

Teachers' Knowledge, Reported Practices and Attitude regarding Attention Deficit Hyperactivity Disorder among Primary School Children

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Abstract

Background: Attention deficit hyperactivity disorder is a common childhood neurodevelopmental disorder. Primary school teachers play an important role in the assessment of academic and behavioral problems of children due to closely observation of children during the school day. **Aim:** This study aimed to assess teachers' knowledge, reported practices and attitude regarding attention deficit hyperactivity disorder among primary school children. **Research design:** Descriptive research design was utilized. **Setting:** this study was conducted at 9 Primary Schools at Beni-Suef governorate. **Sample:** Multistage random sample of 255 teachers. **Tools:** two tools were used. **Tool I:** A structured Interview Questionnaire covered three parts. Part I: demographic characteristics of the teachers. Part II: teachers' knowledge about attention deficit hyperactivity disorder. Part III: Teachers' reported practices related to attention deficit hyperactivity disorder. **Tool II:** Teachers' attitude regarding the students with attention deficit hyperactivity disorder. **Results:** 81.8% of studied teachers had poor knowledge level about attention deficit hyperactivity disorder, 86.7% of studied teachers had inadequate reported practices level regarding attention deficit hyperactivity disorder and 85.8% of them had negative attitude toward students with attention deficit hyperactivity disorder. **Conclusion:** there was statistically significant positive correlation between total knowledge, reported practices and attitude at ($P \leq 0.05$). **Recommendations:** health education program should be developed for teachers about attention deficit hyperactivity disorder.

Key words: *Attention Deficit Hyperactivity Disorder, Knowledge, Reported Practices, Primary School Children, Teachers' Attitude.*

Introduction

The most common mental illness, attention deficit hyperactivity disorder (ADHD), affects 3% to 5% of school-age children. Over the past 20 years, incidence rates have dramatically increased. ADHD Youngsters exhibit impulsivity, hyperactivity and/or inattention in regular patterns. Symptoms of inattention include trouble maintaining focus, failing to finish tasks, disobeying directions and failing to finish responsibilities and homework. Both social and intellectual contexts can cause inattention. The symptoms of hyperactivity include the child's failure to concentrate in class, fidgeting, constantly being "on the go," and talkativeness, whereas the symptoms of impulsivity include the child's trouble waiting their turn (Eng et al., 2024).

Although the precise etiology of ADHD is still unknown, a number of factors including genetic, environmental and organic ones are thought to be involved. Research indicates that children have a higher than 50% chance of having ADHD if their parents do and that a child's likelihood of having ADHD is higher than 30% if the pregnant woman smokes or drinks alcohol (Bukhari, 2022).

Attention deficit hyperactivity disorder can be divided into three subtypes: mainly inattentive, hyperactive-impulsive and mixed. In well-behaved, quiet children, symptoms of ADHD may be completely overlooked or misdiagnosed as behavioral issues, delaying diagnosis and treatment. Teachers are essential in identifying children with ADHD because students interact with teachers and classmates for the majority of the school day. Thus, educators ought to be well-versed on ADHD and its management (**Kristanto, 2023**).

Children with ADHD can function better socially and academically and experience less severe symptoms when treated. Treatment options include medication, behavioral therapy, play therapy, psychotherapy, education or training or a mix of these approaches. While there isn't a cure for ADHD, it's crucial to take medication to prevent its devastating effects (**Lucas, 2023**).

Children with ADHD can be successfully taught by teachers who employ a three-pronged approach. Instructors start by determining each child's specific needs. Second, teachers choose different teaching strategies related to academic guidance, behavioral interventions and classroom modifications to suit the needs of the students. Third, teachers help students with ADHD become more focused by implementing several strategies into their everyday practices such as providing brief, easy-to-understand instructions, introducing new material step-by-step and using a regular lesson plan (**Currie et al., 2023**).

The role of the community and school health nurse is distinct and crucial in raising teacher and family knowledge of ADHD in the households of the impacted children. School nurses coordinate care for children with ADHD to enhance the learning process, they are seen as the link between health and education. Effective cooperation and communication between school nurses, doctors, educators and families improve and enhance the social and academic conditions of students while also providing care (**Macyko, 2023**).

Significance of the Study

Attention deficit hyperactivity disorder affects about 2.2% to 17.8% of school-age children worldwide. With a male to female ratio of 2:1, the prevalence was determined to be 7.47% in Africa, with a higher incidence in males than in girls (**Ayano et al., 2020**). It is more common in Arab nations, with rates of 9.4% – 21.8% in Egypt, 11.6% in Saudi Arabia and 6.24% in Jordan (**Azzam et al., 2021**).

The complex illness known as ADHD affects children from all socioeconomic, racial and geographic backgrounds. Its primary symptoms are impulsivity, hyperactivity and inattention. Comorbidities like anxiety, depression and learning difficulties are thought to affect 40–60% of children with ADHD. Between the ages of 9 and 17, about 5% to 9% of children with ADHD develop severe emotional and behavioral difficulties that can impair their ability to function at home, in school or in the community (**Taylor et al., 2023**).

Attention deficit hyperactivity disorder can negatively impact children schooling, mental health and interactions with others, if these children are not treated. ADHD can also lead to psychiatric co-morbidity. Teachers are involved in a variety of activities such as referring children with disruptive behaviors, facilitating social interactions and day-to-day functioning, providing information about students' academic achievement and history and organizing and carrying out treatment plans. Consequently, inadequate management and treatment failure are caused by teachers' ignorance of ADHD issues and/or their unfavorable attitudes toward students who have ADHD (**Young et al., 2020**).

