



TO FIND OUT EFFECTIVENESS OF PLAY THERAPY VERSUS YOGA IN ATTENTION DEFICITE HYPERACTIVITY DISORDER (ADHD)

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ABSTRACT:

BACKGROUND AND PURPOSE: Children with Attention deficit hyperactivity disorder (ADHD) suffers with inattention, hyperactivity & irritability. Attention deficit hyperactivity disorder is a heterogeneous neurobiological condition delineate as truncated attention span; hyperactive etiquettes and impulsivity ; due to the combination of problems persistent disapproval to school and socialization tends to affect overall performance of child; hinders academic performance and vitiates socio-emotional maturation .purpose of the study is to compare the effect of “Play therapy versus Yoga to improve ADHD symptoms in subject with ADHD” . **METHODOLOGY-** 24 subjects with ADHD were recruited for the study. Subjects were distributed into 2 groups GROUP-A Play therapy and GROUP-B Yoga .Prognosis was assessed by using Vanderbilt teacher rating scale & Conner’s abbreviated teacher rating scale, before and after 8 week of intervention to evaluate & compare the effectiveness of treatment protocol. **RESULT_**– Result were statistically analyzed using paired t test and unpaired t test by using SPSS version 25.0 and excel version 2019 .there were significant improvement in both group’s ADHD symptoms with p value <0.001 in Group –A and P value <0.05 in GROUP B , So there is more improvement in group A rather than group-B. **CONCLUSION-** Study concluded that Yoga shows significant improvement on Attention, hyperactivity & irritability in ADHD subjects, however greater amount of improvement was found in play therapy group compared to yoga group.

KEY WORDS – ADHD; Play Therapy; Yoga ; Hyperactivity ; Inattention ; Impulsivity ; Vanderbilt ADHD Teacher Rating Scale , Conner Abbreviated Teacher Rating Scale

1. INTRODUCTION:

Pervasiveness of ADHD among major countries ranges between 2-14 %¹; ubiquity of ADHD in major Indian states are around 12%; prevalence in primary school going children in Coimbatore Tamilnadu is 11.32%². Males are more susceptible to ADHD than the females, in total ADHD cases across the world; 75-80% are males ^{3,4}

There are three dominant symptoms of the ADHD. These are inattention & hyperactivity and irritability according to the predominance of any 1 or more than one symptom ADHD is classified in 3 types

1. Predominantly inattentive type of ADHD
2. Predominantly hyperactive / impulsive type of ADHD
3. Global/ combined ADHD^{5,6} (DSM-TV-R)

There are many researches took place to understand the developmental anomalies in ADHD subjects out of them some are as follow,

Paulin a flipek et al in 1994 studied about pathology of ADHD they concluded that there is involvement of frontal and; prefrontal cortex; posterior parietal hemisphere & caudate nucleus of brain in ADHD subjects⁷

Barkley et al 1997 studied function of frontal and prefrontal cortex which is associated with executive functions i.e., **attention, integration of information & working memory** which is affected in ADHD subject this research of barkley was further reviewed & accepted by parksepp et al; in 2001.

Neuro imaging study by castellanos in 1997 suggested reduction in volume of brain around 5% in the subject with ADHD due to reduction in cortical volume of frontal & pre-frontal lobe.⁸ Frontal striatal thalamic connectivity circuit of brain responsible for cognitive functions like attention; motor control and self regulation but disrupted circuit leads to **motor abnormalities** in ADHD subjects.^{9, 12.}

The splenium of the corpus callosum connecting temporal and parietal cortices appear smaller in ADHD subjects in contrast to normal developing children; this smaller area is related to sustain attention; so reduction in this splenium size leads to lack of sustained attention, this reduced **sustained attention** negatively impact the overall advance development of the attention and results into inattentive behaviour¹⁰

Susan Campbell in 2002 studied about the family history among ADHD subjects and their unaffected siblings; MRI study showed reduction in the volume of caudate nucleus and putamen nucleus volume in both affected subject as well as their non-affected siblings.¹¹

Basal ganglia appears to be involved in ADHD which is subjected to maintain equilibrium of movement but due to the affection to putamen nucleus and globus pallidus hyperactive motoric behavior became predominant in ADHD subjects⁸

In late 20's studied of molecular psychiatry; established fact that there is close association between dopamine d4 receptor gene (drd4) and ADHD¹⁴

