

## Smell as an Emotional Stimulant in Horticultural Therapy: Lessons from Activities Conducted for Orphanage Children in Bangalore

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### ABSTRACT

**Objective:** Horticultural therapy is a relatively new practice in India conducted in small pockets. In this paper we focused on determining the importance of natural fragrance in stress reduction, improved productivity and increased self-confidence. **Data collection:** The session was conducted with a group of orphanage children ranging from 7 to 20 years ( $n = 27$ ; male = 17, female = 10). **Analysis:** We used the Rosenberg scale to measure self-esteem of participants. Children with depression were uplifted by the different fragrance related activities. **Results:** All activities aided in boosting their self-esteem and self-confidence, which encourage social interaction among other children (normal school children) and with the management. **Conclusion:** In this study we concluded that the human emotional system is highly correlated with the sense of smell. Plants serve as a powerful tool for healing and can be constructively used to improve mental and physical wellbeing especially in an urban environment where health is a compromised asset.

**Keywords:** Horticultural Therapy, Natural Fragrance, Sense of smell

Horticultural therapy is a therapeutic method using plants and plant related activities to control physical and mental ailments (AHTA). This therapy is unique because it uses living material where a plant serves as a powerful tool to heal people's mind, body and spirit enhancing physical, mental and social health (Simson, and Straus, 2003). The theory of horticultural therapy is widely recognized and practiced worldwide as an effective alternative treatment method. It is utilized in health care facilities, community agencies, schools, nursing homes, rehabilitation, and vocational centers. People of any age or disability type can participate and the activities can be varied as the benefits are varied from person to person.

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The psychological worth of people and plant interactions is extremely beneficial as it allows individuals to escape from the demands of everyday life and permitting them to think about less stressful things, imagine fewer psychological boundaries and recover from the repeated focused attention required when completing stressful work (Simson, and Straus, 2003). A relaxed environment that promotes tranquility can foster personal goals and aspirations, which in turn can help to increase self-esteem as well as help to improve one's sense of worth (Simson, and Straus, 2003).

The aim of our study is to present the importance of natural fragrances and to show that the sense of smell is highly correlated with other senses. Plants act as stimulants and caring for them can bring back memories and emotions especially through the sense of smell. When a fragrance enters the nasal cavity, it encounters over 50,000,000 receptor neurons in the nose and nasal septum. These receptors are specialized in such a way that specific smells stimulate certain hormones. They convert the smell into a message which is sent to the olfactory bulb where processing of the smell starts and is then passed onto other areas of the brain which control emotions, behavior and basic thought processes. Distant memories can only be recalled by smell, and this emphasizes the importance and significance of smell for our emotional and physical and well-being.

The University of Maryland's study on the aroma of lavender and its use in healing insomnia, anxiety, stress and post-operative pain showed that of the aroma of lavender can slow the activity of the nervous system, improve sleep quality, promote relaxation, and lift mood in people suffering from sleep disorders, just like the smell of coffee can lead to a calming effect on the body and mind (Dobson 2014). Similarly, studies on sleep disorders from the University of Heidelberg showed that smelling flowers before sleeping can lead to more positive dreams and largely the emotional content of the dreams are related to smell. Smell can even help in boosting up energy and improving concentration. A study from Japan (Toyoda, 2012) showed that spraying the scent of lavender during factory tea-breaks improved post-break production. Additionally, other research has shown that athletes who sniffed peppermint ran faster and had better concentration than those who had no smell, while children performed better at tests when exposed to the aroma of fresh strawberries.

The sense of smell is the 'canary in the coalmine' of human health (Pinto et al, 2014). Recent studies have proven that losing one's sense of smell strongly predicts death within five years, suggesting that the nose knows when death is imminent, and the smell may serve as a bellwether for the overall state of the body. Smell is the most powerful sense, which triggers specific memories and are used in therapy to help in amnesia. Studies also show that smells can have an effect on what we buy and how much we spend (Rodriguez-Gil,2004). Although extensive

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studies have been conducted around the world on the importance of smell, research in India is poorly represented in this context.

*The objectives of the study are as follows:*

1. To determine the importance of natural fragrance in stimulating senses, reducing stress and depression, boosting self-esteem
2. To compare the effects of smell in adults and children in different circumstances

### **METHODOLOGY**

For this study we used test groups of children from an orphanage. There were a total of 27 participants in this study. We used randomized sample selection method for this study.

