

ORIGINAL ARTICLE

IJPHY

Evaluating Understanding and Perceptions Towards ADHD Among Early Childhood Teachers in Karara Block, Assam

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ABSTRACT

Background: Attention-Deficit/Hyperactivity Disorder (ADHD) is a prevalent neurodevelopmental condition marked by persistent patterns of inattention, hyperactivity, and impulsivity. Symptoms usually appear before the age of 12 and can severely disrupt functioning in various areas, such as education, work, and social interactions. In India, the understanding and awareness of Attention Deficit Hyperactivity Disorder (ADHD) are still evolving. Recent research reveals that a considerable segment of the population lacks knowledge about this disorder, despite its widespread occurrence. Studies indicate that the prevalence of adult ADHD in India varies between 5.48% and 25.7%, signifying a notable number of individuals impacted by this condition.

Methods: The study employed a cross-sectional survey, recruiting a convenience sample of 50 lower primary school teachers from schools in the Karara Block of Assam. The participants were teachers currently teaching classes 1 to 5. The participation of teachers in the research was contingent upon their informed consent and compliance with the defined inclusion criteria. A comprehensive questionnaire was developed to assess teachers' knowledge of Attention Deficit Hyperactivity Disorder (ADHD). It is organized into three main sections. The first section, Demographic Information, the second section, Knowledge of ADHD, and the final section, Management Strategies. Descriptive statistics and chi-square test thoroughly analyzed the data.

Results: The results of the study revealed a limited understanding of Attention-Deficit/Hyperactivity Disorder (ADHD) among the participating teachers, and only 40% correctly recognized 'difficulty following instructions' as a symptom of inattention. A significant 75% of the teachers showed a lack of knowledge regarding the recognized diagnostic criteria for ADHD. The study employed chi-square tests, and the findings revealed a statistically significant correlation, demonstrating that prior training on ADHD was associated with greater knowledge of its symptoms ($\chi^2(1) = 6.84, p < 0.01$).

Conclusion: The study results highlight the need for comprehensive training initiatives aimed at enhancing teachers' understanding of Attention Deficit Hyperactivity Disorder (ADHD). The goal is to equip teachers with the necessary skills to identify and assist students with ADHD in educational settings.

Keywords: ADHD, teachers, awareness, early childhood, lower primary school, perceptions, knowledge.

Received 15th May 2025, accepted 29th August 2025, published 09th September 2025



www.ijphy.com

10.15621/ijphy/2025/v12i3/1856

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INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) is a prevalent neurodevelopmental condition marked by persistent patterns of inattention, hyperactivity, and impulsivity. Symptoms usually appear before the age of 12 and can severely disrupt functioning in various areas, such as education, work, and social interactions [1,2]. According to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition, diagnosis requires the presence of specific symptoms over an extended duration. The causes of ADHD are complex, involving a combination of genetic and environmental factors. Treatment approaches often include behavioral therapies, educational support, and, frequently, medication to help manage symptoms and enhance overall functioning. [2] ADHD can notably hinder academic achievement, presenting obstacles in concentration, organization, and the ability to complete tasks. Additionally, social interactions may suffer, which can result in challenges with peer relationships and the development of social skills. Moreover, the child's overall well-being may be adversely affected, impacting their emotional regulation, self-esteem, and mental health [3,4]. The prevalence of ADHD differs among populations, with estimates indicating that it impacts a considerable number of children and adults globally. It is marked by ongoing patterns of inattention and/or hyperactivity-impulsivity [4,5]. Global estimates suggest that ADHD affects between 5% and 7% of school-aged children. Recent research shows that the prevalence of ADHD differs among various age groups, with a reported rate of 7.6% in children aged 3 to 12 years and 5.6% in adolescents aged 12 to 18 years [6,7]. Stewart CM et. al 2024 indicated a global prevalence of 8.0% (95% Confidence Interval: 6.0% to 10.0%) in children and adolescents. These figures underscore the considerable impact of ADHD on school-aged children worldwide, highlighting the need for further research and effective intervention strategies to manage this condition [8,9].

