



A Study To Assess The Effectiveness Of Brain Gym Exercises On Self Esteem And Level Of Concentration Among School Students At Selected School, In Dindugal District.

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ABSTRACT

Introduction: Brain gym brings movement back into learning. It uses activities and exercises to reduce stress so that the body and mind can work more efficiently in any learning, study, performance or daily life situations. It is a tool which can be integrated into any teaching situation with any age group. A practical, movement based course with the focus being on integrating it into a tool kit of strategies to keep individuals focused and attentive for learning. This brain gym exercises can lead onto further study in the specific use of brain gym movements and educational kinesiology. **Objectives of the Study:** 1. To assess and compare the pre and post test self esteem and level of concentration among high school students at selected school. 2. To assess the effectiveness of training programme on the self esteem and level of concentration among high school students at selected school. 3. To correlate the self esteem and level of concentration among high school students at selected school. 4. To associate the self esteem and the level of concentration with their selected demographic variables with the mean differed level among high school students at selected school. **Materials and Methods:** A pre experimental, one group pre test-post test design was selected with the sample size of 60 high school students by using purposive sampling method with inclusive criteria. The conceptual frame work of Stufflebeam and colleagues was applied. The study was conducted in MASI Metric Higher secondary School. Modified Rosenberg self esteem scale and modified concentration assessment scale was used to assess pretest and post test self esteem and level of concentration. Brain gym exercises done for 15 days duration in 30 minutes. **Results:** In pre test self esteem score , all sample 60(100%) had moderately adequate self esteem and none of them had adequate self esteem, where as in the post test after administration of brain gym exercises 43(71.67%) had adequate level of self esteem and 17(28.33%) had moderately adequate level of self esteem regarding modified Rosenberg self esteem scale. In pre test 2(3.33%) had inadequate level of concentration and 58(96.67%) had moderately adequate level of concentration. In post test after administration of brain gym exercises on concentration, 40 (66.67%) had adequate level of concentration and 20 (33.33%) had moderately adequate level of concentration towards modified concentration assessment scale. Brain gym exercises found to be effective on the level of self esteem ($t=9.178, p=0.001$) and level of concentration ($t=8.597, p=0.001$). Self esteem and concentration

found to have a positive correlation ($r=0.511$) **Conclusion:** The study pointed out that student's self esteem and concentration can be influenced by brain gym exercises. It will help the learners to have improvement in their academic as well as over all development. The outcome of the study will also provide an awareness to the nursing field.

KEYWORDS: Brain gym exercise, self-esteem, concentration, school students.

INTRODUCTION

Learning stimulates the brain and creates new relationships. It stimulates the brain because with every new stimulation, experience, and behaviour it can rewire itself (Jensen, 1998). Learning is a mental activity and the physical components of learning are visual, auditory, fine motor and postural skills that educators have completely ignored since learning is measured by results. Today, student concentration is reduced by the amount of time they spend online or using a technology device such as a tablet or smartphone. The guilty party is not the device itself, but what children learn from using this device. One lesson is that if they are not pulled in by the game or reading from the first few seconds, they doze or easily click or swipe away from the "boring" activity and something else to choose. Many of these digital activities do not care about the well-being of the people or do nothing to teach them. Brands are increasingly developing apps to entertain children.

OBJECTIVES

1. To assess and compare the pre and post test level of self esteem and level of concentration among high school students at selected school.
2. To assess the effectiveness of Brain gym exercises on the self esteem and level of concentration among high school students at selected school.
3. To correlate the self esteem and level of concentration among high school students at selected school.
4. To associate the self esteem and the level of concentration with their selected demographic variables with the mean differed level among high school students at selected school.

Hypothesis

- **H1:** There is significant difference in the pretest and post test of self-esteem and level of concentration among high school students
- **H2:** There is significant correlation between self-esteem and level of concentration among high school students
- **H3:** There is significant association of mean improvement level of self-esteem and concentration with selected demographic variables.

