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Horticultural therapy activities can reduce stress and enhance the social and cognitive skills in autism children

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Abstract

Horticultural therapy is an apparent practice in India which is conducted in numerous metropolises. In this paper, I concentrate on determining the significance of horticultural therapy exercises in Autistic children to enhance their social and cognitive functioning and reduce their stress in them. The session studied for this purpose was conducted with a group of children with the condition of Autism at the ages 6 to 17 (n = 30; male = 25, female = 5). We used the Horticultural Therapy Assessment Scale. Children with high stress and aggression felt happier after gardening and other Nature- related works in each session. All activities focused in enhancing social dealings, and cognitive functioning and reducing their stress. This, in turn, encouraged better dealings among family members and friends post-school. participants' creativity and concentrate enhanced leading them to break complex problems. From our study, it's clear that human beings are happier at work and at home when they connect to Nature. Senses get awake when they're in a plant-rich area. In this study, we conclude that horticultural therapy exercise could significantly impact children who are suffering from autism and other sensitive problems.

Keywords: Horticultural therapy, human emotional system, gardening activities, Autism, Disability, Vocational training, stress, social and cognitive functioning

Introduction

Horticultural Therapy can be defined as engaging a participator in a garden or garden-related exercise by a trained therapist for attaining specific treatment designs (AHTA). Gardening is good for internal health and motivational for all children. For grown-ups, working in the garden will help to enhance their positive actions. And parents can make lasting recalls by participating their gardening gestures with children (Natasha Etherington). According to Kamala Thyagarajan, "touching the soil, cutting the weeds, appreciating the scent and brilliant colours of flowers, all these can instantly convert a bad mood". As a remedial option for people with autism, horticulture creates a non-threatening surroundings, matching to the effect of music therapy. People who have an autism spectrum disorder can feel beset by anxiety, which leads to devitalizing frustrations for the autistic being and for those that work nearly with the individual. The gardening space should be designed by the therapist so that the autistic learner can safely explore effects in the way they want. Gardening is a unconventional classroom where autistic gardeners are learning and setting up on their social experience as information has been trained and the joy of working in the garden has been participated. Therapists look for "open doors" to communicate with people on the autism spectrum and nature provides multitudinous open doors amidst the enjoyable work of gardening. The garden is, after all, a living and breathing environs where change has welcomed new chances to learn pullulate (Ashley Isaacson). The intellectual worth of people- plant relations is largely advantageous as it allows beings to escape from the demands of everyday life- permitting them to allow about lower stressful effects, imagine smaller cerebral boundaries and recover from the repeated focused attention demanded when completing stressful work (Simson & Straus). A relaxed environment that promotes tranquility can foster the achievement of particular aims and aspirations, which in turn can help to increase self- esteem as well as help better one's sense of worth (Simson & Straus). The intention of our study is to present the significance of horticultural therapy exercise in autistic children. The major benefit of horticultural therapy is that it helps to enhance cognitive, physical, social, behavioral, and emotional experience.

When the child interacts with Nature through Horticultural Therapy exercise he she can witness natural textures, soothing colors, soft sounds, and refreshing smells. Overall all their senses get awake when they are in an avoidance- of-door place. This experience calms the mind, triggers positive recalls, and distracts from prickly studies. Horticultural therapy sessions sort of a group of activities with specific treatment designs. We use a number of exercise for groups and individualities for healing purposes. The activities that affect scent and vision seem to have the biggest effects on the participants. The sense of smell is the ‘canary in the coalmine’ of mortal health (Pinto, Wroblewski, Kern, Schumm, & McClintock, 2014) [3]. The smell is the most important sense, which triggers specific recalls. It's well used in therapy to help relieve amnesia. Studies also show that smells can have an effect on what we buy and how important we spend (Rodriguez- Gil, 2004) [4].

The following are the study's objectives

1. To observe the impact of Horticultural Therapy exercise in Autistic children for reducing stress
2. To study the particular goods of Horticultural Therapy exercise on their Social and Cognitive experience.

Methods

For this study we used a test group of students with Autism. There were a total of 30 participants in this study (Table 1). The participants belonged to different age groups and had the same conditions.

Table 1: Distribution of the samples

Type of sample	Gender	Number
Autistic	Male	25
Children	Female	05
Total		30

Students were from various age groups, selected randomly. A total of 30 children participated, of which 25 were males and 05 were females between the age group of 06 and 17. This study was conducted for six months from October 2015 to March 2016. For our analysis, we used Horticultural Therapy Assessment Form (HTAF). This scale is made up of 8 categories and these 8 categories contain 59 statements. It has to be completed in ten to fifteen minutes after the session by the therapist. A five-point scale is used to rate each of these. These scores ranged from 1, meaning that the participant’s performance is very good, to 5 meaning that the participant performed the item to very poor. It was also stressed in the instructions that there were no right or wrong answers. The HTAF scale is used for autistic children to assess their overall participation in each session. For stress, where the score will be reversed as 1 indicates very poor and 5 indicates very good as they are negative questions. Initially, we started with an individualized sessions. After a primary assessment, we added specific activities for each child. We noticed better participation in the activities when sessions were progressing. Indoor and Outdoor activities are there in the sessions. For the outdoor sessions, we conducted nature connect programs in the garden. The activities included gardening, vegetable gardening, and sensory stimulation games. Indoor activities included stone balancing, leaf print, soil, and seed-related activities,

coloring, smell exercise, and sculpture making. The participants' various physical and psychological assessments can be done through HTAF. The primary measuring methods we employed were observation, video making, and completing the form after or in between each session. In each stage, the programs were changed according to their performance. Continuous observation and assessment of each person helped us to understand the kind of therapy that each participant needed. The study was conducted using the subsequent methods:

1. Primary assessment
2. Horticultural Therapy sessions
3. Post assessment

1. Primary Assessment

(Horticultural Therapy Assessment Form)

The primary data of each student was recorded for understanding their current capabilities and limitations. This assessment helped implement an individualized horticultural therapy program for each child.