Earlier diagnosis and treatment of the ADHD can prevent the sequential adverse effect such as;

- Hindered quality of life^{10,11}
- Reduced employment in adulthood¹³
- Compromised driving safety^{14,15}
- Premature death^{16,17}
- Depression, anxiety¹⁸ & suicidal thoughts¹⁹

There are many treatment options available pharmacologically & non-pharmacologically but there is no complete cure of the disorder. Pharmacological therapy such as suppressant drugs invites many adverse effects so the recent trend is towards combination of both pharmacological & non-pharmacological treatment to reduce adverse effect of drugs^{20,21}. (barabaz & barabaz 2000; brown 2005)

Non-pharmacological therapies are cognitive behavior therapy; yoga; meditation; sensory integration; play-therapy; Neuro-feedback; virtual gaming techniques; working memory techniques²⁸ Among all the above mentioned techniques yoga and play therapy has greater significant in alleviating ADHD symptoms²¹.

2. METHODOLOGY:

Ethical approval was obtained from Parul University. Data were collected from kidzee behavioral development clinic and vatsalya neuro care clinic , ahmedabad. In This study 24 subjects both gender boys and girls were included from 6 to 14 year of age group having combination type of ADHD²² , and not taking any medication for the same . exclusion criteria were any associated neurological condition like cerebral palsy or history of epilepsy , seizures , any history of brain injury , uncorrected visual and hearing problem²³.

Guardian of Subjects who fulfill the inclusion criteria were priorly informed about the study in detail, and a written consent was taken. children were randomly distributed and allotted to either group-A and group-B play therapy group and yoga group respectively. All the subjects were assessed with vandertbilt rating scale and conner abbreviated parent rating scale on pre-intervention after 4 week of intervention and after 8 weeks

Outcome measures :

1. VANDERBILT ADHD TEACHER RATING SCALE
2. CONNER'S ABBREVIATED TEACHER RATING SCALE²⁴

GROUP A (N=12): PLAY THERAPY

- This group will receive PLAY THERAPY session for 8 weeks / three time in a week – 45-50 minute
- In which first 5 minute introduction and arrangement
- Each session will include 4 different type of play activities which demand attention and decrease hyperactivity i.e., art activities ; story -with asking question in between ;puzzle construction ;working memory games ;musical chair game; chess , “Simon says” games, ., ice, break.”games
- Reinforce and reward techniques for their good doing and response to acquire them thinking development by simple reward oral & symbolic reinforcement
- At the end of session ask the children to collect ;arrange and return all play equipment to its place

GROUP B (N=12): YOGA INTERVENTION

- This group will receive yoga intervention program for 45 minutes/day, 3 days/weeks for 8 week
Yoga activity
- 10 min stretching and warming up period In form of various yoga poses i.e. tad asana;
- 35 minute yoga activity which include breath body awareness ; include various yoga poses which demand attention and stability, Vrikshasana ; Utkatasana; Anand-Balāsana ; Bandhkonasana; Parsva-Vrikshasana ;Natrajasana ; Chakrasana ; Adhomukh-Virasana ; Virbhadrāsana
- 10 minute of cooling down period balancing; and relaxation exercise- OM chanting, Sava asana etc.

3. RESULT:

Table 1 : Group A And B age distribution

Age	Male	Female
Mean	9.27	9.08
SD	2.19	2.23

Graph-1 Shows Mean Of Gender Distribution In Both Group

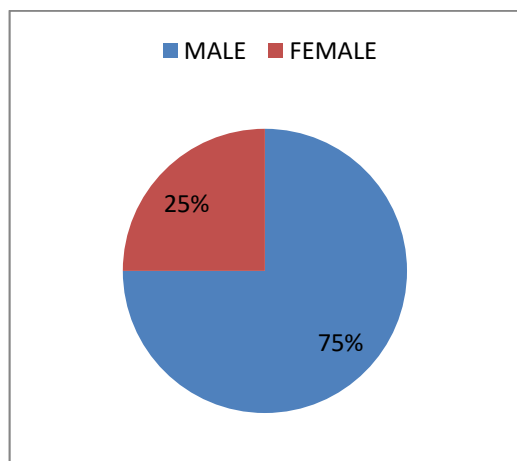


Table 2 Intra Group Comparison Of VADTRS Pre –Post In Group –A (Play Therapy)

