

## Effectiveness of Structured Teaching Program on Knowledge, Attitude and Management Strategies Among Teachers of Primary School toward Children with Attention Deficit Hyperactivity Disorders.

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### Abstract:

**Background :**Children with ADHD often experience problems in interpersonal and academic relationships and achievements, which are typically suffer serious problems for themselves and those care for them (involve their teachers)

**Aims and objectives:** The study aimed at assessing the knowledge, attitude and behavior strategies among teachers of governmental primary school , evaluate the effectiveness of a of structured teaching program on knowledge, attitude and behavior strategies among teachers of governmental primary school.

**Research design:** Quasi-experimental design (one group pre –posttest group) was utilized in this study.

**Setting:** The present study was conducted at the west Qalubiya primary schools.

**Sample:** Convenience purposive sample consisted of 60 teachers of primary schools were participated from 5 primary schools.

**Tools:** Three tools were used to collect the data for the current study, **first**, socio demographic data sheet. **Second**, teachers' knowledge scale, teachers' attitude scale, and **Third**, behaviors management strategies scale. A structured teaching program design to improve teacher's knowledge and change attitude and behaviors management strategies toward children with attention deficit hyperactivity disorder(ADHD). This program was implemented over 15 sessions, three sessions per week(session every other day) and each session for about 45-60 minutes. Pre-and post-assessment were carried out for the same group (self- control group).

**Results:** The current study results revealedl significant positive effects of structure program regarding teachers' knowledge, attitude and behavior management strategies regarding children with ADHD. Some demographic variables as ages, educational qualifications, and Years of teaching Experience had a significant Positive correlation with post assessment teachers' knowledge.

**Conclusion:** the study concluded that a Structured Teaching Program was effective with teachers of selected primary schools on improving their knowledge, change attitude and behavior management strategies into more positively one. The study recommended the need to implement this program at others primary schools in different setting for further benefits.

**Keywords:**Assess, Effectiveness, Structured program, Primary school teachers, Attention deficit hyperactivity disorder(ADHD).

### I. Introduction

ADHD is currently one of most widely studied behavioral disorder in children and adolescents. It is a severe disorder that can cause grave problems for sufferers and those who care for them **Nair et al 2006**. Global variations in diagnostic criteria and rating scales of ADHD either by diagnostic standardized measure -5 (DSM-IV) or international classification diagnostic 10 (ICD 10) may contribute to variations in its prevalence. The worldwide prevalence of ADHD ranges from 5.29% to 12% (5.4–8.7% in Africa, 6.24% in Jordan, 16.4% in Saudi Arabia, and 6.9% in Egypt) (**Farahat, Alkot, Rajab, Anbar, 2014; Willcutt,2012; &Polanczyk, et al 2007**). Boys are more frequently referred and diagnosed than girls, with estimate range from 6% to 9% for boys and 2% to 3% for girls in primary schools **Jeneva; et al 2011**, about 30%-50% of those diagnosed with ADHD in childhood continue to have symptoms into adulthood **Neale, et al 2010**. The etiology of ADHD is not clearly understood; but the recent evidences supported the role of genetic, neurobiological and environmental factors **Sagiv et al 2013; Shaw,2012**. The diagnostic criteria require that the hyperactive-impulsive or inattentive symptoms should be present in two or more settings (e.g. at school and at home), in addition to, difficulty in maintaining listening in the classroom and completing assignments compared to their peers at the same age and

