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Effectiveness of multimedia educational program on knowledge of primary school teachers regarding Attention Deficit Hyperactivity Disorder (ADHD) in preschoolers: A quasi-experimental study

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***Abstract*---Background:** Attention Deficit Hyperactivity Disorder (ADHD) is one of the most prevalent neurodevelopmental disorders in children, often undetected during preschool years. Teachers play a pivotal role in early detection and management, yet knowledge gaps remain. **Aim**: To assess the effectiveness of a multimedia educational program in enhancing primary school teachers' knowledge regarding ADHD in preschoolers. **Methods:** A quasi-experimental pre-test post-test control group design was conducted among 120 teachers (60 experimental, 60 control) in Gurugram, Haryana. Knowledge was

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assessed using a validated structured questionnaire. The intervention included PowerPoint presentations, animated videos, flashcards, and discussions. Data were analyzed using descriptive and inferential statistics. **Results**: The experimental group showed a significant improvement in mean knowledge scores from 15.2 (42.2%) pre-test to 26.6 (73.9%) post-test ($p<0.001$). The control group showed no significant change (14.7 to 13.9). Teacher knowledge was significantly associated with education level and prior awareness of ADHD ($p<0.05$). **Conclusion:** Multimedia educational programs significantly enhance teachers' knowledge on ADHD and should be implemented widely for early detection and management of ADHD in preschoolers.

***Keywords*---**ADHD, teachers, preschoolers, multimedia educational program, quasi-experimental study.

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a common neurodevelopmental disorder, affecting an estimated 5–10% of children worldwide. It is characterized by persistent patterns of inattention, hyperactivity, and impulsivity that interfere with academic, social, and emotional development. In India, the prevalence of ADHD has been reported as high as 29.7% among children with behavioral disorders. Preschool years are particularly critical for early detection, as timely intervention can prevent worsening of symptoms and improve long-term outcomes.

Teachers are often the first professionals to observe children's difficulties, as students spend a significant portion of their time in school. Despite their critical role, multiple studies indicate that teachers' knowledge regarding ADHD is often insufficient, leading to misinterpretation of behaviors, delayed diagnosis, and stigmatization of affected children. Enhancing teacher knowledge is therefore essential to foster inclusive education and early support systems.

Multimedia educational programs, which incorporate audio-visual and interactive elements, have been proven effective in enhancing knowledge retention. Such programs present complex concepts in an engaging and simplified manner, thus helping teachers to better understand ADHD symptoms, causes, and classroom management strategies. This study was conducted to evaluate the effectiveness of a multimedia educational program in improving the knowledge of primary school teachers regarding ADHD in preschoolers in Gurugram, Haryana.

Materials and Methods

A quantitative approach with quasi-experimental non-equivalent control group pre-test post-test design was used. The study was conducted among 120 primary school teachers (60 experimental, 60 control) from Farrukhnagar block, Gurugram. Purposive sampling was used. A structured knowledge questionnaire validated by experts (KR-20 reliability = 0.89) assessed knowledge levels. The intervention for the experimental group included PowerPoint presentations,

animated videos, flashcards, pamphlets, and interactive discussions, while the control group received no intervention. Ethical approval was obtained, and informed consent was taken. Data were analyzed using descriptive statistics, paired and independent t-tests, and Chi-square tests.

Results

The findings of the study revealed a substantial improvement in the knowledge of teachers in the experimental group after the multimedia educational program. The mean pre-test knowledge score of the experimental group was 15.2 (42.2%), which increased to 26.6 (73.9%) in the post-test. In contrast, the control group showed negligible difference, with a pre-test mean score of 14.7 (40.9%) and a post-test mean score of 13.9 (38.8%). Statistical analysis confirmed that the improvement in the experimental group was highly significant ($t=14.05$, $p<0.001$), while no significant change was observed in the control group ($t=0.831$, $p>0.05$). Furthermore, associations between knowledge scores and selected demographic variables such as educational qualification and prior awareness of ADHD were found to be significant ($p<0.05$), indicating that these factors influenced baseline knowledge levels.

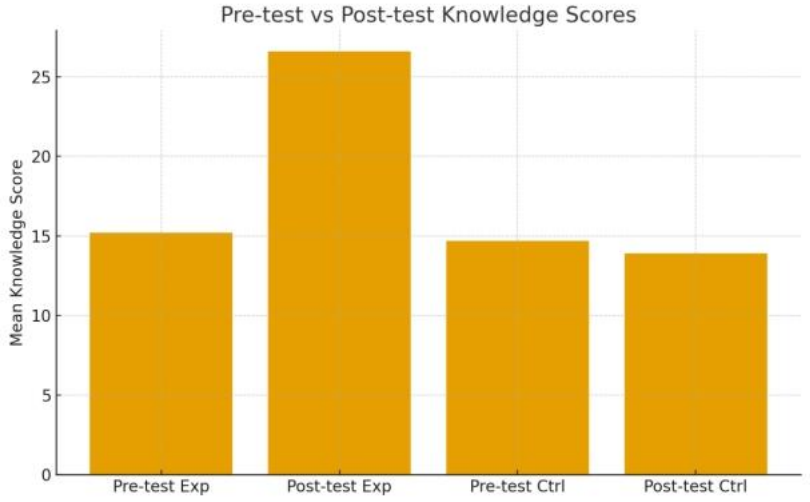

Figure 1: Comparison of mean pre-test and post-test knowledge scores in experimental and control groups

Discussion

The present study demonstrated that multimedia educational programs significantly improve teachers' knowledge regarding ADHD in preschoolers. The experimental group showed a mean increase of 11.4 points (from 15.2 to 26.6), while the control group showed no significant improvement. This aligns with findings by Sharma (2023), who reported substantial improvement in teachers' knowledge after a planned teaching program, and by Goswami & Reena (2025), where video-based interventions significantly enhanced awareness. These results confirm that multimedia interventions combining audio-visual and interactive

content provide a more engaging and effective learning experience compared to traditional methods.

The association between knowledge and demographic variables such as education and prior awareness suggests that training programs should be tailored to address varying baseline knowledge levels. Empowering teachers with ADHD knowledge can reduce stigma, improve early referrals, and foster inclusive classrooms. Thus, multimedia educational programs should be integrated into teacher training curricula.

Conclusion

The multimedia educational program was effective in enhancing the knowledge of primary school teachers regarding ADHD in preschoolers. Scaling up such interventions across schools could help in early identification, timely management, and fostering of inclusive educational practices.

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