In India, the understanding and awareness of Attention Deficit Hyperactivity Disorder (ADHD) are still evolving. Recent research reveals that a considerable segment of the population lacks knowledge about this disorder, despite its widespread occurrence. Studies indicate that the prevalence of adult ADHD in India varies between 5.48% and 25.7%, signifying a notable number of individuals impacted by this condition.[10] Additionally, a comprehensive survey in South India found an 8.8% prevalence of ADHD among preschool-aged children. The increase in ADHD research over the last twenty years has led to a gradual rise in awareness; however, findings indicate that low awareness levels continue among educators and the general populace [10-12]. DuPaul G et. al (2006) have highlighted the necessity for improved educational programs to enhance understanding of ADHD, especially among elementary school teachers, who are vital in the early detection and support of affected children [13,14]. The restricted availability of diagnostic services, societal stigma, and insufficiently trained professionals greatly

hinder the accurate diagnosis and timely treatment of Attention Deficit Hyperactivity Disorder (ADHD). Studies show that in numerous areas, especially in developing nations, mental health services are extremely limited. This scarcity leaves many individuals undiagnosed [15,16]. Additionally, cultural attitudes towards ADHD often create stigma, preventing families from pursuing assistance. The shortage of well-trained healthcare practitioners worsens the situation, as many may lack the expertise required for proper ADHD diagnosis. As a result, these combined factors obstruct prompt intervention, which is essential for the effective management of the condition [17]. Teachers often act as the first to notice behavioral trends in children, which is essential for the early detection of Attention-Deficit/Hyperactivity Disorder (ADHD). Their role enables them to observe consistent behaviors in a controlled setting, offering important insights into a child's behavior and social interactions. Recognizing these patterns is vital [18,19]. When teachers identify these signs early, it can lead to prompt referrals, ensuring that children receive the necessary support and interventions that may enhance their long-term development.

Teachers in lower primary schools play a crucial role in a child's early educational experience. Their understanding of Attention-Deficit/Hyperactivity Disorder (ADHD) can significantly influence the classroom atmosphere [20-22]. A teacher's insight into ADHD affects how they view students exhibiting behaviors associated with the disorder. This knowledge informs the teaching strategies they adopt, which can have a direct impact on student success. The effectiveness of interventions often relies on the teacher's familiarity with ADHD [23-25]. Therefore, training and professional development focused on ADHD are deemed vital, as these initiatives aim to provide educators with the essential skills to assist students with ADHD effectively. Observations suggest that teachers in rural regions, like Karara Block in Assam, might lack sufficient knowledge and training concerning ADHD. This deficiency in training can impede their capacity to identify and assist students showing ADHD symptoms effectively. The educational environment in rural Assam is marked by a scarcity of qualified teachers, which further intensifies the problem. As a result, teachers' ability to apply suitable teaching methods and interventions for students with ADHD is significantly limited.

This study examines how well teachers at the lower primary school level in the Karara Block of Assam understand Attention Deficit Hyperactivity Disorder (ADHD). The research aims to evaluate the current level of knowledge regarding ADHD among these teachers. The data collected is expected to reveal any gaps in the teachers' understanding. The primary goal is to aid in the development and execution of targeted strategies designed to enhance the educational environment for students diagnosed with ADHD in this region.

The existing body of research highlights the crucial role of teacher awareness in recognizing and assisting students

with Attention-Deficit/Hyperactivity Disorder (ADHD) [25-27]. Studies have consistently shown a strong link between a teacher's understanding of ADHD and their ability to manage behaviors associated with the disorder in the classroom effectively [28-30]. Evidence suggests that educators who have a thorough grasp of ADHD are more inclined to apply suitable behavioral management techniques, thus improving the educational experience for these students [31-33]. Additionally, it has been noted that heightened teacher awareness fosters a nurturing classroom environment, which is vital for the academic and social growth of students with ADHD. Therefore, it is advisable to promote teacher training initiatives that emphasize awareness of ADHD to enhance classroom management and student success. [34-37]. Research conducted across various regions in India has shown that teachers' awareness of Attention Deficit Hyperactivity Disorder (ADHD) is inconsistent [38-40].

