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Assessment of Mothers' Knowledge and Practice Regarding Care Provided for their Children with Attention Deficit Hyperactivity Disorder

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Abstract

Background: Attention Deficit Hyperactivity Disorder refers to a chronic condition that affects millions of children and often persists into adulthood. **Aim:** To assess mothers' knowledge and practices about care of their children with attention deficit hyperactivity disorder. **Setting:** This study was conducted in Cairo Governorate. **Design:** A descriptive research design was used to achieve the aim of this study. **Method- Sample:** A purposive sample of 60 mothers having children diagnosed with attention deficit hyperactivity disorder during preschool and school stage. **Two tools:** The first tool was a structured interviewing questionnaire sheet to assess mothers' knowledge about care of their children with attention deficit hyperactivity disorder; and observational chick list to assess mothers reported practices about care of their children with attention deficit hyperactivity disorder and children reported practices. **Results:** The majority of the studied mothers had unsatisfactory total score level of knowledge about care of their children with ADHD, about two third of the studied mothers had satisfactory total score level of reported practices about care of their children with attention deficit hyperactivity disorder. **Conclusion:** The majorityof the studied mothers has unsatisfactory total score level knowledge about care of their children with ADHD. Moreover, more than two thirds of the studied mothers had unsatisfactory total score level of reported practices about care of their children with attention deficit hyperactivity disorder. **Recommendations:** Periodical educational programs for mothers about care of their children with attention deficit hyperactivity disorder to adaptation and cope with disease.

Key words: *Attention Deficit/Hyperactivity Disorder, Knowledge, Mothers, Practice, Mothers, Children.*

Introduction

Attention Deficit/Hyperactivity Disorder **(ADHD)** is a complex, multifactorial determined neurodevelopmental childhood disorder. It leads to serious behavioral problems and neurobiological deregulations, and characterized by significant inattention and/or hyperactivity/impulsivity. Although

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it started during childhood; it often persists throughout the life span. Most of the affected children with it continue to experience varying symptoms in adolescence and adulthood ***(Bassiony, 2022).***

Attention Deficit/Hyperactivity Disorder **(ADHD)** is affects 5%-7.2% of youth and 2.5%-6.7% of adults. Recent estimates indicate that prevalence is even higher in children in the United States (U.S.), around 8.7 or 5.3 million ***(Cortese, 2023).***

The causes of ADHD are brain injury, exposure to environmental risks (e.g., lead) during pregnancy or at a young age, alcohol and tobacco use during pregnancy, premature delivery and low birth weight. It is divided into three different types: predominantly in attentive type, predominantly hyperactive - impulsive type, and combination type. ADHD predominantly inattentive presentation with signs such as difficulty in sustaining attention and easily distracted and hyperactive-impulsive that explained by the difficulty in remaining seated and engaging in activities quietly. Diagnosis of this disorder is limited to the history and psychiatric examination have been met for the past 6 months, and the symptoms still result in impairment in social, academic, or occupational functioning ***(*Karalunas and Nigg, 2019)**.

The main signs of hyperactivity and impulsiveness are being unable to sit still, especially in calm or quiet surroundings, constantly fidgeting, being unable to concentrate on tasks, excessive physical movement excessive talking and being unable to wait their turn. There is growing concern about young children's exposure to Screen-Media Activities **(SMA)** such as television or videogames, as excessive exposure may displace time from other developmentally important activities and could impact brain, behavior, and cognitive development in particular, use of videogames in young children may be increasing with the proliferation and accessibility of gaming devices. A cohort study in 2018 in a large UK showed that about 70% of 5-year old children play video/electronic games regularly (**Joshi, DiSalvo and Faraone, 2019).**

The symptoms of ADHD can be categorized into two types of behavioral problems: inattentiveness (difficulty concentrating and focusing) hyperactivity and impulsiveness. The main signs of inattentiveness are: having a short attention span and being easily distracted, making careless mistakes. For example, in schoolwork, appearing forgetful or losing things, being unable to stick to tasks that are tedious or time-consuming, appearing to be unable to listen to or carry out instructions, constantly changing activity or task and having difficulty organizing tasks ***(Kuhne , Barkley and Pliszka, 2021)***.