sex. **Sarraf; Karahmadi, Azhar, (2011)**. The primary teacher is most often the first person have to face these behaviors in the classroom and should be able to make a referral for assessment for ADHD (if the child didn't diagnose yet), because the children with exhibit behaviors become unable to cope with structured school environment, their peers and their teachers **Khademi et al. 2016, Neale, et al 2010**. Children with ADHD are commonly presented with related behaviors as aggression, poor relationship with peers, disobedience of orders, high risk-taking, inability to understand or conform to social cues, low self-esteem, depression, and social, emotional and cognitive problems, which ultimately affect their quality of life and self-esteem **Perlod, Louw, Kleyman 2010, Sadock; Sadock, & Ruiz 2009**. Teachers face a lot of challenges when children with ADHD present at class with their peers of children. First, children with ADHD are more likely to disrupt peer learning and class lessons than are children without ADHD **Rodrigo, et al. 2011**. Second, children with ADHD have some difficulties in interacting with their peers as result of limited social skills and high levels of conflict, and aggression, which result in rejection from others **Sandeep et al. 2014**. Third, conditions that often co-exist with ADHD as learning disability for about 8% to 20%, anxiety and depression for about 25-30% and oppositional-defiant disorder or conduct disorder for about 55% of children with ADHD **Anto, & Jacob, 2014**.

The most effective therapeutic approach for childhood ADHD is comprehensive management which consists of multiple elements including stimulant medication, parental training, educational programs for children and their parents, behavioral modification techniques at school and home, as well as diet manipulation and supplements which allow child with ADHD to achieve their potentials in school and as individuals **Jeneva, et al 2011 & Ghanizadeh, Bahredar, Moeini, 2006**.

### **Significance**

ADHD can be a disabling illness, If children with ADHD are left untreated it could interfere significantly with the child's education, interpersonal relationships with others, their mental health status and cause psychiatric co-morbidity. So, comprehensive intervention for ADHD includes teachers' involvements in many aspects as referral of children with disturbed behaviors, provision information about their academic history and performance, social relations and general everyday functioning, treatment planning and implementation. Thus, insufficient or lack of knowledge and/or negative attitudes towards children with ADHD and its management result in improper management and treatment failure. Elementary school teachers play a major role in the assessment of children's academic and behavioral problems due to their extensive contact with children in a variety of structured and unstructured settings. However, when the teachers are facing children with ADHD at the class with their classmate, they become more stressed, overloaded and tend to use less effective management strategies with affected children. So, school is considered a unique setting for the early detection and effective management of ADHD. Teachers need an efficient knowledge about needs / problems of the affected children and to plan effective behavior management strategies in dealing with those children. Studies show that interventional programs have a role in an increasing knowledge of teachers regarding ADHD, improving awareness and understanding for this disorder which lead to better performance of these children in the classroom. Therefore, active involvement of teachers in programs, seminars and scientific conferences about ADHD help them to provide adequate knowledge and modified their negative attitudes and behavior strategies used with those affected children.

## **II. Material and methods**

### **Aims and objectives of the study:**

This study is aimed to investigate the effectiveness of Structured Teaching Program on knowledge, attitude and used behavioral strategies among teachers of governmental primary school toward children with attention deficit hyperactivity disorders (ADHD) on selected schools.

1. To assess the existing knowledge, attitude and used behavioral management strategies with children with ADHD
2. To evaluate an effectiveness of Structure teaching program regarding knowledge, attitude and used behavioral management strategies with children with ADHD
3. To find out the relations between pre and post test scores regarding knowledge, attitude and used behavioral strategies with children with ADHD, and find association of post test scores with some demographic variables such as age, gender, educational qualification, years of teaching experiences and previous experiences with ADHD children.

**Hypothesis:** H1: There will be significant difference between pre-test and post-test mean scores regarding dependent variables (knowledge, attitude and used behavioral management strategies)

H2: There will be a significant association between post-test knowledge scores and selected demographic variables of primary school's teachers

H3- There will be a significant positive correlation between post test scores of teachers' knowledge and their attitudes

**Research Design:** A one group pre- post-test experimental research design was adopted

**Setting of the Study:** The study was conducted among 5 selected schools of 8 primary schools of Qaluibya governorate, where one school had maintenance work, and others two schools had previous exposure to seminars about Common Behavioral Problems among primary school's children

**Target Population:** The target population for this study consisted of 134 primary school teachers of 5 primary governmental schools at west Qaluibya district

**Sample:** The sample for the present study comprises of 60 primary school teachers of participated primary schools of west Qaluibya governorate

**Sampling technique:** convenience purposive sample consisted of 60 primary school teachers, were recruited from 5 selected governorate primary schools. Teachers who fit criteria were 134, where (14) teachers involved in pilot study, (24) teachers had dropped more than 3 sessions program and others (36) teachers refused to participate in the study.

