Effect of Educational Program on Parents' Caring for their Children with Attention Deficit Hyperactivity Disorder

Sahar Sedky Faheim [(1)], Sara Sayed Abdalla [(2)], Doaa Bahig Anwr Akl [(3)]

(1) Department of Pediatrics Nursing, Faculty of Nursing, Beni-Suef University, Beni-Suef, Egypt

(2) Department of Child and Adolescents Health Nursing, British University in Egypt

(3) Department of Pediatrics Nursing, Faculty of Nursing, Aswan University, Egypt

Abstract

Aim: To evaluate the effect of educational programs on parents caring for their children with attention deficit hyperactivity disorder. **Design:** A quasi-experimental design was utilized. **Setting:** The study was conducted at the child psychiatric unit and pediatric outpatient clinics at Beni-Suef University Hospital. **Sample:** purposive sample 100 of parents and their children from the previously mentioned setting. **The following study tools** were used (pre/posttests): 1) A structured interviewing questionnaire to assess their knowledge as regards attention deficit hyperactivity disorder. 2) An observational checklist to evaluate studied parents' practices such as hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks, and interacting with friends & classmates. **Results**: The parents' age ranged between 25 < and 30 years with a mean age of 28.44±3.86years and 45%of them had a Secondary degree. There was a highly statistically significant difference (P<0.001), regarding their knowledge and practices before, immediately after, and at follow-up guideline implementation toward children with attention deficit hyperactivity disorder. **Conclusion:** The present study concluded that the educational guideline had a positive effect on mothers' knowledge and practice regarding neonates and young children with attention deficit hyperactivity disorder. **Recommendations:** Provide continuous education, training, and early intervention to avoid further complications and handicaps. Further studies should be carried out on a large number of such groups of studies for evidence of the results and generalization.

Keywords: Educational Program, Parents, Children, and Attention Deficit Hyperactivity Disorder

Introduction

Attention deficit hyperactivity disorder (ADHD) is one of the most widespread childhood and adolescence neurodevelopment states, typified by a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development ***(Al-Mohsin et al.,2020).*** The prevalence rate of ADHD is 5% in children 4–17 years old ***(Luş &Erensoy, 2020).*** The incidence of ADHD is estimated at 7.1% in children and adolescents, 2.5-5% in adults, and approximately 2.8% in older adults ***(Young et al., 2020).*** It is characteristically 4 times more common in boys than it is in girls, and an expected 50% of the children diagnosed with ADHD continue to have symptoms in adulthood ***(EL Nagar et al., 2017).***

To date, no single factor has been specified as the obvious cause of this disorder. Though, it is thought to be a result of compound interactions between factors like genetic, environmental, and neurological ones ***(El Abd Moneam et al., 2018).*** ADHD can be treated as a serious illness state because it is a childhood disorder that affects the children and places a heavy load on the child, mother, family, and the other caregivers around the child. The disorder can appear as early as 2-3 years or later at about 7 years of age, but the confirmation of diagnosis will not occur before 6-9 years of age ***(Harazni and Alkaissi, 2016; Shattla, Hassan, Arrab & Alhalawany , 2021).***

Children with ADHD more frequently have disturbances with social abilities, such as social interactions and forming and maintaining relationships that affect the child's daily activity function. Around half of those children have a form of social disability, while the residue does not ***(Raghibi et al., 2014; Harazni and Alkaissi, 2016)***. furthermore, ADHD child characterized by diverse behavioral problems such as motor skills impairment, attention defect, educational difficulties, learning disability, hyperactivity, and aggression is an essential crisis for parents, peers, teachers, pediatric nurses, pediatricians, psychiatrists, and psychologists and school nurse. Symptoms can hurt a child's mental potential and social abilities. So the nurse has a vital role in helping manage the problems of ADHD, reducing the load on their parents, teachers, and

siblings, and educating them on how to deal with the child ***(Shattla, Hassan, Arrab & Alhalawany , 2021).***

Nurses are vital members of teams that provide diagnostic, treatment, and support services for children and their parents at home, in school, and hospitals, the role of the nurse engages in providing information and listening to both parents and healthcare providers. The educational guidelines program should include guidance, assessing parental awareness, and knowledge about treatment. The mothers should be educated regarding psychosocial nursing intervention to educate them on the techniques that can utilize to treat their children with challenging behaviors. The nurse should consider, believe and respect all the family members' opinions and provide medical care when needed ***(Slobodin and Davidovitch 2019).***

Significance of the study:

ADHD is a life-long disorder; for this reason, poor management may lead to adverse functional outcomes, as the child shifts towards adolescence and adulthood. If left untreated, children with ADHD reveal a range of poor long-term psychosocial outcomes ***(Amaravathi et al., 2019).*** Its treatment and management are asimilarly crucial as the disorder often exists with co-morbid conditions, the most prevalent being the oppositional defiant disorder, conduct disorder, and anxiety disorder **(Balagan, & Tarroja, 2020).** It involves boys three times more than girls and happens about from 3% to 11% or more of all children. Over 50% of children diagnosed with ADHD in early childhood experience these symptoms into adulthood and influence 2% to 9% of children of school age (***Solan, et al., 2020).*** According to World Health Organization (**WHO),** mental disorders are to rise by 50% in 2020 and are one of the chief causes of morbidity in children ***(Amaravathi et al., 2019).*** In Egypt, the epidemiology of ADHD. The reported occurrence of ADHD among primary school children ranged between 6.5% and 7.9% ***(EL-Gendy, et al., 2017).*** Current literature lacks proper educational guidelines, randomized control trials, and evidence-based treatment strategies for persons with ADHD or support for their parents (Young et al., 2016) Therefore, the specific objectives of this study were to evaluate the effect of educational guideline programs on parents' knowledge and practice caring their children with attention deficit hyperactivity disorder.

The Aim of the Study:

This study aimed to evaluate the effect of educational programs on parents' caring for their children with attention deficit hyperactivity disorder

This aim could be achieved through the following objectives:

1. Assess the knowledge and practices of parents about caring for their children with attention deficit hyperactivity disorder before implementing the educational program.
2. Implement an educational program about parents caring for their children with attention deficit hyperactivity disorder.
3. Evaluate the knowledge and practices of parents about caring for their children with attention deficit hyperactivity disorder after implementing an educational program.

Research Hypothesis:

1. The parents' knowledge will be significantly improved after the implementation of the attention deficit hyperactivity disorder educational guidelines than before.
2. The parents' practices will be significantly enhanced after the implementation of the attention deficit hyperactivity disorder educational guidelines than before.

Operational definitions

Knowledge

Knowledge refers to the awareness of information and skills relating to ADHD as measured by a structured knowledge questionnaire developed by the investigator.

Practice

Practice refers to ADHD practices such as hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks, and interacting with friends & classmates measured by a checklist developed by the investigator.

Subjects and Methods

Research design:

A quasi-experimental research design was used to achieve the aim of the study. This design was used to compare participant groups and measure the degree of change occurring as a result of treatments or interventions.

Setting: The present study was conducted at the child psychiatric unit and pediatric outpatient clinics at Beni-Suef University Hospital, Beni-Suef governorate, Egypt. It is the only University Hospital in Beni suef Governorate and covered all Bani suef centers such as (Beni suef center, Al Wasta center, Nasser center, Al Fashn, Ehnsia center, and BPA center).

