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# Glasilo Future

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## ***Glasilo Future***

### **Stručno-znanstveni časopis**

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**Riječ gostujućeg urednika [(2023) 6(4)]****Poštovani čitatelji Glasila Future,**

Čast mi je predstaviti Vam poseban broj posvećen temi koja povezuje *Poljoprivredu s društvenim znanostima*. Odnos poljoprivrede i društva ne odnosi se samo na osiguravanje prehrambene sigurnosti, nego i na oblikovanje društvenog, kulturnog, ekološkog, ekonomskog i održivog aspekta zajednice. Održiv odnos između društva i poljoprivrede neophodan je za izgradnju stabilnog ekosustava te očuvanju održive prakse na prostorima Republike Hrvatske, Bosne i Hercegovine i ostalih zemalja u okruženju. Na osnovu navedenog znanstveni i istraživački radovi koji se bave odnosom između poljoprivrede i društva su od velike važnosti, jer omogućavaju bolje razumijevanje kompleksnog odnosa društva i agrarnog sustava. Iznimno zadovoljstvo mi je što na prostorima Hrvatske i Bosne i Hercegovine postoje znanstvenici koji se bave ovom tematikom i to s aspekta više društvenih disciplina.

Rad autora doc. dr. sc. Miroslava Poje i suradnika baziran je na znanstvenoj procjeni svijesti i percepciji osoblja Specijalne bolnice za zaštitu djece s neurološkim i motoričkim teškoćama u Zagrebu o hortikulturnoj terapiji. Doc. dr. sc. Esved Kajtaz i Esmera Kajtaz, M.A. su ispitivali ekološke vrijednosti studenata i ukazali na važnost predmeta koji se bave očuvanjem čovjekovog okoliša. Nasl. Izv. prof. dr. sc. Boris Dorbić, prof. struč. stud. i suradnici kroz ispitivanje ponašanja, percepcije i stavova sudionika tijekom adventa 2021. u Šibeniku su analizirali kulturni i zeleni turizam, a posebnu pažnju su usmjerili na specijalno uređene javne gradske zelene i ostale javne površine. Prof. dr. sc. Suvad Lelo i suradnici u svom radu zagovaraju koncept intergrativne biologije zasnovane na interdisciplinarnom pristupu koji povezuje različite discipline iz biologije te ih integriraju u područja biotehničkog, okolišnog i zdravstvenog pristupa. Autori u svom radu također zagovaraju prilagodbu edukacije svjetskim trendovima. Na kraju još jedna zanimljiva tema autorice Džane Kune, BA. i suradnika koja ukazuje na važnost jezika kao ključnog faktora u prijenosu informacija, neverbalnoj komunikaciji, koja uključuje miris, u društvenim interakcijama.

Doc. dr. sc. Esved Kajtaz



Gostujući urednik

## **Perception of health professionals regarding the use of horticultural therapy**

**Miroslav Poje<sup>1\*</sup>, Vedrana Kasumović<sup>1</sup>, Martina Skendrović Babojelić<sup>2</sup>,  
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### **Abstract**

In some countries, such as Croatia, horticultural therapy (HT) is still in its early stages, which is reflected in the extremely low use of this therapy in practice. The main reasons for this are the lack of necessary infrastructure (outdoor or indoor spaces for horticultural activities) and formal education that would allow HT to be carried out safely. The aim of the research was to determine the awareness and perception of the staff of the Special Hospital for the Protection of Children with Neurodevelopmental and Motor Disabilities in Zagreb about the benefits and possibilities of introducing HT into regular therapeutic activities. The research was conducted in 2019 by means of a survey among members of the reference population, i.e., a sample of 120 health workers of the referred hospital. The results show that most respondents are familiar with the concept of horticultural therapy, while as many as 88 % of respondents believe that horticultural therapy is not or is insufficiently known in their environment. Most of the respondents do not recommend HT to their patients. Additional training in HT is considered important or very important by almost all respondents, regardless of where such training would take place. At the same time, 89 % of respondents believe that additional training and the use of HT would significantly improve the overall psychophysical condition of patients and stimulate more competition among colleagues which will lead to a broader application of horticultural therapy. The results show that healthcare professionals are interested in HT in healthcare facilities and are willing to be trained in its safe use.

**Key words:** horticulture, health care facilities, therapeutic activities, education, Croatia.

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<sup>3</sup> Poje, M., Kasumović, V., Skendrović Babojelić, M., Kušen, M., Židovec, V. (2023). Perception of health professionals regarding the use of horticultural therapy. *Glasilo Future*, 6(4), 1–20.

## **Introduction**

The positive influence of nature and plants on people has been known since ancient times, but it was not until the 20th century that the horticultural therapy (HT), which contributes passively and actively to improve the health of the user, was studied and applied more seriously. In the first half of the 20th century, horticultural therapy began to be used in various health institutions, but it was only during and after the Second World War that its wider use was recorded. During this time, the number of various occupational therapy programs in veterans' hospitals in the United States increased significantly, providing the impetus for the emergence of the profession of horticultural therapy. At this time, more and more literature appeared in the field of occupational therapy, including chapters on the use of horticultural activities and plants (Shoemaker and Diehl, 2012). In the second half of the 20th century, various training programs were established and a large amount of scientific research was published, which was listed in detail by Markee and Janick (1979). In 1973, the National Council for Therapy and Rehabilitation Through Horticulture (NCTRH) was founded, which was renamed the American Horticultural Therapy Association (AHTA) in 1987. In 1986, the AHTA began publishing its first scientific journal, the *Journal of Therapeutic Horticulture* (AHTA, 2023).

As defined by the American Horticultural Therapists Association (AHTA, 2023), horticultural therapy (HT) is the participation in horticultural activities directed by a registered horticultural therapist to achieve specific goals within an established treatment, rehabilitation, or vocational plan. HT is an active process that takes place within a defined treatment plan, with the process itself being considered a therapeutic activity and not the product. In addition to HT, there is also therapeutic horticulture (TH), which the AHTA defines as participation in horticultural activities led by a registered horticultural therapist or other professional trained in the use of horticulture as a therapeutic modality to support program goals (AHTA, 2023). TH is a process in which participants improve their well-being through active or passive engagement with plants and plant-related activities and, in a broader context, with nature. From these two definitions, the most important difference between HT and TH should be emphasized, as they are often considered synonyms. Unlike TH, HT has well-defined and documented treatment goals and is performed exclusively by a registered horticultural therapist, as opposed to TH, which can also be performed by other professionals who have received appropriate training in the field of horticulture. Notwithstanding the differences mentioned, the term HT is used in this paper due to the context of the research objectives. In addition to HT and TH, two other programs should be mentioned: social horticulture and vocational training for horticulture, which is extremely important for the inclusion of people with disabilities in the labor market, as horticulture (in this case gardening) is recognized as one of the most interesting professions for their employment (Morić and Marinić, 2017).