METHODOLOGY

This chapters deals with the methodology of the study selected by the investigator in order to assess the knowledge about self esteem and level of concentration among student.

Research approach

Research approach is the most significant part of any research. The appropriate choice of the research approach depends on the purpose of the research study which is undertaken. According to Polit and Beck

(2004) evaluate research is an extremely applied form of research and involves findings out how well a programme, the practice or policy is working. Its goal is to evaluate the success of the programme. Quantitative research approach was used in this study.

Research Design

The research design is the conceptual structure in which research is conducted; it constitutes the blue print for the collection, measurement and analysis of data. It includes an outline of what the researcher will do from writing the hypothesis and its operational implications to final analysis of data.

The research design helps the researcher in the selection of subjects for interviewing the patients, determines the type of analysis to be used to interpret the data. The selection of the research design depends on the purpose of the study. Pre Experimental one group pre test-post test research design was followed in the study.

Group	Pre test	Intervention	Post test
E1	O1	X1	O2

Keys:

E1----- experimental group

O1-----Pre test score

X1-----Brain Gym Exercises

O2-----Post test score

Setting

The research setting can be seen as the physical, social, and cultural site in which the research is conducted study. In qualitative research the focus is mainly on meaning making, and the research studies the participants in their natural setting.

The study was conducted in The Akashaya academy CBSC School Palani. The school is build on a sprawling 1acres sights. The school was started in 1992 as a self financing institution. High standard of discipline through the dedicated, involved and committed staff provide a ringing edge to the student community. The school department comprises of various classes karate, band, abacus class, Scout, JEE and NEET Exam etc. The above setting was selected due to the availability of sample and flexibility of the study.

Population

A research population is generally a large collection of individuals or objects that is the main focus of a scientific query. This is the reason why researcher rely on sampling techniques. A research population is also known as a well- defined collection of individuals or objects known to have similar characteristics.

Population of the study was high school students within the age group of 12 – 14 years studying in selected The Akashaya academy CBSC School, Palani

Sampling Technique

The samples were selected using purposive sampling techniques.

Sample Size

The sample size was 60.

Sample

High School students in The Akashaya academy CBSC School palani

Data collection procedure

Formal written permission to conduct the study was obtained from at Akashaya academy CBSC School. List of 11th & 12th students were obtained from the school. All the 11th & 12th students were enrolled in the study after getting their consent. A written informed consent was obtained from each participants. Self-introduction was followed by adequate explanation about the purpose of the study to ensure better co-operation. On 01.11.2022 – pretest questionnaire was administered using structure knowledge questionnaire was used to assess the level of knowledge regarding first aid management for selected emergencies among high school students. The pretest was administered on high school students which took 30 minutes. On 01.11.2022 – After the Pretest, Training programme was given to 100 high school students. The training programme was given on BLS, drowning, choking, basic wound care, Electric shock using power point, and demonstrated on BLS, drowning, choking, using manikin. The student demonstrated the same. The training programme was given for 1 hour per day for 3 days. On 19.11.2022 –The investigator conducted the post-test after 15 days by using the same structured knowledge questionnaire tool. And skill was assessed by investigator using the observation check lists.

Data Analysis and Interpretation

- **Section A:** Description of the demographic variables of high school students.
- **Section B:** Assessment of level of self esteem and concentration among high school students.
- **Section C:** Effectiveness of Brain Gym Exercises upon Self-Esteem and level of Concentration among high school students.
- **Section D:** Relationship between post test self esteem and concentration score among high school students.
- **Section E:** Association of post test level of self esteem and concentration among high school students with selected demographic variables.

Section A: description of the demographic variables of high school students.

Table I: Frequency and percentage distribution of demographic variables of high school students N = 60.

The demographic variables that maximum 24(40%) were in the age group of 13 – 14 years, 45(75%) were male, 24(40%) were studying in VIII Standard, 58(96.67%) had taken Tamil as second language, 25(41.67%) had an academic performance of below 60%, 55(91.67%) had no knowledge of brain gym exercise, 55(91.67%) had no source of information and 51(85%) were interested in extra curricular activity.