Numerous studies have pointed out a considerable lack of understanding regarding the diagnostic criteria and effective treatments for ADHD. For example, a study with 312 teachers found that although 268 were familiar with the term ADHD, their comprehension varied from inadequate to moderate [41,42]. Additionally, another study revealed that merely 12.5% of 40 teachers interviewed had any knowledge of ADHD, highlighting a significant awareness gap [43,44]. These results highlight the urgent need for specialized training and educational initiatives to enhance teachers' knowledge of ADHD, ultimately improving support for students affected by this condition [44,45]. Research shows a link between teachers' backgrounds and their understanding of Attention-Deficit/Hyperactivity Disorder (ADHD) [45-47]. Evidence suggests that educators with previous training or experience in dealing with children diagnosed with ADHD have a deeper insight into the disorder. This greater comprehension can lead to more effective teaching methods and classroom management strategies designed to assist students with ADHD [47].

The research on teachers' awareness of Attention Deficit Hyperactivity Disorder (ADHD) in Assam, especially in rural regions like Karara Block, is currently sparse. This study intends to fill the literature gap by evaluating the level of knowledge and comprehension of ADHD among educators in this area. The findings will establish a foundational understanding of teachers' awareness and attitudes towards ADHD, which is essential for the effective support and management of students affected by this condition. By pinpointing areas where knowledge is lacking, the study aims to guide future training and intervention initiatives designed to improve the educational experience for children with ADHD in rural Assam.

METHODOLOGY

Participants

The study employed a cross-sectional survey, recruiting a convenience sample of 50 lower primary school teachers

from schools in the Karara Block of Assam. The participants were selected based on the inclusion and exclusion criteria.

Inclusion criteria

1. Teachers currently working in lower primary sections (Classes 1 to 5) in schools situated in the Karara Block of Assam.
2. Teachers with at least 1 year of experience in teaching lower primary grades.
3. Individuals who are prepared to give informed consent and willingly take part in the study.
4. Teachers who possess the ability to read and comprehend English or Assamese, as necessary for filling out the survey.

Exclusion criteria

1. Teachers who are presently on extended leave or not engaged in teaching during the academic term.
2. Teachers allocated to administrative or non-instructional positions within the school.
3. Teachers who opted out of participation or failed to give informed consent.
4. Teachers with under one year of experience in teaching early primary grades.

Data collection and procedure

A comprehensive questionnaire was developed to assess teachers' knowledge of Attention Deficit Hyperactivity Disorder (ADHD). This tool was organized into three main sections. The first section, Demographic Information, collected details regarding participants' age, gender, educational qualifications, teaching experience, and any previous training related to ADHD. The second section, Knowledge of ADHD, measured teachers' understanding of ADHD symptoms, diagnostic criteria, and possible causes, employing both multiple-choice and true/false formats. The final section, Management Strategies, evaluated teachers' awareness of effective classroom management approaches for students with ADHD, emphasizing techniques to improve attention, reduce disruptive behaviors, and foster academic success. This section included open-ended questions and rating scales. To enhance clarity and understanding, the questionnaire was translated into Assamese. Ethical approval was obtained from the relevant authorities, and school principals were approached for consent to conduct the study. Teachers were briefed on the study's aims, guaranteed confidentiality, and provided with informed consent forms. The questionnaires were distributed in person during non-teaching hours.

Data analysis

The data gathered from the study was thoroughly analyzed. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were utilized to summarize the demographics of participants and their levels of awareness regarding Attention-Deficit/Hyperactivity Disorder (ADHD). Additionally, Chi-square tests were conducted to explore the relationships between demographic factors, including prior training, and the participants' understanding of ADHD. The qualitative

data obtained from open-ended questions were analyzed thematically to uncover common themes and viewpoints within the dataset.