Aim of the study

The present study aimed to assess teachers' knowledge, reported practices and attitude regarding attention deficit hyperactivity disorder among primary school children.

Research Questions:

1. What are the teachers' knowledge, reported practices and attitude about attention deficit hyperactivity disorder?
2. Is there relation between demographic characteristics of teachers and their knowledge, reported practices and attitude regarding attention deficit hyperactivity disorder?



3. Is there correlation between teachers' knowledge, reported practices and attitude regarding attention deficit hyperactivity disorder?

Subject and Methods

Research Design:

Descriptive research design was applied to achieve the aim of the current study.

Setting:

This study was conducted at nine primary schools were selected randomly in Beni Suef governorate (Elshrouk, Hassan Ismeal, Elsafova, Elshaab, Elgazira Elhaddetha, Elnasr, Elsalam and Elgalaa). The nine schools were located at Beni Suef governorate, the first three schools located at New Beni-Suef city, the second three schools located at Beni-suef city and the last three schools located at Beba city, each school included 25 teachers.

Sampling:

A multi-stage random sample technique was used for the selection of the teachers. **First stage**, Total number of centers at Beni-Suef governorate is seven centers, three centers were chosen randomly to conduct this study. **Second stage**, three schools from each center were selected randomly. **Third stage**, all teachers in the selected schools were included in the study. The total number of teachers from these schools were 225 teachers.

Tools for data collection:

Data for this study was collected by using the following tools:

1st tool: A structural interviewing questionnaire: Was designed based on literature review and approved by supervisors. It was written in simple Arabic language and consists of three parts:

Part I:

Demographic characteristics of the teachers include age, gender, marital status, educational level, place of residence, years of experience and monthly income.

Part II:

Concerned with teachers' knowledge about attention deficit hyperactivity disorder include meaning, causes, risk factors, symptoms, diagnosis, complications, treatment and prevention of attention deficit hyperactivity disorder.

Scoring System:

Teachers' knowledge was checked with a model key answer and accordingly. Teachers' knowledge was categorized into " complete correct answer was scored with 2 grade, incomplete correct answer was scored with 1 and don't know was scored with zero grade. Total scores were 20 grades for 10 items. These scores were stumped and converted to a percentage score.

It was classified into 3 categories:

Good knowledge $\geq 75\%$ (15- 20 grades)

Fair knowledge from 50% - < 75% (10 - < 15 grades)

Poor knowledge < 50% (< 10 grades)

Part III:

Concerned with teachers' reported practices related to attention deficit hyperactivity disorder include the teacher develops teaching methods to help students with ADHD to learn, the teacher uses different teaching methods to deal with students with ADHD to support the learning process, the teacher brings healthy and ADHD students into the same group for educational activities, the teacher uses visual and auditory activities to facilitate the learning process for students with ADHD, the teacher spends additional time with students with ADHD to illustrate instructional activities, the teacher sets the timetable for the educational plan and follows it up daily with the students,....etc.

Scoring System

Teachers' reported practices regarding attention deficit hyperactivity disorder designed to be answered by done and not done. Scores of each item ranged from two to one (done = 2 and not done = 1). Total scores were 24 grades for 12 items. The scores of each item summed and converted to a percentage score. It was classified into 2 categories:

- **Adequate reported practices** $\geq 60\%$ (from 15 – 24 grades).
- **Inadequate reported practices** $< 60\%$ (< 15 grades).

2nd tool:

Concerned with Teachers' attitude regarding the students with attention deficit hyperactivity disorder. **Adapted from (Greene et al., 1997).**

Scoring system

Each item was evaluated as Likert scale of "Agree, Neutral and Disagree" 3, 2, 1 respectively but in questions 2,5,9,12 are opposite scores "Agree, Neutral and Disagree" 1,2,3 respectively, total scores were 36 points for 12 items. The score of each item summed up and then converted to a percentage score.

It classified into 2 categories:

- **Positive attitude:** if score $\geq 60\%$ (22 – 36 grades).
- **Negative attitude:** if score $< 60\%$ (< 22 grades).

Validity:

The validity of the tool was tested through a panel of three experts from Community Health Nursing Staff from Faculty of Nursing at Helwan University to review relevance of the tools for comprehensive, accuracy, understanding and applicability.

Reliability:

Reliability of the study tools were tested for its internal consistency by Cronbach's Alpha. Cronbach's Alpha was 0.977 for knowledge, 0.939 for reported practices and 0.885 for attitude.

Ethical considerations:

Ethical consideration was gained from scientific ethical committee of Helwan University, teachers in the study were voluntary and given complete full information's about the study and their role before signing the informed consent. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information was be guaranteed. Ethics, values, culture and beliefs were respected.

Preparatory phase:

A review of past and recent literature related to attention deficit hyperactivity disorder and methods of treatment. Covering all aspects helpful in designing and processing of data collection tools were available books, journals, internet and articles.

Pilot study:

The pilot study has been conducted to test the clarity, applicability and understand ability of the tools. It has been conducted on a sample of 10% (23) of teachers. The results of the pilot helped in refining the interview questionnaire and to schedule the time framework. No modification was done so, the participants of the pilot were included in the main study sample.

Field work:

Before conducting the study, official permission was obtained from the directors of the schools. The researcher met the teachers and explained the aim of the study and components of the tools to them. Their informed verbal consent was secured before collecting data. Data was collected during six months from the beginning of October 2022 to the end of April 2023. The researcher collected data for 2 days-week (Sunday and Tuesdays) visited the selected schools from 10am-12pm. the average number of teachers was between 3-5 teachers/day depending on their responses to the researcher, each

teacher takes about 15 to 25 minutes to fill the sheet depending on understanding and response, as well as distribute the questionnaire. The questionnaires were distributed and completed by the researcher from the studied teachers to assess knowledge, reported practices and attitude.