HT has numerous benefits, the most important of which can be defined as psychological, physical, cognitive, and social. Improvement in quality of life (Stoneham et al., 1995; Kim et al., 2020), increase in self-esteem (Lee et al., 2021), improvement in mood (Chan et al., 2017), reduction in anxiety (Kim and Park, 2018), relief of depression (Zhang et al., 2022), stress reduction (Ulrich et al., 1991; Shao et al., 2020; Curzio et al., 2022) and increased self-confidence (Karthikeyan et al., 2017) are just some of the proven psychological benefits. There are also physical benefits such as improving fine and gross motor skills (Lee et al., 2018), decreasing heart rate (Wichrowski, 2005), promoting physical health in a broader context (Han et al., 2018), improving strength (Yan et al., 2019), endurance (Park et al., 2016) and coordination (Malamud, 2015). Certain cognitive benefits have also been noted, such as learning new but familiar and non-threatening learning experiences in offenders (Ascencio, 2018), but also the repeated learning of forgotten skills and the improvement of memory in people with dementia (Söderback et al., 2004; Noone et al., 2017), increasing attention span (Kaplan and Kaplan, 1989), developing skills to deal with successes and failures (Oh et al., 2020), improving concentration and attention to detail (Tu and Chiu, 2020). Social benefits such as improving social skills (Kim et al., 2012), sharing experiences (Siu et al., 2020), learning cooperation skills (Kweon et al., 1998; Joy et al., 2020), practicing communication (Haller and Capra, 2006) and develop relationships with other people (Gonzales et al., 2011; Parkinson et al. 2011; Begić et al., 2022) are extremely important for better inclusion of various social and vulnerable groups in, let's say, normal life. In the broader context of HT, it should also be mentioned that spending time in a natural environment (White et al., 2019) or the mere sight of greenery (Ulrich, 1984; Kaplan, 2001) has significant benefits for improving human health.

HT can be applied to all age groups, from preschool children (Flick, 2012), elementary school students (Oh et al., 2020) and college students (Li et al., 2022) to the elderly (Wang et al., 2022) and for various social groups such as children with difficulties and people with disabilities, veterans with post-traumatic stress disorder (Detweiler et al., 2015; Mottershead and Ghisoni, 2021), prisoners (Mattson et al., 2004) and youth in correctional facilities or juvenile detention centers (Park et al., 2022).

HT is used very rarely in Croatia to support treatment, although Božidar Špišić, the founder of orthopedics and rehabilitation in the southeast of Europe, mentioned in his book at the beginning of the 20th century the use of occupational therapy and horticultural activities as rehabilitation procedures for veterans of the First World War, such as a horticultural course, planting and watering vegetables, tending gardens and planting flowers (Špišić, 1917). One of the fundamental problems of the lower involvement of HT in therapeutic activities is that in the Republic of Croatia there is no possibility of obtaining the title of horticultural therapist, as is the case with occupational therapists and other therapists. The only recognized college course with this profile is "Introduction to Horticultural Therapy" at the University of Zagreb Faculty of Agriculture. However, since it is only a

course within a graduate program in Horticulture – Ornamental Plants, it does not enable the acquisition of the title of a registered horticultural therapist (Židovec et al., 2015).

For this reason, this study attempted to determine the interest in the application of HT itself and the willingness of health professionals to undergo further training in HT. In accordance with the above, the objectives of the study are: to determine the extent to which the health professionals of the Special Hospital for the Protection of Children with Neurodevelopmental and Motor Disorders are aware of horticultural therapy; what attitudes they have towards the use of horticultural therapy in addition to other therapeutic activities in other institutions and to determine the degree of importance of additional education and willingness for additional education and practical application of horticultural therapy.

## **Materials and methods**

### ***Target population and structure of the research sample***

The study was conducted with a convenience sample of members of the reference population, i.e. a sample of 120 employees of the Goljak Special Hospital in Zagreb.

Considering the research method, i.e. the sample design and the method of selecting respondents, it was a non-probabilistic sample and the type of sample was a convenience sample. Therefore, the trends and conclusions observed in the realized sample can only serve as a rough indicator of the parameters of the population.

### ***Sociodemographic characteristics of the respondents***

The sociodemographic characteristics of respondents at Goljak Special Hospital included gender structure, age structure, level of education completed, and years of work experience at the healthcare facility where respondents were employed at the time of the survey (Table 1).

**Table 1.** *Sociodemographic characteristics of employees of the Goljak Special Hospital (n = 120)*

<b>Variable</b>	<b>The variable category</b>	<b>f</b>	<b>%</b>
Gender	Male	56	46.7
	Female	64	53.3
Level of education	High school	29	24.2
	Bachelor study	53	44.2
	Master study	35	29.2
	MSc	3	2.5
Age	24-35	23	19.2
	36-45	54	45.0
	46-55	28	23.3
	56-65	15	12.5
Years of working experience	0-2	3	2.5
	3-7	13	10.8
	8-15	33	27.5
	16-25	36	30.0



<b>Variable</b>	<b>The variable category</b>	<b>f</b>	<b>%</b>
	26-35	28	23.3
	36 and more	7	5.8

Regarding the gender structure of the respondents, the sample consisted of 47 % male and 53 % female healthcare professionals. More than 50 % of the respondents, namely 64 %, were younger than 46 years old, while 13 % of the respondents were between 56 and 65 years old. Taking into account the highest level of education completed, the largest number of respondents (44 %) had a higher professional degree, while 3 % of respondents had a Master's degree (MSc). At the same time, there was not a single study participant in the sample with the highest completed degree of Doctor of Science. Regarding the years of professional experience in the current healthcare institution, 3 % of the respondents had less than two years of professional experience at the time of the survey, while most of the respondents (69 %) had between eight and twenty-five years of experience in the reference healthcare institution.

### ***Data collection***

The data collection was conducted in 2019 using the method of written personal interview of respondents (PAPI) with the help of a paper version of the questionnaire on the premises of the Special Hospital for the Protection of Children with Neurodevelopmental and Motor Disabilities Goljak in Zagreb (hereinafter: Special Hospital Goljak).

An invitation to participate in the study was sent to potential respondents. The ones that agreed to participate in the study were briefly introduced to the topic of the survey and the purpose of the study, assured of the anonymity of the data and the confidentiality of their responses, after which the respondents completed the questionnaire independently. Completing the questionnaire took an average of ten minutes.

Participation in the study was voluntary and respondents could withdraw at any time without giving reasons. The survey results were anonymous and confidential, i.e. the data collected was used exclusively for the preparation of this study and was not passed on to other persons or institutions. The respondents' answers were analyzed collectively, i.e. at the level of the total sample, using an anonymized database that makes it impossible to link the research results obtained to the identity of the respondents.

### ***Survey questionnaire***

In order to collect relevant data, a questionnaire with 14 questions and a total of 17 variables was designed and created in accordance with the defined research objectives and postulated hypotheses. As far as the structure of the questions is concerned, all questions were of the closed type, in the form of a

single answer, with respondents having the option of selecting only one of the answers offered from a different group of answers. Closed questions and statements are associated with nominal response scales with a different number of categories or ordinal rating scales with a different number of levels. At the same time, the consequences of additional professional education and training in the field of horticultural therapy and the effects of the application and introduction (implementation) of horticultural therapy in regular therapeutic activities were measured with a multi-item measuring instrument consisting of four items, while other measurement items were measured with simple indicators (single-item measuring instruments).