Subjects: A purposive sample of parents and their children with attention deficit hyperactivity disorder attended a previously set at the study time (100 parent father or mothers) are willing to participate in the study and didn't attend any program about attention deficit hyperactivity disorder in children and child free from any medical complication or disorder, all children had a diagnosis of ADHD, with any age group and free from other psychiatric disorders.

Inclusion criteria:

For children

1. Children diagnosed by physicians with ADHD.
2. Both sexes and the available age.

For parents:

1. Providing care to the child & Living with the child in the same dwelling.
2. Regular attendance at the setting.
3. Verbal accepting taking part in the program.
4. They can read.

Subject size: A total of (100) blind adolescents girls were selected according to the following statistical formula is used for calculating the sample size is $n = [2(Z\alpha/2 + Z\beta)2 \times p (1-p)]/(p1 - p2)2$ where n = sample size required in each group, p = pooled proportion (proportion of event in group 1 + proportion of event in group 2)/2, p1-p2 = difference in the proportion of events in two groups, $Z\alpha/2$.

III. Study Tools

Two tools were used in this study for data collection:

First tool: A Structured interviewing questionnaire: Developed by the researchers after reviewing related literature **(El Abd Moneam et al., 2018); (Ali, 2019)& (Jasem &. Delport, 2019)** It was used toassess the following parts:

Part (A): Children`s characteristics such as; age, sex, education, order of birth, degree of ADHD, and duration of disease.

Part (B): Parents` characteristics such as; age, educational qualification and occupational status, family history of ADHD, sex, with whom the child is more comfortable, and sources of information.

Part (C): Parents' knowledge|: It was used to assess parents' knowledge about ADHD in children (pre, post, and follow-up) guidelines implementation. It assesses the main concepts in ADHD, which included 10 open-ended questions about the definition of ADHD (1 question), Incidence of ADHD (1 question), types (1 question), causes (1 question), Signs and symptoms (1 question), diagnostic tests (1 question), Criteria of ADHD child (1question), complications (1 question), medical treatment (1 question) and nursing role (1 question). This questionnaire was distributed in the same form three times (pre, and post- guidelines implementation and at one-month follow-up) for the same group of mothers. The questionnaire Alpha Cronbach's reliability test equals 0.84.

Scoring system: Knowledge content was divided into 10 questions and each question was assigned to three score levels: Complete and/or correct answer was scored (3), while the incomplete correct answer was scored (2), and don't know or the wrong answer was scored (1). The total score was categorized into either satisfactory level (from 70% and more) or unsatisfactory level (less than 70%) from the total score (30).

II. A self-reported practices (pre/post and follow-up tests). Adopted from; (EL Nagar et al., 2017) and (Shattla, Hassan, Arrab & Alhalawany , 2021) it was filled in by helping the researchers to evaluate parents' practices concerning children with ADHD as hygiene,

elimination, nutrition, wearing clothes, control of tantrum, control of hyperactivity, making school tasks and interacting with friends & classmates.

Scoring system: Each step was assigned to two score levels, which are: do was scored (2), and not done scored (1). The total score was classified into either adequate (from 70% and more) or inadequate (< 70%) from total score as the following: hygiene (15steps) and total score = 30; nutrition (7 steps) and total score = 14, wearing clothes (15 steps) and total score = 30, control of tantrum (13 steps) and total score = 26; and control of hyperactivity (7 steps) and total score = 14, making school tasks (7 steps) and total score = 14; interacting with friends & classmates(15steps) and total score = 30. The checklist's Alpha Cronbach's reliability test equals 0.86. The practice total score equals 128.

Validity and reliability of study tools:

Content validity was ascertained by a group of experts (5) including3 Pediatric Nursing, 1 Pediatric Medicine and 1 Psychiatric Mental Health Nursing. Their opinions were stimulated regarding the tools' format layout, consistency, and scoring system. The tool's content was corroborated regarding the knowledge accuracy, relevance, and competence. Reliability of all items of the tools was done. The reliability test was established by using Cronbach's alpha to assess internal consistency construct validity. Cronbach's alpha r= 0.86 and 0.84.

Administrative design:

Official approval was obtained from the administrators of the study settings to carry out the study. A clear explanation was given about the aim, nature, importance, and expected outcomes of the study.

Pilot study:

A pilot study was conducted on 10% of the total study subjects (10 parents fathers or mothers) to test the clarity and practicability of the tools, and the suitability of the setting. The pilot study sample is then excluded from the main study sample as there were no modifications in the tools. It also helped to estimate the time needed to complete the interview. After conducting the pilot study, it was found that the questions of the tools were clear and relevant, but few words were modified to increase clarity. Following the pilot study findings, the tools were finalized and made ready for use.

Ethical considerations:

Approval to conduct the study was obtained from the director of the previous setting. All parents who agreed to participate and meet the inclusion criteria were informed about the study's aim and their rights according to research ethics to participate or not in the study. Then, they gave their consent to participate in the study.

Fieldwork:

This study was carried out over 12 months from the beginning of May 2020 to the end of April 2021. The average time spent filling in the tools was 30 minutes for the self-administered questionnaire and 10 minutes for the observational checklist. The previously mentioned settings were visited by the researchers 2 days/week (Monday & Tuesday) from 9.00 a.m. to 2.00 p.m.

Educational guidelines phases:

This guideline was conducted in four consecutive phases, assessing, developing, implementing and evaluating phase.

Assessment phase:

A pre-educational guidelines assessment was performed using the structured interviewing questionnaire for data collections from the previously stated settings. This phase is aimed at assessing mothers' knowledge and practices regarding their children with ADHD.

Development or **Preparation phase:**

- An educational guideline was developed based on actual parents' needs assessment about ADHD in children.

Intervention Program Objective

Improve the parents' knowledge and practice according to child needs for caring for their children.

Program contents: It included:

* Effectiveness in performing knowledge and practices of parents about caring for their children with attention deficit hyperactivity disorder

* A hand out was developed for the parents of ADHD children as a suggested plan to help them to able to caring their children with ADHD. Content of the guidelines was written in the simple Arabic language by the researchers, consistent with the related literature and parents' level of understanding.

- The guidelines were presented in theoretical and practical sessions. Subjects were divided into small groups (9 – 10) of parents and repeated sessions included all parents. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each parent was guided by simple instructions and then orientation about the aim, contents, and expected outcomes.

First: The theoretical sessions were presented in 2 sessions (each session for 30 minutes) and covered the following items: definition of ADHD, Incidence of ADHD, types, causes, signs and symptoms, diagnostic tests, criteria of ADHD child, complications, medical treatment, and nursing role.

Second: Sessions were conducted in the form of lectures/discussions, followed by the practical part which consisted of two sessions (each session for 30 minutes) and covers the following items: hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks and interacting with friends & classmates in the form of demonstration and re-demonstration using role-play, simulator, real objects, discussions, and brainstorming. The researchers used effective media for conveying information, PowerPoint presentations, and posters. A guidelines handout was developed and offered for parents as a reference to be used after guidelines implementation.

