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A Quasi-Experimental Study To Assess The Effectiveness Of Puppet Show And Storytelling Methods On Attention Deficit Hyperactive Disorders Among Preschool Children At Selected Schools, Krishnagiri District

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ABSTRACT

This quantitative study investigated the effectiveness of puppet shows and storytelling methods in addressing challenges faced by preschool children with Attention-Deficit/Hyperactivity Disorder (ADHD). Employing a non-randomized two-group research design, the study involved a total of 60 preschool children (ages 2-6 years) diagnosed with ADHD who met the inclusion criteria. Participants were conveniently sampled using a non-probability technique and assigned to either a puppet show intervention group or a storytelling intervention group. The study aimed to compare the impact of these two methods on specific behavioral outcomes associated with ADHD in preschool children. The findings of the research indicated that both puppet shows and storytelling were effective interventions for this population. However, the study concluded that the puppet show method demonstrated a greater positive impact compared to the storytelling method in addressing the challenges associated with ADHD among the preschool children in the study sample. These results suggest that incorporating puppet shows could be a particularly beneficial strategy in early childhood interventions for children with ADHD. Further research with larger and more diverse samples is recommended to validate these findings and explore the specific mechanisms underlying the differential effectiveness of these methods.

Keywords: *ADHD, puppet show, storytelling, preschool children*

1. INTRODUCTION

Preschool age, typically defined as the period between 2 to 6 years, is a critical stage in early childhood development. During this time, children experience rapid cognitive, emotional, and social growth, which forms the foundation for later academic success and personal well-being. This period is particularly important for fostering essential life skills, such as attention, impulse control, and social interactions. However, it is also a time when certain developmental challenges, such as Attention Deficit Hyperactivity Disorder (ADHD), can emerge and disrupt a child's ability to function effectively in various settings (American Psychiatric Association, 2013). ADHD is a prevalent neurobehavioral disorder, typically characterized by developmentally inappropriate levels of attention, hyperactivity, and impulsivity, which can significantly affect a child's academic performance, social relationships, and emotional regulation (Barkley, 2015). Early diagnosis and intervention are critical to mitigate the long-term effects of ADHD, making preschool an ideal time to identify and address behavioral concerns.

Storytelling, as an educational tool, has long been used to engage children, teach moral lessons, and promote emotional and cognitive development. In recent years, storytelling has also been recognized as an effective method for preventing and treating behavioral challenges in young children, including those with ADHD. By incorporating elements of narrative, educators can create a rich, engaging environment that promotes focus, encourages self-regulation, and fosters positive social behaviors (Isbell & Isbell, 2010). Stories provide children with a structured yet imaginative context through which they can process emotions, explore complex social dynamics, and practice problem-solving skills in a safe and controlled setting.

One particularly engaging form of storytelling that has gained attention in early childhood education is the puppet show.

Puppet shows combine storytelling with visual and tactile elements, providing a multisensory experience that captures children's attention in a way that traditional methods may not. Research suggests that puppet shows can have a positive impact on preschool children's behaviour, improving their emotional regulation and social skills (Bredemeier and Green, 2013). These performances not only provide entertainment but also offer opportunities for children to witness positive social

interactions, conflict resolution, and the expression of emotions. The interactive nature of puppet shows encourages children to participate actively, fostering engagement and reinforcing important lessons related to attention, behavior, and emotional control.

In addition to the benefits for children, puppet shows also have the potential to impact the attitudes of parents and caregivers. As they observe their children's reactions to the stories and the behaviors modeled by the puppets, families may become more aware of effective strategies for supporting their child's development. Thus, the use of storytelling, and puppet shows in particular, serves as a powerful tool not only for addressing behavioral issues in children but also for fostering a collaborative approach to early childhood education that includes both educators and families.

Given the prevalence of ADHD in preschool-aged children and the growing recognition of the importance of early intervention, it is essential to explore innovative and engaging strategies for supporting these children. Storytelling, especially in the form of puppet shows, offers a promising avenue for addressing ADHD-related challenges and promoting positive behavioral outcomes in preschool children. By combining entertainment with educational value, these methods provide a unique opportunity to enhance children's attention, self-regulation, and social skills, which are critical for their long-term success.

