

The impact of Arham Dhvani on motor speech problem of orphan children

Poornima Gupta¹, Vivek Maheshwari²

¹ Ph.D. Research Scholar, Department of Yoga and Science of Living, Jain Vishva Bharati Institute, Ladnun, Rajasthan, India

² Associate Professor, Department of Ashtang Yoga, Lakulish Yoga University, Ahmedabad, Gujarat, India

Abstract

Motor speech problem are a class of speech disorder that disturb the body's natural ability to speak due to some emotional, mental and neurological impairments. Parental loss and raising in orphanages have negative impact on emotional, psychological and mental well-being in orphans. This study was aimed to assess the impact of Arham Dhvani on Motor Speech Problem on Orphan Children. 50 Orphan children of age ranging from 12-16, were selected from Surman Sansthan, Jaipur, Rajasthan, by accidental sampling and assigned into experimental and control group. Experimental group underwent three months of Arham Dhvani whereas the control group followed the routine activities. They were assessed by Stroop Color-Word Test at the beginning and end of the program. After 3 months of yoga, result suggested that Arham Dhvani practice improves in motor speech problem and as well as visual processing and reading ability.

Keywords: Arham Dhvani, motor speech problem, orphan children

1. Introduction

Speech and language are central to human experience. It is a unique, complex, dynamic motor activity through which people convey and receive knowledge, express thought and emotions and respond to and control their environment. Speech and verbal abilities allow a child to participate in conversations which are essential for gaining knowledge in their community and the learning area. Communication skills are vital for development of thoughtful aptitude, a sense of self-believe, and full participation in the society.

It is among the most commanding tools possessed by the humans. Speech involves the assimilation of various neurocognitive, neuromuscular, and musculoskeletal activities. When feelings, thoughts and sentiments are produced and are to be transferred, they require to be systematized and renewed to verbal codes in a way that stands by the rules of language. These activities are denoted as cognitive linguistic procedure. The planned voiced message must be structured for neuromuscular performance. This action consists of the selection and sequencing of sensorimotor "programs" that stimulate the speech muscles at suitable co-articulated times, length and strengths. These activities are denoted as motor speech planning and programming. Central and peripheral nervous system activity must combine to standardize and implement speech motor programs. (Duffy, 2005) ^[1].

Motor speech problem is a kind of speech disorder resulting from neurologic losses affecting the motor formation, programming, neuromuscular control and execution of speech. So, when the nervous system becomes disordered, the production of speech get affected. Speech and language disorders, interruptions in communication process can have wide-ranging impacts on the ability to interconnect, to get new information and contribute in society. Most children learn speech and language by a superficially unconscious process that begins at birth and continues through adolescence. Naturally, simple communication abilities are developed by the time a child enters playgroup, allowing the

child to start learning from teachers and interacting fluently with peers and family (Oller *et al.*, 2006) ^[2]. Severe distractions in speech or language learning thus have both direct and indirect consequences for child and adolescent progress, not only in communication but also in related capabilities such as understanding, interpretation, and educational success that rest on speech and language skills (Williams, 2013) ^[3].

Speech can go through change as an outcome of abnormal psychological state such as hopelessness, unhappiness, conversion disorder, loneliness, confusion, and insecurity. It can also result from faulty subconscious learning or reward in reaction to numerous psychical, emotional, neurological, or psychological influences. Emotional and behavioral problems are found more among orphans and other helpless children because they are vulnerable to abuse, mistreatment, abandonment, lack of affection and attention of parents. They are also more prone to be emotionally needy, self-doubting, and deprived. In addition to these aspects, most of them are brought up in institutional homes where individual care is insufficient. These factors can cause psychologically and emotionally damage to these children. A study conducted in Cambodia, India, Ethiopia, Kenya and Tanzania found that "increased traumatic events during childhood were linked to statistically significant increases in anxiety and emotional and behavioral difficulties that can last upto adulthood and result in poor performance in school"(Thielman, 2012) ^[4]. Emotional and behavioral problems affect the child's complete growth. Therefore, it is a necessary to evaluate and classify psychological and neurological health problems in these institutionalized children so that appropriate intervention measures can be designed for them at the right time.