Program construction:

- Contents of the guidelines were written in the simple Arabic language by the researchers, consistent with the related literature and parents' level of understanding.
- The guidelines were presented in theoretical and practical sessions. Subjects were divided into small groups (5 – 6) of parents and repeated sessions to include all parents. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each parent was guided by simple instructions, and then orientation about the aim, contents, and expected outcomes were done.
- Parents were informed to be in contact with the researchers by telephone for any guidance.
- Evaluation for the effect of guidelines on the studied parents using the pre-constructed tools as follows:
- Post-test was done after immediate implementation of the guidelines.
- Following up test one month later by using the same tools

Implementation of the guidelines:

Implementations of the educational guideline were conducted in the previously stated setting. At the beginning of the first session, an orientation of the educational guidelines and their purpose was presented. Parents were divided into groups, and each group involved 5-6 parents approximately. Each session started with a summary of what had been given through the previous sessions and the objectives of the new topic, taking into consideration the use of simple language to suit the level of parents' education. As well, the session ended with a summary of its content and feedback gained from others.

The educational guidelines were carried out through four sessions, the time of each session ranged from 30 - 45 minutes according to the parent's needs and the condition of the group. The theoretical part of the strategic guideline was presented in two sessions in the form of lectures/discussions, followed by the practical part which consisted of two sessions in the form of demonstration and re-demonstration using role-play, simulator, real objects, discussions, and brainstorming. The researchers used effective media for conveying information, PowerPoint presentations, and posters. A guidelines handout was developed and offered to parents as a reference to be used after guideline implementation.

Evaluation phase:

The evaluation phase was done immediately after post-implementation of the educational guideline and at follow-up one month later by comparing changes in parents' knowledge and practices regarding educational guidelines for parents of children with attention deficit hyperactivity disorder.

Statistical Design:

The data collected were organized, sorted, tabulated, and analyzed using the Statistical Package for Social Sciences (SPSS), version (22). They were presented in tables and charts using numbers, percentages, means, standard deviations, t-tests, and Chi-square (X2) test. The level of significance was considered p<0.0001.

Results:

Table (1) shows that 60% of the studied children's age, ranged from 5-<10 years, 62% of children were males and 60%of them were in nursery education. As regards the order of birth, 58% of children were first order and 50% of them were a mild degree of ADHD. Also, the duration of disease was two years in more than half of the studied children (65%).

Table (2) shows the socio-demographic characteristics of the studied parents. It indicated that their age ranged between 25 < and 30 years with a mean age of 28.44±3.86years. Regarding the level of education, 80%of the parents had secondary and primary and 65% of them were female. As regards parents' occupation, 55% of parents were not working and 100% of the studied sample had a negative family history of ADHD. Concerning the child is more comfortable, 80% of them more comfortable with their mothers

Figure (1) illustrates that the sources of Parents' information about attention deficit hyperactivity disorder in their children were other families (35%), followed by the health care team (25%), then mass media (22%), and the least sources were friends (18%).

Table (3): shows the percentage distributions of parents according to their knowledge about Attention Deficit Hyperactivity Disorder in Children throughout the guidelines phases. There were highly statistically significant improvements in parents' knowledge immediately after post and at follow-up phases as regards all knowledge items about Attention Deficit Hyperactivity Disorder in Children than before guidelines implementations.

Figure (2) describes the studied mothers' total knowledge scores. 90% had an unsatisfactory level of knowledge before the implementation of the guidelines, which improved for 88%, immediately after post guidelines implementation. However, the same figure illustrates that 80%of studied parents had a satisfactory level in their total knowledge scores in the follow-up phase of guidelines implementation, with highly statistically significant differences (P<.0001).

Table (4): points out that there are highly statistically significant improvements in parents` practices immediately after post and at follow-up of guidelines implementation as regards all knowledge items about attention deficit hyperactivity disorder in their children.

Figure (3) illustrates that the studied parents` total practices score, 85% of the studied parents had an incompetent level of practice before the implementation of the guidelines, which improved for 85% of them (85%) to have competent practices immediately post guidelines implementation. Furthermore, the same figure shows that 70%of studied parents (70%) had a competent level in their total scores of practices in the follow-up phase of guideline implementation with highly statistically significant differences (P<.0001).

Table (6) shows statistically significant positive correlations between knowledge scores and educational level at the pre, post and follows up phases of guidelines implementation (P < 0.001). However, this table shows that there are statistically insignificant correlations between knowledge and practice and parents' age and educational level at pre guidelines implementation phases.

Table (1): Characteristics of Children with Attention Deficit Hyperactivity Disorder (n=100)

Socio-demographic characteristics	No	%
Age/years		
1-<5	25	25.0
5 -<10	60	60.0
-<10	15	15.0
Sex		
Male	62	62.0
Female	38	38.0
Child Education :		
Nursery	60	60.0
School	40	40.0
Order of birth		
First	58	58.0
Middle	27	27.0
Last	15	15. 0
Only	0	0. 0
Degree of ADHD:		
Mild	50	50.0
Moderate	30	30.0
Severe	20	20.0
Duration of disease		
One year	18	18.0
Two years	65	65.0
Three years	12	12.0
Four years	5	5.0

Table (2): Characteristics of Studied Parents of Children with Attention Deficit Hyperactivity Disorder (n=100)

Socio-demographic characteristics	No	%
Age/year		
<20	10	10.0
20- <25	25	25.0
25- <30	40	40.0
≥30	25	25.0
Mean±SD	**28.44±3.86**	
Educational level		
Primary	35	35.0
Secondary	45	45.0
High education	20	20.0
Parents` sex		
Male	35	35.0
Female	65	65.0
Residence area :		
Rural	70	70.0
Urban	30	30.0
Parents' occupation		
Working	45	45.0
Not working	55	55.0
Family history of ADHD:		
Positive	0	0.0
Negative	100	100.0
Depression	0	0.0
With whom the child is more comfortable		
Mother	80	80.0
Father	20	20.0
Brothers	0	0.0
Others	0	0.0

Fig (1): Distributions of Parents according to the Sources of Information Attention Deficit Hyperactivity Disorder in their Children (n=100)

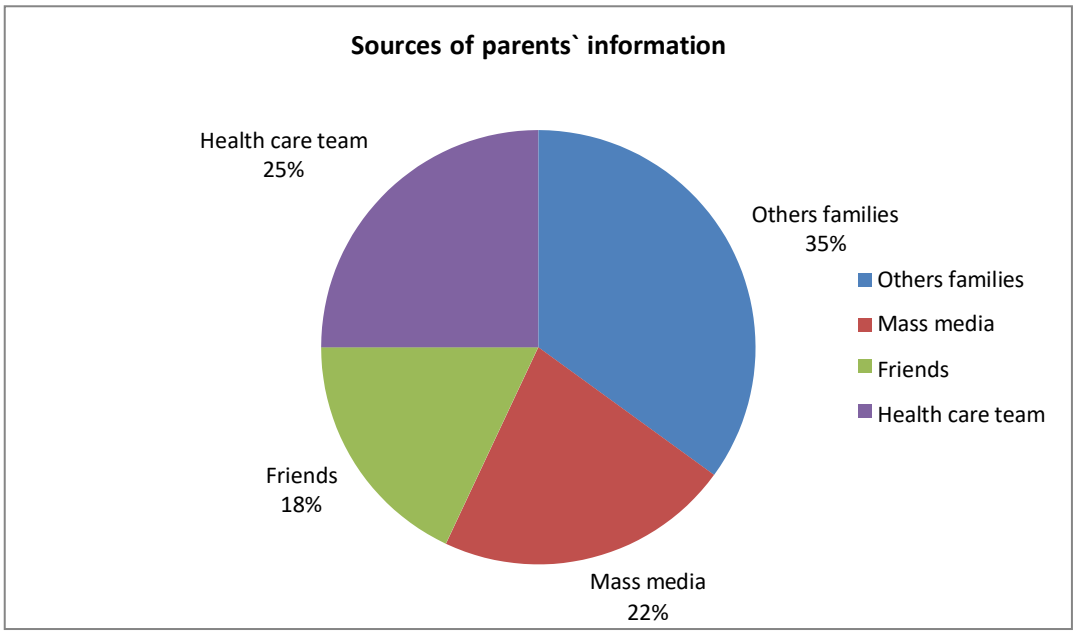

Table (3)Percentage Distributions of Parents According to their Knowledge about Attention Deficit Hyperactivity Disorder in Children throughout the Guidelines Phases (n = 100).