Vanderbilt teacher rating Scale	Mean	SD	T value	P value
Pre	61.5	7.83	2.17	0.02
Post	53.25	8.72		

Table -2 & graph - 2 shows intra-group mean of pre & post value of VADTRS in GROUP-A

Graph -2 Group A (Play Therapy) VADTRS pre –post

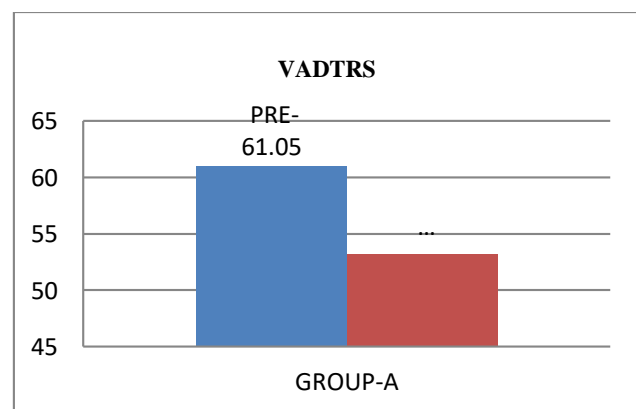


Table 3 - Intra Group Comparison of Conner Pre –Post In GROUP-A
(Play Therapy)

Conner abbreviated teacher rating Scale	Mean	SD	T-value	P-value
Pre	20.33	1.82	7.16	<0.0001
Post	15.25	1.65		

Table-3 and graph-3shows intra-group mean of pre & post value conner in GROUP-A

Graph-3 GROUP- A (Play Therapy) Conner Pre–Post

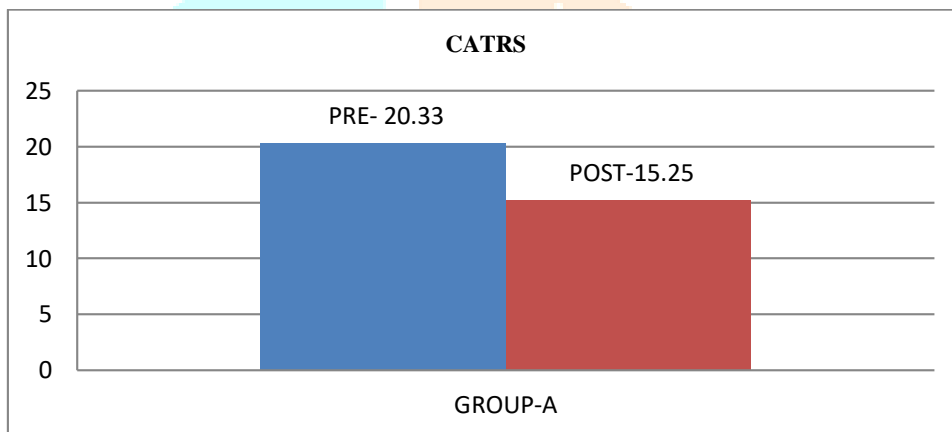


Table 4- Intra group comparison of vadtrs pre –post in GROUP-B(yoga)

Vanderbilt ADHD Teacher rating scale	Mean	SD	T value	P value
Pre	66.66	7.38	2.13	0.04
Post	60.58	7.85		

