

## Horticultural therapy on self esteem and motor skills of physically challenged children

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### ABSTRACT

Horticulture Therapy is an integrated approach to human development using horticulture techniques with behavioral science. This paper attempts to present the results of the study to evaluate the impact of horticulture therapy in developing self-esteem and motor skills in physically challenged children. Fifty physically challenged children in the age group of 12-18 years were selected using purposive sampling. Motor skills of the children were studied using an observation schedule by inter observer agreement method. Assessment of self-esteem of the sample was done using a rating scale. The tools were constructed and standardized. Horticulture therapy included goal specific activities along with raising a vegetable garden. The data collected before and after horticulture therapy was analyzed using paired sample 't' test. The results revealed that there is significant impact on the development of self-esteem and motor skills in challenged children after attending the horticultural therapy programme.

**Key Words:** Horticulture therapy, Self esteem, Motor skills

### INTRODUCTION

According to American Horticulture Therapy Association, horticulture therapy is a remedial process in which plants and gardening activities are used to improve the body, mind and spirits of people.<sup>1</sup> Seimpk<sup>2</sup> describes horticulture therapy as the use of plants by a trained professional as a median through which certain clinically defined goals may be met.<sup>2</sup> Horticultural therapy is thought to be an effective and beneficial treatment for the people of all ages, backgrounds and abilities.<sup>3</sup> Ulrich<sup>4</sup> indicated that the benefits of nature such as trees and other vegetables had positive influence on emotional and psychological state of the people.

Therapist and participants in horticulture therapy programmes usually report that there is positive benefits like social integration, increase

in self confidence, self esteem, concentration learning of practical skills, reduce levels of stress and mental fatigue, enhanced physical activities and improved social cohesion.<sup>5,6</sup> The benefits of involvement in horticultural activities and exposure to nature can be seen in cognitive,<sup>7</sup> psychological,<sup>8,9</sup> social,<sup>10,11</sup> and physical<sup>12,13</sup> realms and research continues to reveal these connections across many groups of people. Studies have also shown that horticulture therapy reduces stress.<sup>14,15</sup>

Horticulture Therapy is an integrated approach to human development using horticulture techniques with behavioral science. Although horticulture therapy has been established as a form of rehabilitation in several countries not much study has been conducted in Indian context. Therefore this paper aims to find the impact of horticulture therapy on self-esteem and motor skills of the physically challenged children.

We have investigated the effectiveness of horticulture therapy with the hypothesis that (1) Raising garden and participating in horticulture therapy develops self esteem in physically challenged children. (2) Participation in horticulture therapy brings a positive improvement in the motor skills of the physically challenged children.

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## MATERIALS AND METHODS

To prove the hypotheses observation schedule (using inter observer agreement method) for motor skills was constructed. In addition a rating scale was constructed and used to measure self esteem. The sample comprised of fifty physically challenged children in the age group of 12-18 years. The sample was selected using the purposive sampling method. Written informed consent was obtained from the subject and their parents after a detailed briefing of the experimental purpose and protocol.

Self Esteem Rating Scale (SERS) was used to measure the self esteem. The rating scale in the form of a questionnaire was developed strictly in accordance with questionnaire construction principles. The 3-point rating scale was subjected to pretesting, reliability and validity tests. All the children were rated using SERS, scoring 10 items of the questionnaire. The SERS was performed before and after horticulture therapy to assess the changes in self esteem. A score of more than 20 is considered to show a high self-esteem, and a score between 10-20 a moderate self-esteem and score below 10 as low self-esteem.

The motor skills of the children were assessed using an observation schedule by inter observer agreement method. Two observers carried out the observations simultaneously and later the average score of the two observations was taken. The motor skills observation schedule is an assessment tool, two point rating scale to assess the child's level of function in 8 gross and 5 fine motor skills task that represents the motor skills. The total score range is from 1 as a perfect dependent to 13 as a perfect independent. The observation of motor skills were ranging from eating using spoon, dressing the upper body, dressing the lower body, walking, cleaning the room using a broom, watering the can using rose can, holding the pen, washing the plates, climbing the stairs, writing legibly, making envelopes, holding the cup, walking using the rail and walking using the clutches. Each child was scored before and after horticulture therapy. The study therapy consisted of three steps pre horticulture therapy, horticulture therapy and post horticulture therapy.

### Pre Horticulture Therapy Session

In this session, the personal and socio-economic characteristics of the children were assessed with the help of the special education teacher. Tools were administered to assess the participants with respect to motor skills and self esteem.

### Horticulture therapy Session

#### Training on Horticulture Production

This session included imparting training on raising, maintaining and protection of the horticulture therapy garden. The classes were handled by horticulture experts.

#### Raising Special Child's Garden or Horticulture Therapy Garden

The area chosen in each centre was such that it was easily accessible to the physically challenged children. The selected area was ploughed well and a grass path of 90 cm was kept so that physically challenged children can walk through.