Knowledge related to ADHD in Children	Pre- guidelines		Post- guidelines		Follow up	
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory
	%	%	%	%	%	%
Definition	5.0	95.0	88.0	12.0	85.0	15.0
Incidence of **ADHD**	10.0	90.0	90.0	10.0	85.0	15.0
Causes	37.0	63.0	96.0	4.0	95.0	5.0
Types	5.0	95.0	88.0	12.0	85.0	15.0
Signs and symptoms	35.0	65.0	88.0	12.0	85.0	15.0
Diagnostic tests	10.0	90.0	90.0	10.0	85.0	15.0
Criteria of **ADHD**	5.0	95.0	88.0	12.0	85.0	15.0
Complications	10.0	90.0	90.0	10.0	85.0	15.0
Medical treatment	20.0	80.0	90.0	10.0	88.0	12.0
Nursing role	30.0	70.0	95.0	5.0	92.0	8.0
T-test **P value**	**X^2= 16.6 pre-versus post- guidelines**					P value <0.001**
	X^2 = 24.5 pre - guidelines versus follow- up					
	X^2 = 14.8 post - guidelines versus follow- up					

Figure (2): Percentage Distributions of Total Knowledge Scores of the Studied Parents about Attention Deficit Hyperactivity Disorder in Children throughout the Guidelines Phases (n = 100).

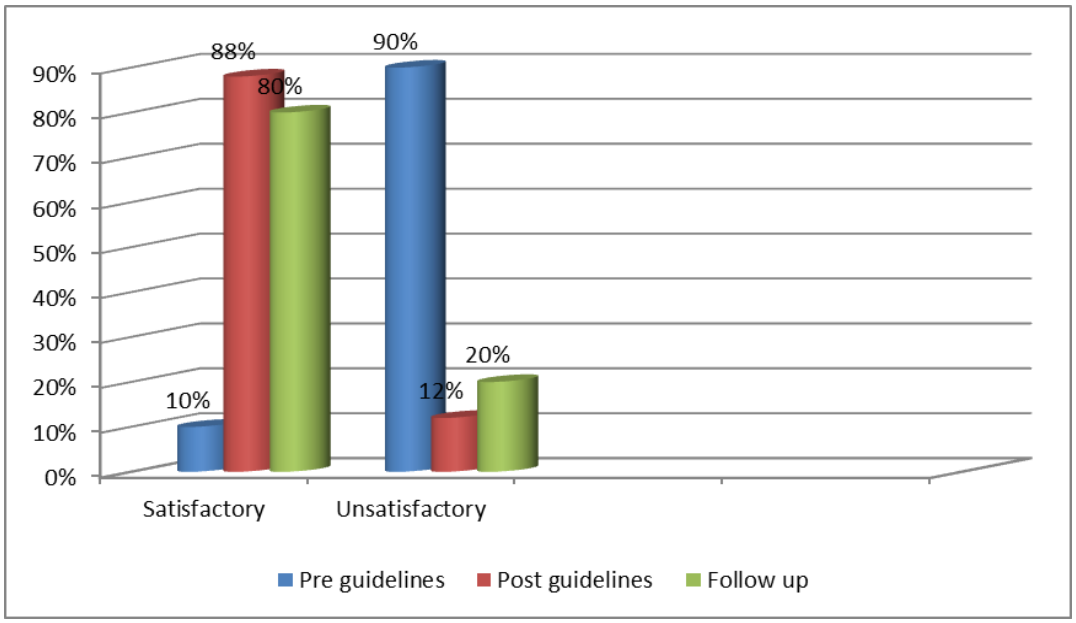

Table (4): Percentage Distributions of Studied Parents According to their Practices about Attention Deficit Hyperactivity Disorder in Children throughout the Guidelines Phases (n = 100).

Practice related to ADHD in Children	Pre- guidelines		Post- guidelines		Follow up	
	Adequate	In adequate	Adequate	In adequate	Adequate	In adequate
	%	%	%	%	%	%
Hygiene:	12.0	88.0	80.0	20.0	87.0	22.0
Elimination:	11.0	89.0	75.0	25.0	75.0	25.0
Nutrition:	75.0	25.0	96.0	4.0	96.0	4.0
Wearing clothes:	10.0	90.0	90.0	10.0	85.0	15.0
Control of tantrum	8.0	92.0	85.0	15.0	82.0	18.0
Control of hyper activity	28.0	72.0	94.0	6.0	92.0	8.0
Making school tasks	12.0	88.0	90.0	10.0	85.0	15.0
Interacting with friends & classmates	25.0	75.0	94.0	6.0	92.0	8.0
T-test P value	**X^2 =28.2 pre- guidelines versus post- guidelines**					P value <0.001**
	X^2 = 56.2 pre - guidelines versus follow- up					
	X^2 = 24.4 post - guidelines versus follow- up					

Figure (3): Percentage Distributions of Total Practices Scores of the Studied Parents about Attention Deficit Hyperactivity Disorder in Children throughout the Guidelines Phases (n = 100).

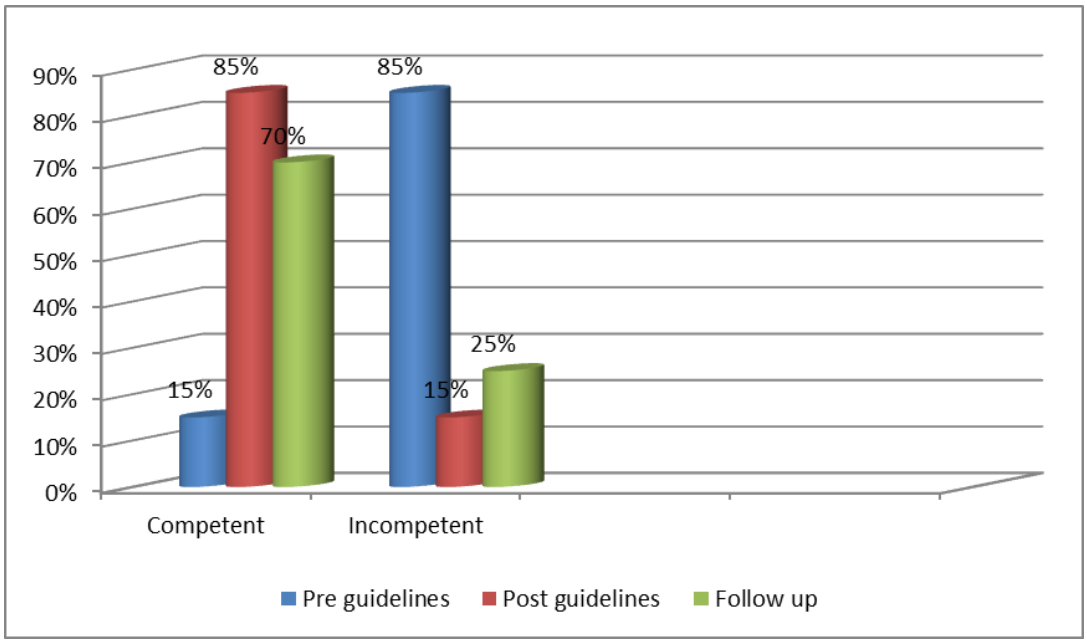

Table (6): Correlations coefficient between parents' total knowledge and practices about their children`s Attention Deficit Hyperactivity Disorder at (pre, post & follow-up) phases and their demographic characteristics (N=100).