III) Administrative Item:

An official permission approval to conduct the study was obtained from the Dean of the Faculty of Nursing at Helwan university and official permission from the directors of selected schools in Beni Suef Governorate to obtain their approval to carry out this study. This letter included a permission to collect the necessary data and explain the purpose and nature of the study.

IV) Statistical analysis:

Data collected from the studied sample was revised, coded and entered using personal computer (PC). Computerized data entry and Statistical analysis were fulfilled using the statistical Package for the Social Science (SPSS), version 25. Data were presented using descriptive statistics in the form of frequencies, percentage. Chi-square test (X^2) was used for comparisons between qualitative variables. Quantitative data was expressed as Mean \pm SD (standard deviation). Pearson correlation coefficient used to calculate correlation between quantitative variables.

The significance level for all above mentioned statistical tests done. The threshold of significance is fixed at 5% level (p value).

Significance of the results:

Highly significant at p-value < 0.01 .

Statistically significant was considered at p-value < 0.05 .

Non-significant at p-value > 0.05 .

Results

Table (1): Frequency distribution of the studied teachers regarding their demographic characteristics (n=225).

Demographic characteristics	No.	%
Age		
20 - < 35 years	74	32.9
35 - < 45 years	76	33.8
45 - 60 years	75	33.3
Mean ± SD	39.72±10.40	
Gender		
Male	22	9.8
Female	203	90.2
Marital status		
Single	63	28.0
Married	162	72.0
Years of experience		
5 - < 15 years	102	45.4
15 - < 25 years	93	41.3
≥ 25 years	30	13.3
Monthly income		
Sufficient	92	40.9
Insufficient	130	57.8
Sufficient and save	3	1.3

Table (1): Reveals that, 33.8% of the studied teachers aged from 35 - < 45 with Mean \pm SD 39.72 ± 10.40 , 90.2% of them were female while 72% of them were married, 45.4% of them had years of experience from 5 - < 15 years and 57.8% of them had insufficient monthly income.

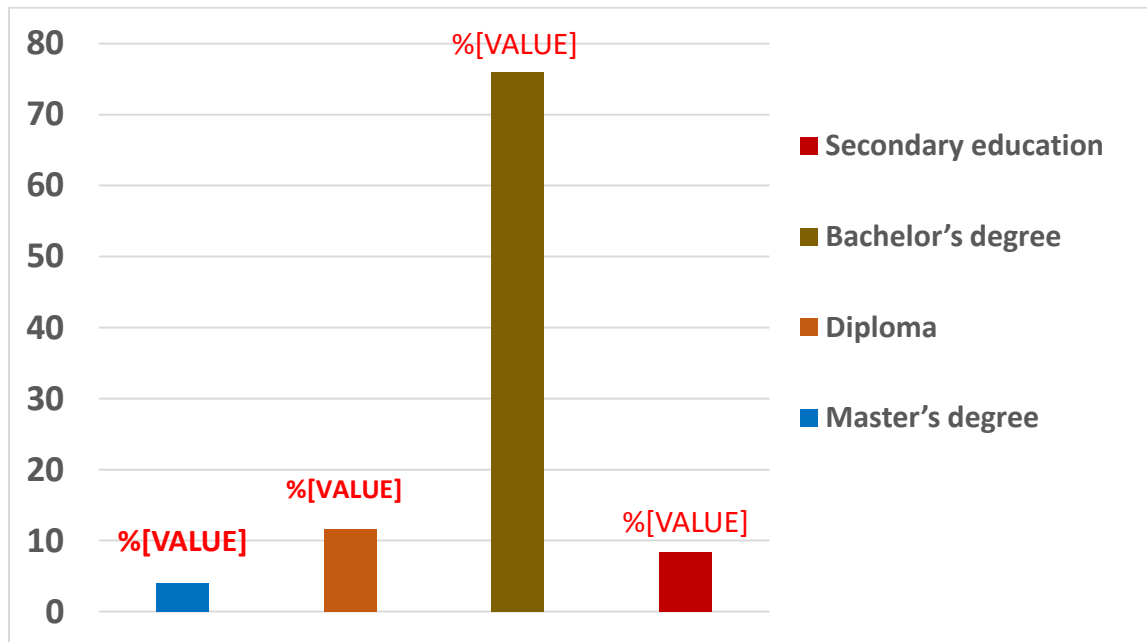


Figure (1): Percentage distribution of the studied teachers' level of education (n= 225).

Fig (1): Illustrates that, 76% of the studied teachers had bachelor's degree, 11.6% of them had diploma and 8.4% of them had secondary education while 4% of them had master's degree.

