

## Effect of Meditation on Cognitive Ability of Students with Hearing-Impairment

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### Abstract

Total 30 male pupils with hearing-impairment were selected from two special schools of Jhajjar and Gurugram districts of the state of Haryana between the ages of 12 to 18. Cognitive ability of all participants was measured before & after eight weeks of meditation intervention by using Raven's Standard Progressive Matrices (SPM), and results were calculated by using t-test for paired samples ( $t= 1.682$ ,  $P=.103$ ). The results of this study concluded that although meditation is beneficial to enhance the other psychological adjustment but in case of intelligence, its impact is negligible on cognitive ability of students with hearing impairment.

**Keywords:** Meditation, Hearing impairment, Cognitive Ability, Deaf Students.

### Introduction

A person who is deaf has lost all or some of their hearing. Deaf people suffer in silence since hearing loss is invisible and, as a result, its repercussions are not apparent to others. The WHO defines "Hearing-Impairment" as both a whole and partial loss of hearing capacity. Cases falling into this group will be those with profound impairment (90 dB or more in better ear) or complete loss of hearing in both ears (Informal Working Group & World Health Organization, 1991; Stevens et al., 2013).

In 2018, 466 million individuals were found with a debilitating hearing-impairment. By 2030, that number is expected to climb to 630 million, and by 2050, it is expected to reach over 900 million people as per world health organization (WHO) (Chadha, Cieza, & Krug, 2018). These forecasts, however, are based on a definition of hearing-impairment that does not accurately follow the rules of the international classification of functioning, disability, and health for evaluating all types of functional impairments (Stokes, 2011).

In India, there are 7.6% of deaf people and 2% of them are born deaf (Garg S, Chadha S, Malhotra S, Agarwal AK, 2009). In the 58th round of the National Sample Survey, which was conducted in 2002, hearing-impairment was shown to be a significant sensory deficiency and the second most frequent cause of disability in Indian families. Loss made for 10% of all disabilities in rural regions and 9% in urban areas. According to estimates, there were 291 hearing-impaired people for every 100,000 people, with rural areas having a higher rate (310) than urban areas (236). In the same poll, roughly 32% of participants had profound hearing loss, and 39% had a severe hearing impairment. The survey's findings showed that roughly 7% of respondents had hearing-impairments. In the rural and urban regions, respectively, about 56% and 62% of people said that their hearing loss had started when they were 60 years old. According to reports, there were 7 hearing-impairment cases per 100,000 people that year and greater than these estimations for complete hearing loss would be the amount of low levels of hearing loss and unilateral hearing loss (Singh, 2015).

According to Baklouti et al. (2022), Hatha yoga in long-term had improved cognitive capacities than the control condition in several cognitive processes. In addition, Elwey et al. (2021) observed statistically significant disparities across all social skill and competency areas. Suman (2020) noted that due to various depressive symptoms, hearing-impaired students' stress levels were greater than those of normal pupils. Treatment and prevention can help them find a positive course in life.

The population was randomly separated into three groups based on the meditation technique in order to study the effect of meditation on older people. They looked into how the intervention affected the elderly's verbal fluency, memory, and cognitive flexibility. According to the findings by Alexander et al., (1989), the meditation group performed significantly better than other groups.

The cognitive ability allows a person to effectively disengage from a previous role, reconfigure a new response set, and apply this reconfigured response set to the current mission. Low cognitive ability is one of the major issues related to hearing-impaired students and may be one of the causes for school drop, their performance, their academic activities, their social equality, social competence, and so many others.

Meditation through om chanting & focussing on a single point and their sensations which are good for various cognitive functions. In view of the above-mentioned literature which is indicating the effectiveness of meditation on various abilities so we are here setup the following objective which is mentioned below:

### Objective

To study the effect of meditation on cognitive ability of student with hearing impairment

### **Hypothesis**

Meditation has no discernible impact on the cognitive abilities of students with hearing loss.

### **Design**

Research design is collection of data and analysis in a systematic & control way with significance to the study goal. (Selltiz et al., 1959). A pre, and post experimental design has been used for present study.