Variables		Age		Educational level		occupation		Residence	
		R	P	R	P	R	P	R	P
Knowledge	Pre guidelines	0.72	0.05<	0.248	0.001	0.40	0.05<	0.70	0.05<
	Post guidelines	0.544	0.001	0.145	0.001	0.142	0.05<	0.041	0.05<
	Follow up	0.451	0.001	0.364	0.001	0.72	0.05<	0.152	0.05<
Practices	Pre guidelines	0. 22	0.05<	0.42	0.05<	0.21	0.05<	0.031	0.05<
	Post guidelines	0.433	0.001	0.405	0.001	0. 64	0.05<	0.130	0.05<
	Follow up	0.232	0.001	0.224	0.001	0.25	0.05<	0.52	0.05<

* Statistically insignificant (p> 0.05)
** Highly statistical significant correlations (P< 0.001)

Discussion:

ADHD is commonly detected in primary school children, which may give a chance for early diagnosis and early intervention. Special education parents are also vital members of the teams that provide diagnostic, treatment, and support services for children with ADHD. Then, their exclusive skills and training are important when supporting those children's families in the hospital, school, and community. Pediatric ADHD is a major stressor for parents and may result in a problematic parent-child interaction. Therefore, this study aimed to evaluate the effect of educational guideline programs on parents' knowledge and practice in caring for their children with attention deficit hyperactivity disorder. So, a parent dealing with a child having ADHD needs different approaches and

techniques. The current study hypothesized that the parents who received educational guideline programs would have high Knowledge and better practice about attention deficit hyperactivity disorder than previously.

Regarding characteristics of the studied children more than half ranged between 5-<10 years. This result is supported by ***Balagan, & Tarroja, (2020)*** who found that the participants were 10 mothers with children with ADHD aged 6 - 11 years in their study about "Challenges, Coping Strategies, and Needs of Mothers with Children with Attention Deficit Hyperactivity Disorder". Also, the current study shows that more than half of children were males, nursery education, first order, a mild degree of ADHD, and two years of disease`s duration, this results agreed with ***Al-Mohsin et al., (2020)*** who stated that Child order was firstborn, less than half and less than three quarter were males and disagreed with results in child age who reported that The mean age at diagnosis of the ADHD children was 4 ± 1.65 years, ranging from 1 to 9 years in his study about "Saudi mothers' perception of their children with attention-deficit hyperactivity disorder in Dammam, Al-Qatif, and Al-Khobar cities, Saudi Arabia". These findings are unsupported by **EL-Gendy et al., (2017)** who illustrate that The mean age of the studied sample was 11.63 ± 3.47 years and ranged between 6 and 13 years. The female students constituted more than half of his study about "Attention-Deficit/Hyperactivity Disorder: Prevalence and risk factors in Egyptian primary School Children".

Parents` age ranged between 25 < and 30 years with a mean age of 28.44±3.86 years, more than three-quarters of the parents had secondary and illiterate & primary and more than half of them were female(mother) and more than half of the parents were not working and all the studied sample had a negative family history of ADHD. Similarly, ***Zaki (2013),*** mentioned that, more than two-thirds of them were in age from 20-<30 and illiterate in his study about "Enhancement the Awareness of Family Caregivers Caring their Children With Attention Deficit Hyperactivity Disorder of the General Administration of Intellectual Education Centers in the city of Abha". Dissimilarly to ***Al-Mohsin et al., (2020)*** who stated that more than two-thirds of mothers ranged between30-40, less than three quarters were Illiterate/primary Intermediate/secondary, and more than three quarters were no family history. This younger age prevalence was due to early marriage. Early marriage occurs due to poor economic situation for some families that mainly prevent females from continuing their education and lead them to get married early. This is supported by the finding of the current study showed that more the three-quarters of the study sample had illiterate & primary and secondary & technical institutes. In addition, there are wrong cultural beliefs and traditions in some areas as rural areas that suppose girls to get married early or they will be considered spinsters if they reach the age of 20 without getting married, this supports the results of the current study which, more than two-thirds of the studied sample from a rural area.

Regards the source of information about ADHD, this study result revealed that, other families and health care teams were the sources of information for less than two-thirds of the studied sample (Fig. 2). This may be due to the that many parents are ignored and shy about asking for details resulting in closed communities, This result is supported by **Myrold and Wagner, (2015)** who found limited resources of information for caregivers of young children with disabilities, especially for infants with NBPP. This manual fills this gap by helping as a holistic resource for caregivers to use to achieve a high quality of life for both themselves and their infant. whereas the most common source of information was the internet less than two-thirds, ***Al-Mohsin et al., (2020)*** and addition the mothers were the first family members to request advice; the most common reason for the first visit to the clinic was poor social skills. ***Dodangi, Vameghi & Habibi, (2017)*** found that the most common source of parent's information about ADHD was TV, for this reason, it is important to approach the subject so that health education programs and guidelines could bring significant improvement in their knowledge and practice about ADHD problems, so communication with parents is a necessary factor in solving ADHD demands.

In relation to parents' knowledge regarding ADHD, the result of the present

study revealed poor parents' knowledge before program guidelines implementation. This is supported by ***Al-Mohsin et al., (2020)*** who reported that less than half of mothers of children with ADHD had poor knowledge of ADHD. The study was done by ***Zaki, (2013).*** Illustrated that lack of teachers' knowledge regarding children management can hinder treatment and intervention and addition that, about one-eighth of the family caregivers were in a good knowledge in pre-program. moreover, ***Dodangi, Vameghi & Habibi, (2017),*** added that they have very low knowledge and even incorrect beliefs. Similarly***, Ali, (2019),*** stated that teachers had a poor level of knowledge about ADHD in general, the most excellent result in the symptoms/diagnosis subscale followed by the general feature subscale and the treatment subscale demonstrate the worst result. Meanwhile, ***EL Nagar et al., (2017),*** stressed that ADHD is one of the serious problems that present in each community, and parenting a child with ADHD can require different approaches, learning about ADHD, and need to have support and guidance in caring for their children. Also can prevent complications by appropriate awareness and good knowledge of the parents, community, and professional experience of the health services providers.