The complications during pregnancy are linked to ADHD can increase the chance of child not having ADHD by staying healthy throughout pregnancy. A healthy diet, avoiding the use of alcohol and drugs and regular doctor visits are important to avoid exposure to ADHD so the mother's play an important role in early detection, treatment and prevention of attention deficit hyperactivity disorder ***(Stanton, 2019).***

Pediatric nurses play an important role to help the mother to cope and adapt to their child illness by accept the child as what he is, psychosocial and support intervention that promotes a nurturing environment for child care, approach the child at his current level of functioning, use simple and direct instructions, implement scheduled routine every day, avoid stimulating or distracting settings, give positive reinforcements and encourage physical activity **(*Smitha Bhandari, 2021).***

The mothers play an important role to help their children with ADHD, learn about ADHD, follow the treatment child's health care provider recommends, and go to all recommended therapy visits. If child takes ADHD medicines, give them at the recommended time, don't change the dose without checking with doctor. Keep child's medicines in a safe place where others can't get to them,

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focus on teaching child one thing at a time, don't try to work on everything at once, start small, Pick one thing to focus on and Praise child's effort **(Schirl et al., 2023).**

Significance of the study

A comprehensive review of studies related to Attention deficit/hyperactivity disorder indicates that a prevalence of 5.29% has been reported for this disorder in Northern America (6.1%), Southern America (12.3%), Africa (8.9%), Asia (4.2%), Australia (4.8%), and the Middle East (2.5%), according to the results of studies conducted in different cities of Egypt, the prevalence of Attention deficit/hyperactivity disorder has been reported between 3.2% and 23.6% ***(Melegari and Res 2018).***

There is a strong link between developmental disabilities in children and parenting difficulties **(Woodman. 2015).** Attention deficit/hyperactivity disorder (ADHD) is one of the most commonly diagnosed neurodevelopmental disorders in childhood, has a relatively high incidence **(American Psychiatric Association, 2019).** Children with ADHD have functional problems in social and academic areas **(Marshall, 2018).**

ADHD is a real disorder with potentially devastating consequences when not properly identified, diagnosed and treated. Children with ADHD often feel letting others down, doing things wrong, or not being "good." Protect child's self-esteem by being patient, understanding, and accepting, let the child see all the good things about himself, an estimated 15 million individuals in America have ADHD. Without identification and proper treatment, ADHD may have serious consequences, including school failure, family stress and disruption, depression, problems with relationships, substance abuse, delinquency, accidental injuries and job failure **(Zgodic, 2023).**

From the researcher point of view, the current study was conduct to shed the light on the mothers' knowledge and practices regarding care of their children with ADHD, because mothers are the primary caregivers for their children and have significant role in providing appropriate care and prevention of attention deficit/hyperactivity disorder and decrease any hazard or complications for their children with ADHD. Therefore, the main aim of this study was to assess mothers' knowledge and practices about care of their children with ADHD.

Aim of the Study

The study aimed to assess mothers' knowledge and practice regarding care provided for their children with attention deficit hyperactivity disorder.

Research questions

1- What are the level of mothers' knowledge and practices regarding care provided for their children with attention deficit hyperactivity disorder?
2- Is there a relation between the mothers' knowledge and practices regarding care of their children with attention deficit hyperactivity disorder and their demographic characteristics?

Subjects and Methods:

The subjects and methods of the current study were portrayed under the four main designs as the following:

I- Technical Design

II- Operational Design

III- Administrative Design

IV- Statistical Design

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Technical Design:

The technical design included study design, setting, subjects and tools of data collection.

Study Design:

A descriptive research design was utilized to achieve the aim of this study.

Research Setting:

This study was conducted at the Outpatient Clinics in El- Abbasia Hospital for Mental Health and addiction affiliated to Cairo Governorate, The Outpatient Clinics called house of the sun; the place consists of the ground floor contains two clinic room, a room for the social worker, and a bathroom, the first floor contains two clinic room, a room for the unit manager, and a bathroom. There are three breaks for people and games and test intelligence in front of games, the clinic appointment Saturday and Monday every week.