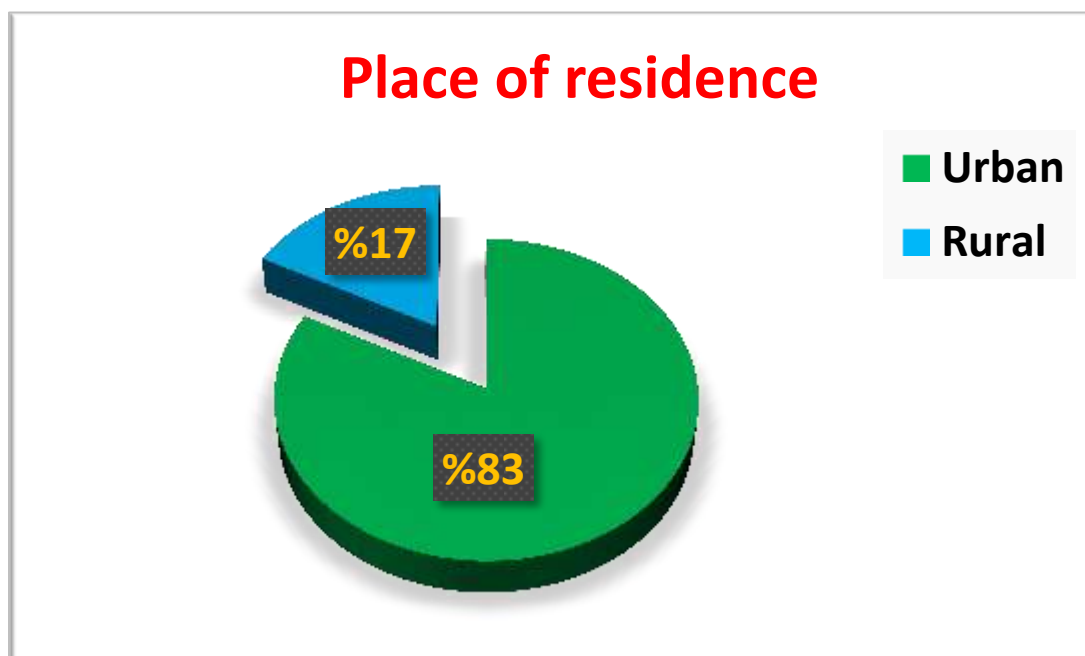


Figure (2): Percentage distribution of the studied teachers according to place of residence (n=225).

Fig (2): Illustrates that, 83% of the studied teachers live in urban area while 17% of them live in rural area.

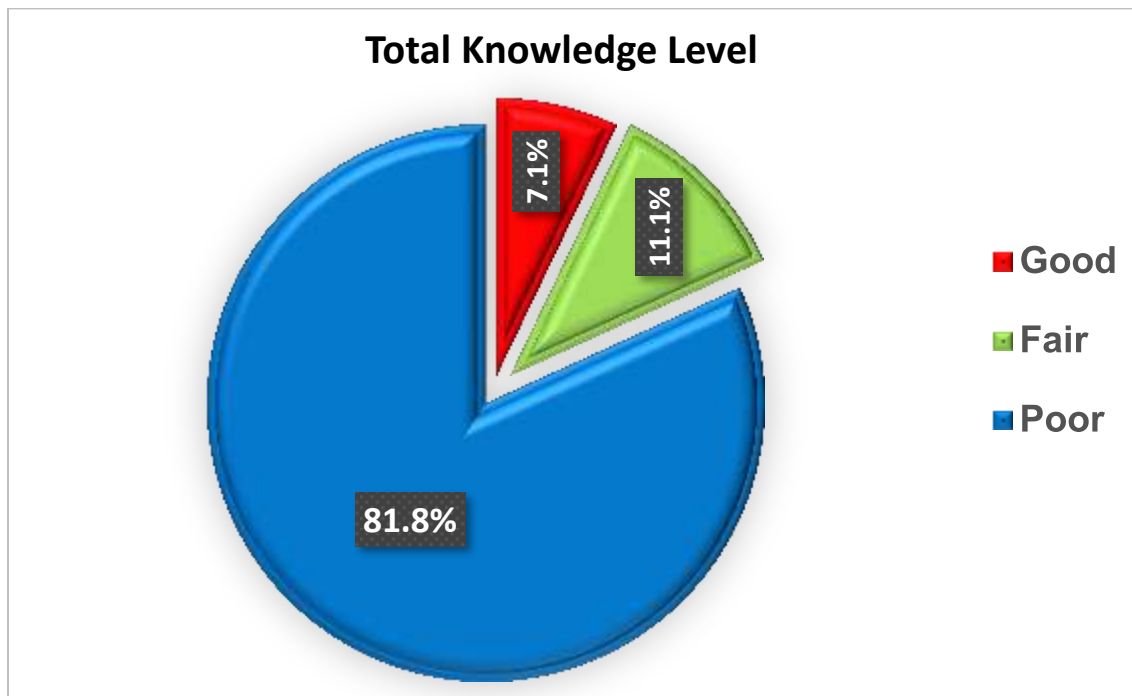


Figure (3): Percentage distribution of the studied teachers according to their total knowledge level about attention deficit hyperactivity disorder (n=225).

Fig(3): Shows that, 81.8%, 11.1% and 7.1% of the studied teachers had poor, fair and good total knowledge level about attention deficit hyperactivity disorder respectively.



Figure (4): Percentage distribution of the studied teachers according to total reported practices level regarding attention deficit hyperactivity disorder (n=225)

Fig (4): Shows that, 86.7% and 13.3% of the studied teachers had inadequate and adequate total reported practices level regarding attention deficit hyperactivity disorder respectively.