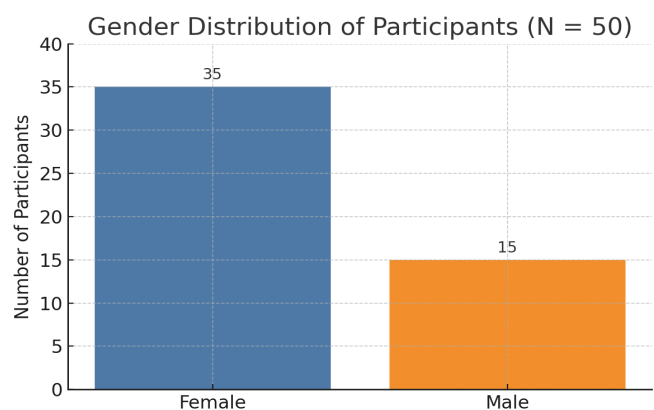
RESULTS

Demographic Characteristics:

The research sample consisted of 50 teachers from lower primary schools. The participants had an average age of 35.2 years, with a standard deviation of 7.5. Females comprised the majority, accounting for 70% of the sample. In terms of educational background, 60% of the teachers possessed a Bachelor's degree in Education (B.Ed.). The group had an average teaching experience of 8.5 years, with a standard deviation of 4.2. Additionally, only 20% of the teachers indicated that they had received training related to Attention Deficit Hyperactivity Disorder (ADHD).

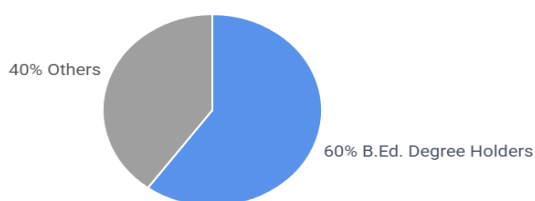
Table 1: Demographic Characteristics of Participants

Variable	Category / Value	N [50]	%	Mean (SD)
Gender	Female	35	70.0	—
	Male	15	30.0	—
Age (years)	—	—	—	35.2 (7.5)
Educational Qualification	Bachelor's in Education (B.Ed.)	30	60.0	—
	Other Degrees	20	40.0	—
Teaching Experience (years)	—	—	—	8.5 (4.2)
ADHD Training Received	Yes	10	20.0	—
	No	40	80.0	—

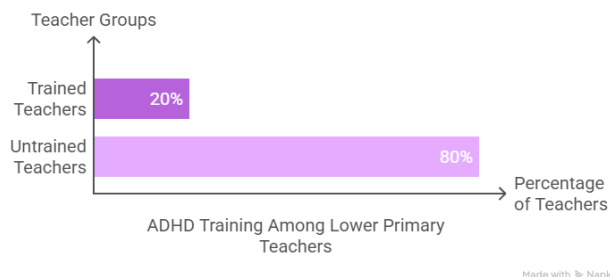


Graph 1: Gender distribution of teachers in the lower primary schools of Karara block in the sample

Educational Background of Teachers in Lower Primary Schools



Graph 2: Educational background of teachers in lower primary schools of Karara block



Graph 3: ADHD training of teachers in lower primary schools of Karara block

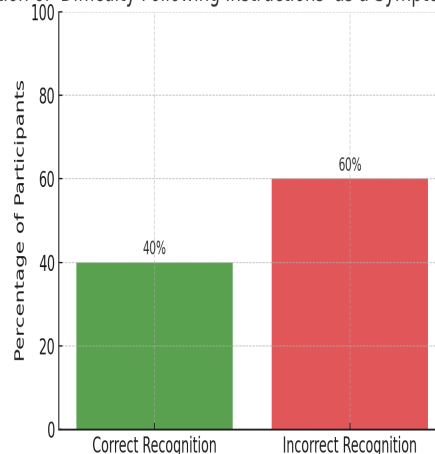
Knowledge of ADHD:

The results of the study revealed a limited understanding of Attention-Deficit/Hyperactivity Disorder (ADHD) among the participating teachers. Although the concepts of 'inattention' and 'hyperactivity' were generally acknowledged, the nuances of these symptoms were not well grasped. Only 40% correctly recognized 'difficulty following instructions' as a symptom of inattention. A significant 75% of the teachers showed a lack of knowledge regarding the recognized diagnostic criteria for ADHD. The majority of teachers believed that ADHD was mainly caused by environmental influences 70%, such as poor parenting or disciplinary methods, rather than recognizing its neurobiological basis 30%.