Parents of children with ADHD need to have support and guidance in caring for their children, also early intervention improves the quality of care outcome. Improving mothers' knowledge was the major goal of the present study that help to gain more experience and more support ***Balagan& Tarroja, (2020)*** illustrated that, mothers' most pressing needs are education related to ADHD and improving their parenting skills; hence, a psycho-educational program on parenting, awareness about ADHD, and self-management is proposed. Also, ***Zaki, (2013)*** reported that about eight of the family caregivers were in a good knowledge in pre-program, While, they become increased to more than one-third with good knowledge in post-program implementation. In addition, these children require more care and direct supervision than normal children so, so mothers require adequate experience in dealing with that cases and nurses should exert more effort to support the parents of children with ADHD, ***Abd El Moneam et al., (2018).***

As regards the total knowledge score of the studied mothers about ADHD the majority of them had unsatisfactory levels before the guideline implementation. This result is supported by ***Shattla et al., (2021).*** However, there was satisfactory knowledge immediately post and follow-up phase of guideline implementation. This finding agreed with ***Abd El Moneam et al., (2018).*** Moreover, ***Shattla et al., (2021)*** stated that there was a statistically significant improvement in mothers' knowledge and practice while dealing with their children after protocol implementation. Additionally, ***Zaki, (2013)*** confirmed that about eight of the family caregivers were in a good knowledge in pre-program, whereas, they become increased to more than one-third with good knowledge in post-program implementation. Moreover, in general, knowledge of the parents was low and it can lead to misdiagnosis or mismanagement of this common and important disorder and require further consideration in terms of educating parents about the disorder in media, especially on TV ***Dodangi, Vameghi & Habibi, (2017).*** From the researcher's point of view improving parents' knowledge regarding caring for their children with ADHD was the chief aim of the study and this improvement reported in this study indicated the research hypothesis regarding knowledge was achieved.

Concerning parents' practice, the result of the present study showed there are highly statistically significant improvements in parents 'practice post- immediately and at follow-up guidelines implementation. ***Abd El Moneam et al., (2018),*** the implementation of a psycho-educational program for the parents of children with ADHD and their children was effective in improving the knowledge, practice, and attitudes of parents. Children with ADHD are dependent on parents to assist and care in their daily activities and parents of children with ADHD find it difficult of dealing with their children, therefore, the importance of improving parents' practices provides them with experience in caring for their children. Additionally, the study conducted by ***Shattla et al., (2021),*** reported that a designed nursing intervention Protocol for mothers of children with Attention Deficit Hyperactivity Disorder

had a positive effect on mothers' knowledge and practice and their children's symptoms. Parents play an active role in helping their children and caring for them effectively. Wherever, training parents about Practices related to ADHD as stretching and strengthening activities during therapy sessions, and developed hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks, and interacting with friends & classmates. Parents are taught how to gently do the dealing with their children and encouraged to make them daily. In addition, after the intervention program, the children were improved in the efficacy of handling daily living activities such as hygiene, elimination, nutrition, and wearing clothes. What's more, there was a statistically significant improvement in control of tantrums, hyperactivity, and doing homework after parents' education and during follow-up ***EL Nagar et al., (2017).***

It is the essence of providing parents of children with an evidence-based educational program to teach essential skills to children and clarify that ADHD was one of the mentioned issues. An evidence-based practice intervention program aiming to improve parents' knowledge and practice and children's outcomes ***EL Nagar et al., (2017) & Abd El Moneam et al., (2018)***. From the researcher's point of view parents' perception and awareness of practices related to ADHD as hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks and interacting with friends & classmates, and enhancing better interaction with parents and their children and provide the parent with confidence about effective care providing.

As regards the correlation between total knowledge of parents and their characteristics, the current result revealed that there was a statistically significant positive correlation between total knowledge scores and educational level at the pre, post, and follows up phases of guidelines implementation (P< 0.001). But, the current finding revealed that there were statistically insignificant correlations between knowledge and practice and parent`s age and educational level at pre guidelines implementation phases. This finding is consistent with ***Dodangi, Vameghi & Habibi, (2017)*** who conducted a study to investigate the parents' knowledge and attitude towards ADHD, its symptoms, diagnosis, treatment, and prognosis. and demonstrated that The parent's knowledge significantly correlated with their educational level (p=0.01). In addition ***Luş, & Erensoy (2020)***, Illustrated that a positive correlation was establish between the Conners'-parent and the BRIEF-parent emotional control (r=0.324, p=0.030) and BRIEF-parent initiate (r=0.422, p=0.004) scores. There were positive correlations among the Conners'-teacher and all BRIEF teacher-sub-domains

The researcher's point of view suggested that parents should be aware of knowledge and practice requiring caring for their children with ADHD because childcare was the first responsibility of parents. This further support the st Discussion:

ADHD is commonly detected in primary school children, which may give a chance for early diagnosis and early intervention. Special education parents are also vital members of the teams that provide diagnostic, treatment, and support services for children with ADHD. Then, their exclusive skills and training are important when supporting those children's families in the hospital, school, and community. Pediatric ADHD is a major stressor for parents and may result in a problematic parent-child interaction. Therefore, this study aimed to evaluate the effect of educational guideline programs on parents' knowledge and practice in caring for their children with attention deficit hyperactivity disorder. So, a parent dealing with a child having ADHD needs different approaches and techniques. The current study hypothesized that the parents who received educational guideline programs would have high Knowledge and better practice about attention deficit hyperactivity disorder than previously.

Regarding characteristics of the studied children more than half ranged between 5-<10 years. This result is supported by ***Balagan, & Tarroja, (2020)*** who found that the participants were 10 mothers with children with ADHD aged 6 - 11 years in their study about "Challenges, Coping Strategies, and Needs of Mothers with Children with Attention Deficit

Hyperactivity Disorder". Also, the current study shows that more than half of children were males, nursery education, first order, a mild degree of ADHD, and two years of disease`s duration, this results agreed with Al-***Mohsin et al., (2020)*** who stated that Child order was firstborn, less than half and less than three quarter were males and disagreed with results in child age who reported that The mean age at diagnosis of the ADHD children was 4 ± 1.65 years, ranging from 1 to 9 years in his study about "Saudi mothers' perception of their children with attention-deficit hyperactivity disorder in Dammam, Al-Qatif, and Al-Khobar cities, Saudi Arabia". These findings are unsupported by ***EL-Gendy et al., (2017)*** who illustrate that The mean age of the studied sample was 11.63 ± 3.47 years and ranged between 6 and 13 years. The female students constituted more than half of his study about "Attention-Deficit/Hyperactivity Disorder: Prevalence and risk factors in Egyptian primary School Children".

Parents` age ranged between 25 < and 30 years with a mean age of 28.44±3.86 years, more than three-quarters of the parents had secondary and illiterate & primary and more than half of them were female (mother) and more than half of the parents were not working and all the studied sample had a negative family history of ADHD. Similarly, ***Zaki (2013),*** mentioned that, more than two-thirds of them were in age from 20-<30 and illiterate in his study about "Enhancement the Awareness of Family Caregivers Caring their Children With Attention Deficit Hyperactivity Disorder of the General Administration of Intellectual Education Centers in the city of Abha". Dissimilarly to ***Al-Mohsin et al., (2020)*** who stated that more than two-thirds of mothers ranged between30-40, less than three quarters were Illiterate/primary Intermediate/secondary, and more than three quarters were no family history. This younger age prevalence was due to early marriage. Early marriage occurs due to poor economic situation for some families that mainly prevent females from continuing their education and lead them to get married early. This is supported by the finding of the current study showed that more the three-quarters of the study sample had illiterate & primary and secondary & technical institutes. In addition, there are wrong cultural beliefs and traditions in some areas as rural areas that suppose girls to get married early or they will be considered spinsters if they reach the age of 20 without getting married, this supports the results of the current study which, more than two-thirds of the studied sample from a rural area.