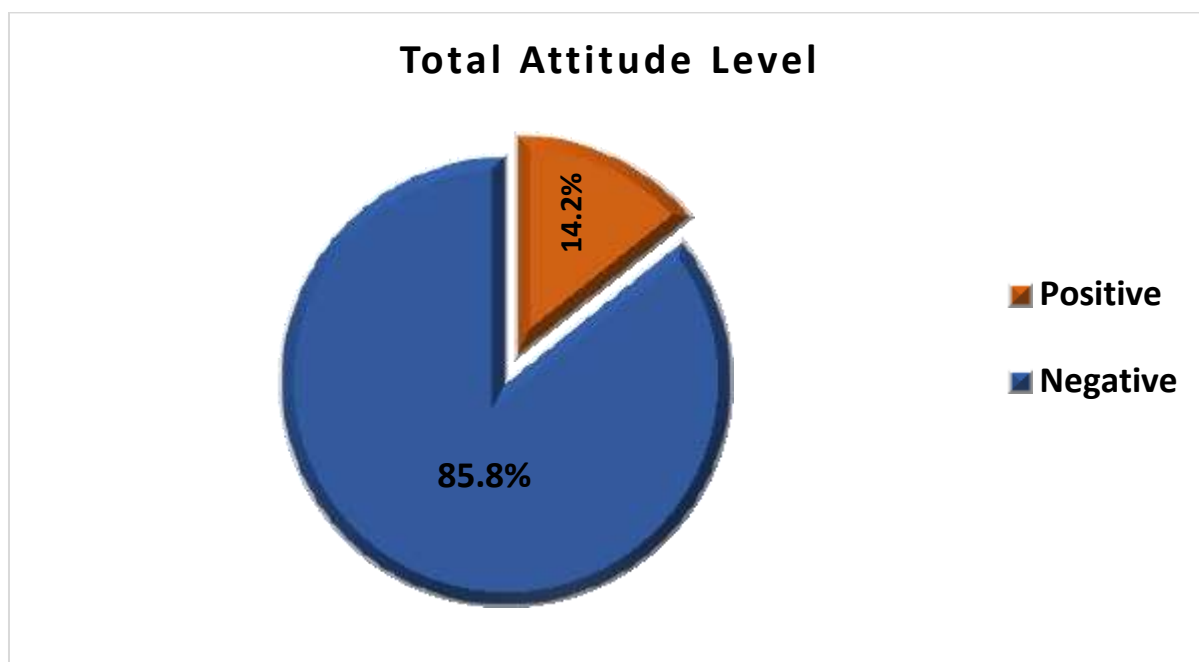


Figure (5): Percentage distribution of the studied teachers according to their total attitude level regarding attention deficit hyperactivity disorder (n=225).

Fig (5): Illustrates that, 85.8% and 14.2% of the studied teachers had negative and positive attitude toward students with attention deficit hyperactivity disorder respectively.

Table (2): Relation between the studied teachers' knowledge about attention deficit hyperactivity disorder and their demographic characteristics (n=225).

Demographic characteristics		Total knowledge level						X ²	p-value
		Good (n = 16)		Fair (n = 25)		Poor (n = 184)			
		No.	%	No.	%	No.	%		
Age (year)	20 - < 35 years	0	0.0	8	32.0	66	35.9	27.772	0.000**
	35 - < 45 years	7	43.8	17	68.0	52	28.2		
	45 - 60 years	9	56.2	0	0.0	66	35.9		
Gender	Male	6	37.5	3	12.0	13	7.1	11.560	0.003**
	Female	10	62.5	22	88.0	171	92.9		
Marital status	Single	0	0.0	5	20.0	58	31.5	9.330	0.008**
	Married	16	100.0	20	80.0	126	68.5		
Residence	Rural	16	100.0	21	84.0	149	81.0	3.864	0.155
	Urban	0	0.0	4	16.0	35	19.0		
Education level	Secondary	0	0.0	2	8.0	17	9.2	16.835	0.004**
	Bachelor	7	43.8	20	80.0	144	78.3		
	Diploma	7	43.8	2	8.0	17	9.2		
	Master's degree	2	12.4	1	4.0	6	3.3		
Years of experience	5 - < 15 years	2	12.5	10	40.0	90	48.9	18.927	0.000**
	15 - < 25 years	6	37.5	10	40.0	77	41.8		

	≥ 25 years	8	50.0	5	20.0	17	9.3		
Monthly income	Sufficient	11	68.8	10	40.0	71	38.6	5.587	0.210
	Insufficient	5	31.2	15	60.0	110	59.8		
	Sufficient and save	0	0.0	0	0.0	3	1.6		

X² Chi square test

* Statistically significant at $p \leq 0.05$.

** Highly statistically significant at $p \leq 0.01$

Table (2) : Reveals that, there is highly statistically significant relation between total knowledge level and their age, gender, marital status, education level and years of experience ($p \leq 0.01$).

Table (3): Relation between the studied teachers' reported practices regarding attention deficit hyperactivity disorder and their Demographic characteristics (n=225).

Demographic characteristics		Total reported practices level				X ²	p-value
		Adequate (n = 30)		Inadequate (n = 195)			
		No.	%	No.	%		
Age (year)	20 - < 35 years	4	13.3	70	35.9	9.509	0.009**
	35 - < 45 years	17	56.7	59	30.3		
	45 - 60 years	9	30.0	66	33.8		
Gender	Male	6	20.0	16	8.2	0.355	0.090
	Female	24	80.0	179	91.8		
Marital status	Single	3	10.0	60	30.8	5.563	0.018*
	Married	27	90.0	135	69.2		
Residence	Rural	28	93.3	158	81.0	2.749	0.0197
	Urban	2	6.7	37	19.0		
Education level	Secondary	2	6.6	17	8.7	6.947	0.050*
	Bachelor	20	66.7	151	77.4		
	Diploma	8	26.7	18	9.2		
	Master's degree	0	0.0	9	4.6		
Years of experience	5 - < 15 years	11	36.7	91	46.7	7.079	0.032*
	15 - < 25 years	10	33.3	83	42.6		
	≥ 25 years	9	30.0	21	10.7		
Monthly income	Sufficient	17	56.7	75	38.5	3.380	0.134
	Insufficient	13	43.3	117	60.0		
	Sufficient and save	0	0.0	3	1.5		

X² Chi square test

* Statistically significant at $p \leq 0.05$.