Study Subjects:

A purposive sample of 60 mothers accompanying their children with attention deficit hyperactivity disorder in the previously mentioned setting satisfying the following:

Inclusion criteria were involved in the study:

Mothers having children with attention deficit hyperactivity disorder during preschool and school stage regardless their age, level of education, occupation, and residence. Children aged from 3-12 years with attention deficit hyperactivity disorder

Exclusion criteria:

-Children with physical disability.
-On tranquilizers or sedative medication.
-Child with mental illness or disability.
-Child with congenital malformation.

Tools of Data Collection: (Appendix III)

Two tools were used to collect data for this study.

First tool: A Structured Interviewing Questionnaire Sheet

A structured interviewing questionnaire sheet was designed by the researcher after reviewing the current available literature and was written in simple Arabic language to suit level of understanding of mothers to assess the following:

Part I: Characteristics of the studied mothers: include (age, level of education, occupation, residence and number of family members).

Part II: Characteristics of the studied children: include (age, gender, level of education and ranking).

Part III: Disease history of children: include (pregnancy history and delivery history of child, problems during birth, and the child visit outpatient clinics to follow up on the disease).

Part IV: Pattern of growth and development: include growth and development difficulties, the child play, the child have friends, relationship with friends, dependence on others, daily living activities (order, homework, shopping, bathroom, playing, watching television, behavior outside the home, eating and relationship with family& others).

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Scoring system for the studied mothers' assessment for their children with attention deficit hyperactivity disorder:

According to responses obtained from the studied mothers'. Each item scored (3) often response, (2) sometimes response, (1) rarely response. Total score were (54).

Part V: The studied mothers' knowledge regarding care provided for their children with attention deficit hyperactivity disorder: such as (definition, causes, signs, and symptoms, care of their children and methods of prevention and treatment of attention deficit hyperactivity disorder).

Scoring system for the studied mothers 'Knowledge regarding care provided for their children with attention deficit hyperactivity disorder:

According to responses obtained from the studied mothers'. Each question scored (2) if answer is complete correct, (1) if answer is incomplete correct, and incorrect answer (Zero).The total score were (27) then converted into percentage and categorized as the following:

- Satisfactory level ≥ 75% (More than 22 grades).
- Unsatisfactory level < 75% (Less than 22 grades).

Second Tool: Observation checklists to assess mothers' reported practices regarding care of their children with attention deficit hyperactivity disorder

It was adapted from **Potter and Perry (2013)** and **Wells, Kofler, Soto, Schaefer, and Sarver (2018)** and adapted by the researcher. The researcher translated the checklists into simple Arabic language to suit level of understanding of the studied mothers. Mothers'reported practice involved the following practices:

(1): Hand washing (11/items).

(2): Daily living exercises (9/ items).

(3): Oral medication administration (7/ items).

Scoring system:

The scoring responses to each statement was "done" or "not done". Mothers' repoted practices is scored (one) if statement is done and scored (Zero) if Not done. A total score was calculated by the sum of score practices steps were27 (11 scores hand washing, 9 scores for daily living exercises and 7 score for oral medication administration), then converted into a percentage categorized as the following:

- Adequate ≥ 75% (More than 20 grades).
- Inadequate practices <75% (Less than 20 grades).

Operational Design:

The operational design for this study consisted of four phases, namely preparatory phase, content validity, pilot study and field work.

Preparatory Phase:

This phase included reviewing the related literature and theoretical knowledge of various aspects of the study using books, articles, periodicals, magazines and internet at the local as well as the international levels to develop tools and to get acquainted with the various study aspects of the research problem.

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Content Validity and Reliability:

The revision of the tools for face and content validity, clarity, relevance, comprehensiveness, understanding and applicability was ascertained by a panel of three experts in Pediatric nursing specialty from faculty of Nursing, Helwan University, the necessary modifications were done accordingly.

Internal consistency and reliability were measured by using cronbach's alpha- coefficient test.