*Table 1: Distribution of the samples*

| Type of Sample     | No. of persons |
|--------------------|----------------|
| Orphanage children | Male- 17       |
|                    | Female- 10     |
|                    | Total- 27      |

We conducted a four-month horticultural therapy program at an orphanage (Angel's Home) in Shivajinagar, Bangalore. A total of 27 children participated in our study, 10 girls and 17 boys in the age group of 7-20. (Table 1) The program was conducted for four months from January to May 2013. We used various fragrances and color related activities for this study. We analysed the data using the Rosenberg self-esteem scale to measure self-esteem. The Rosenberg self-esteem scales (RSES), developed by sociologist Dr. Morris Rosenberg, a self-esteem measure widely used in social-science research. It is a four point scale, strongly agree, agree, disagree and strongly disagree. It has two parts one for assessing self-esteem and the other designed to measure present thoughts. It helps to understand the current attitude for approaching situations.

Weekly activities were herbal bouquet making, potpourri making, tie and dye making, and flower arrangement.

Initially, we used non-fragrant related activities. Later we added fragrant related activities where we noticed better participation. We had two types of sessions, indoor and outdoor sessions. For the outdoor session we included our participants to a nature connect program conducted by Artyplantz in various parks of Bangalore. The activities included tree hugging, gift making, and sensory stimulation games. Indoor activities included potpourri making, herbal salad making, flower arranging, and leaf identification games.

The participants were subjected to do various physical and psychological assessments. Main measuring methods we approached were observation, video making and standardized scales for

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measuring their psychological strength. Each stage was assessed by the horticultural therapists and volunteers. Continuous observation and engaging each person to any activity throughout the program helped us to understand which person needed what kind of development.

The study was carried out in the following steps:-

1. Primary assessment
2. Session and Green connect program
3. Post assessment

### **1. Primary assessment :**

For the study, the personal and socio-economic characteristics of the children were assessed with the help of the children and orphanage authorities.

### **2. Horticultural therapy session**

1. We implemented a garden of medicinal and flowering plants.
2. A pet plant was given to each child
3. Weekly horticultural therapy activities related to fragrance were conducted.
4. At the conclusion of the program, an exhibition was organized for the public where the children sold their own products

The specific horticultural therapy activities conducted were:

1. Herbal bouquet making
2. Tree hugging
3. Leaf identification game
4. Ikebana arrangement
5. Potpourri

### **3. Post assessment**

Post assessment was conducted and the participants were subjected to standardize psychometric tests and rating scales to measure the effects of Horticultural therapy.

## **RESULTS AND DISCUSSION**

Our initial assessment of the children at the orphanage indicated that many children were emotionally suppressed and had low self-esteem. While some children were hyper with a sense of rage, some children were very shy and reserved. The program helped the children come out of their shell and engage with the therapists and other children at the orphanage. It was very interesting to note that most of the children chose a plant which was fragrant or curiously smelling as their pet plant through the session.

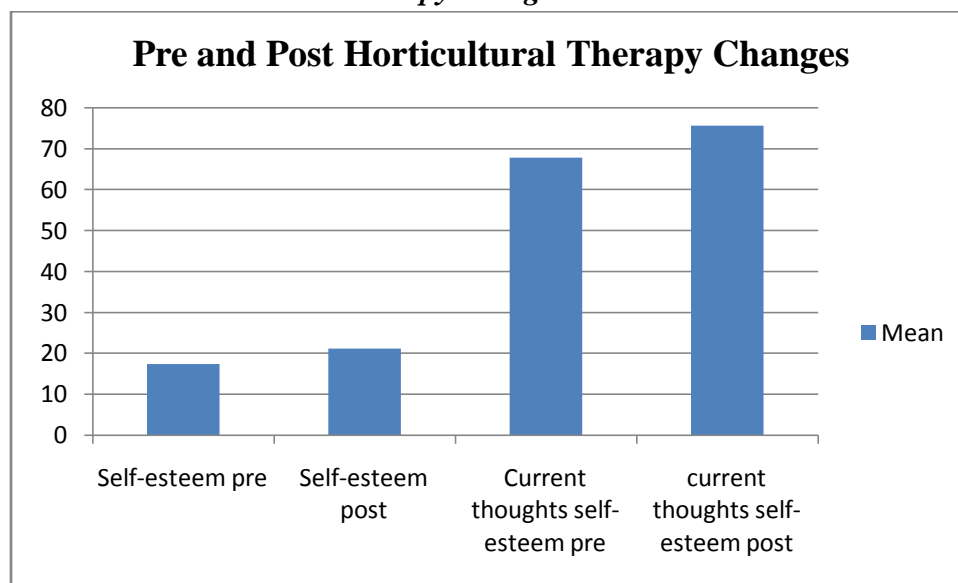
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**Table 2: Pre and Post Horticultural therapy changes in self-esteem of the orphanage children using the Paired Samples Statistics**