As the participants of the present project were physically challenged children, the concept of the raising horticulture therapy garden was with 'NO DIG CONCEPT'. The plants were raised in clay pots, gunny bags, glass containers and hanging baskets as these procedures do not require digging with spade.

Potting mixture was prepared using river sand, red loam, dried cattle manure, bone meal in the ratio 1:2:1 respectively. Later this mixture was filled in polyethylene cover, clay pots, gunny bags and hanging baskets with the help of children and a laborer. After filling the sacks they were kept apart at a distance of 50 cm each so as to enable easy operations. Seeds were first sown in polyethylene cover and after two weeks the sprouted seedlings were transplanted to clay pots, gunny bags and hanging baskets filled with potting mixture. In addition to the seeds, stem cuttings were also planted. The children regularly irrigated the potted plants using sponges, which in turn helped them to improve their fine motor skills. The staff and the children did regular monitoring of the horticulture therapy garden.

The plants grown in the Horticulture Therapy garden were Ornamental plants: Rose, Orchid, Begonia, Mari gold, Zenia, Portulaca, Vegetables:

Tomato, Okra, Amaranthus, Bitter gourd, Snake, gourd, Cucumber, Beans, Fruits : Papaya, Banana Tubers : Sweet Potato, Tapioca, Medicinal and Aromatic plants: Ocimum (Ocimum Sarictum), Panikurka (Coleus aromaticus), Phyllanthus, Alovera, Neela amari, (Indigoteratinctoria), Chittaratha (Alpiriyacalcarata), Asparagus (Asparagun racemosus), Brahmi (Bacopa monnieri) and Turmeric (curcuma domestica).

Each child was allotted a plant and the child was asked to suggest a name to the plant. The children were also informed that they were responsible for the plant that has been allotted to them in order to develop sense of belongingness and responsibility.

Physically challenged children were asked to water the plants by squeezing a sponge so that the action of squeezing the sponge enables them to improve their motor skills.

After one month, poultry manure, coir pith compost, and vermi compost were applied. The children did fortnightly weeding and pruning. Botanical pesticides were applied for controlling pests of the plants. Botanical pesticides viz. neem oil, bar soap, garlic extract, chilly powder, and kerosene and tobacco decoction were used.

At correct maturity stage of each plant, harvesting was done by the children.

### Horticulture Therapy Activities

The following are the Horticulture therapy activities imparted to the physically challenged children:

- a. *Making name tags using leaves and flowers*
- b. *Clay Modeling and Designing a Garden using clay*
- c. *Sand Crafts*

- d. *Dry flower picture frames*
- e. *Fresh flower arrangement*
- f. *Combination planting*
- g. *Making Greeting Cards using dry flowers*

### Post horticulture therapy session

Post horticulture therapy survey was conducted. The children were subjected to standardized tests and rating scales to measure the effects of horticulture therapy. In order to assess the impact of horticulture therapy on psychomotor development of the physically challenged, the selected physically challenged were subjected to the standardized psychometric tests like self esteem rating scales . The motor skills of the children were observed systematically using Inter Observer Agreement Method before and after attending horticulture therapy activities.

### DATA ANALYSIS

Data analysis was performed with the SPSS at Department of Statistics , Kerala University. The differences between the scores before and after horticulture therapy were calculated using t-statistics.

### RESULTS

Pre and Post Horticulture Therapy scores were statistically analyzed to find the impact of horticulture therapy. The observations showed that all the children those who participated in the horticulture therapy programme had improved motor skills and increased self esteem.

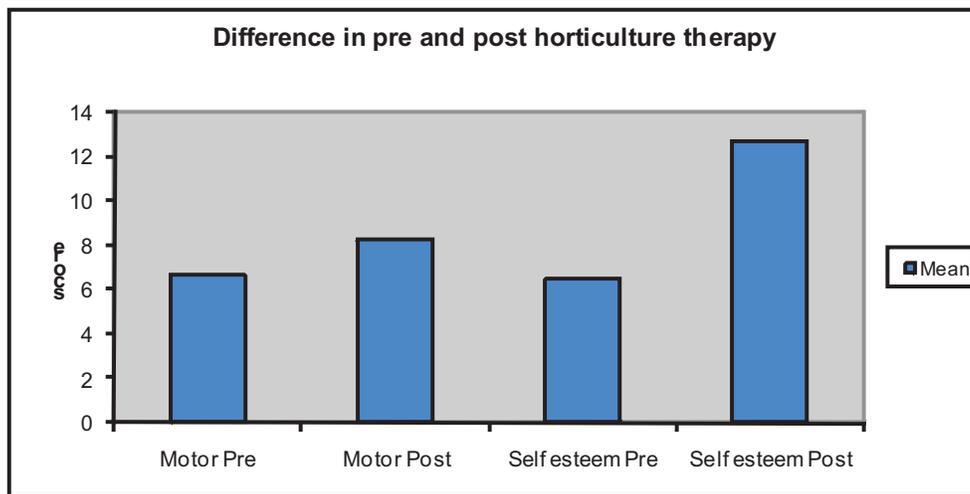
**Table 1: Mean of Self Esteem and motor skills of physically challenged children before and after Horticulture therapy**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Motor Skills Pre	6.67	57	1.756	.233
Motor Skills Post	8.21	57	1.398	.185
Pair 2 Self esteem Pre	6.44	57	2.044	.271
Self esteem Post	12.67	57	1.574	.208

