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Effect of Mindsound Resonanace Technique (MSRT) on Working Memory Among High School Children in a Selectected High School, Bhubaneswar, Odisha

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ABSTRACT

Introduction: The school aged children are going through numerous stressors and anxiety in their life which could impact their academic performance. Yoga is an ancient science that has found useful in enhancing the children's working memory ability. The main aim of the study to evaluate the effect of MSRT on working memory ability of high school students**.**

Methodology: The Present study consisted of students divided into control group and experiment group. A quasi-experimental research design was used and purposive sampling technique were used to pick a total of 80 samples. Samples who met the inclusion criteria are categorized in to experimental group (n = 40) and Control group (n = 40), Self-structured socio demographic Performa and standardised Digit Span Test used to collect the data in selected High School, Bhubaneswar, Odisha.

Result: The study result showed a significant difference between the pre-test and post -test level of working memory after giving the intervention. There was significant association between Working memory ability with the selected demographic variable i.e., Age in year in both intervention and control group.

Conclusion: The present study concluded that Mind sound Resonance Technique is effective to enhancing the working memory ability among high school students. Further study can be conducted with large sample and with the alternative technique to improve the working memory ability.

Keywords: Working Memory, High school students, MSRT

INTRODUCTION

The school age children are facing various problems in their day-to-day life and when their worlds are less steady than their expectations, kids respond more strongly and their efforts and hopes are less likely to be rewarded with desired outcomes.[1] "Working memory refers to the capacity to store and manipulate information over short period of time. "As Alloway (2009) points out, working memory reflects a relatively pure measure of a child's learning potential". Working memory affects how we perform in tests and learn things". It helps us to focus when there

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are distractions and it aids in the generation of new knowledge through a mental process, as well as the application of existing knowledge in people's daily lives The central executive is in charge of focusing and switching attention, as well as planning, controlling, and monitoring cognitive activities .[2]

Mind Sound Resonance Technique a yoga-based relaxation Technique which is also recognized to aid in the restoration of an individual's autonomic balance. The MSRT can used to improve willpower, concentration and relaxation. The practice of MSRT has been shown to help people with low self-esteem. it helps people to feel less anxious and improves their psychomotor performance .[3]

According to research, there has been a decrease working memories and in school aged children, academic performance is linked to anxiety and this is not only affecting the cognition level such as working memory of children's but it affects the physical issues, tension type headache, fatigue etc. Cognitive performance can be affected by the no. of factors, including non-cognitive one like the emotional state of the test-tracker. There are several major factors that can have an impact on taxing cognitive performance. MSRT (a yoga-based relaxation technique) has been discovered to be a good way for the school age children to enhance cognitive function and also encourage mindfulness [4].

When I first received MSRT training from S-Vyasa university Bangalore for 20 days on online mode, as a new researcher, I directly felt the impact of this relaxing technique in my daily life. It improves focus while also lowering stress levels and improving sleep quality. Despite the fact that multiple researchers have found a favourable influence on MSRT, there are few studies on the impact of MSRT on psychological functions such as stress, anxiety, and working memory in school-aged children. As a result, the purpose of this study is to see how MSRT affects working memory abilities in high school students.

OBJECTIVES

1. To assess the working Memory abilities of High school students.
2. To evaluate the effect of MSRT on working memory abilities of High school students after the intervention.
3. To find out the as sociation bet ween working memory abilities with selected sociodemographic variables.

MATERIAL & METHODS

The Study included Quasi- Experimental Pre- Post-test control group design. Before conducting the main study, a pilot study was carried out for the period of 1week with 08 samples. As a result, 80 student was chosen by using the Purposive sampling technique. The intervention was given for a total of 30 days. High School students were from "Sai Saraswati School and Saraswati Vidyamandir, Dumduma", Bhubaneswar, Odisha and the students had aged 14 to 16 who met the inclusion criteria are categorized in to experimental group (n = 40) and Control group (n = 40), The data was collected using the following tools 1. Sociodemographic questionnaire, 2. Digit span test to assess the working memory abilities. "Ethical clearance and permission were obtained from the institutional ethical committee, Siksha 'O' Anusandhan and administrative permission obtained from the principal of all respective High Schools. The sample characteristics were analysed using frequency and percentage".