Regards the source of information about ADHD, this study result revealed that, other families and health care teams were the sources of information for less than two-thirds of the studied sample (Fig. 2). This may be due to the that many parents are ignored and shy about asking for details resulting in closed communities, This result is supported by ***Myrold and Wagner, (2015)*** who found limited resources of information for caregivers of young children with disabilities, especially for infants with NBPP. This manual fills this gap by helping as a holistic resource for caregivers to use to achieve a high quality of life for both themselves and their infant. whereas the most common source of information was the internet less than two-thirds, ***Al-Mohsin et al., (2020)*** and addition the mothers were the first family members to request advice; the most common reason for the first visit to the clinic was poor social skills. ***Dodangi, Vameghi & Habibi, (2017)*** found that the most common source of parent's information about ADHD was TV, for this reason, it is important to approach the subject so that health education programs and guidelines could bring significant improvement in their knowledge and practice about ADHD problems, so communication with parents is a necessary factor in solving ADHD demands.

In relation to parents' knowledge regarding ADHD, the result of the present study revealed poor parents' knowledge before program guidelines implementation. This is supported by ***Al-Mohsin et al., (2020)*** who reported that less than half of mothers of children with ADHD had poor knowledge of ADHD. The study was done by ***Zaki, (2013).*** Illustrated that lack of teachers' knowledge regarding children management can hinder treatment and intervention and addition that, about one-eighth of the family caregivers were in a good knowledge in pre-program. moreover***, Dodangi, Vameghi & Habibi, (2017)***, added that they have very low knowledge and even incorrect beliefs.

Similarly, Ali, (2019), stated that teachers had a poor level of knowledge about ADHD in general, the most excellent result in the symptoms/diagnosis subscale followed by the general feature subscale and the treatment subscale demonstrate the worst result. Meanwhile, ***EL Nagar et al., (2017),*** stressed that ADHD is one of the serious problems that present in each community, and parenting a child with ADHD can require different approaches, learning about ADHD, and need to have support and guidance in caring for their children. Also can prevent complications by appropriate awareness and good knowledge of the parents, community, and professional experience of the health services providers.

Parents of children with ADHD need to have support and guidance in caring for their children, also early intervention improves the quality of care outcome. Improving mothers' knowledge was the major goal of the present study that help to gain more experience and more support ***Balagan& Tarroja, (2020)*** illustrated that, mothers' most pressing needs are education related to ADHD and improving their parenting skills; hence, a psychoeducational program on parenting, awareness about ADHD, and self-management is proposed. Also, ***Zaki, (2013)*** reported that about eight of the family caregivers were in a good knowledge in pre-program, While, they become increased to more than one-third with good knowledge in post-program implementation. In addition, these children require more care and direct supervision than normal children so, so mothers require adequate experience in dealing with that cases and nurses should exert more effort to support the parents of children with ADHD, ***Abd El Moneam et al., (2018).***

As regards the total knowledge score of the studied mothers about ADHD the majority of them had unsatisfactory levels before the guideline implementation. This result is supported by ***Shattla et al., (2021).*** However, there was satisfactory knowledge immediately post and follow-up phase of guideline implementation. This finding agreed with ***Abd El Moneam et al., (2018).*** Moreover, ***Shattla et al., (2021)*** stated that there was a statistically significant improvement in mothers' knowledge and practice while dealing with their children after protocol implementation. Additionally, ***Zaki, (2013)*** confirmed that about eight of the family caregivers were in a good knowledge in pre-program, whereas, they become increased to more than one-third with good knowledge in post-program implementation. Moreover, in general, knowledge of the parents was low and it can lead to misdiagnosis or mismanagement of this common and important disorder and require further consideration in terms of educating parents about the disorder in media, especially on TV ***Dodangi, Vameghi & Habibi, (2017).*** From the researcher's point of view improving parents' knowledge regarding caring for their children with ADHD was the chief aim of the study and this improvement reported in this study indicated the research hypothesis regarding knowledge was achieved

Concerning parents' practice, the result of the present study showed there are highly statistically significant improvements in parents 'practice post- immediately and at follow-up guidelines implementation. **Abd El Moneam et al., (2018),** the implementation of a psycho-educational program for the parents of children with ADHD and their children was effective in improving the knowledge, practice, and attitudes of parents. Children with ADHD are dependent on parents to assist and care in their daily activities and parents of children with ADHD find it difficult of dealing with their children, therefore, the importance of improving parents' practices provides them with experience in caring for their children. Additionally, the study conducted by **Shattla et al., (2021),** reported that a designed nursing intervention Protocol for mothers of children with Attention Deficit Hyperactivity Disorder had a positive effect on mothers' knowledge and practice and their children's symptoms. Parents play an active role in helping their children and caring for them effectively. Wherever, training parents about Practices related to ADHD as stretching and strengthening activities during therapy sessions, and developed hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks, and interacting with friends & classmates. parents are taught how to gently do the dealing with their children and encouraged to make them daily. In addition, after the intervention

program, the children were improved in the efficacy of handling daily living activities such as hygiene, elimination, nutrition, and wearing clothes. What's more, there was a statistically significant improvement in control of tantrums, hyperactivity, and doing homework after parents' education and during follow-up ***EL Nagar et al., (2017).***

It is the essence of providing parents of children with an evidence-based educational program to teach essential skills to children and clarify that ADHD was one of the mentioned issues. An evidence-based practice intervention program aiming to improve parents' knowledge and practice and children's outcomes ***EL Nagar et al., (2017) & Abd El Moneam et al., (2018).*** From the researcher's point of view parents' perception and awareness of practices related to ADHD as hygiene, elimination, nutrition, wearing clothes, control of tantrums, control of hyperactivity, making school tasks and interacting with friends & classmates, and enhancing better interaction with parents and their children and provide the parent with confidence about effective care providing.

As regards the correlation between total knowledge of parents and their characteristics, the current result revealed that there was a statistically significant positive correlation between total knowledge scores and educational level at the pre, post, and follows up phases of guidelines implementation ($P< 0.001$). But, the current finding revealed that there were statistically insignificant correlations between knowledge and practice and parent`s age and educational level at pre guidelines implementation phases. This finding is consistent with ***Dodangi, Vameghi & Habibi, (2017)*** who conducted a study to investigate the parents' knowledge and attitude towards ADHD, its symptoms, diagnosis, treatment, and prognosis. and demonstrated that The parent's knowledge significantly correlated with their educational level ($p=0.01$). In addition ***Luş, & Erensoy (2020),*** Illustrated that a positive correlation was establish between the Conners'-parent and the BRIEF-parent emotional control ($r=0.324$, $p=0.030$) and BRIEF-parent initiate ($r=0.422$, $p=0.004$) scores. There were positive correlations among the Conners'-teacher and all BRIEF teacher-sub-domains

The researcher's point of view suggested that parents should be aware of knowledge and practice requiring caring for their children with ADHD because childcare was the first responsibility of parents. This further support the study hypothesis. Augmenting the results of the current study, it is evident that education and training courses have a vital role in improving parents' knowledge and practice toward ADHD education. Moreover, the result of the present study revealed that parents' knowledge and practice were improved after program implementation. This could attribute to the fact that the importance and effectiveness of educational programs and training courses in enhancing parents' knowledge and practice which play a significant role in the quality of care providing and effective outcomes. This further support the study hypothesis. Augmenting the results of the current study, it is evident that significantly improved knowledge and practice of parents after the implementation of the attention deficit hyperactivity disorder educational guidelines than before.