Section B: Assessment the Level of Self Esteem and Concentration Among High School Students.**Table II: Frequency and percentage distribution of pretest and post test level of self esteem among high school students N = 60.**

Self Esteem	Pre test		Post test	
	No.	%	No.	%
Inadequate (15 -35)	0	0	0	0
Moderately Adequate (36 – 55)	60	100.0	17	28.33
Adequate (56 – 75)	0	0	43	71.67

The Frequency and percentage distribution of pretest and post test that in the pretest, all sample 60(100%) had moderately adequate self esteem whereas in the post test after administration of Brain Gym Exercise on self esteem, 43(71.67%) had adequate level of self esteem and 17(28.33%) had moderately adequate level of self esteem.

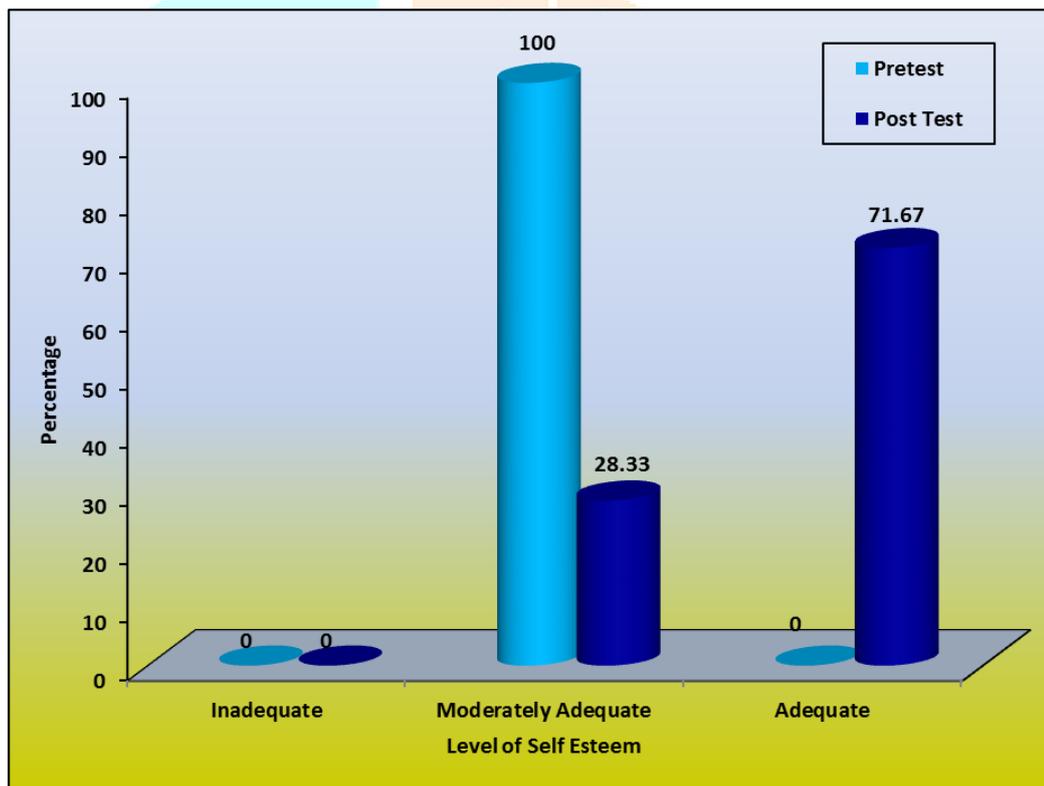
**Fig. 1: Percentage distribution of pretest and post test level of self esteem among high school students.**

Table III: Frequency and percentage distribution of pretest and post test level of concentration among high school students. N = 60.