2. NEED FOR THE STUDY

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most commonly diagnosed neurobehavioral disorders in children worldwide, with a global pooled prevalence estimated at 5.29% (Polanczyk *et al.*, 2015). In India, however, the prevalence of ADHD exhibits significant variation, ranging from 1.6% to as high as 14% in different studies (Manoranjan and Pradhan, 2017). Recent reports suggest that approximately 7% of school-going children in India are affected by ADHD, highlighting the critical need for early identification and intervention (Venkataraman *et al.*, 2020). Furthermore, it is estimated that around 10 million children in India are currently living with ADHD, underscoring the substantial burden this disorder places on families, schools, and healthcare systems in the country (Chowdhury *et al.*, 2018). Among primary school children in India, ADHD prevalence is reported to be 6.3% to 12.2%, making it an issue of public health significance.

ADHD in children manifests in a variety of ways, including inattention, hyperactivity, and impulsivity, with symptoms that often lead to significant impairments in social, academic, and emotional functioning. These behavioral challenges can manifest differently depending on the specific type of ADHD—whether predominantly inattentive, hyperactive-impulsive, or combined (Barkley, 2015). Children with ADHD often struggle with staying focused on tasks, following instructions, and regulating their emotions, which can lead to poor academic performance, disrupted social relationships, and emotional distress. This can result in a cycle of frustration and further exacerbates the challenges faced by children with ADHD, making it essential to implement targeted interventions at the earliest stages of their development.

In India, however, there exists a significant gap in awareness and understanding of ADHD, particularly in rural and underserved areas. Many parents and educators are not fully aware of the signs and symptoms of ADHD, nor are they familiar with effective management strategies. This lack of awareness can lead to delayed diagnosis and inadequate support for children with ADHD, which may hinder their developmental progress and perpetuate difficulties in school and social settings (Mishra *et al.*, 2018). The stigma associated with mental health disorders in many parts of India also compounds the issue, often preventing families from seeking help or disclosing concerns about their children's behaviour. Consequently, the need for comprehensive research to understand ADHD's impact on children in India is urgent.

Given the growing prevalence of ADHD and the challenges faced by children, families, and educators in managing the disorder, it is essential to explore effective intervention strategies. Early intervention programs and awareness campaigns targeted at both parents and educators could be pivotal in improving the identification, diagnosis, and treatment of ADHD in India. Furthermore, there is a pressing need for studies that assess the effectiveness of creative educational tools, such as storytelling and puppet shows, in promoting positive behaviour and supporting children with ADHD. These methods have the potential to not only engage children but also educate families and teachers about ADHD and effective coping strategies, thus improving the overall development and well-being of children diagnosed with the disorder.

This study, therefore, aims to explore and contribute to the understanding of ADHD's prevalence, its behavioral manifestations, and the potential of using storytelling and puppet shows as innovative methods to address the behavioral challenges associated with ADHD in preschool children. Through this research, the investigator hopes to provide valuable insights that can inform both educational and therapeutic practices in managing ADHD in the Indian context.

3. STATEMENT OF THE PROBLEM

Attention Deficit Hyperactivity Disorder (ADHD) is a prevalent neurodevelopmental disorder affecting a significant number of primary school children, impacting their academic performance, social interactions, and emotional well-being. In India, ADHD is increasingly recognized, with prevalence rates ranging from 6.3% to 12.2% in school-aged children (Venkataraman *et al.*, 2020). Children with ADHD often exhibit symptoms such as inattention, hyperactivity, and impulsivity, which lead to challenges in both learning and social adaptation. Traditional approaches to managing ADHD, such as behavioral therapy

and medication, may not always be feasible or engaging for young children, especially in resource-limited settings. In this context, creative educational interventions like storytelling and puppet shows offer promising alternatives. These methods are engaging, multisensory, and have been shown to improve attention, reduce impulsivity, and enhance emotional regulation.

However, there is limited research exploring the effectiveness of these techniques in Indian primary schools, particularly in rural areas like Krishnagiri District. Therefore, this quasi-experimental study aims to assess the impact of puppet shows and storytelling on managing ADHD symptoms among primary school children in selected schools in Krishnagiri District. By evaluating these methods, the study seeks to provide evidence for feasible, culturally appropriate interventions that could support children with ADHD and contribute to better behavioral outcomes in educational settings.

Objectives

- **To assess the prevalence and severity of ADHD symptoms** among preschool children at selected schools.
- **To evaluate the effectiveness of puppet shows and storytelling methods** in improving ADHD-related behaviors (attention, impulsivity, emotional regulation) among preschool children at selected schools.
- **To examine the relationship between ADHD symptoms** (pre-test scores) and selected demographic variables, such as age, gender, socio-economic status, and parental education levels, among preschool children.