ANALYSIS AND INTERPRETATION

After the data was collected through demographic profile from two groups, descriptive statistics were employed to examine the effect of the intervention on the working memory abilities through T-test and chi-square test.

Section -I Descriptive statistics by frequency and percentage distribution of demographic characteristics of High School Children's

The demographic data Shows that most of the study participants (40%) were 15-16 years of

age in experimental group and 35% in control group are 16 years. 50% of sample were male & 50% female "in experimental group and 57.50% were male in control group. Most of the samples in experimental group (52.50%) were middle socio-economic status in control group and the most of samples in experimental group were (57.50%) in 10th class and 77% in 9th class in control group. The majority of the sample were from joint family (57.50%) in experimental group and 58% in control group were from nuclear family and most of the samples (67%) and (87.50%) were from urban area in both the group respectively. Majority of the participants had <10,000 monthly family income and most of the sample were belongs to mother only supportive and caring family environment".

Section-II- Descriptive statistics to assess the working memory abilities of high school children.

Data represented in fig.1 shows that in the experimental pretest group, 100% of the children had good working memory, while in the posttest group, 50% of the children had good working memory and 50% had Excellent working memory, and in the control pretest group, 7.50% of the children had fair working memory, 92.50% had good memory, while in the posttest group,90% of the children had good working memory and 7% had Excellent working memory.

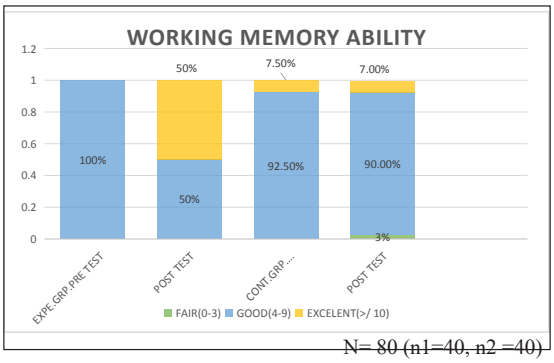

Fig 1: Frequency (f) and Percentage (%) of high school students according to their working memory ability

Section-III Inferential statistics to find out the effect of Mind Sound Resonance Technique (MSRT) a relaxation technique on Working Memory ability among High School Children's by using paired and unpaired t- test.

The data in table-2 shows that the mean score of post-tests was more than the mean score of Pre-test of working Memory ability in experimental group, with the P value 0.01, which was Highly Statistically significant, inference shows that the working Memory ability was increased in post-test, that means the intervention was effective and the research hypothesis was accepted.

The mean score of post-tests was less than the mean score of pre-tests of working Memory ability in control group, with the P value 0.180, which was not Statistically significant, that means the research hypothesis was rejected.

Table -3 shows that the pre-test mean, standard deviation of Working Memory ability in experimental group were (6.22 ± 1.36) and Control group were (6.32 ± 1.70) and p value 0.773, which was not Statistically significant that means the research hypothesis was rejected.

Table- 4 Shows that the post-test means, standard deviation working memory ability

Table 1: Mean, SD, Paired t value, P value to assess the effect of Mind sound resonance technique on Working memory ability

N= 80 (n_1=40, n_2 =40)

Criteria	*Mean ± S. D*				
Working Memory	*Pre-test*	*Post-test*	*t- value*	*df*	*p-value*
Experimental group	6.22 ± 1.36	9.42 ± 1.48	16.26	39	0.01*
Control group	6.32 ± 1.70	6.75 ± 1.58	1.35	39	0.180

P<0.05 *(Highly Statistically Significant.

Table 2: Mean, SD, Unpaired t value, P value of pre-test score of experimental and control group to assess the effect of Mind sound resonance technique Working memory ability.