Actual teachers who completed posttest were 60 teachers, after fifteen weeks, posttest of assessment was done. Informed Consent for all participants was taken before the beginning of the program.

**Inclusion criteria for participant's selection were:**

- 1- Both sex was involved
- 2- Their ages ranged from more than 20 to less than 60
- 3- Teachers who are more responsible about children classes and in close contacts with children were invited to participate
- 4- Voluntary participation.

**Exclusion criteria for participants:** If the participants dropped more than three sessions of program.

**Settings**

This study was conducted at five primary schools at west Qaluibya governorate, Egypt

**Tools for data collection:** The researcher prepared a Self-Reporter Structured Interview questionnaire is used as tool for the study.

**1-Sociodemographic data sheet:** It was developed by the researchers to elicit information about teachers' age, gender, qualifications obtained, years of teaching experiences, and previous exposure to ADHD children.

**2-Knowledge Scale Regarding ADHD:** This scale developed by **Sciutto et al. (2000)**, it contained 27 items designed to assess knowledge about ADHD (Actual knowledge). Participants were asked to circle one of three response options, (correct, incorrect, or don't know). All items are answered with a total scores 27, where the higher the score, the more knowledge have. The teachers -Knowledge scale, was translated into Arabic language, reviewed for the accuracy of translation and tested for content validity by three professors in psychiatric nursing, at Cairo University. The Arabic version of scale proved to be valid. It was also reliable using a test –retest method ( $r = 0.69$ ).

**3-Teachers' general beliefs about ADHD scale :** this scale developed by **Ajzen and Fishbein (1980)**, Teachers' general beliefs about ADHD, as well as their attitudes about teaching students with the disorder were assessed. It consisted of 31 items; the scale consists of twenty-three positive items and eight negative items and need to be scored accordingly by reversing the value of either the positive or negative item responses. Typically, each item is answered on a five point Likert scale ranging from "strongly disagree"(1) to "strongly agree (5). According to these responses, a higher mean score corresponded to a more positive attitude toward ADHD. The scale was translated into Arabic language, reviewed for the accuracy of translation and tested for content validity by five professors in psychiatry, faculty of medicine, Cairo University. The Arabic version of scale proved to be valid. It was reliable using a test –retest method ( $r = 0.722$ )

**4-Teachers' behavioral strategies scale.** This scale developed by Ajzen and Fishbein (1980), it used to assess behavioral strategies teachers use in the classroom management of students with ADHD. The scale consists of 30 items categorized into 6 main categories, each category included 5 strategies, these strategies namely reinforcement, organizing classroom/curriculum, Negative consequences, Emotional support, and Planned ignoring. Typically, each item is answered on a five point Likert scale ranging from "strongly disagree"(1) to "strongly agree (5), The Arabic version of scale proved to be valid. It was also reliable using a test –retest method ( $r = 0.869$ )

**Structured Teaching Program description:**

The main goals were aimed to empower teachers of primary schools with knowledge, change their attitudes, and use effective and efficient behavioral management strategies in dealing with children with ADHD at school.

**Specific objectives:**

- 1- Empower teachers with efficient knowledge about ADHD
- 2- Change teachers negative attitude into more positive one
- 3- Utilize more effective behavior strategies that encourage better child performance

The study program was designed to be 15 sessions implemented on four phases, where first two sessions were for assessment, program sessions were 12 sessions and final session for evaluation.