The questionnaire comprised the following eight measurement fields:

(a) socio-demographic characteristics of the healthcare care workers surveyed, including gender structure, age structure, highest level of education completed, and years of work experience in the healthcare care facility where the respondents were employed at the time of the survey;

b) familiarity with the concept of horticultural therapy, measured by a direct indicator (the question: "Do you know what horticultural therapy is?"), which was assigned a three-point ordinal rating scale from 1 to 3, with a lower scale score indicating a lower level of familiarity with the concept of horticultural therapy, while the highest score indicated an upper level of familiarity;

c) the level of importance of stress management therapy from the respondents' perspective, measured by a direct indicator (the question: "In your opinion, how important is stress management therapy?"), which was assigned a five-point ordinal rating scale from 1 to 5, with a lower scale value indicating less importance of stress management therapy and the highest scale value indicating greater importance;

d) the extent to which horticultural therapy is represented in the respondents' environment, which was measured by a direct indicator (the question: "To what extent is horticultural therapy represented in your environment?"), which was assigned a five-point ordinal rating scale from 1 to 5, with a lower scale value indicating a lower representation of horticultural therapy in the respondents' environment, while the highest scale value indicated a stronger representation of HT in their work environment;

f) the willingness to undergo additional training in the field of horticultural therapy, which was measured using two indicators:

the degree of importance of additional training in horticulture for practicing horticultural therapy, which was measured by a direct indicator (the question "To what extent is additional training in horticulture important for practicing horticultural therapy?"), which was assigned a five-point ordinal rating scale from 1 to 5, with a lower scale value indicating less importance of additional training in horticulture for practicing horticultural therapy, while the highest scale value indicates greater importance of additional training;

willingness to attend horticultural therapy training seminars, measured by a direct indicator (the question: "Would you attend horticultural therapy training seminars?" using a nominal rating scale with three categories (Yes; No; and Yes, if they are recognized by the health facility where I work);

g) the impact of the respondents' additional professional training in HT and the impact of the application and introduction (implementation) of HT in regular therapeutic activity from the respondents' perspective, measured by four indicators: the impact of the respondents' additional professional training in HT on the general psychophysical state of patients; on competition between colleagues; on the image of the health facility where the staff was interviewed; and on the perception of nature/green fields and their use in medicine. The indicators for the impact of the additional training were assigned a five-point ordinal rating scale from 1 to 5, with a lower scale value indicating a lower impact of the additional training on the reference area, while the highest scale value indicated a greater impact;

h) the attitude towards the use of horticultural therapy, which was measured using two indicators:

the degree of importance of creating specially designed green fields for citizens with the aim of applying horticultural therapy, measured by a direct indicator (the question: "To what extent is the creation of specially designed green spaces important for citizens with the aim of applying horticultural therapy?"), which was assigned a five-point ordinal rating scale from 1 to 5, with a lower scale value indicating less importance of creating specially designed green spaces with the aim of applying horticultural therapy, while the highest scale value indicates greater importance;

the degree of importance of the practical therapeutic effect of the application of horticultural therapy, measured by a direct indicator (the question: "To what extent is the therapeutic effect of horticultural therapy important for practice?"), which was assigned a five-point ordinal rating scale from 1 to 5, with a lower scale value indicating less importance of the practical therapeutic effect of the application of horticultural therapy, while the highest scale value indicates greater importance.

### ***Statistical analysis***

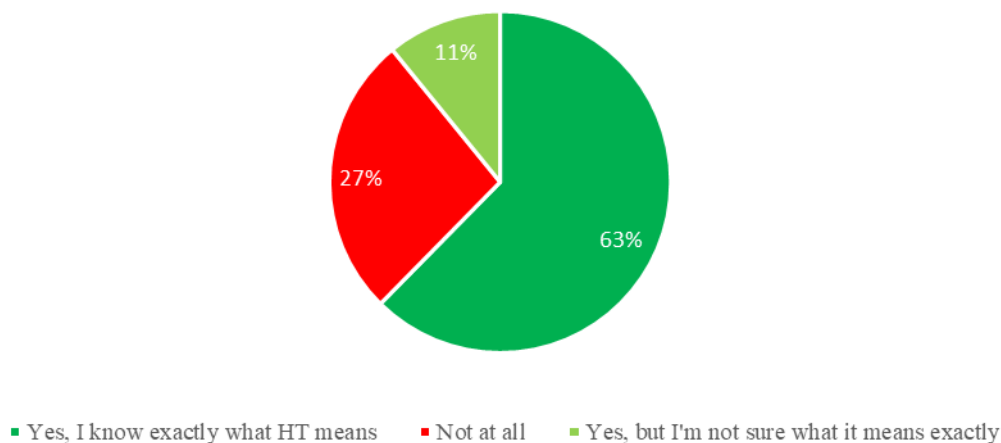
The collected data were processed and analyzed with SPSS 28 (IBM, 2021). The empirical data were analyzed using the methods and procedures of descriptive statistics. Within the framework of descriptive statistics, the variables were analyzed with univariate techniques using appropriate descriptive statistical indicators (frequency distributions, percentage distributions of responses, mean values, modal values, median values, standard deviation, asymmetry and flatness).

## Results and discussion

### *Familiarity with the concept of horticultural therapy*

Of the 120 health professionals surveyed, 27 % were unfamiliar with the concept of horticultural therapy, 11 % had heard of horticultural therapy but did not know exactly what the term meant, while the majority of respondents, 63 %, were familiar with the term horticultural therapy (Figure 1).

Do you know what horticultural therapy (HT) is?



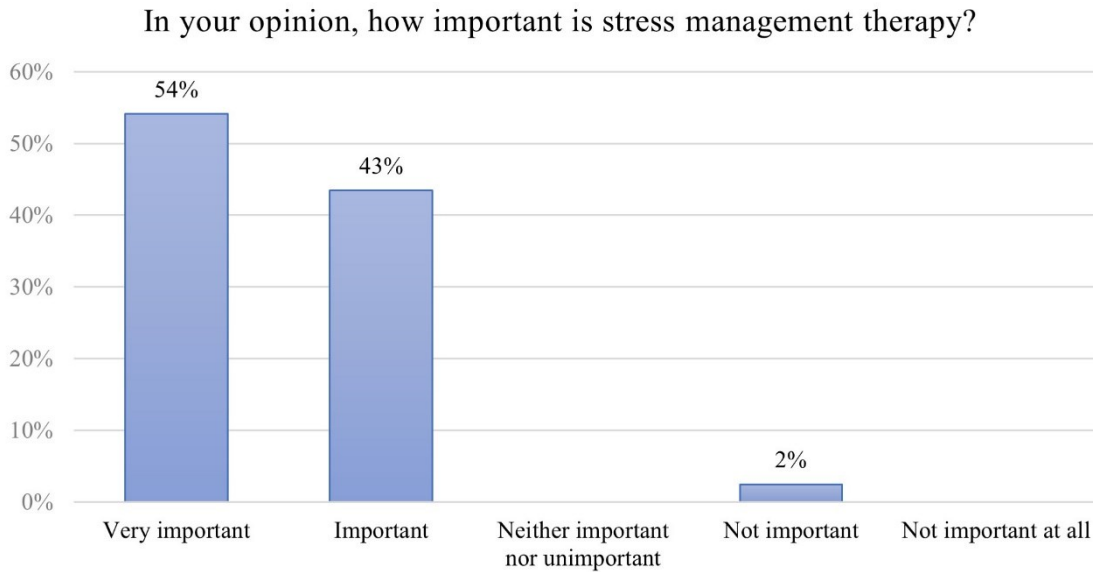
**Figure 1.** Familiarity with the concept of horticultural therapy ( $n = 120$ )

### *The degree of importance of stress management therapies from the respondents' perspective*

Regarding the level of importance of stress reduction therapy, the vast majority of health professionals surveyed (97.5 %) considered stress reduction therapy important ( $M \pm SD = 4.38 \pm 0.62$ ), while 3 % of respondents considered it unimportant. Not a single study participant was identified for whom the therapy was not important at all, i.e. neither important nor unimportant (Figure 2).