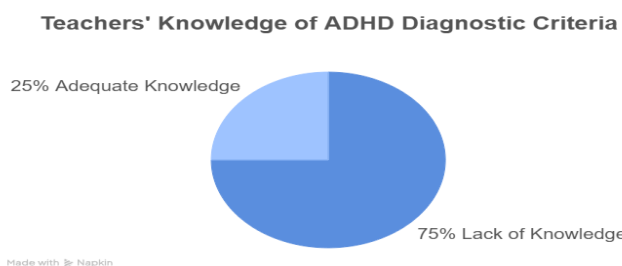
Table 2: Teachers' Understanding of ADHD

Aspect	Response / Category	N [50]	%
Understanding of ADHD Symptoms	Correctly identified 'difficulty following instructions' as a symptom of inattention	20	40.0
	Did not correctly identify the symptom	30	60.0
Knowledge of Diagnostic Criteria	Lacked knowledge of diagnostic criteria	38	75.0
	Demonstrated some knowledge	12	25.0
Beliefs about Causes of ADHD	Attributed primarily to environmental factors	35	70.0
	Recognized neurobiological basis	15	30.0

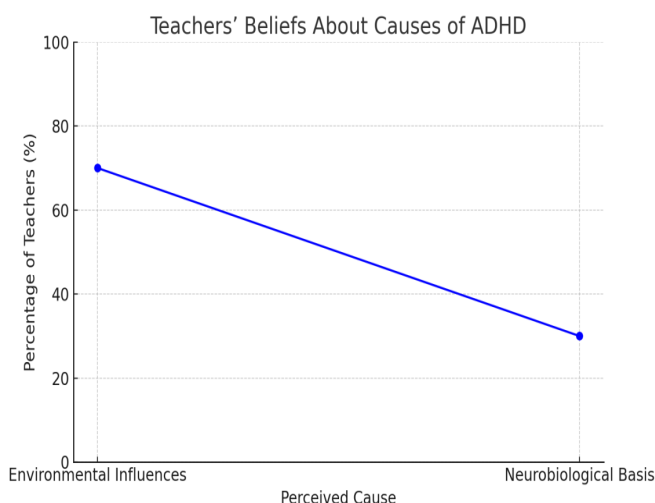
Recognition of 'Difficulty Following Instructions' as a Symptom of Inattention



Graph 4: Recognition of symptoms of ADHD by teachers in lower primary schools of Karara block



Graph 5: Knowledge of teachers in lower primary schools of Karara block regarding diagnostic criteria of ADHD



Graph 6: Perceptions of teachers in lower primary schools of Karara block regarding causes of ADHD

Management Strategies:

The research revealed that teachers had a limited grasp of effective classroom management strategies for students with Attention-Deficit/Hyperactivity Disorder (ADHD). While some teachers suggested methods like providing regular breaks to enhance attention, their knowledge of evidence-based practices, such as using visual aids or breaking tasks into smaller parts, was minimal. In terms of behavior management, punitive measures were often cited as the main approach to handle disruptive behaviors, whereas positive reinforcement and self-regulation strategies were rarely discussed.

Association between Prior Training and Knowledge:

This research study examined how teachers' previous training on Attention Deficit Hyperactivity Disorder (ADHD) correlates with their understanding of ADHD symptoms. The study utilized chi-square tests to evaluate the relationship between these two factors. The results revealed a statistically significant correlation between teachers' prior ADHD training and their accurate recognition of ADHD symptoms: $X^2(1, N = 50) = 6.84, p = 0.009$. This finding suggests that teachers who underwent prior training were considerably more likely to accurately identify ADHD symptoms than those who did not receive any training.

Table 3. Association between Prior Training and Knowledge of ADHD

Variable	χ^2	df	p-value	Significance
ADHD training × Symptom knowledge	6.84	1	0.009	Statistically significant (p < 0.01)

DISCUSSION

The current research conducted in the Karara Block of Assam, which involved 50 primary school educators, revealed several significant insights into their understanding of Attention Deficit Hyperactivity Disorder (ADHD). A significant portion (64%) of the teachers exhibited only a moderate level of awareness regarding ADHD, while 22% showed low awareness, and merely 14% demonstrated high awareness levels. Additionally, it was noted that most educators were more adept at recognizing hyperactive symptoms compared to inattentive or combined symptoms. Only 36% of the participants were knowledgeable about classroom strategies or interventions for supporting children with ADHD. Furthermore, just 18% of the teachers had participated in any training or workshops focused on special education or ADHD-related subjects.