** Highly statistically significant at $p \leq 0.01$

Table (3): Reveals that, there is highly statistically significant relation between total reported practices level and their age ($P \leq 0.01$). Also, there is statistically significant relation between total reported practices level and their marital status, education level and years of experience ($P \leq 0.05$).

Table (4): Relation between the studied teachers' attitude regarding attention deficit hyperactivity disorder and their Demographic characteristics (n=225).

Demographic characteristics		Total attitude level				X ²	p-value
		Positive (n = 32)		Negative (n = 193)			
		No.	%	No.	%		
Age (year)	20 - < 35 years	10	31.3	64	33.2	0.232	0.890
	35 - < 45 years	12	37.5	64	33.2		
	45 - 60 years	10	31.3	65	33.7		
Gender	Male	8	25.0	14	7.3	7.668	0.006**
	Female	24	75.0	179	92.7		
Marital status	Single	8	25.0	55	28.5	0.167	0.683
	Married	24	75.0	138	71.5		
Residence	Rural	27	84.4	159	82.4	0.076	0.783
	Urban	5	15.6	34	17.6		
Education level	Secondary	4	12.5	15	7.8	4.487	0.177
	Bachelor	20	62.5	151	78.2		
	Diploma	6	18.8	20	10.4		
	Master's degree	2	6.3	7	3.6		
Years of experience	5 - < 15 years	16	50.0	86	44.6	6.242	0.047*
	15 - < 25 years	8	25.0	85	44.0		
	≥ 25 years	8	25.0	22	11.4		
Monthly income	Sufficient	19	59.4	73	37.8	4.980	0.097
	Insufficient	13	40.6	117	60.6		
	Sufficient and save	0	0.0	3	1.6		

X² Chi square test

* Statistically significant at $p \leq 0.05$.

** Highly statistically significant at $p \leq 0.01$

Table (4): Reveals that, there is highly statistically significant relation between total attitude level and their gender ($P \leq 0.01$). Also, there is statistically significant relation between total attitude level and their years of experience ($P \leq 0.05$).

Table (5): Correlation between Knowledge, reported practices and attitude of the studied teachers (n=225).

	Total knowledge		Total reported practices		Total attitude	
	R	P	r	P	r	P
Total knowledge level	-	-	0.154	0.021*	0.280	0.011*
Total reported practices level	0.154	0.021*	-	-	0.152	0.022*
Total attitude level	0.280	0.011*	0.152	0.022*	-	-

r Pearson Correlation Coefficient test

* Statistically significant at $p \leq 0.05$.

Table (5): Shows that, there is statistically significant correlation between total knowledge, reported practices and attitude. Also, shows that there is statistically significant correlation between total practices level and total attitude level ($P \leq 0.05$).



Discussion

Attention deficit hyperactivity disorder is a developmental disorder characterized by developmentally inappropriate and pervasive levels of hyperactivity, inattention and impulsivity. The core symptoms of ADHD may affect a child's functioning in an educational environment and the diagnosis of ADHD is associated with poor school outcomes including poorer reading ability, writing and mathematics, lower school grades and exclusion from school. Symptoms of ADHD appear at an early stage of age and may be more noticeable when children environment change, as when they start school (**Drechsler et al., 2020**).

Teachers spend a great time dealing with children at school and frequently observe how children behave in various educational settings. As a result, teachers anticipate being the first to notice and identify ADHD in children. About 11% of school age children are believed to have ADHD. This disorder poses serious issues for children, teachers, family members and siblings (**Dort et al., 2022**).

Part I: Demographic characteristics for the studied teachers

The present study findings showed that, more than one third of the studied teachers their age ranged between 35 - < 45 years with the mean age was 39.72 ± 10.40 year. This result was approved with the study performed by **Alzahrani et al., (2023)** in Saudi Arabia (n=359) entitled as "*Primary School Teachers' Attitude and Knowledge regarding Attention Deficit Hyperactivity Disorder among Students*" and reported that 38.7% of the teachers' age ranged from 35 - < 45 years. Also, this finding agreed with the study performed by **Aljohani, (2018)** in Saudi Arabia (n=416) entitled with "*Elementary school teachers' knowledge of attention deficit/hyperactivity disorder*" and reported that the mean age of the studied teachers was 39.9 ± 6.2 . In addition, agreed with the study performed by **Safaan et al., (2018)** in Egypt (n=500) entitled as "*Teachers' Knowledge about Attention Deficit Hyperactivity Disorder among Primary School Children*" and reported that the mean age of the participants was 39.14 ± 7.88 years. From the researcher point of view this result might be due to there are no new recruitments of newly graduated teachers.

Regarding to gender, the present study showed that, most of the studied teachers were female. This result was consistent with result of **Padilla et al., (2018)** in Colombia (n=62) entitled as "*Knowledge of ADHD among primary school teachers in public schools in Sabaneta, Antioquia, Colombia*" and reported that 94.8% of the studied teachers were female. Also, this finding agreed with the study performed by **Hussain et al., (2023)** in Karbala (n=85) entitled as "*Teachers' Knowledge about Attention Deficient Hyperactivity Disorder (ADHD) among Student at Primary School in Karbala City*" and reported that the majority of the studied teachers were female. In addition, agreed with the study done in New York City by **Capizzi, (2018)** (n=179) entitled with "*ADHD and the Elementary School Teacher: Personal Experience and Professional Knowledge, Self-Efficacy, and Attitude toward Students Diagnosed With ADHD*" who stated that most of the studied teachers were female.