### **Sample**

A total of 30 hearing-impaired male students between the ages of 12 and 18 made up the sample. Following the clearance of the competent authority, the sample was chosen from two special schools in the Haryana state's Jhajjar and Gurugram districts. Participants were asked for their informed permission. Cognitive abilities of 30 individuals were assessed before and after eight weeks of meditation intervention using Raven's Standard Progressive Matrices (SPM) (Raven, Raven, & Court, 2004).

### **Socio Demographic Profile**

Mean of age & standard deviation of age were  $15 \pm 2$ . All 30 were male students with profound degree of hearing-impairment. Out of all participants, 40 % of students were from urban background of residence, whereas majority of students i.e., 60 % were belonged to the rural background of residence. As far as socio economic status (Bairwa, Rajput, & Sachdeva, 2013) was concerned, a high number of participants i.e. 63.33%, belonged to the lower socioeconomic status, whereas 36.66 % were from the upper lower socioeconomic status. Amongst the all subjects, majority of the subjects were from nuclear type of family i.e. 60% and 40 % were from joint type of family.

### **Delimitations of the research**

The study is delimited to the following aspects:

1. The research is delimited to the Gurugram & Jhajjar districts of Haryana.
2. The research is delimited to the hearing-impaired students from two special schools.
3. The study is delimited to the 30 male students with profound category.
4. The study is delimited to the age range 12-18 years.
5. The study is delimited to the eight weeks of meditation intervention.

### **Tool**

**Socio-Demographic Profile:** The fundamental socio-demographic data of the pupils were gathered using a semi-structured Performa.

**Raven's Standard Progressive Matrices (SPM)** is the first and most widely used instrument for the assessment of cognitive ability. SPM was used to assess the intelligence of students (Raven, Raven, & Court, 2004) by a multiple-choice with non-verbal measure of general intelligence. The SPM (set A, B, C, D and E) consists five sets of 12 each problem and scores can be varied from 0 to 60. A majority of research analysed that SPM together with other cognitive measures find more than 0.75 factors loading on a general component.

### **Procedure**

The experimental group which was consisted of 30 male students with hearing-impairment as per the delimitation of the study, were chosen from special schools of Haryana after the approval of competent authority. Meditation sessions for ten minutes on regular basis were given to the whole group individually for the time period of eight weeks. Pre assessment of cognitive ability was done before start the intervention and a post assessment was also done after the completion of eight weeks intervention programme by using the Standard Progressive Matrices.

### **Statistical Tool**

Results were analysed by using SPSS version 25.0 for paired sample t-test.

### **Results and discussion**

**Hypothesis:** There is no significant effect of physical activities training on self-esteem of student with hearing impairment.

The t-test was applied on the subjects; to assess the mentioned hypothesis and results are as below:

Mean of the pre-cognitive ability (N=30) was 94.27 with standard deviation 2.766, whereas mean of post-cognitive ability was 94.40 with standard deviation 2.966. The mean differences of both pre and post assessment were not on much differ as their  $t = 1.682$  and  $p = .103$  which is statistically insignificant at .05 level. Hence, null hypothesis was statistically accepted.

Although, the mean value of pre and post assessment of cognitive ability is slightly differed from each other and it's favoured the notion that meditation helps to improve the cognitive functions like attention, concentration, memory and other cognitive functions which is also confirmed by western literature. In a research Alexander et al. (1989) conducted on the effects of meditation on old people, the population was randomly separated into three groups based on the type of meditation practised. They looked into how the intervention affected the elderly's verbal fluency, memory, and cognitive flexibility. According to the findings, the meditation group performed significantly better than other groups. Our results support the results of above-

mentioned study but not confirmed the significant findings that are claimed by Alexander et al. In contrast to the control group or other areas, different research by Pagnoni and Cekic (2007) discovered that the putamen 10, a structure involved in attention processing, had the greatest effects of meditation on grey matter.

According to Baklouti et al. (2022), Hatha yoga in long-term show superior cognitive ability as compare to the control condition in several cognitive domains. There is no similar literature available who claimed the effect meditation on intellectual; functioning but its effect on cognitive functions is on positive side.