These results indicate a significant lack of thorough understanding and readiness among primary school educators regarding ADHD management. The capacity to identify hyperactive behaviors rather than inattentive symptoms aligns with the general prominence of hyperactivity, which frequently results in the underdiagnosis of the inattentive subtype. The insufficient level of professional training further intensifies this problem, potentially causing mismanagement or incorrect labeling of affected students in classroom environments. Teachers' limited knowledge of behavioral interventions underscores the importance of focused educational initiatives. These findings underscore the crucial need to integrate special needs awareness into teacher training programs, particularly in rural areas such as Karara.

From a theoretical perspective, these results correspond with Bandura's Social Cognitive Theory (1986), which highlights the importance of knowledge and self-efficacy in influencing behavior. Educators who lack adequate knowledge or experience with ADHD are less inclined to demonstrate proactive classroom behaviors that assist neurodivergent students. Additionally, the study's findings reinforce the Inclusive Education framework, which emphasizes the need for systemic support to cater to all learners within mainstream educational settings.

In comparison to earlier research, the findings align with those of Kos, Richdale, and Hay (2006), who observed a limited understanding of ADHD among teachers and a lack of confidence in managing students affected by it (Kos et al., 2006) [48]. Likewise, Scitutto, Terjesen, and Frank (2000) discovered that while teachers recognized ADHD symptoms, their comprehension of its causes and treatment methods was quite superficial (Scitutto et al.,

2000) [49]. In the context of India, Gupta (2014) reported similar results in Uttar Pradesh, where most teachers indicated uncertainty in identifying and addressing children exhibiting ADHD symptoms (Gupta et al., 2014) [50]. This current study builds upon previous findings by exploring the rural setting of Assam, thereby highlighting regional differences in levels of awareness.

These insights hold significant relevance for policymakers and educational stakeholders in Assam. There is an urgent requirement for organized training modules, workshops, and ongoing sensitization programs designed to equip teachers with the essential skills needed to identify, manage, and support students with ADHD effectively. Developing this capacity at the grassroots level is crucial for promoting inclusive education and guaranteeing equal learning opportunities for every student.

Limitations of the study

The study presented several limitations that require careful attention when interpreting the results. If these limitations are not addressed, they may affect the validity and generalizability of the findings. The sample size used was relatively limited, potentially affecting the statistical power and accuracy of the findings. Additionally, using a convenience sample may introduce biases, as this method depends on easily accessible participants and may not truly reflect the broader population of lower primary school teachers in the Karara Block. As a result, the applicability of the study's conclusions to all teachers in this group may be limited. The use of self-report questionnaires is prone to social desirability bias, which occurs when participants alter their responses to appear more favorable in accordance with societal expectations. As a result, the information gathered may not genuinely represent the actual attitudes, behaviors, or traits of the respondents, potentially undermining the validity and reliability of the research outcomes.

Future recommendation

Extensive training initiatives should be developed and implemented to equip teachers with a comprehensive understanding of ADHD, encompassing its symptoms, diagnostic criteria, and evidence-based management strategies. Proactive identification of Attention-Deficit/Hyperactivity Disorder (ADHD) requires thorough training for teachers. Training initiatives should focus on empowering teachers with the necessary skills and knowledge to detect potential signs of ADHD in their students. It is essential to equip teachers with practical tools and strategies for recognizing children who may exhibit symptoms of ADHD, which could involve training in observational techniques, behavioral assessment methods, and an understanding of diagnostic criteria. Cooperation among teachers, parents, and healthcare professionals is crucial for effectively assisting children with Attention-Deficit/Hyperactivity Disorder (ADHD). This teamwork guarantees that children obtain suitable interventions and holistic care. The approach includes