The importance of therapy, i.e. the active or passive use of the garden to relieve stress, is not only important for patients and users of health services, but also for the staff themselves, as problems with health staff are becoming increasingly apparent in most European countries and in North America. Indeed, certain professions are notoriously stressful, such as nursing, as they are often associated with overwork due to job demands, lack of control or decision-making power and stress due to shift work (Ulrich, 2001). Additional pressure also arises from the growing need to control or reduce costs (Ulrich, 2002). This has led to lower job satisfaction, increased absenteeism, higher turnover and shortage of qualified staff, higher provider operating costs and lower quality of patient care (Ulrich, 2002). All of these problems demonstrate the importance of gardens as a means of escaping workplace pressures and recovering from stress. In addition, some research suggests that hospital gardens increase employee satisfaction and help hospital administrators attract and retain qualified staff (Cooper Marcus and Barnes, 1995; Whitehouse et al., 2001).

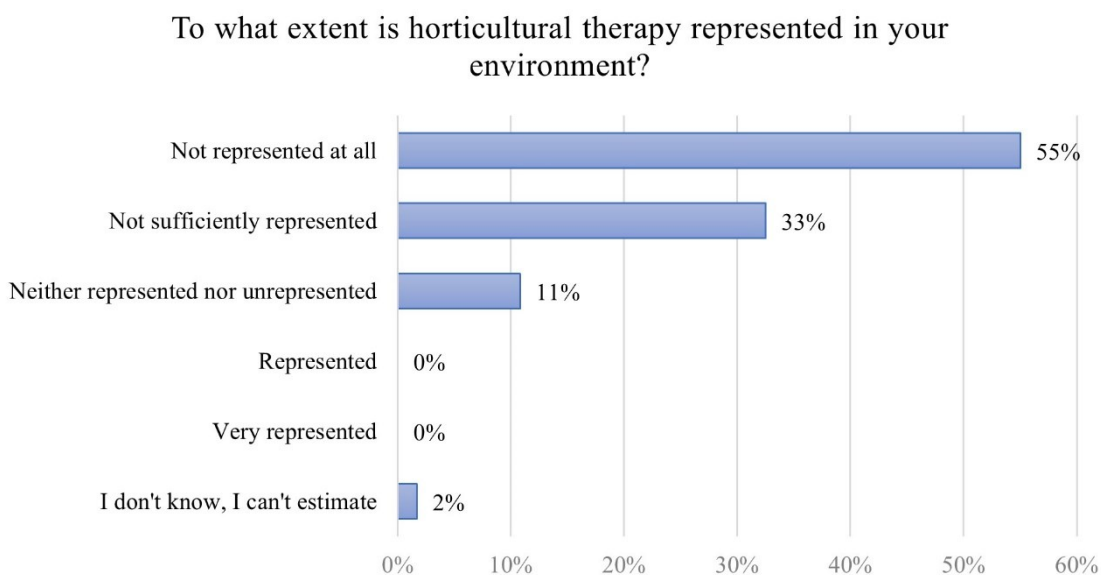




**Figure 2.** The level of importance of stress-relieving therapy from the perspective of the respondents

***The degree of representation of horticultural therapy in the environment from the respondents' perspective***

The vast majority of health professionals surveyed (88 %) felt that horticultural therapy was not represented at all or was inadequately represented ( $M \pm SD = 1.55 \pm 0.69$ ). There was not a single study participant in the sample who felt that horticultural therapy was present or very present in their setting (Figure 3).



**Figure 3.** The level of representation of HT in the environment from the perspective of the respondents

The respondents' opinion on the presentation of HT in the medical environment is in line with the study by Kuharić et al. (2010), which found that 80 % of respondents do not implement HT in the institutions where they are employed and that they have no knowledge of its implementation on the territory of the Republic of Croatia.

### ***The practice of recommending horticultural therapy to patients***

Regarding the practice of recommending horticultural therapy to patients, the largest proportion of respondents (60 %) do not recommend HT to patients, while 40 % recommend it, with 23 % recommending it regularly and 18 % recommending it only sometimes.

The discrepancy between the positive perception of HT and the fact that the majority of respondents do not recommend it can be explained by the fact that there are no facilities in Croatia that perform it, or that respondents are not familiar with such facilities. If the circumstances were different, the results would perhaps be more in line with the research findings, which state that in most cases respondents would recommend the use of HT to anyone who is interested or motivated to undergo this type of therapy (Kuharić et al., 2010).

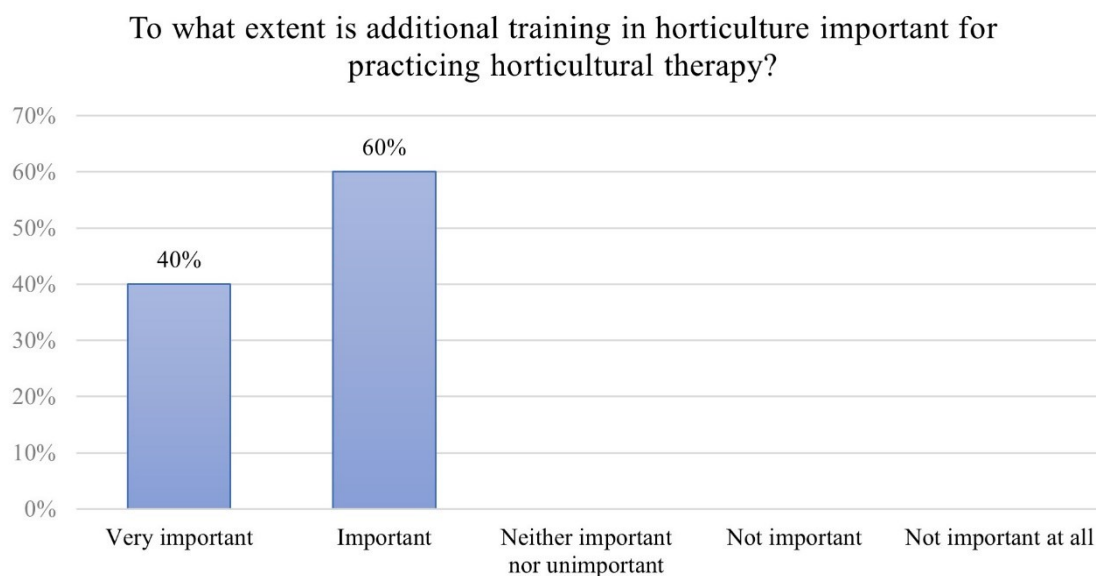
Regarding the practice of recommending horticultural therapy to patients by colleagues, 55 % of respondents believe that their colleagues recommend HT to their patients, while 26 % believe that they do not recommend HT to their patients. 19 % of respondents could not assess whether their colleagues recommend horticultural therapy to their patients.