Concentration	Pre test		Post test	
	No.	%	No.	%
Inadequate (15-25)	2	3.33	0	0
Moderately Adequate (25 – 35)	58	96.67	20	33.33
Adequate (35 – 45)	0	0	40	66.67

The pretest, 2(3.33%) had inadequate level of concentration and 58(96.67%) had moderately adequate level of concentration whereas in the post test after administration of Brain Gym Exercise on concentration, 40(66.67%) had adequate level of concentration and 20(33.33%) had moderately adequate level of concentration.

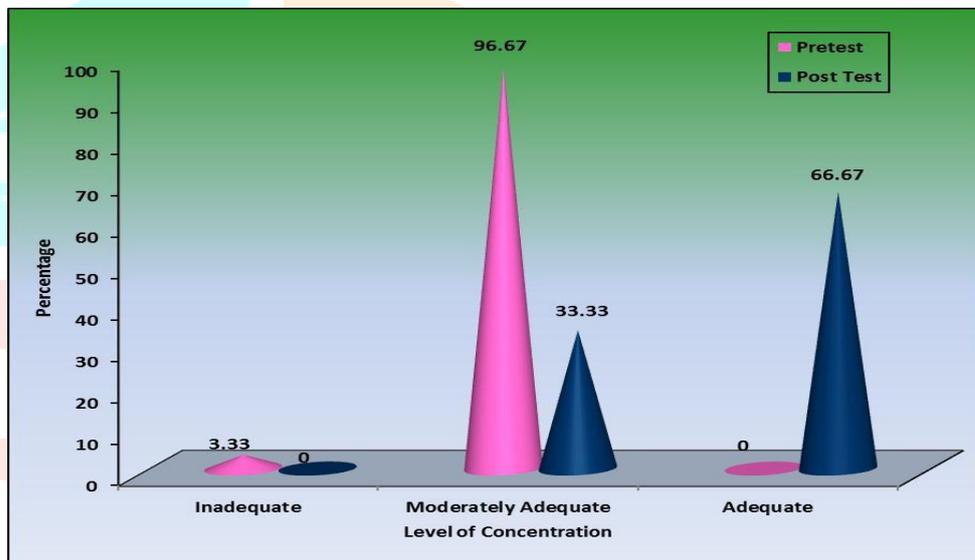


Fig. 2: Percentage distribution of pretest and post test level of concentration among high school students

Section C: Effectiveness of brain gym exercises upon self-esteem and level of concentration among high school students.

Table IV: Comparison of pretest-post test self esteem scores among high school students. N = 60.

Self Esteem	Mean	S.D	Mean Improvement score and %	Paired 't' Value
Pretest	50.57	4.26	11.35 (15.13%)	t = 9.178 p =0.0001 S***
Post Test	61.92	9.19		

***p<0.001, S – Significant

The pretest mean score of self esteem was 50.57 ± 4.26 and the post test mean score of self esteem was 61.92 ± 9.19 . The calculated paired „t“ value of $t = 9.178$ was found to be statistically highly significant at $p < 0.001$ level. This clearly indicates that the Brain Gym Exercise administered to high school students resulted in a significant change in the level of self esteem and their level of self esteem had increased significantly.

