The estimated time required to complete the questionnaire was within 3-5 minutes, and this may be different depending on the respondents, as they managed to read the questions and choose the relevant answer for them.

Table 2. The influence of horticultural therapy activities on quality of life (QoL) issues survey (Buru et al., 2019)

Statement	Answer
1. I like to work in the soil.	Yes/No
2. I enjoy working outside.	Yes/No
3. I like indoor plants` colors, smells, beauty.	Yes/No
4. Planting is working with nature.	Yes/No
5. I feel safe during the planting time.	Yes/No
6. It's a good experience to meet people.	Yes/No
7. I enjoy helping others in the planting activity.	Yes/No
8. My gardening experience helps others.	Yes/No
9. I care for my plant and community.	Yes/No
10. I enjoy working alone.	Yes/No
11. I can create something of beauty.	Yes/No
12. I'm proud of my potting plant activity.	Yes/No
13. I can handle the work needed.	Yes/No
14. My plant gives me a feeling of peace.	Yes/No
15. I intend to do therapeutic horticulture.	Yes/No

RESULTS AND DISCUSSIONS

The survey was completed in the form of printed material, then the data were processed electronically. The first four questions belong to the category of psychological interpretations, and all respondents agreed in 96.3% with the positive statement of the first question `*1. I like to work in the soil*`.

Out of the total number of participants, only one person chose to apply a negative answer. All answers recorded at the next statement `*2. I enjoy working outside*` were 100% pointed out that the volunteers, during horticultural therapy activities, enjoy working outdoors.

Analyzing the collected date of 27 participants trough this survey, 92.6% of the respondent's state that they identify during the gardening activities the sensory elements of the ornamental plants, and only 2 participants denied this aspect. Also, most of the 26 people who took part in this experimental study consider that gardening is an activity carried out in nature, and 3.7% of them deny the statement.

The following statement `*5. I feel safe during the planting time*` highlights and evaluates the perception of safety in the green space, where it can be seen from the assessments that most of all people felt safe during the 3-, 10- or 6-

weeks sessions during (therapeutic horticulture) TH activities.

Thus, a few people (7.4%) stated that they do feel insecure, while most of those involved in the study give a positive answer.

In the next part of the survey, the following five questions are adapted to emphasize the social side of therapeutic horticulture activities `*6. It's a good experience to meet people*`, where analyzing the obtained results from the processing data, it can be counted that there are 25 affirmative answers and about 7.4% negative ones.

According to the results obtained next statement `*7. I enjoy helping others in the planting activity*`, those who undertake gardening activities in community spaces, are willing to offer help to others, registering 92.5% positive answers to the preliminary assessment. On the other hand, the help offered to others through the experiences and knowledge of the respondents decreases, obtaining a majority of only 85.2% which represents 23 positive respondents.

The last two statements are part of the category of the social element of gardening and highlight the strong sense of belonging to the local and community landscape after the completion of TH interventions. Analyzing the next one `*9. I care for my plant and community*`, it can be evidenced a great responsibility towards the green space of the volunteers involved in the research study, the majority of 96.3% having a positive answer. Under these conditions, the way in which the people involved in the experimental research want to participate in active TH is different, because 10 of the respondents prefer to work independently, respectively 63.0% of people like to work in organized/collective groups.

The next part `*11. I can create something of beauty*` defines the aesthetic side of gardening activities, where it can be seen that 92.6% of those involved in TH sessions express a positive opinion in this regard.

The following three questions assess participants' self-esteem after completing the plant-assisted TH intervention. The aesthetic side of the post-therapy green space is strongly highlighted by the results that confirm that most of all respondents evaluate and appreciate their work as a beautiful result. Thus, out of the total number of participants, the majority of respondents state that they are proud of the appearance of the green space in which they activated with over 96.3% positive answers. Therefore, this aspect of self-confidence, of the satisfaction perceived after the completion of TH activities, which always changes the appearance of green spaces, is a positive feeling among the participants.

For the current statement `*13. I can handle the work needed*` it turns out that in terms of the physical effort required to do the gardening activities, 8 volunteers faced difficulties, compared to 70.4% of all participants. Even though the average age indicates the involvement of a category of young people, they have encountered some physical issues.

The last two statements are evidencing the influence of TH activities on quality of life (QoL) issues assess the emotional side of the results of TH and gardening sessions. Thus, it can be observed that most people say that the green space offers a chance to relax, registering 100% positive statements. Therefore, this finding also validates the hypothesis that gardening activities can have recreational effects, beneficial to health (Marsh et al., 2021).