Table -4 & graph -4 shows intra-group mean of pre & post value VADTRS in GROUP-B

Graph-4 for GROUP-B (yoga) VADTRS pre post

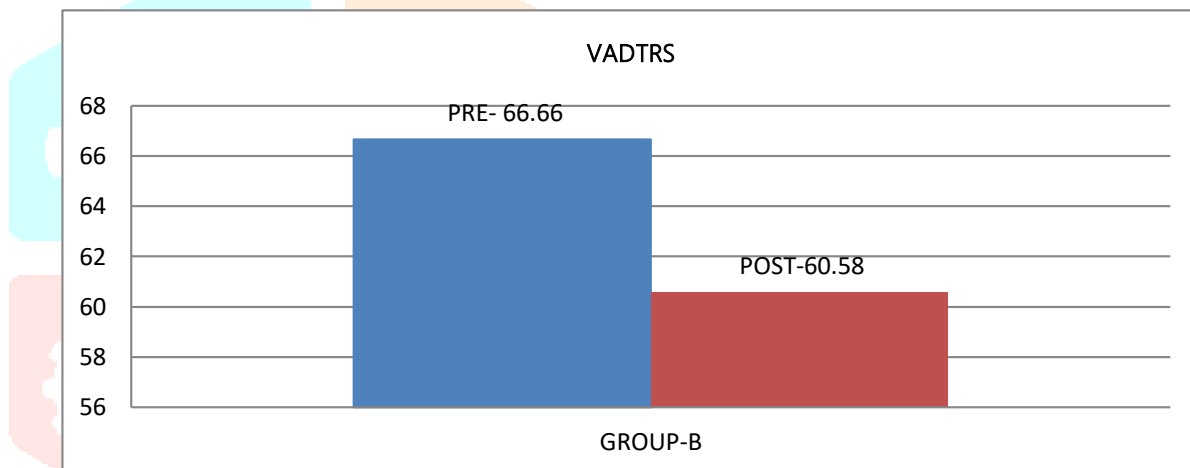


Table 5 intra group comparison of conner pre –post in group –B(yoga)

Conner abbreviated teacher rating Scale	Mean	SD	T- value	P -value
Pre	21.58	3.34	2.18	0.0402
Post	18.66	3.22		

Table -5 and graph -5 shows intra-group mean of pre & post value conner in GROUP-B

GRAPH-5 Intra Group Comparison Of Conner Pre –Post In GROUP –B (YOGA)

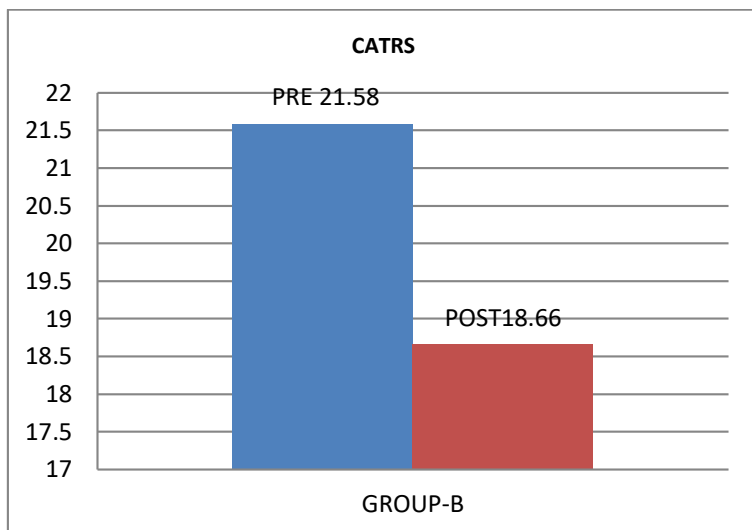


Table 6 Inter-Group Comparison Of Post VADTRS Test Value Between GROUP-A&B

Vanderbilt teacher rating scale	Mean	SD	T-value	P-value
Group –A	53.25	8.72	2.13	0.04
Group-B	60.58	7.85		

Table-6 and graph-6 shows inter-group comparison of post VADTRS test value between GROUP-A and B