Regarding to marital status, the present study showed that, less than three quarters of the studied teachers were married. This finding was in the same line with the study performed by **Mohammed et al., (2023)** in Nigeria (n=200) entitled as "*Effectiveness of a training programme on the knowledge and perception of Attention-Deficit Hyperactivity Disorder among primary school teachers in Kano, Nigeria*" and reported that 71.1% of the studied teachers were married. Also, this finding approved with the study performed by **Amha & Azale, (2022)** in Ethiopia (n=417) entitled as "*Attitudes of primary school teachers and its associated factors toward students with attention deficit hyperactivity disorder in Debre Markos and Dejen towns, Northwest Ethiopia*" and reported that 72.9% of the studied teachers were married. Conversely, this finding was disagreed with the study done in Sharjah performed by **Saad et al., (2022)** (n=264) entitled with "*Knowledge about attention-deficit/ hyperactivity disorder among primary schoolteachers in Sharjah, UAE*" and reported that the majority of the studied teachers were married.

Regarding to level of education, the present study showed that, more than three quarters of the studied teachers had bachelor's degree. This finding approved with the study performed by **Aldawodi et al., (2019)** in Saudi Arabia

(n=141) entitled with *"Knowledge and Attitude of Male Primary School Teachers about Attention Deficit and Hyperactivity Disorder in Riyadh, Saudi Arabia"* and reported that 79 % of the studied teachers had bachelor's degree. Also, this finding agreed with the study done in Jeddah by **Basudan et al., (2019)** (n=376) entitled as *"Knowledge and Attitude of Female Teachers toward ADHD at Elementary Schools, Jeddah, KSA"* and reported that the majority of teachers had bachelor's degree. In addition, agreed with the study done in Sudan by **Omer et al., (2023)** (n=59) entitled as *"Primary School Teachers' Perspectives on ADHD in Alkadrow, Khartoum, Sudan"* and reported that 78% of the studied teachers had bachelor's degree.

Regarding to years of experience, the present study showed that more than two fifths of the studied teachers had years of experience between 5 - <15 years. This finding approved with the study performed by **Lamichhane & Sharma, (2019)** in Chitwan (n=328) entitled with *" Knowledge on Children's Attention Deficit Hyperactivity Disorder among School Teachers in Chitwan"* and reported that 46 % of the studied teachers had teaching experience between 5 - < 15years. on the other hand, this result disagreed with the study done in Texas by **Hamilton, (2021)** (n=11) entitled as *"The Impact of Teacher Training on ADHD: Assessing Classroom Interventions and Teacher's Self-Efficacy"* and reported that 78.4% of the studied teachers had years of experience between 1 - < 10.

Regarding to residence, the present study showed that more than four fifths of the studied teachers live in urban areas. This finding approved with the study performed by **El Hawy et al., (2023)** in Egypt (n=72) entitled with *"The Effect of Educational Intervention on Teachers' Knowledge of Attention-Deficit Hyperactivity Disorder"* and reported that 81.8% of the studied teachers live in semiurban and urban areas. On the other side, this result disagreed with the study done in Pakistan by **Faizan et al., (2021)** (n=600) entitled with *"knowledge, attitudes, and practices of primary school teachers towards ADHD students"* who stated that the majority of the studied teachers live in rural areas. Also, this result disagreed with the study done in Iraq by **Hamed & Ghafel, (2022)** (n=354) entitled as *"Evaluation of Elementary School Teachers' Knowledge about Attention Deficit Hyperactivity Disorder (ADHD)"* and reported that only 37.8% of the studied teachers live in urban areas.

Regarding to monthly income, the present study illustrated that more than half of the studied teachers had insufficient monthly income. This result was approved with the study done in India by **Kaur et al., (2020)** (n=60) entitled with *" Effectiveness of structured teaching programme regarding attention deficit hyperactivity disorder in children among teachers of selected primary schools in district Sri Muktsar sahib, Punjab"* and reported that, more than half of the subjects had insufficient monthly income. This result might be due to the high standard of living and high prices of products which make the income not sufficient.

Regarding to total knowledge about attention deficit hyperactivity disorder, the present study showed that, the majority of the studied teachers had poor knowledge about ADHD. This result was approved with the study done in Saudi Arabia by **Alshehri et al., (2020)** (n=100) entitled with *"Schoolteachers' knowledge of attention-deficit/hyperactivity disorder—Current status and effectiveness of knowledge improvement program: A randomized controlled trial "* and reported that, the majority of the studied teachers had poor knowledge about ADHD. Also, this result was congruent with the study done in Jeddah by **Basudan et al., (2019)** who reported that the majority of the studied teachers had poor knowledge about ADHD.

Concerning to total reported practices regarding attention deficit hyperactivity disorder, the present study showed that, the majority of the studied teachers had inadequate total reported practices level. This result in accordance with the study done in Iran by **Mazaheri & Heidari, (2020)** (n=58) entitled with *"Educational Intervention for Increasing Teachers' ADHD Knowledge, Attitude, and Behavior"* and reported that the majority of the studied teachers had inadequate reported practices level at pre-educational intervention. On the other side, this finding disagreed with the study done in Iran by **Hosseinnia et al., (2020)** (n=120) entitled as *"Knowledge, attitude, and behavior of elementary teachers regarding attention deficit hyperactivity disorder"* and reported that the majority of the studied teachers had adequate practices toward ADHD children.