### ***Willingness to undergo additional training in the field of horticultural therapy***

Regarding the importance of additional training in horticulture for use in practice, all respondents believe that additional training is important ( $M \pm SD = 4.40 \pm 0.49$ ). Of the respondents, 60 % consider it important and 40 % very important. There was not a single respondent in the study sample who felt that additional training in horticulture was not important at all, not important, or neither important nor unimportant for practicing horticultural therapy (Figure 4).

In terms of willingness to attend training seminars on horticultural therapy, almost all respondents (98 %) would attend such seminars, with 69 % attending regardless of where they work, while 29 % of respondents would attend training seminars if they were offered at a health facility where they are employed. Only 2 % of respondents would not attend such seminars. The importance of additional training is also reflected in the results of a study conducted in the USA, which found that 86 % of respondents believe that horticultural therapy is needed in a regular medical program, and 91 % of respondents believe that additional training in horticulture is necessary if they were to practice horticultural therapy (Pfeffer et al., 2009). Currently, in the Republic of Croatia there is only one verified degree program in HT at the University of Zagreb, Faculty of Agriculture, and a way needs to be found to further develop multidisciplinary education in this field in cooperation with other faculties (this mainly refers to the Faculty of Education and Rehabilitation). It should be noted that certain

problems with education also exist in the USA, which has a much longer tradition in the field of HT. Although there is no lack of university programs, certain problems have been identified, such as the lack of standardization of university programs, the lack of introduction of new subjects, enabling training in HT for allied professions, etc. (Starling et al., 2014; Stowell et al., 2021).



**Figure 4.** The level of importance of additional education in the field of horticulture for the practice of horticultural therapy

***The consequences of additional professional training and training in the field of horticultural therapy and the effects of the application and introduction (implementation) of horticultural therapy into regular therapeutic activity***

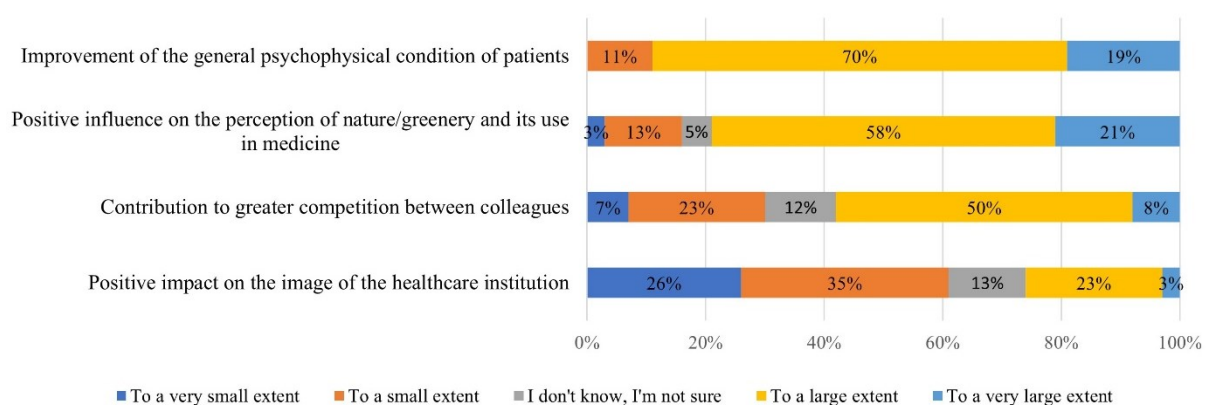
Measured by the average indicators of the consequences of additional professional training and training in the field of horticultural therapy and the effects of the application and introduction (implementation) of horticultural therapy into regular therapeutic activity from the respondents' perspective (Table 2), the implementation of HT would contribute to the greatest extent to improving the general psychophysical condition of the patients ( $M \pm SD = 3.98 \pm 0.79$ ) and would positively influence the perception of nature/greenery and its use in medicine ( $M \pm SD = 3.82 \pm 1.00$ ), to a lesser extent it would contribute to increased competition between colleagues ( $M \pm SD = 3.28 \pm 1.11$ ), while to a lesser extent it would contribute to the positive image of the healthcare institution ( $M \pm SD = 2.43 \pm 1.19$ ).

**Table 2.** Selected descriptive statistical indicators of the consequences of additional professional training and education in the field of horticultural therapy and the application and introduction (implementation) of horticultural therapy in regular therapeutic activities from the perspective of the respondents

	Range	M ± SD	CV	KS
Improvement of the general psychophysical condition of patients	2 – 5	3.98 ± 0.79	19.96	0.404***
Positive influence on the perception of nature/greenery and its use in medicine	1 – 5	3.28 ± 1.11	34.04	0,317***
Contribution to greater competition between colleagues	1 – 5	2.43 ± 1.19	49.19	0.248***
Positive impact on the image of the healthcare institution	1 – 5	3.82 ± 1.00	26.09	0.365***

M = arithmetic mean; SD = standard deviation; CV = coefficient of variability in %; KS = Kolmogorov - Smirnov test \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$

Observing the individual responses to the indicators of the consequences of additional professional training and training in horticultural therapy and the application and introduction (implementation) of HT into regular therapeutic activities from the respondents' perspective, as many as 89 % of respondents believe that the introduction of HT into regular therapeutic activities would improve the patient's general psychophysical condition to a high degree (70 %) or to a very high degree (19 %), while 11 % of respondents believe that its introduction would improve the patient's general psychophysical condition to a low degree (Figure 5).



**Figure 5.** The consequences of additional professional training and education in the field of horticultural therapy and the impact of the application and introduction (implementation) of horticultural therapy in regular therapeutic activities from the perspective of the respondents



Similar results were provided by the AHTA survey, in which the respondents (registered members of the society) confirmed the importance of horticultural therapy training as a necessary step in the use of HT with the aim of improving patients' general psychophysical conditions (Starling et al., 2013).

Analyzing the impact of additional professional training and training in HT and its implementation in regular therapeutic activities from the respondents' perspective on the positive perception of nature/greenery and its use for medical purposes, 16 % of respondents believed that the introduction of horticultural therapy would have very little (3 %) or little (13 %) impact on the positive perception of nature/greenery and its use in medicine, while 5 % of respondents could not assess this impact. As many as 79 % of respondents believe that the introduction (implementation) of horticultural therapy into regular therapeutic activities would lead to a more positive perception of nature/green spaces and their use in medicine, to a high (58 %) or very high (21 %) degree.