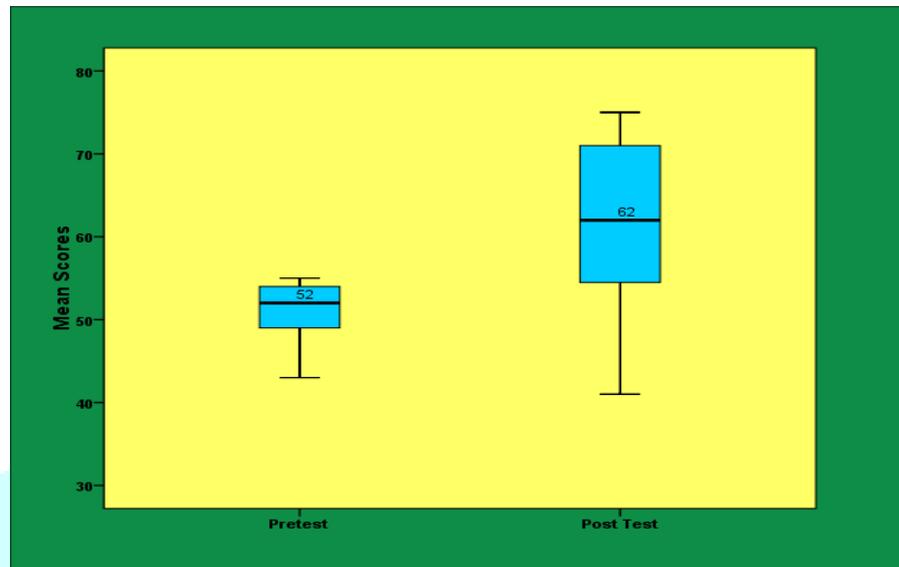


Fig. 3: Box plot showing the comparison of post test self esteem scores among high school students.

Table V: Comparison of pre test -post test concentration scores among high school students N = 60.

Concentration	Mean	S.D	Mean Improvement score and %	Paired 't' Value
Pretest	31.97	2.63	5.38 (11.95%)	t = 8.597 p = 0.0001 S***
Post Test	37.35	4.28		

*** $p < 0.001$, S – Significant

The pretest mean score of concentration was 37.35 ± 4.28 and the post test mean score of concentration was 37.35 ± 4.28 . The calculated paired „t“ value of $t = 8.597$ was found to be statistically highly significant at $p < 0.001$ level. This clearly indicates that the Brain Gym Exercise administered to high school students resulted in a significant improvement in the level of concentration and their level of concentration had increased significantly.

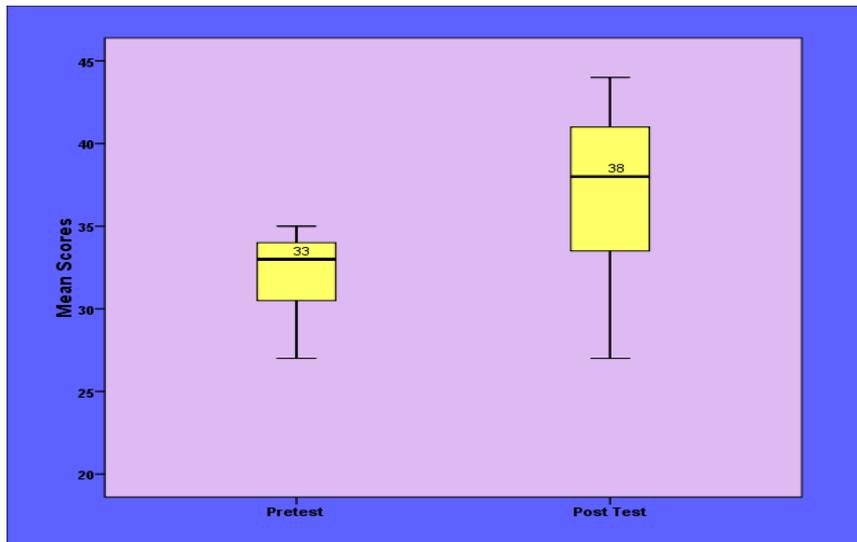


Fig. 4: Box plot showing the comparison of post test concentration scores among high school students.

Section D: relationship between post test self esteem and concentration score among high school students.

Table VI: Correlation between pretest and post test level of self esteem and concentration scores among high school students N = 60.

Test	Variables	Mean	S.D	'r' Value
Pretest	Self Esteem	50.57	4.26	r = 0.023
	Concentration	31.97	2.63	p = 0.862, N.S
Post Test	Self Esteem	61.92	9.19	r = 0.511
	Concentration	37.35	4.28	p = 0.0001, S****

**p<0.01, S – Significant, N.S – Not Significant

The pretest mean score of self esteem was 50.57±4.26, and concentration was 31.97±2.63.

