

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 the Outpatient Clinics at Abbasia Mental Health Hospital affiliated. **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. **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 checklist 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:** Almost of 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.

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 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 inattentive 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, 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 conducted 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 aims to assess mothers' knowledge and practice regarding care provided for their children with attention deficit hyperactivity disorder.

Research questions

- 1- 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

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, two rooms for files from which tickets to dispense treatment in front of the first break, a room for the pharmacy in front of the second break, and three rooms for psychiatrists, a room for social worker, a room for

psychologist, a nursing room, and two bathrooms in front of the third break and a room to modify behavior, 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 as the following:

Tool (1): 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 mothers: such as age, level of education, occupation, residence.

Part II: Characteristics of the children: such as age, gender, grade of education.

Part III: Developmental History of child: such as pregnancy history, delivery history, growth and development of child.

Part IV: 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).

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

The studied mothers' Knowledge was checked with a model key answer sheet which prepared by the researcher. Knowledge is scored 1 if answer is correct and zero if incorrect, symptoms scored 1 if rarely and 2 sometimes and 3 often and accordingly their total Knowledge was categorized into either:

Satisfactory ($\geq 75\%$)

Unsatisfactory ($< 75\%$).

Tool (2): Observational Check list

Observational check list was developed by the researcher after reviewing the current available literature and was written in simple Arabic to suit level of understanding of mothers to assess the following:

Part I: Mothers Reported Practices: It was adapted from **Potter and Perry (2013)** and translated into simple Arabic language to suit level of understanding of the studied mothers. It was used to assess mothers' reported practices regarding care provided for their children with attention deficit hyperactivity disorder. It included the following: (hand washing, physical exercise, oral medication administration).

Part II: Children Reported Practice: It adapted from Wells, Kofler, Soto, Schaefer, and Sarver (2018) to assess daily living activities of children with attention deficit hyperactivity disorder such as order, homework, watching television).

Scoring system:

The scoring responses to each statement was "done" or "not done". Practice is scored 1 if answer is correct and zero if incorrect, symptoms scored 1 if rarely and 2 sometimes and 3 often. A total score was calculated by the sum of done practices and then converted into a percent result in

unsatisfactory < 75%

Satisfactory \geq 75%.

The total scoring system:

If a child score was less 60%, their score was deemed poor

If a child score was 60- less 70% their score considered fair

If a child score was 75% and more their score as good

Operational Design:

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

A) 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.

B) Content Validity and reliability:

Content Validity:

The revision of the tools for clarity, relevance, comprehensiveness, understanding and applicability was ascertained by a panel of 3 experts in pediatric nursing specialty from Faculty of Nursing, Helwan University to assess the content validity of the tools.

Reliability:

Their opinion was elicited regarding the format, layout, consistency, accuracy and relevancy of the tools and 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

C) Pilot Study:

It was carried out on 10% (60) of mothers of with ADHD children at the Outpatient Clinics in El- Abbasia Hospital for Mental Health and addiction to test the applicability, clarity and efficiency of the tools, and then the necessary modifications of the tools were done according to the results of pilot study. The pilot study had also served to estimate the time needed for each mother to fill in the questions. Mothers under pilot study were excluded from the main study sample.

D) Field Work

To carry out the study, an approval was obtained from the medical and nursing directors of the Outpatient Clinics in El- Abbasia Hospital for Mental Health and addiction. Data were collected through 6 months, from the first of October (2023) to the end of March (2024).

The researcher was visiting the study setting twice weekly (Saturday and Monday) at morning shift to collect data and implement this study. The researcher first met with the mothers attended to the previously mentioned setting. The researcher introduced herself to the mothers. Then, mothers were interviewed individually using the previously mentioned tools in the predetermined setting. The aim of the study was simply explained to the mothers of preschool and school-age children who agree to participate in the study. The researcher stayed with each mother individually about 15-30 minutes to fill the questionnaire. The researcher asked mothers if had any questions to answer them.

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 Outpatient Clinics in El- Abbasia Hospital for Mental Health and addiction. The researcher then met the hospital director and explained the purpose and the tools of data collection.

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. The researcher clarified the aim of the study to the mothers included in the study and mothers' verbal approval was a prerequisite to participate in the study. 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.

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. Statistically 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
$\bar{X} \pm SD$ (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).

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
X⁻±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 X⁻ ±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.