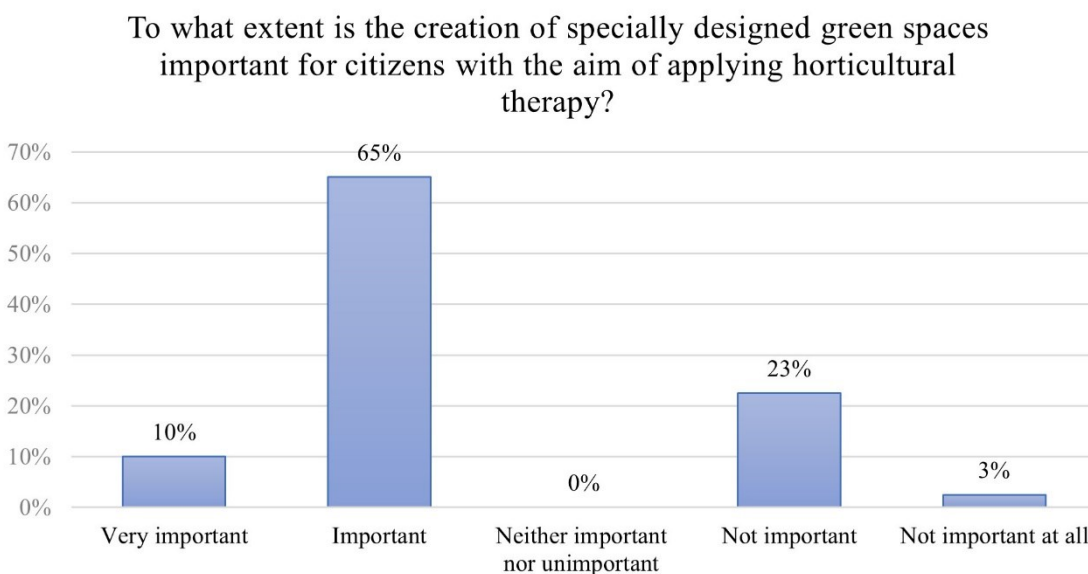
The consequences of additional professional development in the field of HT and its application in the context of regular therapeutic activity from the respondents' perspective with regard to competition among colleagues, 58 % of them believe that a training would lead to more competition at high (50 %) or a very high degree (8 %).

Although 60 % of employees agree with the statement that their additional training and professional development through HT will influence competition between colleagues, this percentage is slightly higher in a similar survey (80 % of respondents), but this is also understandable as HT is only in the early stages of development in Croatia, compared to US where the research was conducted (Starling et al., 2013).

Regarding the impact of additional professional training in HT and the application and introduction (implementation) of HT into regular therapeutic activity on the positive image of the health institution, 61 % of respondents believe that this would lead to a low positive image of the health institution to a very small (26 %) or small extent (35 %), while 13 % of respondents could not assess the impact on the image of the institution. 26 % of respondents have opinion that additional professional training and further training in the field of horticultural therapy would lead to a more positive image of the healthcare facility to a high (23 %) or very high (3 %) extent.

#### ***Attitudes towards the use of horticultural therapy***

When assessing the importance of creating specially designed green spaces for citizens with the aim of using horticultural therapy, respondents considered the creation of such spaces to be moderately important ( $M \pm SD = 3.58 \pm 1.03$ ). Although the vast majority of respondents (75 %) considered the creation of such spaces to be important or very important, as many as 23 % of respondents felt that it was not important. There was not a single participant in the study that considered the creation of the areas mentioned to be neither important nor unimportant (Figure 6).



**Figure 6.** The level of importance of the formation of specially designed green areas for citizens with the aim of applying horticultural therapy

The above results can be explained by less available information about the possibilities of implementing HT inside the health sector (hospitals, rehabilitation centers, etc.). In other words, from the point of view of the respondents (health care workers), it is logical that therapeutic activities are carried out only in "official" health care institutions, because that is how the Croatian system was created. There is a clear difference in, for example, the USA, where HT is also carried out in private health facilities (hospitals, companies running nursing homes, etc.), non-profit institutions and programs run by individuals or families (Pfeffer et al., 2009), even by people who are not officially registered as horticultural therapists (Larson et al., 2010). A similar example is Battersea Park in London, where various HT activities are carried out for different user groups such as children with disabilities and people with disabilities, people with mental health problems, patients recovering from heart attacks and strokes (Dujmović, 2016).

The respondents believe that the use of horticultural therapy in practice would be relatively important ( $M \pm SD = 3.91 \pm 0.82$ ). When calculating the average and standard deviation, respondents who could not assess the degree of importance of the therapeutic effect of horticultural therapy for use in practice were excluded from the analysis. In addition, 4 % of respondents believe that the therapeutic effect of horticultural therapy in practice would not be important at all, while 13 % of respondents believe it would be neither important nor unimportant. As many as 81 % of respondents believe that the therapeutic effect of horticultural therapy in practice would be important (65 %) or very important (16 %), while 3 % of respondents could not assess the therapeutic effect of horticultural therapy in practice. All study participants considered the therapeutic effect of horticultural therapy to be important in practice. This was also recognized in the study by Kuharić et al. (2010), in which all

respondents were willing to use horticultural or garden therapy as soon as they had the opportunity to do so.

## **Conclusions**

The main limitation of this study was the convenience sample, i.e. the limited possibility to generalize the conclusions and the trends observed in the study sample to the reference population. Nevertheless, it can be concluded that health professionals are interested in incorporating HT into their regular therapeutic activities and are willing to undergo further training to be able to perform HT in a safe manner. Although it is possible to organize training workshops at the professional level, it is also necessary to create a formal, university-based program that provides interdisciplinary training in HT. At the same time, the spatial conditions for the implementation of HT need to be created, regardless of whether they are outdoor or indoor spaces. As it is quite difficult to use the existing outdoor areas next to the buildings because they are not specifically designed for the use of HT, it is important that such therapeutic spaces are included in the future planning of healthcare facilities.

## **References**

AHTA (American Horticultural Therapy Association) Definitions and Positions. Retrieved from <http://www.ahta.org/>

Begić, L., Temim, E., Dorbić, B. (2022). Značaj urbane poljoprivrede u hortiterapiji s posebnim osvrtom na grad Mostar (Bosna i Hercegovina). *Glasnik zaštite bilja*, 45(4), 4-16.

Effects of horticultural therapy on elderly' health: Protocol of a randomized controlled trial. Horticultural Therapy May Reduce Psychological and Physiological Stress in Adolescents with Anorexia Nervosa: A Pilot Study. *Nutrients*, 14(24), Article 24. <https://doi.org/10.3390/nu14245198>

Detweiler, M. B., Self, J. A., Lane, S., Spencer, L., Lutgens, B., Kim, D.-Y., Halling, M. H., Rudder, T. C., Lehmann, L. P. (2015). Horticultural therapy: A pilot study on modulating cortisol levels and indices of substance craving, posttraumatic stress disorder, depression, and quality of life in veterans. *Alternative Therapies in Health and Medicine*, 21(4), 36-41.

Dujmović, J. (2016). Terapijski vrtovi i terapijska hortikultura kao intervencija u zdravstvu. *Socijalna psihijatrija*, 44(1), 0–21.