|        |                                   | Mean    | N  | Std. Deviation | Std. Error Mean |
|--------|-----------------------------------|---------|----|----------------|-----------------|
| Pair 1 | Self-esteem pre                   | 17.4074 | 27 | 2.80466        | 0.53976         |
|        | Self-esteem post                  | 21.2593 | 27 | 2.62521        | 0.50522         |
| Pair 2 | Current thoughts self-esteem pre  | 67.8148 | 27 | 11.12875       | 2.14173         |
|        | Current thoughts self-esteem post | 75.5926 | 27 | 9.11153        | 1.75351         |

Our assessments from the Rosenberg scale indicated that the horticultural therapy programs significantly impacted the children (Table 2). There was a noticeable difference in their attitude as indicated in Graph I. The significant change in the mean between pre and post scores indicate the relevance of horticultural therapy programs in improving their approach towards life.

**Graph I: Pre and Post Horticultural therapy changes**



The data shows a high level of correlation between pre and post test scores (Table 3). A paired t test showed that there was a significant positive change in self-esteem between pre and post score as indicated in Table 4. The additionally, there was a positive impact in their attitude also indicated by the current thoughts in pre and post scores.

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**Table 3: Paired Samples Correlations**

|        |  | N  | Correlation | Sig.  |
|--------|--|----|-------------|-------|
| Pair 1 | Self-esteem pre and Self-esteem post                                   | 27 | 0.826       | 0.000 |
| Pair 2 | Current thoughts self-esteem pre and current thoughts self-esteem post | 27 | 0.955       | 0.000 |

**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 | Self-esteem pre – and Self-esteem post                                   | -3.85185           | 1.61015        | .30987          | -4.48881                                  | -3.21490 | -12.430 | 26 | 0.000           |
| Pair 2 | Current thoughts self-esteem pre – and current thoughts self-esteem post | -7.77778           | 3.64094        | .70070          | -9.21808                                  | -6.33747 | -11.100 | 26 | 0.000           |

**CONCLUSION**

From our analyses it is clear that horticultural therapy has a positive impact on self-esteem, stress, anxiety and work related stress. Smell can be a powerful tool which can impact on orphans, but can have beneficial effects on a range of people who suffer from new age diseases such as hypertension, depression, obesity etc. Horticultural therapy should be practiced in all levels of healthcare especially in cities, where people are cut off from nature and its healing properties.

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**REFERENCES**

Gloria Rodriguez-Gil, (2004) *The Powerful Sense of Smell*. <http://www.tsbvi.edu/publications/203-resources/4364-the-sense-of-smell-a-powerful-sense>

Jayant M. Pinto, Kristen E. Wroblewski, David W. Kern, L. Philip Schumm, Martha K. McClintock, 2014. *Olfactory Dysfunction Predicts 5-Year Mortality in Older Adults* <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0107541>

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- Masahiro Toyoda. 2012. *Horticultural therapy in Japan-History, Education, Character, Assessment*. <http://www.awaji.ac.jp/http/wp-content/uploads/sites/3/2016/07/20120703-164630-5665.pdf>
- Roger Dobson. 2015. *How smell affects body and mind?* <http://www.saga.co.uk/health/mind/how-smell-affects-your-body-and-mind>
- Simson, S. P., and M. C. Straus. 2003. *Horticulture as Therapy: Principles and practice*. Binghamton, NY: The Haworth Press.
- The American Horticultural Therapy Association (AHTA)*. <http://www.ahta.org/>.

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