Mantra practices use breath, body, mind and sound together to integrate all the aspects of spiritual, physical and mental health. When mantra integrate breath and further exercises such as chanting, the thoughts becomes more focused and clear, the sensations become more stable and neuromuscular

functioning is enhanced (Banerjee, 2017) [5].

Arham Dhvani is a Sanskrit syllable (mantra). It has a unique sound and its loud repetition has many beneficial effects, not only at the physical level but also at psychological and spiritual level (Mhaprajna acharaya, 2004). The process of the build-up is repeated loud recitation of the syllable "Arham". Synchronized with the recitation, there should be a mental projection of the step by step build-up of the protective shell. The shell is being woven from the crisscross of the electromagnetic radiations, emanating from the sound waves thus produced (Yuvacharya, 1992) [7]. Mantra means a sound, a certain expression or a syllable. These days, modern science appreciates the existence entire universe as reverberations of energy, different stages of vibrations. Where there is a vibration, there is assured to be a sound. So, that means, the entire existence is a kind of sound, or a complex union of sounds – the whole existence is a combination of several mantras. There are different kinds of mantras. Each mantra stimulates a specific energy in different parts of the body. The act of speaking requires the precise coordination of multiple body parts including the head, neck, chest, and abdomen. The Arham Dhvani produces the vibrations first in the abdomen, then in the chest and finally in the cranium. No studies have been conducted regarding the effect of Arham Dhvani. Therefore, an attempt is made to study the effect of Arham Dhvani on Motor Speech Problem on Orphan children.

Material and method

Participants

The study was conducted at an orphanage in Jaipur. 50 subjects were chosen by accidental sampling and they were divided equally into experimental group and control group. The study was based on the inclusion and exclusion criteria. Orphans of any gender between the ages of 12-16 were included on the basis of inclusion criteria and orphans with no chronic diseases and not being physically or mentally challenged were included on the basis of exclusion criteria.

Design

Pre-post multi experimental-control group research design was adapted in this study.

Experimental protocol

All the assessment was conducted in the orphanage after familiarizing the participants as well as the concerned authorities with the testing procedure and the study protocol. The motor speech problem was recorded at the beginning and at the end of the study period i.e. three months.

Intervention

The experimental Group followed a combined approach of Arham Dhvani for 20 min, daily, for 3-months. Subjects were instructed to sit in a meditation pose like Padamasana or Sukhasana. Then inhale deeply for about 4 to 5 seconds. Then concentrating the attention on the navel, exhale slowly with producing the sound 'a'. next produce the sound 'rha' while concentrating on Ananda Kendra near the heart and lastly taking the mind upward through the throat to the cranium, press the lips softly together and produce the sound *m,m,m*.....resonating it like the buzzing of a bee.

Assessment

1. Stroop color and word test: children's version

The children's version Stroop test constructed by Charles J. Golden (1975). It is a neuropsychology test extensively used for both experimental and clinical purpose. It measures the Executive functions like reading ability, visual processing, and motor speech problems, learning disabilities, which involves in both word and color naming responses. The test was administered individually.

Items: The test consists of three pages and each page has 100 items, presented in 5 columns of 20 items. 1).The word page consist of the words (color name) and printed in black ink. 2).The color page, all items written as XXXX and printed in colored ink. 3), the word-color page consist the words from the word page and printed in the colors from the color page; but, the word sense and color's ink are mismatched. After given the test booklet, subjects views only one page at a time and reading the items as speedily as possible with in 45 second.

Scoring: The Stroop test yields three basic scores. The raw scores is the number of items completed on the word, color and color- word pages.

Procedure

The Stroop Color-Word test was administered on children of both the groups (experimental and control) at the beginning and at the end of the intervention (yogic games program). The experimental group underwent 3 months of Arham Dhvani, whereas the control group was asked to continue with their normal routine. After 3 months of intervention, all children were asked to complete the same test. The researcher explained about the study and gave stipulated instructions of the manuals to children for better understanding. Children were not given feedback as to their performance on designing experiments or any of the measures.