Tools	Cronbach alpha
Mothers 'Knowledge regarding care provided for their children with ADHD	0.7
Mothers 'reported Practices regarding care provided for their children with ADHD	0.71

Pilot Study:

It was carried out unvolving 10% (6) of studied mothers having children with ADHD to test the applicability, clarity and efficiency of the tools. Then the necessary modifications of the tools were done accordingly. The pilot study had also served to estimate the time needed for each mother to fill in the questionnaire sheet and observation mothers sheet shared in pilot study were excluded from the main study sample later due to major modifications such as adding new questions and paraphrasing some questions.

Field Work

The actualfield work was carried out through a 6 months period beginning from October (2023) to the end of March (2024) for data collect. The researcher was visiting the study setting twice weekly (Saturday and Monday) at morning shift from (9 a.m) to (2 p.m) to collect data. The researcher first met with the mothers and introduced herself. Then, mothers were interviewed individually aim of the study was simply explained to the mothers of children who agree to participate in the study. The researcher interviewed the mother individually about 20-30 minutes and stayed with each mother to fill the questionnaire sheet and observational checklist.

Administrative Design:

Administrative approval to carry out the study through an issued letter from Dean of the Faculty of Nursing, Helwan University to administrator of the study setting explaining the aim of the study in order to obtain their permission and cooperation. An official permission to conduct the study obtained from the medical and nursing directors of the study setting. The researcher met the hospital director and explained the purpose and the tools of data collection of the study.

Ethical considerations

The ethical research considerations in this study were included the following:-

Prior study conduction, ethical approval was obtained from the Scientific Research Ethical Committee of Faculty of Nursing, Helwan University at 31/3/2023. The researcher clarified the aim of the study to the studied mothers included in the study and mothers' verbal approval was a prerequisite to participate in the study. The studied mothers were assured also that all the gathered data were used for the research purpose only and the study is harmless. Also mothers were allowed to withdraw from the study at any time without giving the reason. Confidentiality of the gathered data and results were secured.

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Statistical Design:

Data collected from the studied mothers was revised, coded and entered using PC. Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences **(SPSS)** version 16. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and measured standard deviations for quantitative variables. Chi-square test (X^2) was used for comparisons between qualitative variables. Statistical significant was considered at p-value <0.05.

Results:

Part I: Characteristics of the studied sample

Table (1): Number and percentage distribution of the studied mother's according to their characteristics (n=60)

Mothers' characteristic	Number (No)	Percentage (%)
Age in years		
20:<30	4	6.7
30:<40	35	**58.3**
≥ 40	21	35
X^- ±SD (37.8±9.7 years)		
Educational level		
Illiterate	10	16.7
Primary	6	10
Diploma	26	**43.3**
University and Post graduate	18	30
Occupation		
House wife	49	**81.7**
Employee	11	18.3
Marital status		
Married	45	**75**
Divorced	11	18.3
Widow	4	6.7
Residence		
Urban	52	**86.7**
Rural	8	13.3
Number of family members		
<4	8	13.3
4-7	52	**86.7**
X^- ±SD (0.68±5.1)		

Table (1) showed that more than half (58.3%) of the studied mothers were in the age group 30:<40years, with X^- ±SD 37.8±9.7 years, more than one third (43.3%) of them were diploma, more than three quarters (81.7%) of mothers were house wife, three quarters (75%) of mothers were married, most (86.7%) of the studied mothers were from urban and most (86.7%) of the studied mothers were have family consist of 4-7 members with X^- ±SD (0.68±5.1).

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Table (2): Number and percentage distribution of the studied children' according to their characteristics (n=60)

Children' Characteristics	No	%
Age in years		
3:<6	3	5
6:<9	25	41.7
9:≤12	32	**53.3**
X̄±SD (8.9±2.9years)		
Gender		
Male	45	**75**
Female	15	25
Education		
Illiterate	9	15
Primary school	51	**85**
Ranking		
First	26	**43.3**
Second	15	25
Third	10	16.7
Fourth or more	9	15

Table (2) clarified that more than half (53.3%) of the studied children were in the age group 9-12years,with X̄ ±SD (8.9±2.9), three quarters (75%) of them were male, most (85%) of children were in primary school and more than one-third (43.3%) of them were ranked as the first child in their families.