setting up effective communication pathways, exchanging pertinent information, and formulating a cohesive strategy to meet the child's requirements. Frequent meetings, shared records, and synchronized plans are typically utilized to enhance this collaborative initiative. The goal is to foster a nurturing atmosphere where all parties collaborate to advance the child's health and educational achievements. Awareness campaigns should be launched to reduce the stigma surrounding Attention Deficit Hyperactivity Disorder (ADHD). These efforts aim to enhance public understanding of ADHD by providing accurate information about the disorder, its symptoms, and available treatment options. The main goal will be to address misunderstandings and encourage empathy for those impacted by ADHD. A variety of communication methods will be utilized to engage a broad audience, including educational resources, public service announcements, and community gatherings. Further investigation is necessary to evaluate the effectiveness of different training interventions for children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) in Assam. It is important to determine how these interventions affect both academic success and social interactions among the children impacted. Moreover, the awareness of teachers regarding ADHD should be explored, as it could significantly influence the execution of these interventions and the overall results for students. Research has shown that heightened teacher awareness can result in better classroom management techniques and increased support for children with ADHD. Thus, a thorough examination of these elements is vital for creating effective educational strategies and interventions that cater to the specific needs of children with ADHD in this area.

CONCLUSION

The current research reveals a troubling deficiency in both awareness and readiness among primary school teachers in Karara Block, Assam, concerning Attention Deficit Hyperactivity Disorder (ADHD). Although a moderate degree of awareness is present among most teachers, the insufficient understanding of inattentive symptoms and evidence-based strategies for the classroom highlights the necessity for focused intervention. These results align with previous national and international research, confirming that teachers frequently feel inadequately prepared to assist students with ADHD effectively. The study underscores the theoretical and practical significance of incorporating ADHD-related training into teacher education curricula. To foster inclusive education and ensure the academic and social success of children with ADHD, there is an urgent need for ongoing professional development, enhanced policy support, and community-level awareness campaigns.

CONFLICT OF INTEREST: There is no conflict of interest in this study

ACKNOWLEDGEMENT: I would like to acknowledge the CRC of Schools of Karara block, Kamrup, Assam, for its support

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Questionnaire: Teachers' Understanding of Attention Deficit Hyperactivity Disorder (ADHD)

Section A: Demographic Details

1. Age: _____
2. Gender:
 Male
 Female
 Other
3. Educational Qualification:
 Diploma in Education (D.Ed)
 Bachelor of Education (B.Ed)
 Master of Education (M.Ed)
 Other (please specify): _____
4. Total Teaching Experience: _____ years
5. Have you received any prior training on ADHD?
 Yes
 No
6. If yes, please specify the type of training (workshop, seminar, course, etc.): _____

Section B: Understanding ADHD

Part 1: Multiple-Choice Questions

1. Which of the following is a typical symptom of ADHD?
 Difficulty recalling information
 Repetitive language
 Difficulty maintaining focus
 Poor penmanship
2. ADHD is categorized as a:
 Learning disability
 Neurodevelopmental disorder
 Emotional disturbance
 Behavioral issue
3. The symptoms of ADHD generally manifest:
 After the age of 12
 During teenage years
 Before the age of 12
 Only in adulthood

Part 2: True/False Statements

Please mark ✓ your response

- a. Children diagnosed with ADHD frequently struggle to follow directions.
 True False
- b. Inadequate parenting is the primary cause of ADHD.
 True False
- c. ADHD can impact a child's educational performance.
 True False
- d. ADHD is exclusively found in boys.
 True False
- e. ADHD can be completely cured with medication alone.
 True False

Section C: Management Strategies**Part 1: Open-Ended Questions**

1. What methods do you employ (or would you consider employing) to assist a student with ADHD in maintaining focus during class?

2. How would you address a student with ADHD who often disrupts the class?

Part 2: Rating Scale

Please express your level of confidence in employing the following strategies within your classroom (1 = Not confident, 5 = Very confident):

Strategy	1	2	3	4	5
Providing clear and concise instructions					
Utilizing visual schedules or task charts					
Offering regular breaks during tasks					
Implementing positive reinforcement for appropriate behavior					
Modifying tasks or assignments to accommodate attention span limitations					