Statistical analysis

Analyses of pre and post intervention data within group was done by paired sample t-test by using SPSS version 22, for statistical analysis. The directional hypothesis was set at 0.05 level.

Result

Table-1 shows the paired t-test values (of before and after intervention) for the experimental group. It is revealed that the motor speech ability with all the dimensions (reading ability, learning ability) was significantly improved in the subjects of experimental group. From the data collected experimental group obtained in the stroop word mean pre-test is 52.04, SD is 16.70 and the post mean is 55.92, S.D. is 16.37 and t-value obtained 9.23 that is significant at 0.01 level. Stroop color pre mean is 36.48, S.D. is 14.41 and the post mean is 39.42, S.D. is 14.09 and t-value is 9.84 that is significant at 0.01 level. The Stroop word-color pre mean is 20.08, S.D. is 10.10. The posttest mean is 22.40 and SD is 9.31, df 49, t-value obtained is 7.52 that is significant at 0.01 level. In contrast there were no significant changes in the control group.

Hence the directional hypothesis is accepted. So we can say that there is a significant difference between Arham Dhvani and Motor Speech Problem.

Table 1: Comparison of before and after intervention values Experimental group

Stroop word	N	Mean	S.D.	R	Df	t-value	Significant level at
Pre	50	52.04	16.70	.98	49	9.23	0.01 level
Post	50	55.92	16.37				
Stroop color							
Pre	50	36.48	14.41	.99	49	9.84	0.01 level
Post	50	39.42	14.09				
word-color							
Pre	50	20.08	10.10	.98	49	7.52	0.01 level
Post	50	22.40	9.31				

Table 2: Comparison of before and after intervention values within Control group

Stroop word	N	Mean	S.D.	R	Df	t-value	Significant level at
Pre	50	48.86	13.69	.91	49	1.65	Not significant
Post	50	47.52	13.95				
Stroop color							
Pre	50	33.32	9.06	.96	49	.46	Not significant
Post	50	33.16	8.17				
word-color							
Pre	50	18.04	7.02	.91	49	.78	Not significant
Post	50	18.36	6.35				

Graphical representation of Mean values of experimental and control groups after three months, when compared to their respective pre condition

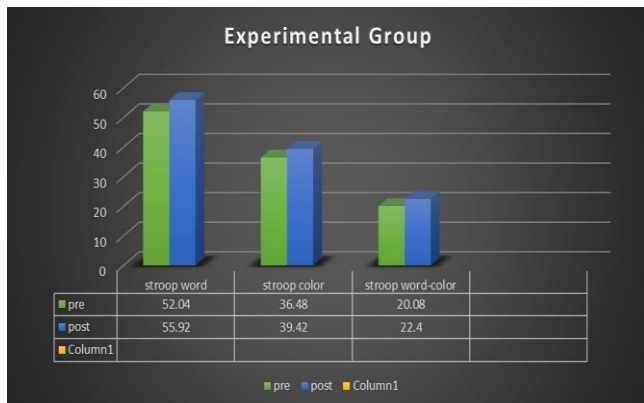


Fig 1



Fig 2

Discussion

The present study showed a significant improvement in the mean score of the stroop color and word test in the experimental group, following three months of Arham Dhvani (Chanting) program which had a positive impact on different sub-element of Motor Speech problem such as reading ability, visual processing and learning disabilities. Various studies and observations have proved the utility of chanting in betterment of different aspects of our personality. The frequencies and the sympathetic overtones generated by mantras, which have a vibration pattern of their own, and influences our sympathetic and parasympathetic nerves, which are spared in a fine network around our internal organ. The sympathetic response generates Neuro-motor response and influences the two hemisphere of the cerebral cortex (Ghalgi, 2006) [8]. Through mantra chanting a person is expected to get mental peace and this mental peace affects his emotional state. Scientific studies on Om or Pranava suggest that the mental repetition of Om reduced physiological distraction, increased sensitivity, as well as changes at specific levels of the auditory function (Kumar *et al.*, 2010) [12]. Omkar chanting significantly affects the level of concentration, memory and level of fatigue (Khawale, 2011) [10]. Pranavjapa increases the Self-concept and decreases the depression (Singh, 2011) [11]. Studies provide many evidences for the beneficial effects of Om chanting and Gayatri Mantra on cognitive functions such as spital and verbal memory, auditory and visual reaction (Mishra *et. al.*, 2017; Narayanan & Venugopalan, 2018) [12, 13]. Chanting has a positive effect on nervous system and serves as a brain stabilizer, which is also an energy medicine for human beings (Ajay *et. al.*, 2009) [14].