Part II: Mothers' knowledge regarding care provided for their children with attention deficit hyperactivity disorder

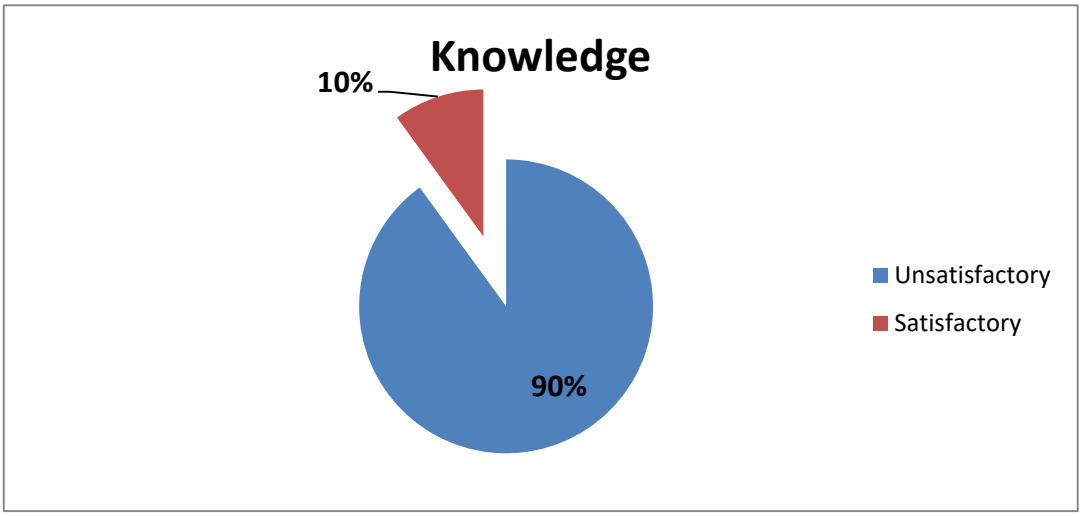

Figure (1): Percentage distribution of mothers according to total score level of knowledge about attention deficit hyperactivity disorder.

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Part II: Mothers' practice regarding care provided for their children with attention deficit hyperactivity disorder