Limitations:

As the sample size of the study was small due to the participating parents themselves detected a problem in their children and asked for an evaluation , we anticipate that a larger sample size would yield more precise results. The service barrier in our study self-reported by parents was not confirmed by medical records.

Conclusion:

Based on the results of the present study, it can be concluded that three were highly statistically significant improvements in parents' knowledge and practice post-immediately and at follow-up guidelines implementation. Moreover, there was a significant positive correlation between parents' knowledge and practice age, and level of education at pre and follow-up and immediately after guidelines intervention phases.

Recommendation:

In the light of the findings of the current research, the following recommendations are suggested:

1. Provide continuous education and training for parents regarding ADHD in children.
2. Early intervention to avoid further complications and handicaps.
3. Further study can be replicated in other settings using a large sample size to clinically verify the effectiveness of the educational guidelines and generalize the results of the study.

References:

Abd El Moneam N S, Abd El-Fattah SR, El-Boraie OA, & El-Etreby RR., (2018)." Evaluation of Psycho-Educational Intervention for Children Having Attention Deficit Hyperactivity Disorder and Their Parents" "." IOSR Journal of Nursing and Health Science (IOSR-JNHS) , vol. 7, no.4 , 2018, pp. 15-24.

Ali HB., (2019). Knowledge, attitude and practice among primary school teachers toward attention deficit hyperactivity disorder children in Khartoum locality 2017; Nessa J Pediatrics. Volume 1| Issue 2.

Al-Mohsin ZJ, Al-Saffar HA, Al-Shehri SZ, Shafey MM. Saudi mothers' perception of their children with attention-deficit hyperactivity disorder in Dammam, Al-Qatif, and Al-Khobar cities, Saudi Arabia. J Fam Community Med 2020;27:46-52.

Amaravathi T. , MURUGAN M. , SUBRAMANIAN A. AND GEETHA P.S., (2019). Attention Deficit Hyperactivity Disorder REVIEW PAPER. Trends in Biosciences 12 (3), : ISSN 0974-8431, 214-221,

Balagan, M. M. B., & Tarroja, M. C. (2020). Challenges, Coping Strategies, and Needs of Mothers with Children with Attention Deficit Hyperactivity Disorder: Implications for Intervention. Open Journal of Social Sciences, 8, 24-35. https:// doi. org/ 10. 4236/ jss. 2020. 812003.

Dodangi N., Vameghi R.,& Habibi N., (2017). Evaluation of Knowledge and Attitude of Parents of Attention Deficit/Hyperactivity Disorder Children towards Attention Deficit/Hyperactivity Disorder in Clinical Samples. Iran J Psychiatry 2017; 12:1: 42-48.

EL Nagar S.A, Hamed WE,. &EL Nagar MA.,(2017). Parents' Adjustment for Caring of Attention Deficit Hyperactivity Disorders Children. American Journal of Nursing Research, 2017, Vol. 5, No. 4, 139-147 Available online at http://pubs.sciepub.com/ajnr/5/4/5 ©Science and Education Publishing DOI:10.12691/ajnr-5-4-5**.**

EL-Gendy S D. , El-Bitar E A., El-Awady M A., Bayomy H E. & Agwa E M., (2017). Attention-Deficit/Hyperactivity Disorder: Prevalence and risk factors in Egyptian primary School Children. Egyptian Journal of Community Medicine, Vol 35 No. 1.

Harazni L., and Alkaissi A., The Experience of Mothers and Teachers of Attention Deficit / Hyperactivity Disorder Children, and Their Management Practices for the Behaviors of the Child A Descriptive Phenomenological Study. Journal of Education and Practice www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.7, No.6, 2016**.**

Jasem ZA., &. Delport SM., (2019). Mothers' Perspectives on the Play of Their Children with Attention Deficit Hyperactivity Disorder. Hindawi Occupational erapy International Volume 2019, Article ID 6950605, 10 pages https:// doi. org/ 10. 1155/ 2019/ 6950605.

Luş, MG., and Erensoy H, Metacognitive Awareness and Executive Function in Attention Deficit/Hyperactivity Disorder . Isr J Psychiatry - Vol. 57 - No 2 (2020).

Myrold, M., and Wagner, T., (2015): "A Manual for Caregivers of Infants with Brachial Plexus Injuries" Occupational Therapy. Capstones. 144. https://commons.und.edu/ot-grad/144.

Raghibi, M., Fouladi, S., and Bakhshani, N. M. (2014): Parent Training and Behavior Therapy on Behaviors of Children With Attention Deficit-Hyperactivity Disorder. Health Scope. 3(2):e15418. doi: 10.17795/jhealthscope-15418.

Shattla S I., Hassan G A., Arrab M M.,& Alhalawany R M., (2021). A multifaceted review journal in the field of pharmacy 552 Systematic Reviews in Pharmacy Vol 12, Issue 2, Feb-Mar 2021 Effect of a Designed Nursing Intervention Protocol for Mothers on Outcome of Children with Attention Deficit Hyperactivity Disorder. Sys Rev Pharm 2021;12(2):552-578.

Slobodin O and Davidovitch M (2019) Gender Differences in Objective and Subjective Measures of ADHD Among Clinic-Referred Children. Front. Hum. Neurosci. 13:441. https:// doi. org/ 10. 3389/ fnhum.2019.00441.

Solan, M., Brunstein Klomek, A., Ankori, G., Bloch, A., Apter, A., & Plishty, S. (2020). Impact of a New Parent Behavioral-Schema Training on Children with ADHD: A Pragmatic Control Trial. Journal of Attention Disorders, 1087054720959711. https:// doi. org/ 10. 1177/ 1087054720959711.

Young S, Adamo N, Ásgeirsdóttir BB , Branney P , Beckett M , Colley W , Cubbin S , Deeley Q, Farrag E, Gudjonsson G, Hill P, Hollingdale J, Kilic O, Lloyd T, Mason P, Paliokosta E, Perecherla S, Sedgwick J, Skirrow C, Tierney K, Rensburg KV & Woodhouse E ,Females with ADHD: An expert consensus statement taking a lifespan approach providing guidance for the identification and treatment of attention-deficit/ hyperactivity disorder in girls and women. . BMC Psychiatry (2020) 20:404. Page 2 of 27.

Young S., Absoud M., Blackburn C, Branney P , Colley B , Farrag E , Fleisher S , Gregory G , Gudjonsson GH., Kim K, O'Malley K D., Plant M, Rodriguez A, OzerS, Takon I, house E W and Mukherjee R., (2016). Guidelines for identification and treatment of individuals with attention deficit/ hyperactivity disorder and associated fetal alcohol spectrum disorders based upon expert consensus. BMC Psychiatry (2016) 16:324 DOI 10.1186/s12888-016-1027-y.

Zaki R. A. Enhancement the Awareness of Family Care givers Caring their Children With Attention Deficit Hyperactivity Disorder of the General Administration of Intellectual Education Centers in the city of Abha. Journal of American Science 2013;9(8) http:// www. jofamericanscience. org