Concerning to total attitude level regarding attention deficit hyperactivity disorder, the present study reported that, the majority of the studied teachers had negative attitude toward children with attention deficit hyperactivity disorder. This result was in agreement with the study done in Sudan by **Omer et al., (2023)** who reported that the majority of the studied teachers had negative attitude toward ADHD children. Also, this result was in the same line was the study done in Egypt by **Fahmy et al., (2020)** (n=253) entitled as " *Knowledge and Attitude of Primary School Teachers on Attention Deficit Hyperactivity Disorder*" and reported that the majority of the studied teachers had negative attitude toward children with ADHD.

According to relation between the studied teachers' knowledge regarding attention deficit hyperactivity disorder and their demographic characteristics, the present study reported that there was highly statistically significant relation between total knowledge of the studied teachers and their age, gender, educational level and years of experience at p value ≤ 0.05 . This result was in agreement with the study done in Saudi Arabia by **Eltyeb et al., (2023)** (n=150) entitled with " *The Efficacy of Educational Interventions in Improving School Teachers' Knowledge of Attention Deficit Hyperactivity Disorder*" and reported that there was statistically significant relation between total knowledge of the studied teachers and age, gender, educational level and years of experience at pre-educational intervention. Also, this result was consistent with **El Hawy et al., (2023)** who reported that there was statistically significant relation between total knowledge of the studied teachers and age, educational level and years of experience.

Related to relation between the studied teachers' reported practices regarding attention deficit hyperactivity disorder and their demographic characteristics, the present study reported that there was statistically significant relation between total reported practices of the studied teachers and their marital status and years of experience at p value ≤ 0.05 . This result was in the same direction with the study done in Saudi Arabia by **Alabd et al., (2018)** (n=95) entitled with " *Effect of Educational program on Elementary School Teachers' Knowledge, Attitude and Classroom Management Techniques regards Attention Deficit Hyperactivity Disorder*" and reported that there was statistically significant relation between total reported practices of the studied teachers and their marital status and years of experience at preprogram. On the other side, this result was disagreed with the study done in Saudi Arabia by **Khalil et al., (2019)** (n=57) entitled with " *Knowledge, Attitude, and Behavioural Practice of Elementary Teacher of ADHD Children: Impact of an Educational Intervention*" and reported that there was no statistically significant relation between the studied teachers' total reported practice and their demographic characteristics at pre-educational intervention.

Regarding to relation between the studied teachers' attitude regarding attention deficit hyperactivity disorder and their demographic characteristics, the present study reported that there was statistically significant relation between total attitude of the studied teachers and their years of experience at p value ≤ 0.05 . This result in the same direction with the study done in Ethiopia by **Dessie et al., (2021)** (n=636) entitled with " *Elementary school teachers' knowledge and attitude towards attention deficit-hyperactivity disorder in Gondar, Ethiopia: a multi-institutional study*" and reported that there was statistically significant relation between total attitude of the studied teachers and their years of experience. Also, this result was in congruent with the study done in Egypt by **Fahmy et al., (2020)** who reported that there was statistically significant relation between total attitude of the studied teachers and their years of experience.

According to correlation between the studied teachers' knowledge and their reported practices regarding attention deficit hyperactivity, the current study reported that, there was statistically significant positive correlation between total knowledge level among the studied teachers and their reported practices regarding attention deficit hyperactivity disorder at p value ≤ 0.05 . This result was in agreement with the study done in Saudi Arabia by **Alabd et al., (2018)** who reported that there was statistically significant correlation between total knowledge level among the studied teachers and their reported practices regarding children with ADHD at preprogram.

Regarding to correlation between the studied teachers' knowledge and their attitude regarding attention deficit hyperactivity disorder, the present study showed that, there was statistically significant positive correlation between total knowledge level among the studied teachers and their attitude regarding attention deficit hyperactivity disorder at p value ≤ 0.05 . This result in the same direction with the study done in the UK. by **Greenway and Edwards, (2020)** (n=165)

entitled as "Knowledge and Attitudes Towards Attention-Deficit Hyperactivity Disorder (ADHD): A Comparison of Teachers and Teaching Assistants" who revealed that there was statistically significant positive correlation between total knowledge level among the studied teachers and their attitude toward children with ADHD. Also, this result in the same direction with the study done in Iran by Hosseinnia et al., (2020) who reported that there was statistically significant correlation between total knowledge level among the studied teachers and their attitude toward children with ADHD.

Related to correlation between the studied teachers' attitude and their reported practices regarding attention deficit hyperactivity disorder, the current study showed that, there was statistically significant correlation between total attitude level among the studied teachers and their reported practices regarding attention deficit hyperactivity disorder at $p \leq 0.05$. This result was in agreement with the study done in Saudi Arabia by Khalil et al., (2019) who revealed that there was statistically significant correlation between total attitude level among the studied teachers and their reported practices toward children with ADHD.

Conclusion

On the light of results of the current study and research questions, it could be concluded that; the majority of the studied teachers had poor knowledge about attention deficit hyperactivity disorder. Concern to teachers' reported practices results indicated that, the majority of the studied teachers had inadequate total reported practices level. As regard teachers' attitude findings presented that, the majority of the studied teachers had negative attitude toward children with attention deficit hyperactivity disorder. Moreover, there was statistically significant positive correlation between total knowledge level among the studied teachers, their reported practices and attitude regarding attention deficit hyperactivity disorder at $p \leq 0.05$. Also, there was statistically significant positive correlation between total practices level and total attitude level ($P \leq 0.05$).

Recommendations

On the light of the current study findings the following recommendations are suggested:

1. Health educational program should be developed for teachers about attention deficit hyperactivity disorder.
2. Dissemination of booklet and posters about attention deficit hyperactivity disorder and its consequences for teachers and families.
3. Enhance teachers, parents and community awareness about attention deficit hyperactivity disorder through mass media.

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