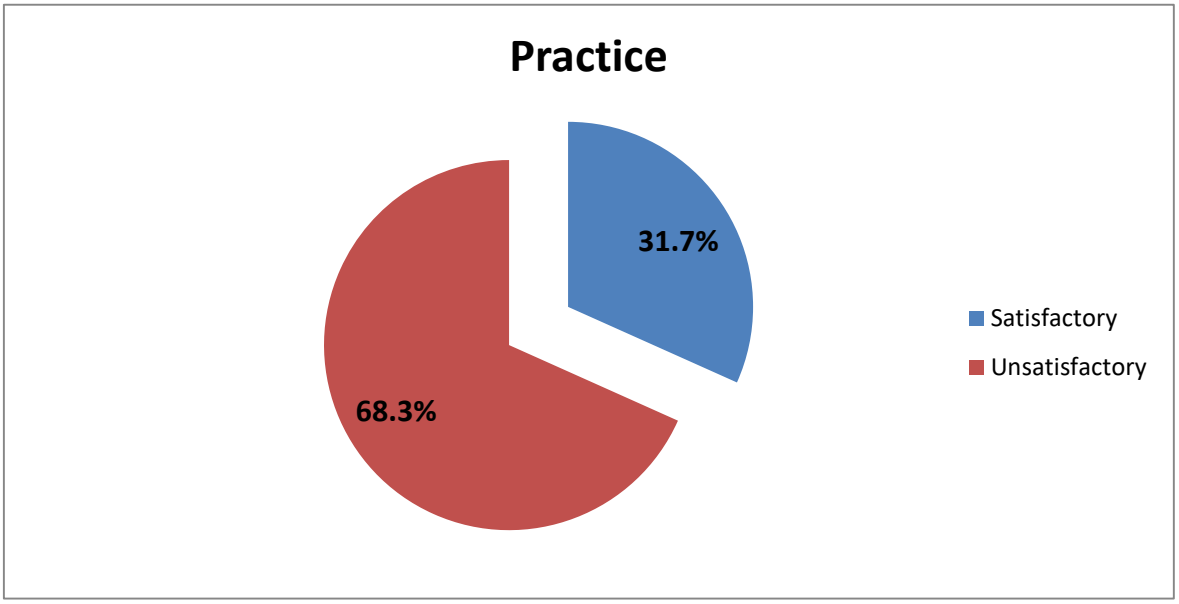

Figure (2): Percentage distribution of mothers according to total score level of reported practices regarding care provided for their children with attention deficit hyperactivity disorder**.**

Part IV: Relation and correlation between variables of the study

Table (3): Relation between the studied mothers' knowledge and the studied mothers' reported practices regarding care provided for their children with attention deficit and hyperactivity disorder (n=60)

Tools	Practice	
Knowledge	r	p-value
	0.605	0.0001*

*significant at p-value<0.0001

Table (3) illustrated that there is strong positive correlation (r=0.605) between the studied mothers' total score level of knowledge and total reported practices regarding care provided for their children with attention deficit and hyperactivity disorder was highly statistical significant.

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Table (4): Correlation between knowledge and the studied mothers' reported practices regarding care provided for their children with attention deficit and hyperactivity disorder and their demographic characteristics (n=60)

Demographic data	knowledge		practices	
	r	p	r	p
Age	0.16	0.2	0.02	**0.84**
Education	0.05	**0.69**	0.04	0.75
work	0.17	0.17	0.07	0.58
No. of family members	0.21	0.1	0.07	0.57
	t	p	t	p
Residence	0.09	**0.92**	1.7	0.07

*significant at p-value<0.0001

Table (4) clarified that there were no statistically significant correlations between demographic data of the studied mothers and their knowledge and practices.

Discussion

This chapter discussed the results of the current study and compared them with other related studies and recent literature, in addition to representing the researcher's interpretations.

Worldwide in children, attention deficit hyperactivity disorder (ADHD) is one of the most prevalent psychiatric diseases. There are three different varieties of it: largely inattention, hyperactive, and composite type. It is characterized by a concomitant inattention and impulsivity or hyperactivity **(Younis et al., 2023).**

Children with ADHD display a variety of negative long-term psychosocial impact if they are not treated **(Amaravathi et al., 2019).** Demands and mothering for ADHD child are a huge responsibility and imposes severe burden on mothers. So, the nurses must put into practice these intervention guidelines that are matched with the needs of mothers to increase their capacity to respond to their children's unplanned and stressful situations with skills, patience, compassion, and wisdom, and to cope with the numerous stressors associated with raising an ADHD child **(Brink & Koster, 2018).**

This study aimed to assess mothers' knowledge and practice regarding care provided for their children with attention deficit hyperactivity disorder.

Part I: Characteristics of studied sample.

Regarding the characteristics of the studied mothers, **(table 1),** the findings of the current study revealed that more than half of the studied mothers were in the age group 30:<40years and more than one third of them were diploma. These findings were similar to some extent to those of the study of **Abd El Aleam et al. (2019),** in Elfayoum, Egypt, entitled "Assessment of mothers' knowledge and practice regarding sleeping disorders among their children suffering from attention deficit hyperactive disorder" which revealed that two thirds of the studied mothers aged 25:35 years.

The findings of the current study indicated that more than three quarters of mothers were house wife, three quarters of them were married and the great majority of the studied mothers were from urban and were have family consist of members from4-7 members. The findings of the current

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study was emphasized by **Dixon et al., (2023),** who conducted a study in California entitled "Changing parental knowledge and treatment acceptance for ADHD: a pilot study" and revealed that the majority of the studied parents were married.