N= 80 (n1=40, n2 =40)

Criteria	*Pre-test*				
	Mean ± S. D	*SE*	*t - value*	*df*	*P-value*
Working Memory Abilities			0.290	39	0.773
Experimental group	6.22 ± 1.36	.21628			
Control group	6.32 ± 1.70	.26887			

P<0.05 *(Highly Statistically Significant).

Table 3: Mean, SD, Unpaired t value, P value of post test score of experimental and control group to assess the effect of Mind sound resonance technique on Working memory ability

N= 80 (n1=40, n2 =40)

Criteria	*Post -Test*				
Working Memory abilities.	Mean ± SD	SE	t-value	df	P-value
Experimental Group	9.42 ± 1.48	.234	9.26	39	0.000*
Control Group	6.25 ± 1.58	.250			

P≤0.05 *(Highly Statistically Significant)

Table-4: Association between pre- test of Working Memory ability with selected demographic variables in experimental and control group

N= 80 (n1=40, n2 =40)

Demographic Variable	*Experimental Group*			*Control Group*		
	Chi-square	*df*	*P-value*	*Chi-square*	*df*	*P-value*
1. Age in years	12.536	5	0.028*	13.156	6	0.41*
2. Gender of the Participant	1.253	2	.535	.921	1	.337
3. Socio-economic Status of family	0.958	2	.619	0.017	1	.896
4. Educational Status	0.921	1	.337	0.942	1	.332
5. Types of Family	0.102	1	.749	2.397	1	.122
6. Residential area	0.114	1	.736	0.463	1	.496
7. Monthly Family Income in rupees	3.493	2	.174	3.585	2	.167
8. Family Environment	0.232	2	.890	0.811	1	.368
9. Religion	0.688	1	.407	0.688	1	.407

P≤0.05 *(Highly Statistically Significant

in Experimental group were (9.42 ± 1.48) and control group were (6.25± 1.58) at p value 0.000, which was Statistically significant, that means the research hypothesis was accepted.

Section- IV: Association between Working Memory ability with selected socio-demographic variables".

The data in table- 5: reveals that in working memory ability there is significantly associated with the Age in year in both the Experimental and control group but not with other sociodemographic variables.

DISCUSSION

The working memory ability in high school children in experimental group pretest represents (100%) were scored good working memory, whereas post-test group represents (50%) were scored good working memory and (50%) were scored excellent working memory and in control group pre-test represents (7.50%) were scored fair working memory, (92.50%) were scored good memory where as in post-test group (90%) were scored good working memory and (7%) were scored excellent working memory. This current study

is supported to study findings of other study which conducted by Virve vuonetala, Anna-Mairia Troberg, et al. (2013) experimental study in 8-12-year-old children to explore working memory, attention, inhibition, as well as their links to adaptive function and emotional symptoms. The cognitive capacities showed significant age effects. Inhibitory control was linked to improved adaptive functioning. [5] The present study was supported to the study conducted by Apor Abhinash, e.t.a.l (2020) a randomized controlled trail, at a govt. school in south India to evaluate the yoga-based relaxation tech." (MSRT) on psychological and cognitive behavior. The study findings concluded that there was significant difference in experimental group with post test score of anxiety, attention and working memory.[6]

The present study showed that the working memory ability is significantly associated with the Age in year in both the Experimental and control group there is age in year but not statistically significant with other sociodemographic variables.

LIMITATION

The study is restricted to high school students with age group 14-16 years. Individuals with major psychological problems and chronic disease were not included in the study. The intervention period was short.

CONCLUSION

The findings from this study revealed that training in MSRT may enhance the working memory ability in high school children. And incorporating the MSRT as a regular practice in school may help to enhance the psychological wellbeing and also the cognitive function of high school student.

Conflict of Interest; Nil

Source of funding: self.

ETHICAL CLEARANCE

The Ethical consideration of present study was included-

Approval of research problem and objectives by the research committee of Sum Nursing College and approval for conducting study from IEC, SOA Deemed to be university. Obtaining permission from the higher authority of selected High School in Bhubaneswar. Informed consent was obtained from participants.

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