**Table 2: Paired Sample test of Self Esteem and motor skills of physically challenged children before and after Horticulture therapy**

Paired Samples Test	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Motor Skills pre - post	-1.544	1.402	.186	-1.916	-1.172	-8.311	56	.000
Pair 2 Self Esteem pre - post	-6.228	2.835	.375	-6.980	-5.476	-16.587	56	.000

**Figure 1: Differences of Motor Skills and Self Esteem of physically challenged children before and after Horticulture therapy**



The Table shows that there is a significant difference in the scores of self esteem and motor skills in pre and post horticulture therapy. The pre horticulture therapy scores of self esteem was lesser than the post horticulture therapy scores. And pre horticulture therapy scores for motor skills were less than the post horticulture therapy scores. Hence the hypothesis 1 and 2 are accepted.

**DISCUSSION**

The result of this study shows that the horticulture therapy can improve the self esteem and motor skills of the physically challenged children. Horticulture therapy has the following

features 1) Children can objectively observe vegetable growing. 2) Children can actually see the result of his/her efforts when vegetables has grown. 3) Children can amicably share his/her achievements with other people 4) Children feel that they are capable, all these leads to an enhance in the self esteem of the children. Horticulture Therapy contains multifunctional elements and children can move from fundamental activities to complex activities. Activities like clay modeling and watering using a sponge also improve the fine motor skills of the child.

**CONCLUSION**

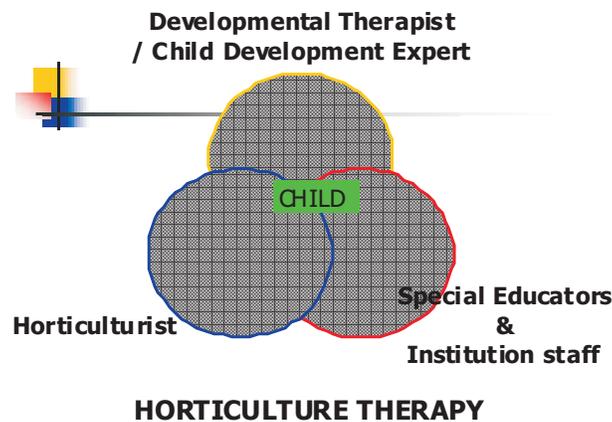
The research findings of the present paper implies that horticulture therapy can improve the motor skills of the physically challenged children. There is a remarkable improvement in the self esteem of the children who underwent horticulture therapy. The broad range of activities captured the attention of everyone including the teachers and parents. Children were able to interact among themselves and questions were asked during each activity. Hands on activities

allowed the children to practice what they learned in the session.

**RECOMMENDATIONS**

In horticulture therapy, the paramount is the welfare of the child who is undergoing the therapy , the yield is only secondary. The horticulture therapy focuses on the child who takes part in the therapeutic activities. It is a team work of three groups coming together in achieving the goal. Child Development Experts,

**Figure 2: Team Work Based, Child Centered Horticultural Therapy**

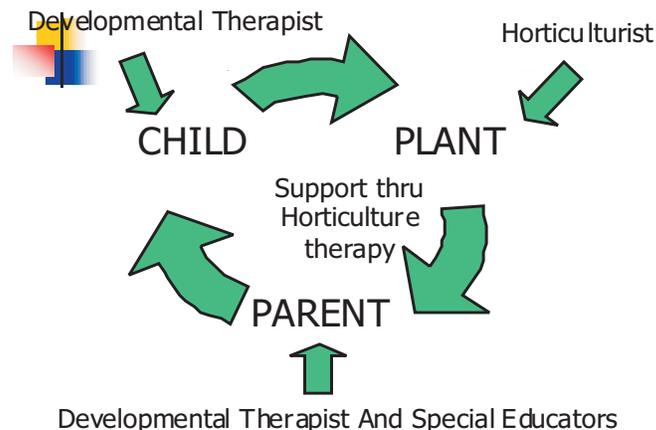


Horticulturists and Special educators need to come together and work as a team focusing on the child development through horticultural therapy.

Horticulture therapy is a process of cyclic system of support. In this process the child supports the

plant. The plant supports the parents by giving yield which can add on their daily purchase of vegetables and fruits. The parent again supports the child and it encourages the child in supporting the plant. The child is monitored and supported by a developmental therapist. A plant is protected and maintained with the help of a horticulturist.

**Figure 3: Support System Through Horticultural Therapy**



Developmental therapist and Institutional staffs regularly need to supports the parents by counseling and motivating them.

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