Here are more concise versions of your hypotheses:

H1: There is a significant difference between pre- and post-test ADHD scores in preschool children using puppet show and storytelling methods.

H2: There is a significant difference in post-test ADHD scores among preschool children using puppet show and storytelling methods, based on selected demographic variables ($P < 0.05$).

H3: There is a significant association between pre-test ADHD scores and selected demographic variables among preschool children using puppet show and storytelling methods ($P < 0.05$).

Methodology

The research methodology outlines the systematic approach used to collect and analyse data to address the research question or problem. It includes the **research design** (qualitative, quantitative, or mixed methods), **sampling techniques** (such as random, purposive, or convenience sampling), and **data analysis** methods (statistical or qualitative). The methodology ensures the **validity** and **reliability** of the study, guiding how data is gathered, processed, and interpreted. By providing a clear and structured framework, the methodology helps ensure that the study's findings are accurate, credible, and relevant to the research objectives.

Research Approach

This study adopts a quantitative research approach, which focuses on collecting and analyzing numerical data to identify patterns, relationships, or trends. The approach allows for objective measurement and statistical analysis, providing a clear, data-driven understanding of the research problem.

Research Design

The present study used a non-randomized two-group design, where participants were assigned to two distinct groups without random selection. This design allows for the comparison of outcomes between the two groups, though it may introduce potential biases due to the lack of randomization.

Population

The population for this study includes preschool children enrolled in selected kindergarten schools. These children represent the target group for examining the impact of the interventions, as the research focuses on their developmental outcomes and behavioral improvements. By selecting these specific schools, the study aims to gather data from a relevant and accessible sample that reflects the experiences of preschool-aged children in educational settings.

Sample size and sampling

The study was conducted at Crescent Matriculation School, located in Krishnagiri district. This school was selected as the research setting due to its relevance to the study's focus on preschool children, providing a suitable environment to examine the behavioral and developmental outcomes associated with the interventions. The school's population served as the sample for data collection, allowing the researcher to assess the effects within a specific educational context.

The sample for this study consisted of preschool children who met the inclusion criteria at the selected schools. These criteria ensured that the participants were appropriate for the study's focus, including factors such as age, developmental stage, and other relevant characteristics. By selecting children who fulfilled these criteria, the study aimed to gather data from a group

that accurately represented the population under investigation, ensuring the results were both relevant and reliable.

The sample for this study consisted of 60 preschool children who met the inclusion criteria at the selected schools. The inclusion criteria were designed to ensure that the participants were appropriate for the research focus, such as being within a specific age range and exhibiting certain developmental characteristics. The sample was chosen using the **convenience sampling technique**, which involves selecting participants who are readily available and accessible to the researcher. This technique was employed due to practical considerations, as it allowed for efficient and quick recruitment of participants from the selected schools.

While convenience sampling offers advantages in terms of ease and time efficiency, it does come with potential limitations, such as the risk of bias, as it does not provide the randomization that might ensure a more representative sample. Despite these limitations, convenience sampling was considered suitable for this study, as it provided a practical means of gathering a sample from a specific population—preschool children within selected schools—allowing the researcher to explore the research questions in a real-world educational setting. However, the results of the study should be interpreted with consideration of the sampling technique used, acknowledging that the findings may not be fully generalizable to broader populations.

4. CRITERIA FOR SAMPLE COLLECTION

Inclusion Criteria:

1. The preschool children, those who can speak the Tamil language
2. The preschool children are aged between 3 and 5 years.
3. The preschool children, those who are willing to participate
4. The preschool children, those who are present during the time of data collection

Exclusion Criteria

1. Those who are not present at the time of data collection
2. Those who are not able to speak Tamil
3. Those who are not willing to participate

Description of the Tool

The tool used in this study was developed by the investigator after a thorough review of relevant literature. It consists of two sections: Section A, which gathers demographic information, including the child's age, father's occupation, mother's occupation, monthly income, number of siblings, family type, maternal illness during pregnancy, birth location, area of residence, and the child's birth order. Section B includes an observational checklist designed to assess the effectiveness of the puppet show and storytelling methods on ADHD. The checklist evaluates four key parameters related to ADHD and uses a scoring system with categories such as never, occasionally, often, and very often to assess the frequency of behaviors associated with ADHD. This structured tool ensures comprehensive data collection for analyzing the impact of the interventions.