Graph -6 Inter-Group Comparison of Post VADTRS Test Value Between GROUP-A and B

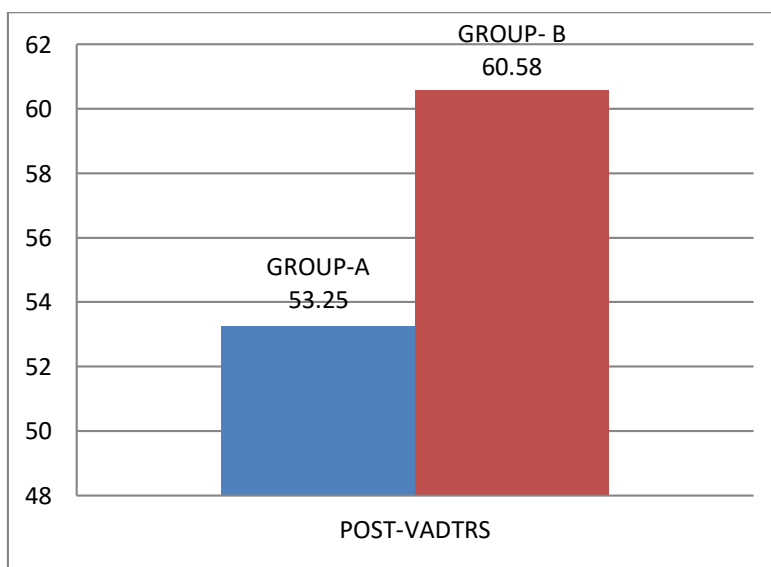
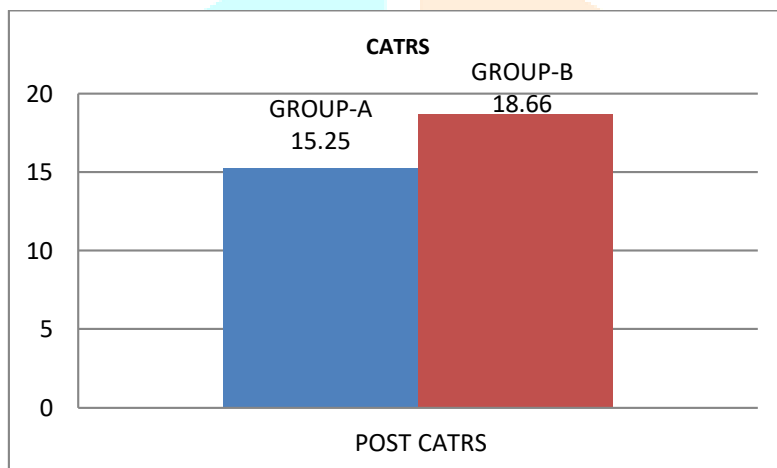


Table 7- Inter-Group Comparison of Post Conner Test Value Between GROUP A and B

Conner abbreviated teacher rating Scale	Mean	SD	T value	P value
Group-A	15.25	1.65	2.18	0.0036
Group-B	18.66	3.22		

Table-7 and graph-7 shows inter-group comparison of post Conner test value between GROUP-A and B

Graph -7 Inter-group comparison of post Conner test value between GROUP A and B



4. DISCUSSION :

This study is schedule to find the efficacy of the play therapy and yoga on the domains of ADHD. There were many researches lined up to proven the efficacy of both the treatment; results of the previous studies concludes both treatments are significant

Play therapy in present study indicating great improvement on both scale in post test compare to pre test Vanderbilt ADHD teacher rating scale pre test mean value is **61.5** whereas post test it reduces and mean is **53.25**

On the Conner abbreviated teacher rating scale pre mean of play therapy group is **20.33** which reduce up to **15.25** after treatment regimes; which lead to positive correlation with t value **less than 0.001** indicate **highly significant** result

In **yoga** group mean of Vanderbilt ADHD teacher rating scale pre- mean score is **66.66** and post treatment sessions of 8 week alternate days yoga mean score is – **60.58** point. With p- value **0.04** which indicate the treatment is statistically significant

Whereas on Conner abbreviated teacher rating scale the mean score of **yoga** group **pre** treatment is **21.58** point & reduced to **18.66** point **post** treatment sessions of 8 week on alternate days which again assured the significance of yoga group

When comparing both the group on both outcome measures; play therapy shows marked improvement than the yoga group. Inter group comparison of post VADTRS post mean group **A** is **53.25** score and **group B** is **60.68**

Inter group comparison of **Conner** abbreviated teacher rating scale post data mean for **group A** is **15.25** and for **group B** value is **18.66** lead to conclude that **play therapy** is **more significant than the yoga** Therapy to reduce symptoms of ADHD

Reason behind the effectiveness of play therapy over yoga is may be due to more interesting ways of play therapy engages more attention of subject than the yoga therapy ; play therapy improve the socialization by activation of frontal and pre frontal area maturation which concern with planning ; integration and working memory

The joy subject feels after play therapy session boost their dopamine level which are usually decreased in ADHD subjects which is responsible to reduce irritability & help in coordinated limb moments which reduce hyperkinetic activity.

Extra energy expenditure during play activity reduces hyperactivity for remaining day, improve quality of sleep and reduce irritability.

5. CONCLUSION: The study lined up the conclusion that significant difference in effectiveness of play therapy and yoga on ADHD. Both treatment are effective but Group A result showing greater improvement than that of B sum up that Play therapy is more effective than the yoga.

6. FUTURE RECOMMENDATION

- Further studies can be conducted with different age groups
- Study can be done with larger sample size
- Study can be done with the different types of group like rural or urban area
- Study can be conducted on different variance of ADHD
- These protocols can be used on various other pediatric neurological condition

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