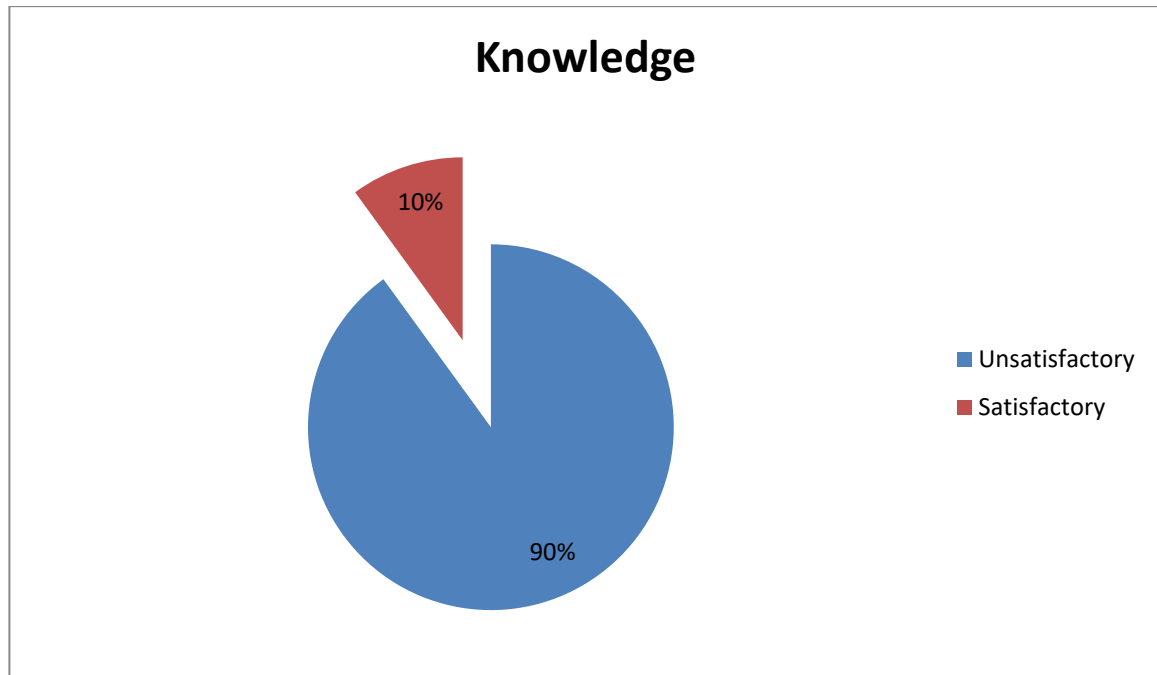


Figure (1): Percentage distribution of mothers according to total score level of knowledge about attention deficit hyperactivity disorder.

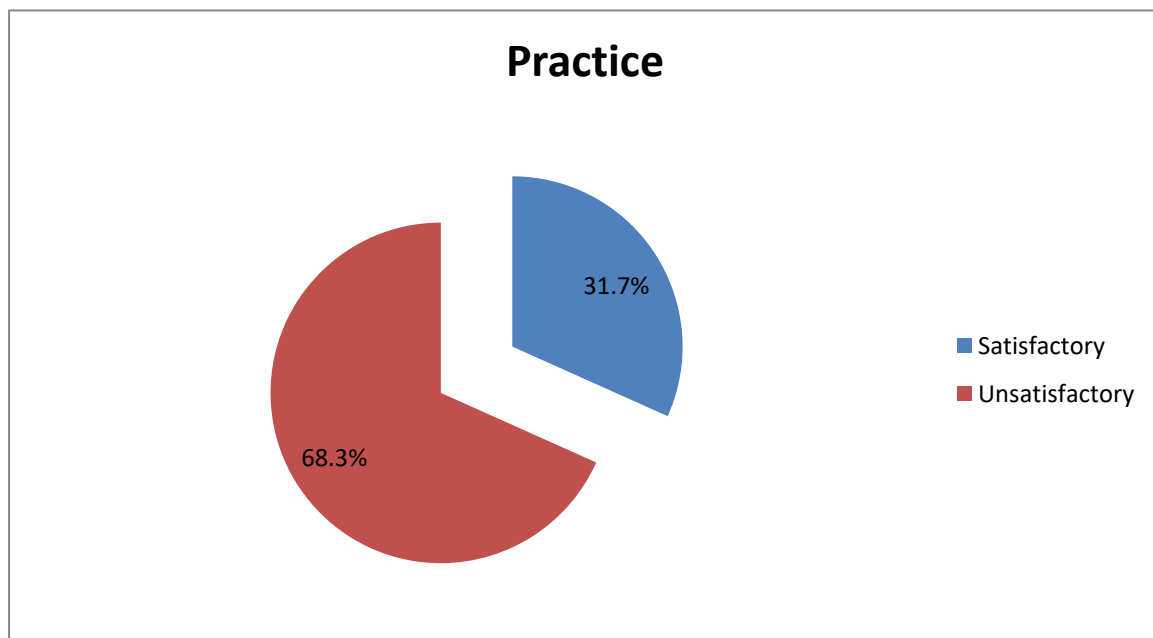


Figure (2): Percentage distribution of mothers according to total score level of reported practices regarding care provided for their children with attention deficit hyperactivity disorder

Part II: Mothers' knowledge 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.

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. As well, a study conducted by Yaacoby-Vakrat et al. (2023), in Israel titled "Exploring Co-regulation-related factors in the mothers of ADHD children" mentioned that more than half of the mothers had graduate studies.

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 from 4-7 members. The findings of the current 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 Kingdom, 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.

Moreover, the study findings agree with a study of Tahririan et al., (2023), in Iran, entitled "Investigating the relationship between decayed, missing, and filled teeth and mothers' knowledge and attitude about oral health of 6:12year-old children with attention-deficit/hyperactivity disorder" and stated that the studied children aged 6:12 years with ADHD. 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 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 (**tables 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 was highly statistical significant and total knowledge (52.2%), mean 4.70 ± 1.58 and total practice (68.6%), mean 15.8 ± 1.63 . 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.

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.

Acknowledgements:

First and foremost, thanks are submitted to Allah who gave me the strength and ability to complete the study, the most kind and most merciful.

I would like to express my deepest gratitude and appreciation to Prof. Dr. Eman Hassan Mahmoud, Assistant Professor of Pediatric Nursing, Faculty of Nursing- Helwan University, for her supervision, guidance, continuous support and valuable advice in every step throughout this work. I'm indebted to her valuable consultation and direction.

I wish to express my deep appreciation and gratitude to Dr. Sara Galal Mohammed, Lecture of Pediatric Nursing, Faculty of Nursing- Helwan University, for her constructive criticism, patience, continuous guidance, unlimited help and giving the privilege to work under her supervision.

I would never forget to offer my special thanks to all mothers and their children who participated in the study as their cooperation was of great value to accomplish this study.

Finally, I would like to express my thanks to my family and my husband for their love, support and encouragement.

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