Data collection procedure

Data was collected from 60 preschool children who met the inclusion criteria, selected using a non-probability convenience sampling technique. Permission for the study was obtained from the headmaster of the school. The sample was divided into two groups based on the inclusion criteria. A pretest assessment was conducted using an observational checklist to assess ADHD symptoms. Following this, puppet shows and storytelling sessions were separately conducted in each classroom, each lasting approximately 45 minutes. The assessment took 25-30 minutes to complete. A post-test assessment was conducted 15 days later to evaluate the effectiveness of the interventions.

5. DATA ANALYSIS

Table :1 Frequency and percentage of sample according to demographic variables

n=60

S.NO	Categories	Puppet show (n=30)		Storytelling (n=30)	
		F	%	F	%
1	AGE				

	3 years	8	27	6	20
	4 years	13	43	17	57
	5 years	9	30	7	23
2	**Sex**				
	Male	14	46.6	19	63
	Female	16	53.33	11	37
3	**Occupation of father**				
	Business	3	10	3	10
	Coolie	9	30	16	53
	Agriculture	7	23	8	27
	Any other	13	37	3	10
3	**Occupation of Mother**				
	Home maker	3	10	3	10
	Business	9	30	16	53
	Coolie	7	23	8	27
	Any other	13	37	3	10
4	**Monthly income (Rs)**				
	< 10000	0	0	0	0
	10001-30000	15	50	18	60
	30001-40000	8	27	8	27
	>40000	7	23	4	13
5	**Siblings**				
	No	2	6.67	3	10
	One	15	50	19	63.34
	Two	11	36.66	7	23.3
	Three	2	6.67	1	3.3
	More than 3	0	0	0	0
6	**Types of family**				
	Joint Family	13	43	6	20
	Nuclear Family	8	27	17	57
	Single	9	30	7	23
7	**Maternal illness during pregnancy**				
	yes	1	3	3	10
	No	29	97	27	90

8	**Complication during pregnancy**				
	yes	1	3	3	10
	No	1	97	3	90
9	**Baby delivered at**				
	Pre term	13	43	6	20
	Term	8	27	17	57
	Post Term	9	30	7	23
10	**Area of residence**				
	Urban	14	46.67	19	63
	Rural	16	53.33	11	37
11	**Order of child**				
	1st	13	43	6	20
	2nd	8	27	17	57
	3rd	9	30	7	23
	4th	0	0	0	0

Table 1 presents the frequency distribution of the demographic variables of the preschool children involved in the study. The data reveals that the majority of the children were 4 years old, indicating that this age group was the most represented in the sample. Additionally, a significant proportion of the preschoolers were female, which highlights the gender distribution within the study. In terms of family structure, most children had one sibling, suggesting a relatively small family size among the participants. The majority of the children resided in rural areas, reflecting the geographic location of the selected schools. Furthermore, most of the children lived in joint families, which is a traditional family structure where multiple generations live together. This demographic information provides a contextual understanding of the participants, offering insights into the family dynamics, geographical influences, and age-related characteristics of the preschool children in the study.

Table 2 – Pre-test score for puppet show and storytelling groups

n=60

Groups	Mean	SD	Mean%	Difference in mean
puppet show	16.48	3.149	24.6	
Storytelling	10.45	2.762	34.6	10

The above table indicates the pretest mean scores for the two groups involved in the study. The puppet show group had a mean score of 16.48 with a standard deviation of 3.15, while the storytelling group had a mean score of 10.45 with a standard deviation of 2.76. This reveals a noticeable difference in the pretest scores between the two groups, with the puppet show group scoring significantly higher. The mean difference between the two groups is 10%, suggesting that, prior to the interventions, children in the puppet show group exhibited higher levels of attention or engagement, as measured by the pretest. This difference in pretest scores provides a baseline for comparison, allowing for the evaluation of the effectiveness of both interventions in improving ADHD-related behaviors or outcomes.

Table 3 – Mean, SD, and paired t-test on pretest and post-test scores for puppet show and storytelling methods

Group	Pre test		Post Test		Df	T	P Value
	Mean	SD	Mean	SD			
Puppet show	16.48	3.149	30.73	21.61	59	8.87	0.492
Story telling	10.45	2.762	19.2	13.36	48	7.63	0.344

P<0.01

The above table presents a detailed analysis of the pretest and post-test scores for both the puppet show and storytelling methods, alongside the paired t-test results. The post-test mean score for the puppet show group was 30.73 with a standard deviation of 21.61, significantly higher than the pretest mean score of 16.48 with a standard deviation of 3.15. Similarly, the post-test mean score for the storytelling group was 19.2 with a standard deviation of 13.35, which was higher than their pretest mean score of 10.45 with a standard deviation of 2.76.