The calculated Karl Pearson’s Correlation value of r =

0.023 between self esteem and concentration shows a poor positive correlation between pretest self esteem and concentration scores which was not found to be statistically significant.

The post test mean score of self esteem was 61.92±9.19, and concentration was 37.35±4.28.

The calculated Karl Pearson’s Correlation value of r =

0.511 between self esteem and concentration shows a moderate positive correlation between post test self esteem and concentration scores which was found to be statistically highly significant at p<0.001 level. This

clearly indicates that when the self esteem among high school students increases their level of concentration also increases.

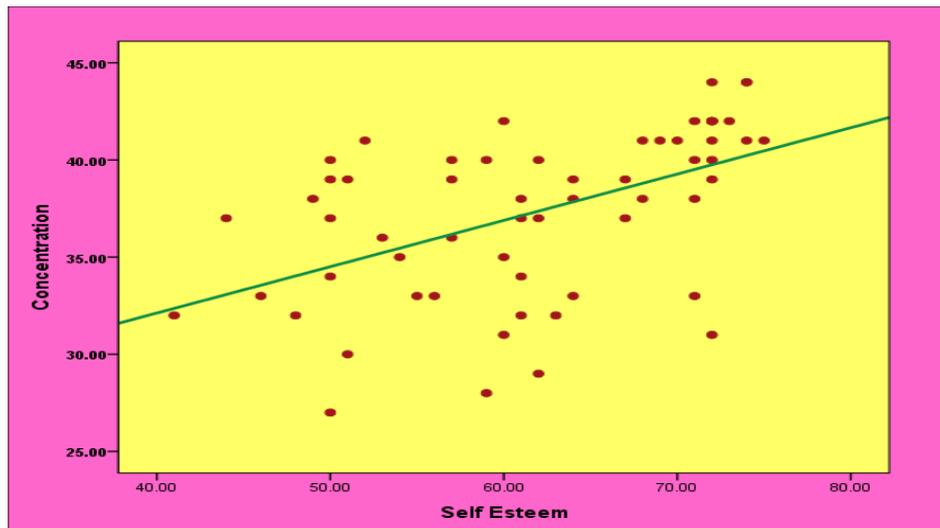


Fig. 5 : Scatter Dot diagram showing the correlation between post test level of self esteem and concentration scores among high school students.

Section E: association of post test level of self esteem and concentration among high school students with selected demographic variables.

Table VII: Association of post test level of self esteem among high school students with selected demographic variables N = 60.

*** $p < 0.001$, * $p < 0.05$, S – Significant, N.S – Not Significant

The demographic variables standard and academic performance had shown statistically significant association with post test level of self esteem at $p < 0.05$ and $p < 0.001$ level ($\chi^2 = 6.518, d.f = 2, p = 0.038$) and ($\chi^2 = 15.626, d.f = 2, p = 0.0001$). The other demographic variables had not shown statistically significant association with post test level of self esteem among high school students

Table : Association of post test level of concentration among high school students with selected demographic variables. N = 60.

* $p < 0.05$, S – Significant, N.S – Not Significant

The demographic variables age and sex had shown statistically significant association with post test level of concentration at $p < 0.05$ level ($\chi^2 = 6.190, d.f = 2, p = 0.045$) and ($\chi^2 = 5.777, d.f = 1, p = 0.016$). The other demographic variables had not shown statistically significant association with post test level of concentration among high school students.

DISCUSSION

This chapter deals with the discussion of the data analysis based on the objectives and hypothesis of the study. The problem stated was conducted to study the effectiveness of brain gym exercise on self-esteem and level of concentration among high school students in selected schools.

Distribution of the sample according to their demographic variables

Majority of the sample in the demographic variables of the study that maximum 24(40%) were in the age group of 13 – 14 years, 45(75%) were male, 24(40%) were studying in VIII Standard, 58(96.67%) had taken Tamil as second language, 25(41.67%) had an academic performance of below 60%, 55(91.67%) had no knowledge of brain gym exercise, 55(91.67%) had no source of information and 51(85%) were interested in extracurricular activity.