Conclusion

In sum, on the basis of above researches and the findings of this study results revealed that regular practice of Arham Dhvani, helps in bringing a qualitative change in motor speech problem, reading ability, visual processing, learning ability and psychological problems. It is concluded that there is a significant positive relationship between Arham Dhvani and Motor Speech Problem in orphan children.

References

1. Duffy Joseph R. Motor speech disorder: substrates, differential diagnosis, and management. (2nd Ed.). Mayo foundation for medical education and research, United States of America, 2205.
2. Oller JW, Oller SD, Badon LC. Milestones: Normal speech and language development across the life span. San Diego, CA: Plural Publishing, 2006.
3. Williams F. Language and poverty: Perspectives on a theme. Philadelphia, PA: Elsevier. Retrieved from. 2013, <https://www.elsevier.com/books/language-and-poverty/williams/978-0-12-754850-0>
4. Thielman N, Ostermann J, Whetten K, Whetten R, O'Donnell K. Correlates of poor health among orphans and abandoned children in less wealthy countries: the importance of caregiver health. PLoS One. 2012; 7:e38109.

5. Banerjee Shilkha. Effect of yoga on concentration, recognition, retention and mental balance of school students. *International education and research journal*. 2017; 3:2.
6. Mahaprajna Acharya. *Preksha Dhyana: Perception of Breathing*. Ladnun, Jain Vishwa Bharti, 2004.
7. Yuvacharya Mahaprajna. *Preksha Dhyana: Theory and Practice*. Ladnun, Jain Vishwa Bharti, 1992.
8. Ghalgi Sripad, HR Nagendra, Ramachandra Bhatt. Effect of Vedic chant on memory and sustained attention. *Indian journal of traditional knowledge*. 2006; 5(2):177-180.
9. Kumar S, Nagendra HR, Manjunath NK, Naveen KV, Telles S. Meditation on *OM*: Relevance from ancient texts and contemporary science. *International Journal of Yoga*. 2010; 3(1):2-5. doi:10.4103/0973-6131.66771
10. Khawale G. Effect of Om chanting on concentration, memory and level of fatigue. Paper presented at the National Seminar on Indigenous Techniques in Psychotherapy, Dev Sanskriti University, Hardwar, India, 2011.
11. Singh S. Effect of Pranav Jap on depression and self-confidence. Paper presented at the National Seminar on Indigenous Techniques in Psychotherapy, Dev Sanskriti University, Hardwar, India, 2011.
12. Soumya Mishra, Archana R, Kumar Sai Sailesh, Srilatha Bashetti, Swathy Ashok, Udaya Kumar Reddy, N J Antony, Ayana Joy, Mukkadan JK. Beneficial effects of om chanting on perceived stress, auditory and visual reaction time in private school teachers. *Int. J. Res. Ayurveda Pharm*. 2017; 8:2,
13. Manoj Narayanan KA, Venugopalan N. Effect of Gayatri mantra chanting on cognitive functions in school children. *International journal of pediatric research*. 2018; 5:3.
14. Ajay Anil Gurjar, Siddharth Ladhake A, Ajay Thakare P. Analysis of Acoustic of “OM” Chant Effect on Nervous System. *International Journal of Computer Science and Network Security*. 2009; 9:1.
15. Charles Golden J. Stroop color and word test: children’s version. National Psychological Corporation, Agra, 1975.