In the end, the last statement `*15. I intend to do therapeutic horticulture*` analyses the societal need to belong to a zone/community/group, and this time it is about the green space in which the individual spent a definite time by undertaking gardening activities. Therefore, results conclude with an affirmative answer of over 96.3% of the 27 respondents, the desire to attend with a predetermined recurrence public gardening activities in the future.

Based on the investigation made by measuring the influence of gardening activities on the quality of life, the results obtained following a survey with 15 questions were statistically analyzed to identify the relation between the studied items.

The results presented in the next figure show that regardless of the environment of origin, age, gender and period of therapeutic horticulture and gardening activities have a significant positive influence on the volunteer's well-being involved in this research study.

In this regard, there is a direct and positive relation between the answers of women from

urban and rural areas, who answer in the affirmative way to the most questions regarding the favourable influence of gardening activities on well-being (r = 0.71).
The Pearson`s index value shows a significant positive correlation between the responses of women who followed TH sessions during 3 and 10 days (r = 0.84). Moreover, the analyzed data highlights a significant correlation between the answers of women who participated in TH sessions of 10 days and 6 weeks (r = 0.78), when they were asked about the importance of TH activities in their well-being. The correlation between the responses of men participating in TH sessions of 3 and 10 days (r = -0.15) is negative, and the Pearson`s index value (r = 0.02) in the case of men present in TH activities of 10 days and 6 weeks shows an insignificantly positive result and did not indicate statistical change.

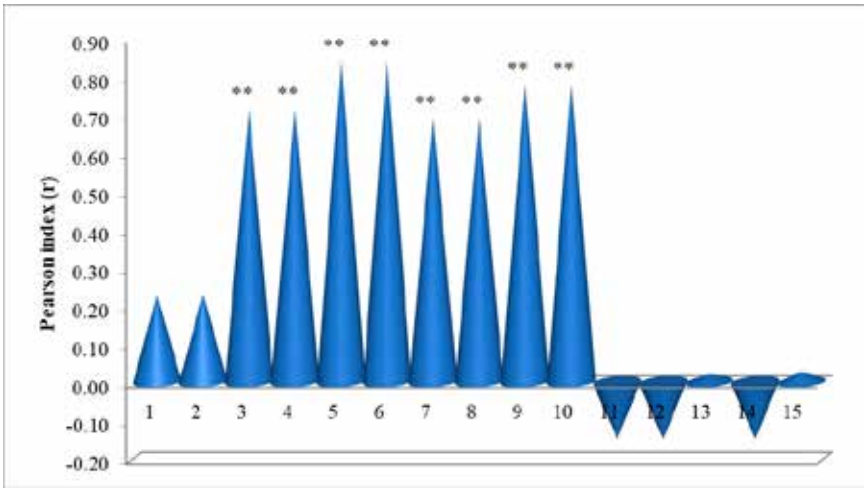

Figure 1. The influence of gardening activities on the quality of life expressed using the Pearson`s Index (15 cases, p 5% = 0.51, p 1% = 0.64, according to Ardelean et al., 2002)

According to the data obtained, the results shown in the Figure 1 evidence that there is an insignificant correlation (r = 0.23) between the answers of women and men of similar age (18-24 years old) which when asked about the joy of gardening, respectively between the answers women and men of similar age who consider gardening useful to those around them. There are no positive correlations between the answers of women from urban areas and men with the same background to most questions regarding the favourable influence of gardening activities on their well-being (r = 0.22).

CONCLUSIONS

The evaluation of the participants' perception after attending therapeutic horticulture (TH) sessions regarding the quality of life (QoL) following the gardening activities showed in large proportions positive answers regarding the psychological side, the security, from a social perspective, as well as in terms of self-esteem and emotional state. So, most people involved in different TH sessions enjoy spending time and gardening in the green area, facilitating also social interaction. An important aspect confirmed after the interpretation of these results is that gardening activities must be chosen according to the physical abilities of each participant.
Gardening activities can offer people the opportunity to be part of something meaningful and to rediscover their confidence, to improving their health and well-being.
The results obtained from the correlations indicate a possible link between gardening activities and respondents' well-being in most of the studied cases. Based on this finding, it can be stated the TH intervention is a possible alternative way to increase people wellbeing and help trough depression symptoms even after the 2-year pandemic period.

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