Although this contradicts with the findings of the study of **Darling Rasmussen, et al., (2021),** in Denmark entitled "Mothers of children diagnosed with ADHD: a descriptive study of maternal experience during the first three years of treatment", which mentioned that half of the studied mothers were divorced and about two thirds of them had full-time job. Additionally, these results disagree with a study of **Shih et al., (2023),** in Taiwan entitled "Attention-deficit hyperactivity disorder in children is related to maternal screen time during early childhood", which stated that only one quarter of the study population was from urban areas. From the researchers' point of view, these differences may be due to differences in the study setting.

Concerning children' characteristics **(Table 2)**, the findings of the present study clarified that more than half of the studied children were in the age group 9:>12 years and three quarters of them were male. The findings of the current study came in line with the study of **Prasad et al., (2024),** in United Kongdom, which was entitled "Use of health care services before diagnosis of attention-deficit/hyperactivity disorder: a population based matched case-control study" and revealed that the majority of the studied children were male and half of them were aged 7:12 years. From the researcher's point of view, this finding may be due to that boys with ADHD are more likely to display disruptive behaviors, which make them referred for diagnosis earlier than girls.

Although these findings disagree with another Egyptian study of **Shebl et al., (2023),** entitled "Attention-deficit hyperactivity disorder in Egyptian medical students and how it relates to their academic performance", which mentioned that more than half of the studied students were female. From the researchers' point of view, these differences may be due to differences in the study subjects as the study conducted on university medical students.

The present study revealed that the most of the studied children were in primary school. This finding is parallel to that finding of **Thomas et al. (2018),** who conducted a study titled "physical function emotion and behavior problem in children ADHD and comorbid ASD: a cross-sectional study", mentioned that almost all of studied children were in primary school in both private and governmental schools.

Concerning birth order and rank of the studied children in their families, the present study illustrated that children were ranked as the first child in their families, accounting for more than more than one-third of the studied sample. This finding was supported by the study of **Wajszilber et al (2018),** entitled "Sleep disorder in patient with ADHD impact and management challenge" which found that the majority of sample ranked as the first child. From the researchers' point of view, this finding may be because of the first-born children being more cared by their mothers.

Part II: Mothers 'knowledge regarding care of their children with attention deficit hyperactivity disorder.

Part IV: Relation and correlation between variables of the study tables (3-4).

The findings of the current study **table(3),** illustrated that there is strong positive correlation between mothers' total reported practices and their total knowledge regarding care provided for their children with attention deficit and hyperactivity disorder. These findings were in agreement with **Noroozi et al., (2023),** whose findings reported significant correlations between the knowledge and performance scores of the parents of the ADHD children.

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The findings of the present study **table (4)** illustrated there were no statistically significant correlations between demographic data of the studied mothers and their knowledge and practice. These findings were consistent with **Abd El Aleam et al., (2019),** whose findings reported no statistically significant relation between mothers' job and marital status.

On the other hand, these findings were in disagreement with **Mohammed et al., (2023),** who reported statistically significant positive correlations were found between knowledge and practices and mothers' age, education, occupation and residence. From the researchers' point of view, these differences may be due to differences in the characteristics of the study subjects.

Conclusion

The current study concluded that almost of the studied mothers had unsatisfactory total score level of knowledge regarding care provided of their children with attention deficit hyperactivity disorder. Moreover, more than two third of the studied mothers had unsatisfactory total score level of reported practices regarding care provided of their children with attention deficit hyperactivity disorder. Mean, while there were no statistically significant correlations between demographic data of the studied mothers and their knowledge and practice.

Recommendations

In the light of the study findings, the following recommendations are suggested:

- Periodical educational programs for mothers of children with attention deficit hyperactivity disorder to help them to provide care for them and cope with disease.
- Continuous educational programs for mothers regarding care provided of their children with attention deficit hyperactivity disorder.
- Regular assessment for children for early detection of causes attention deficit hyperactivity disorder.
- Assessment of stressors and coping patterns for mothers of children suffering from attention deficit hyperactivity disorder.
- Further researchers are required involving larges of mothers of children with ADHD at different study setting all over Egypt.

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