2. Horticultural Therapy Session

- a) Sessions were conducted both indoors and outdoors with a mix of group and individual activities.
- b) Each child has given a set of activities and a pet plant to nurture.

For the test groups, the following specific horticulture therapy exercises were carried out:

- Gardening
- Vegetable gardening
- Plant identification
- Gift making with Natural materials
- Stone balancing
- Group games
- Sculpture making
- Pet plant
- Leaf print

3. Post Assessment

(Horticultural Therapy Assessment Form Scale)

Post-assessment was conducted at the end of the 6th month and the participant’s performance was recorded to measure the effects of horticultural therapy.

Results and Discussion

At the beginning of the sessions, most of the children showed poor interest and a general sense of anxiety due to the approach of these activities as it gives more freedom, while most of them haven't experienced that freedom before. In the beginning, the level of involvement from the students was low, but gradually it improved. Their prime choice of activities included watering, smell therapy, and playing with soil. This therapy helped them to relax and to burn excess energy produced in their body. So they become calm and peaceful after the HT activities. Indoor activities helped them develop various creative skills. It helped them follow up on the program and improved their attention span. The pre and post-test scores for measuring stress, social and cognitive skills for this sample showed a change after conducting horticultural therapy programs as indicated in Table 2.

Table 2: Pre and post-horticultural therapy change the stress, social, and cognitive skills of the children

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Cognition- Month 1	19.13	30	3.060	0.559
	Cognition- Month 6	16.40	30	3.410	0.623
Pair 2	Social- Month 1	36.10	30	6.578	1.201
	Social- Month 6	31.23	30	7.468	1.363
Pair 3	Stress- Month 1	21.87	30	3.451	0.630
	Stress- Month 6	27.57	30	3.245	0.592

The variables that showed significant changes between pre and post scores were stress, and social skills while cognitive skills indicated a slight variation (Figure1). The results show a strong association between pre- and post-test results (Table 3). A paired t-test showed that there was a significant positive change in stress, and cognitive skills between pre

and post-score as indicated in (Table 4). social skills show slight positive differences. But even these slight changes are remarkable because usually social skills are poor in Autistic children and it needs time to make them active in society. These activities have the potential to exhibit more significant results when extended to a longer period of time.

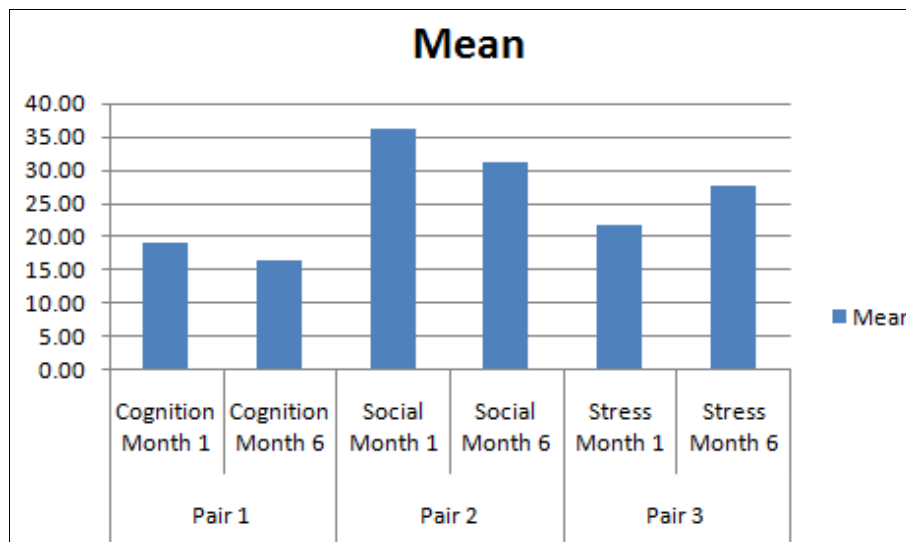


Fig 1: Pre and post-horticultural therapy changes in Autistic children

Table 3: Paired samples correlations

		N	Correlation	Sig.
Pair 1	Cognition-Month 1 & Cognition Month 6	30	.814	.000
Pair 2	Social-Month 1 & Social Month 6	30	.953	.000
Pair 3	Stress-Month 1 & Stress Month 6	30	.835	.000

Table 4: Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	CognitionM1 - CognitionM6	2.867	1.717	.313	2.226	3.508	9.146	29	.000
Pair 2	SocialM1 - SocialM6	4.867	2.330	.425	3.997	5.737	11.439	29	.000
Pair 3	StressM1 - StressM6	-5.700	1.932	.353	-6.422	-4.978	-16.155	29	.000

Conclusion

From our analyses it is clear that horticultural therapy has a positive impact on stress and social and cognitive skills in autistic children. Nature is a magical place where most children wanted to be. If we can allow them to play or spend time outdoors, many of the mental issues will get resolved. Horticultural Therapy can also benefit a range of people suffering from new-age diseases such as stress, hypertension, depression, obesity, etc. "Horticultural therapy should be utilised at all levels of healthcare, particularly in urban areas where people are cut off from nature and its therapeutic benefits." Horticultural therapy should be the main subject in all the special schools for the

well-being and vocational skill training of specially abled children.

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