Flick, K. M. (2012). The Application of a Horticultural Therapy Program for Preschool Children with Autism Spectrum Disorder. *Journal of Therapeutic Horticulture*, 22(1), 38–45.

M. Poje, Vedrana Kasumović, Martina Skendrović Babojelić, M. Kušen, Vesna Židovec / Perception of health professionals regarding the use of horticultural therapy / Glasilo Future (2023) 6 (4) 01–20

Gonzalez, M. T., Hartig, T., Patil, G. G., Martinsen, E. W., Kirkevold, M. (2011). A prospective study of group cohesiveness in therapeutic horticulture for clinical depression. *International Journal of Mental Health Nursing*, 20(2), 119–129. <https://doi.org/10.1111/j.1447-0349.2010.00689.x>

Capra, R. L. H., Christine L. (Ed.). (2014). *Horticultural Therapy Methods: Connecting People and Plants in Health Care, Human Services, and Therapeutic Programs*. CRC Press. <https://doi.org/10.1201/9781482277869>

Han, A.-R., Park, S.-A., Ahn, B.-E. (2018). Reduced stress and improved physical functional ability in elderly with mental health problems following a horticultural therapy program. *Complementary Therapies in Medicine*, 38, 19-23. <https://doi.org/10.1016/j.ctim.2018.03.011>

IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp

Joy, Y. S., Lee, A.-Y., Park, S.-A. (2020). A Horticultural Therapy Program Focused on Succulent Cultivation for the Vocational Rehabilitation Training of Individuals with Intellectual Disabilities. *International Journal of Environmental Research and Public Health*, 17(4), Article 4. <https://doi.org/10.3390/ijerph17041303>

Kaplan, R. (2001). The Nature of the View from Home: Psychological Benefits. *Environment and Behavior*, 33(4), 507–542. <https://doi.org/10.1177/00139160121973115>

Kaplan, R., Kaplan, S. (1989). *The Experience of Nature: A Psychological Perspective* (First Edition). Cambridge University Press.

Karthikeyan, V., Surya Suresh, S. R. (2017). Smell as an Emotional Stimulant in Horticultural Therapy: Lessons from Activities Conducted for Orphanage Children in Bangalore. *International Journal of Indian Psychology*, 4(3). <https://doi.org/10.25215/0403.096>

Kim, B.-Y., Park, S.-A., Song, J.-E., Son, K.-C. (2012). Horticultural Therapy Program for the Improvement of Attention and Sociality in Children with Intellectual Disabilities. *HortTechnology*, 22(3), 320–324. <https://doi.org/10.21273/HORTTECH.22.3.320>

Kim, K.-H., Park, S.-A. (2018). Horticultural therapy program for middle-aged women's depression, anxiety, and self-identify. *Complementary Therapies in Medicine*, 39, 154–159. <https://doi.org/10.1016/j.ctim.2018.06.008>

Kim, Y. H., Park, C. S., Bae, H.-O., Lim, E. J., Kang, K. H., Lee, E. S., Jo, S. H., Huh, M. R. (2020). Horticultural Therapy Programs Enhancing Quality of Life and Reducing Depression and Burden for Caregivers of Elderly with Dementia. *Journal of People, Plants, and Environment*, 23(3), 305–320. <https://doi.org/10.11628/ksppe.2020.23.3.305>



M. Poje, Vedrana Kasumović, Martina Skendrović Babojelić, M. Kušen, Vesna Židovec / Perception of health professionals regarding the use of horticultural therapy / Glasilo Future (2023) 6 (4) 01–20

Kuharić, D., Grgić, M., Ranogajec, L. (2010). Hortikulturalna terapija – teorijske postavke i primjena u praksi. *Ekonomski vjesnik : Review of Contemporary Entrepreneurship, Business, and Economic Issues*, XXIII(2), 515–522.

Kweon, B.-S., Sullivan, W. C., Wiley, A. R. (1998). Green Common Spaces and the Social Integration of Inner-City Older Adults. *Environment and Behavior*, 30(6), 832–858. <https://doi.org/10.1177/001391659803000605>

Larson, J. M., Greenseid, L., Meyer, M. H. (2010). A Descriptive Study of the Training and Practice of American Horticultural Therapy Association Members. *Journal of Therapeutic Horticulture*, 20, 10-32.

Lee, A.-Y., Park, S.-A., Park, H.-G., Son, K.-C. (2018). Determining the Effects of a Horticultural Therapy Program for Improving the Upper Limb Function and Balance Ability of Stroke Patients. *HortScience*, 53(1), 110–119. <https://doi.org/10.21273/HORTSCI12639-17>

Lee, A.-Y., Kim, S.-Y., Kwon, H. J., Park, S.-A. (2021). Horticultural therapy program for mental health of prisoners: Case report. *Integrative Medicine Research*, 10(2), 100495. <https://doi.org/10.1016/j.imr.2020.100495>

Li, Y., Li, F., Gui, Z., Gao, W. (2022). Promoting Effect of Horticultural Therapy on College Students' Positive Psychological Quality. *Frontiers in Psychology*, 13. <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.864147>

Malamud, C. J. (2015). Protocols for Plant-Cart Horticultural Therapy. *Journal of Therapeutic Horticulture*, 25(2), 15–32. <https://www.jstor.org/stable/24865265>

Marcus, C. C., Barnes, M. (1999). *Healing Gardens: Therapeutic Benefits and Design Recommendations*. John Wiley & Sons.

Markee, K. M., Janick, J. (1979). A Bibliography for Horticultural Therapy (1970-1978): Comparison of Literature Search Techniques in an Interdisciplinary Field1. *HortScience*, 14(6), 692-697. <https://doi.org/10.21273/HORTSCI.14.6.692>

Mattson, R. H., Kim, E., Marlowe, G. E., Nicholson, J. D. (2004). Horticultural Therapy Improves Vocational Skills, Self-esteem, and Environmental Awareness of Criminal Offenders in a Community Corrections Setting. *HortScience*, 39(4), 837D – 837. <https://doi.org/10.21273/HORTSCI.39.4.837D>

Morić, S., Marinić, M. (2017). Persons with Disabilities in Horticulture – Preferences for Education and Employment. *Mostariensia : Časopis Za Društvene i Humanističke Znanosti*, 21(2), 155-166.