The first objectives of the study is to assess and compare the pre and post test self esteem and level of concentration among high school students

The pre test of the study showed that all sample 60(100%) had moderately adequate self esteem whereas in the post test after administration of Brain Gym Exercise on self esteem, 43(71.67%) had adequate level of self esteem and 17(28.33%) had moderately adequate level of self esteem.

The pre test of the study showed that 2(3.33%) had inadequate level of concentration and 58(96.67%) had moderately adequate level of concentration whereas in the post test after administration of brain gym exercises on concentration, 40(66.67%) had adequate level of concentration and 20(33.33%) had moderately adequate level of concentration.

This study findings was supported with **M G Marpanug et al (2012)** quasi experimental study on brain gym exercises to increase academic performance of children aged 10 – 12 years old, in Tembalang Elementary School and Pedalangan Elementary School Semarang. In this study one group pre test post test design was used and total 18 samples (male =7, female = 11) were taken from five and six grade. The measurement of intelligence Quotient pre test and post test by using culture fair intelligence test scale 2. The result showed that the average of academic performance and IQ score has improved after brain gym exercises. The improvements of IQ score with culture fair test scale 2 was analyzed by dependent T test showed significant results ($p=0.000$). It was concluded that brain gym exercises could increase academic performance of children aged 10 – 12 years old.

The second objective of the study is to assess the effectiveness of training programme on the self esteem and level of concentration among high school students

The pre test mean score of self esteem was 50.57 ± 4.26 and the post test mean score of self esteem was 61.92 ± 9.19 . The calculated paired „t“ value of $t = 9.178$ was found to be statistically highly significant at $p < 0.001$ level. This clearly indicated that the Brain Gym Exercise administered to high school students resulted in a significant change in the level of self esteem and their level of self esteem had increased significantly.

The pre test mean score of concentration was 37.35 ± 4.28 and the post test mean score of concentration was 37.35 ± 4.28 . The calculated paired „t“ value $t = 8.597$ was found to be statistically highly significant at $p < 0.001$ level. This clearly indicates that the Brain Gym Exercise administered to high school students resulted in a significant improvement in the level of concentration and their level of concentration had increased significantly.

This study findings was supported with **Tayyeb Taher Zade et al (2014)** who conducted a descriptive study to assess the effectiveness of brain gym exercise on the self-esteem, concentration and quality of life of school students of 4- 5 years of age group. 60 beginner people were selected by convenience sampling and participants completed the self-esteem (1967), Oxford level of concentration (1989) and World Health Organization Quality of Life (1999) questionnaires in pre-test and post-test stages. Data were analyzed by descriptive statistics index, MANOVA test, and by using the statistical software SPSS-16. The MANOVA showed effectiveness of exercise and significant increase scores for self-esteem, happiness and level of concentration and their components in beginner athletes on post- test stages. The study concluded that the student with good self-esteem had significant level of concentration.

The third objective of the study is to correlate the self esteem and level of concentration among high school students at selected school

Pre test mean score of self esteem was 50.57 ± 4.26 , and concentration was 31.97 ± 2.63 . The calculated Karl Pearson's Correlation value of $r = 0.023$ between self esteem and concentration shows a poor positive correlation between pre test self esteem and concentration scores which was not found to be statistically significant. further shows that, the post test mean score of self esteem was 61.92 ± 9.19 , and concentration was 37.35 ± 4.28 .

The calculated Karl Pearson's Correlation value of $r = 0.511$ between self esteem and concentration shows a moderate positive correlation between post test self esteem and concentration scores which was found to be statistically highly significant at $p < 0.001$ level. This clearly indicates that when the self esteem among high school students increases their level of concentration also increases.