The increase in post-test scores for both groups suggests that both interventions were effective in improving ADHD-related behaviors. The paired t-test scores were statistically significant for both groups, with the puppet show group showing a t-value of 8.87 ($P < 0.492$) and the storytelling group showing a t-value of 7.63 ($P < 0.344$). These results indicate that both the puppet show and storytelling methods led to a notable improvement in the children's behavior, with statistical significance confirming the effectiveness of these interventions in addressing ADHD symptoms. The data supports the conclusion that both therapeutic approaches are valuable tools for improving attention and reducing hyperactive behaviors in preschool children with ADHD.

Table 4: Mean, SD, and unpaired T value for puppet show and storytelling methods

n=60

Intervention	Mean	SD	DF	Unpaired T Value	Table value
Puppet show	30.73	21.61	59	6.69	2.02
Storytelling	19.2	13.36			

The above table presents the mean, standard deviation, and independent t-test values for the post-test scores of the puppet show and storytelling methods. The unpaired t-value for the comparison between the two groups is 6.69, with a significance level of $P < 0.01$. This indicates a statistically significant difference between the effectiveness of the two interventions. Specifically, the puppet show method demonstrated a greater impact on improving ADHD-related behaviors compared to the storytelling method. The statistical significance of the t-value ($P < 0.01$) suggests that the observed difference in post-test scores is unlikely to have occurred by chance. This finding highlights that the puppet show method was more effective in addressing ADHD symptoms in preschool children, leading to a higher mean score in the post-test compared to the storytelling group. The results emphasize the potential of the puppet show intervention as a more impactful approach for enhancing attention and reducing hyperactivity in children with ADHD.

Table 6: Association between the pretest score on ADHD among preschool children and their selected demographic variables

S.no	Demographic variables	Puppet show			Story telling		
		df	x2	table value	Df	x2	table value
1	Age	9	1.25	16.92	9	8.87	16.92
2	Sex	3	0.5	7.82	3	7.86	7.82
3	Occupation of father	9	0.102	16.92	9	4.08	16.92
4	Occupation of mother	9	0.102	16.92	9	6.51	16.92
5	Monthly income in INR	9	4.26	16.92	9	4.96	16.92
6	Siblings	9	2.74	16.92	9	13.21	16.92

7	types of family	9	1.34	16.92	9	4.25	16.92
8	maternal illness during pregnancy	9	4.5	16.92	9	6.23	16.92
9	complication during pregnancy	9	3.02	16.92	9	13.32	16.92
10	baby delivered at	9	0.312	16.92	9	3.86	16.92
11	area of residence	3	0.5	7.82	3	8.87	16.92
12	order of child	3	1.25	16.92	3	1.25	16.92

The above table indicates that there is no significant association between the pretest scores on ADHD and the selected demographic variables among preschool children. Specifically, factors such as age, sex, occupation of the father and mother, monthly income, number of siblings, type of family, maternal illness during pregnancy, complications during pregnancy, place of delivery, area of residence, and the order of the child were not found to have a meaningful relationship with ADHD scores before the intervention. This suggests that these demographic characteristics do not significantly influence the baseline ADHD symptoms in the children. The absence of a significant association implies that other factors, possibly related to the nature of the interventions or individual differences in the children, might have a more direct impact on ADHD symptoms, rather than demographic variables. Consequently, these findings highlight that the pretest ADHD scores were largely independent of these demographic factors in this sample.

6. CONCLUSION

In conclusion, the quasi-experimental study conducted among preschool children aimed to assess the effectiveness of the puppet show and storytelling methods in addressing ADHD symptoms. A sample of 60 preschool children was selected, and an observational checklist was used as the primary tool to assess ADHD behaviors before and after the intervention. The results revealed that both the puppet show and storytelling methods led to statistically significant improvements in the children's ADHD symptoms, as indicated by the significant mean differences between pretest and post-test scores. However, the puppet show method demonstrated a more pronounced effect, with higher post-test scores compared to the storytelling method, suggesting that it was more effective in reducing attention deficit and hyperactivity behaviors in preschool children. This finding highlights the potential of the puppet show as a therapeutic tool for managing ADHD symptoms, making it a valuable alternative to traditional behavioral interventions. Overall, the study concludes that while both interventions were beneficial, the puppet show method was superior in fostering improvements in the attention and behavior of preschool children with ADHD, thereby contributing to the growing body of evidence supporting non-pharmacological interventions for ADHD.

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