M. Poje, Vedrana Kasumović, Martina Skendrović Babojelić, M. Kušen, Vesna Židovec / *Perception of health professionals regarding the use of horticultural therapy / Glasilo Future (2023) 6 (4) 01–20*

Mottershead, R., Ghisoni, M. (2021). Horticultural therapy, nutrition and post-traumatic stress disorder in post-military veterans: Developing non-pharmaceutical interventions to complement existing therapeutic approaches. *F1000Research*, 10, 885. <https://doi.org/10.12688/f1000research.70643.1>

Noone, S., Innes, A., Kelly, F., Mayers, A. (2017). ‘The nourishing soil of the soul’: The role of horticultural therapy in promoting well-being in community-dwelling people with dementia. *Dementia*, 16(7), 897-910. <https://doi.org/10.1177/1471301215623889>

Oh, Y.-A., Lee, A.-Y., An, K. J., Park, S.-A. (2020). Horticultural therapy program for improving emotional well-being of elementary school students: An observational study. *Integrative Medicine Research*, 9(1), 37-41. <https://doi.org/10.1016/j.imr.2020.01.007>

Park, K.-H., Kim, S.-Y., Park, S.-A. (2022). Efficacy of a Horticultural Therapy Program Designed for Emotional Stability and Career Exploration among Adolescents in Juvenile Detention Centers. *International Journal of Environmental Research and Public Health*, 19(14), Article 14. <https://doi.org/10.3390/ijerph19148812>

Park, S.-A., Lee, A.-Y., Son, K.-C., Lee, W.-L., Kim, D.-S. (2016). Gardening Intervention for Physical and Psychological Health Benefits in Elderly Women at Community Centers. *HortTechnology*, 26(4), 474-483. <https://doi.org/10.21273/HORTTECH.26.4.474>

Parkinson, S., Lowe, C., Vecsey, T. (2011). The Therapeutic Benefits of Horticulture in a Mental Health Service. *British Journal of Occupational Therapy*, 74(11), 525–534. <https://doi.org/10.4276/030802211X13204135680901>

Pfeffer, J. C., Deyton, D. E., Fly, J. M. (2009). Survey of Horticultural Therapy Programs in Tennessee. *Journal of Therapeutic Horticulture*, 19, 24-44. <http://www.jstor.org/stable/44025121>

Shao, Y., Elsadek, M., Liu, B. (2020). Horticultural Activity: Its Contribution to Stress Recovery and Wellbeing for Children. *International Journal of Environmental Research and Public Health*, 17(4), Article 4. <https://doi.org/10.3390/ijerph17041229>

Shoemaker, C. A., Diehl, E. R. M. (2012). The Practice and Profession of Horticultural Therapy in the United States. *Acta Horticulturae*, 954, 161–163. <https://doi.org/10.17660/ActaHortic.2012.954.20>

Siu, A. M. H., Kam, M., Mok, I. (2020). Horticultural Therapy Program for People with Mental Illness: A Mixed-Method Evaluation. *International Journal of Environmental Research and Public Health*, 17(3), Article 3. <https://doi.org/10.3390/ijerph17030711>

M. Poje, Vedrana Kasumović, Martina Skendrović Babojelić, M. Kušen, Vesna Židovec / Perception of health professionals regarding the use of horticultural therapy / Glasilo Future (2023) 6 (4) 01–20

Söderback, I., Söderström, M., Schäländer, E. (2004). Horticultural therapy: The 'healing garden' and gardening in rehabilitation measures at Danderyd hospital rehabilitation clinic, Sweden. *Pediatric Rehabilitation*, 7(4), 245-260. <https://doi.org/10.1080/13638490410001711416>

Starling, L. A., Waliczek, T. M., Haller, R., Brown, B. J., Malone, R., Mitrione, S. (2014). Job Task Analysis Survey for the Horticultural Therapy Profession. *HortTechnology*, 24(6), 645–654. <https://doi.org/10.21273/HORTTECH.24.6.645>

Stoneham, J. A., Kendle, A. D., Thoday, P. R. (1995). Horticultural Therapy: Horticulture's Contribution to the Quality of Life of Disabled People. *Acta Horticulturae*, 391, 65-76. <https://doi.org/10.17660/ActaHortic.1995.391.5>

Stowell, D. R., Fly, J. M., Klingeman, W. E., Beyl, C. A., Wozencroft, A. J., Airhart, D. L., Snodgrass, P. J. (2021). Current State of the Horticultural Therapy Profession in the United States. *HortTechnology*, 31(4), 330-338. <https://doi.org/10.21273/HORTTECH04792-21>

Špišić, Z. (1917). *Kako pomažemo našim invalidima - slike iz naše ortopedske bolnice i invalidskih škola*. Zagreb: Dionička tiskara.

Tu, H.-M., Chiu, P.-Y. (2020). Meta-analysis of controlled trials testing horticultural therapy for the improvement of cognitive function. *Scientific Reports*, 10(1), Article 1. <https://doi.org/10.1038/s41598-020-71621-7>

Ulrich, R. S. (1984). View Through a Window May Influence Recovery from Surgery. *Science*, 224(4647), 420–421. <https://doi.org/10.1126/science.6143402>

Ulrich, R. S. (2001). Effects of healthcare environmental design on medical outcomes. In A Dilani (Ed.) *Design and Health: Proceedings of the Second International Conference on Health and Design*. Stockholm, Sweden: Svensk Byggtjanst, 49-59.

Ulrich, R. S. (2002). Communicating with the healthcare community. Chapter in Shoemaker, C.A. (Ed.) *Interaction by Design: Bringing People and Plants Together for Health and Well-Being*. Iowa State University Press, pp. 19-32

Wang, Z., Zhang, Y., Lu, S., Tan, L., Guo, W., Lown, M., Hu, X., Liu, J. (2022). Horticultural therapy for general health in the older adults: A systematic review and meta-analysis. *PLOS ONE*, 17(2), e0263598. <https://doi.org/10.1371/journal.pone.0263598>

White, M. P., Alcock, I., Grellier, J., Wheeler, B. W., Hartig, T., Warber, S. L., Bone, A., Depledge, M. H., Fleming, L. E. (2019). Spending at least 120 minutes a week in nature is associated with good health and wellbeing. *Scientific Reports*, 9(1), Article 1. <https://doi.org/10.1038/s41598-019-44097-3>

*M. Poje, Vedrana Kasumović, Martina Skendrović Babojelić, M. Kušen, Vesna Židovec / Perception of health professionals regarding the use of horticultural therapy / Glasilo Future (2023) 6 (4) 01–20*

Whitehouse, S., Varni, J. W., Seid, M., Cooper-Marcus, C., Ensberg, M. J., Jacobs, J. R., Mehlenbeck, R. S. (2001). Evaluating a Children's Hospital Garden Environment: Utilization and Consumer Satisfaction. *Journal of Environmental Psychology*, 21(3), 301-314. <https://doi.org/10.1006/jevp.2001.0224>

Wichrowski, M., Whiteson, J., Haas, F., Mola, A., Rey, M. J. (2005). Effects of horticultural therapy on mood and heart rate in patients participating in an inpatient cardiopulmonary rehabilitation program. *Journal of Cardiopulmonary Rehabilitation*, 25(5), 270-274. <https://doi.org/10.1097/00008483-200509000-00008>

Yan, W., Liu, L., Murong, J., Wang, Z., Cui, S., Huang, W. (2019). Environmental Effect of Horticultural Therapy on Improving Muscle Strength after ACL Reconstruction. *Ekoloji* 28 (107): 4289-4293.

Zhang, Y. W., Wang, J., Fang, T. H. (2022). The effect of horticultural therapy on depressive symptoms among the elderly: A systematic review and meta-analysis. *Frontiers in Public Health*, 10. <https://www.frontiersin.org/articles/10.3389/fpubh.2022.953363>

Židovec, V., Skendrović Babojelić, M., Šarić, D. (2015). *Osnove ukrasne hortikulture u obrazovanju i terapiji*. Zagreb: Sveučilište u Zagrebu Agronomski fakultet.

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