The study findings was supported with **Mohammad Aryana (2015)** this research highlights the relationship between self esteem and academic achievement in the pre- university students. Additionally, it aimed to identify whether there are differences in academic achievement between boys and girls. The objectives of this were achieved by using the Cooper smith questionnaire and the students' grade in their current and previous semesters. The random sampling was used for collecting the data and as a consequence 50 male and 50 female were chosen randomly. The questionnaires were distributed among 100 students in schools. The results demonstrated that there was significant ($p < 0.001$) positive relationship between self esteem and academic achievement between boys and girls. However, no significant difference was found in self esteem between males and females. The results suggest that high self esteem is important factor and strengthen the prediction of academic achievement in students.

The fourth objective of the study is to associate the self esteem and the level of concentration with their selected demographic variables with the mean differed level among high school students

The demographic variables standard and academic performance had shown statistically significant association with post test level of self esteem at $p < 0.05$ and $p < 0.001$ level ($\chi^2 = 6.518$, d.f=2, $p = 0.038$) and ($\chi^2 = 15.626$, d.f=2, $p = 0.0001$). The other demographic variables had not shown statistically significant association with post test level of self esteem among high school students.

This study findings was supported with **Sherina Mohd Sidiket al (2014)** who conducted a cross sectional study to assess Self-esteem and its Associated Factors using random cluster sampling methods among Secondary School Students in Klang District, Selangor. This study was conducted to determine the mean self esteem score, and to determine the association between self esteem and age, sex, race, religion, number of siblings, ranking, among siblings, family function, parental marital status and smoking among adolescent aged 12-20 years old. Four out of a total 35 secondary schools in Klang district and 1089 samples were

taken for the study. There was a statistically significant relationship between mean self esteem scores and sex, age, race, religion, number of siblings, smoking, and family function. There was no statistically significant difference between mean esteem score with parental marital status and with ranking among siblings.

In this study demographic variables age and sex had shown statistically significant association with post test level of concentration at $p < 0.05$ level ($\chi^2 = 6.190$, $d.f = 2$, $p = 0.045$) and ($\chi^2 = 5.777$, $d.f = 1$, $p = 0.016$). The other demographic variables had not shown statistically. This study findings was supported with **Juliana Jecinth R.(2017)** pre experimental study on the effect of Brain Gym Exercises on Self- Esteem and Sensory Processing Speed on High School Hearing Impaired Students. In this study one group pre test and post test design was used and total 30 samples between the age group of 15 – 20 were given practices on 10 different types of Educational Kinesiology exercises for 45 days continuously. The results of the pre and post intervention were assessed using paired sample t-test and significant difference in terms of improvements were found in the hearing impaired students on both the sensory processing speed and self-esteem.

RECOMMENDATIONS

- The study recommends the following for further research.
- A similar study can be conducted for a larger group thereby the findings can be generalized.
- A similar study can be conducted for low self esteem and learning students of other age groups.
- Improvement aspects can be done to maintain brain gym for low self esteem students.
- A qualitative study can be carried out to understand the findings of individual students of low self esteem and concentration students and their levels of coping abilities at present in a challenging society.

CONCLUSION

The desire of the student, teachers, and the investigator is to reach their achievements, though the student can perform all the exercises and improve the self esteem and concentration to reach success. The study concluded that the assessment of self esteem and concentration is essential for all age groups. The study had helped the investigator to know the importance of self esteem and concentration and how to perform the assessment.

These results can help the professionals and teachers to gain deeper understanding of the assessment of self esteem and level of concentration of student and teachers to find the meaning of assessment and brain gym exercises of their students. So it is the responsibility of the teachers to create awareness and make them understand the method of assessing the self esteem and level of concentration. This was achieved by teaching the teachers how to do the assessment for the student, while the investigator was performing the assessment.

AUTHOR CONTRIBUTION STATEMENT

Conceived and designed this study let the over all research proceed and provided critical revision to the manuscript,
responsible for methodology and writing of the result and discussion, selection of the study conducted literature
review, contributed to the survey design, Dean cum Principal Dr. Esther Rakel assisted in final editing and ensured that
relevant ethical consideration were addressed through out this study.

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