### **Educational Implications**

It was proved in the study that there is no significant effect of eight weeks meditation intervention program on cognitive ability of hearing-impaired students in terms of their IQ.

So, the implication of a short-term meditation program will not help to enhance cognitive ability especially intellectual quotient, hence not recommended to comply in the special schools. But it might be helpful to enhance their other cognitive functions like attention, and concentration as personally observed by the researcher.

An attempt with a long-term meditation program may be done by the educational institutions to enhance their cognitive ability with ideal conditions and this can also be done with teachers or parents of the students with differently abled.

### **Conclusion**

Our findings suggested that eight weeks of meditation programs for hearing-impaired students may help to raise their cognitive functions but it cannot help to enhance their level of intelligence. Furthermore, research related to long-term meditation may be implemented on large scale with students of special needs in control conditions.

### **References**

- Alexander, C. N., Langer, E. J., Newman, R. I., Chandler, H. M., & Davies, J. L. (1989). Transcendental meditation, mindfulness, and longevity: an experimental study with the elderly. *Journal of personality and social psychology*, 57(6), 950.
- Bairwa, M., Rajput, M., & Sachdeva, S. (2013). Modified Kuppuswamy's socioeconomic scale: social researcher should include updated income criteria, 2012. *Indian journal of community medicine*, 38(3), 185-186.
- Baklouti, S., Aloui, A., Baklouti, H., Souissi, N., & Jarraya, M. (2022). Effects of Hatha yoga on cognitive functions in the elderly: a cross-sectional study. *Libyan Journal of Medicine*, 17(1), 2080799.
- Chadha, S., Cieza, A., & Krug, E. (2018). Global hearing health: future directions. *Bulletin of the World Health Organization*, 96(3), 146.
- Elwey, M. E. S. M., SobhySorour, A., Abo-Alsood, A., & Mahmoud, S. F. (2021). Social Competence in Children: Difference between Normal and Hearing Impaired. *Annals of the Romanian Society for Cell Biology*, 25(6), 18811-18822.
- Garg S, Chadha S, Malhotra S, Agarwal AK. (2009). Deafness: Burden, prevention and control in India. *The National Medical Journal of India* , 22, 79–81.
- Informal Working Group on Prevention of Deafness and Hearing Impairment Programme Planning (1991: Geneva, Switzerland), & World Health Organization. Programme for the Prevention of Deafness and Hearing Impairment. (1991). *Report of the informal working group on prevention of deafness and hearing impairment programme planning, Geneva, 18-21 June 1991*. World Health Organization.
- Pagnoni, G., & Cekic, M. (2007). Age effects on gray matter volume and attentional performance in Zen meditation. *Neurobiology of aging*, 28(10), 1623-1627.
- Raven J & Court JH (2004). *Raven's Standard Progressive Matrices (SPM)*.
- Raven J (2020). *Raven's 2 Progressive Matrices Clinical Edition Test Booklet*. London, England: Psychological Corporation.
- Selltiz, C., Jahoda, M., Deutsch, M., & Cook, S. W. (1959). *Research methods in social relations*. <https://doi.org/10.1086/222815>
- Singh, V. (2015). Hearing in India: All aspects. *Online Journal of Otolaryngology*, 5(1).
- Stevens, G., Flaxman, S., Brunskill, E., Mascarenhas, M., Mathers, C. D., Finucane, M., & Global Burden of Disease Hearing Loss Expert Group. (2013). Global and regional hearing impairment prevalence: an analysis of 42 studies in 29 countries. *European Journal of Public Health*, 23(1), 146–152. <https://doi.org/10.1093/eurpub/ckr176>
- Stokes, E. K. (2011). *International classification of functioning, disability and health (ICF)*. Elsevier - Health Sciences Division. p. 13–6.
- Suman, S. (2020). A comparative study of stress level in hearing impaired and normal students. *International Journal of Applied Research*, 6(10),411–414. <https://doi.org/10.22271/allresearch.2020.v6.i10g.7337>