**Program phases:**

**1- Preparatory phase**

a- Preparation of the content

The content of the program based on others related literature (**Anto, Jacob 2014; Rodrigo, Perera, Eranga, Williams, Kurupparachchi 2011, Sarraf, Karahmad, Marasy, Azhar 2011 & Kos, 2004**) The planning phase includes the program strategy (time table, teaching methods, and materials used). The content of the program includes an introduction of basic knowledge related ADHD as (sources of ADHD information, prevalence, causes, Identifying Children With ADHD, symptoms and behaviors exhibited by children of ADHD and misconceptions about the nature treatment and its side effects and prognosis. influence of students' behavior with ADHD on his/her performance at class, his/her relations with classmates, and their teachers, Strategy for given Successful Instruction of Children With ADHD, Needed Teachers skills to help students with ADHD, and Effective Behavioral strategies to deal with ADHD children.

The researchers used discussion, role play, feedback and presentation to help teachers using effective behavioral strategies with children.

b- Assessment and data collection :(pretest)

All participants completed all pre-study scales before the beginning of the program. This assessment was completed through teacher self-report.

**2- Introductory phase:(2 sessions):**

An acquaintance between researchers and participants was made, brief explanation about program aim, numbers of sessions, meeting time, data of each session, program rules, expected outcomes, and benefits of program participation.

**3- Implementation phase: (12 sessions):**

In this stage, researchers started program sessions. The meetings were three times per week at the same time and in the same room for 45-60 minutes each session.

Researchers used open –ended questions, warmth and concern with teachers to ensure that the participants reached the objective of each session, each session started by a feedback about the previous one.

**4- Evaluation phase (last session):**

Participants were reassessed by using the same tools of pretest and comparison was done to determine the effectiveness of the program evaluation.

**Procedure:**

After obtaining the official permission from director of educational administration of Qalubya governorate, the researchers contacted eight principals of primary schools of west Qalubya, to assess school readiness for participation. Five schools were actually involved in the study program. After obtaining official approval from principals of selected schools, the researchers arranged time with teachers of participated schools to explain main goal of program study. The researchers provide self-report study scales to all participants who fit the criteria at five schools at the same time and the purpose of the study was explained and oral consent was obtained, then written consent was given immediately before filling the scales. These tools were kept anonymously by using code number

**Pilot study**

A Pilot study was carried out on 14 teachers (males and female)10% of target population (134) from selected schools (5) to ensure the clarity and the applicability of the study scales. Subjects who will participate in the pilot study will be excluded from the actual study.

**Ethical Considerations**

Primary permission will be attained from the director of educational administration of Qalubya governorate, an official permission was obtained from principals of selected schools (5). Study participants were informed that they have the right to refrain from participating in the study at any time. Informed consents were obtained from all eligible participants who agreed to participate in the study. Then written consent was obtained immediately before filling the scales. These tools were kept anonymously by using code number.

**Statistical Design**

Data were analyzed by using the Statistical Package for the Social Sciences statistical software (SPSS version 20). Descriptive statistics were computed to examine data distributions and summarize data. Significance of the obtained results was judged at the 5% level.

### **III. Results**

This study was conducted on sixty teachers of primary schools to investigate the effectiveness of structured educational program on their knowledge, attitudes and behavioral management strategies at classes toward children with ADHD. Data collection method was utilized and the results of this study were presented in the following four main sequences.

Table (1): demonstrated that about three fourth (71.7%) of the of the studied sample were females while approximately other fourth (28.2%) was male, their ages ranged between 20-60 years, slightly more than half of sample (55%) had Bachelor degree, most of them married, and had years of teaching experiences ranges from less than 5 to more than 15 years, almost of them had experience of teaching to children with ADHD.

**Table (1):**Socio demographic characteristics of the sample (n=60)

	No.	%
<b>Sex</b>		
Male	17	28.3
Female	43	71.7
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Age (years)</b>		
20-	5	8.3
30-	25	41.7
40-	14	23.3
50-	16	26.7
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Educational level</b>		
Diploma	13	21.7
Bachelor degree	33	55.0
Higher education	14	23.3
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Marital status</b>		
Single	6	10.0
Married	48	80.0
Divorced	2	3.3
Widow	4	6.7
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Experience years of teaching</b>		
Less 5	2	3.3
5 – 10	12	20.0
10 – 15	18	30.0
More than 15	28	46.7
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Had previous experience of ADHD</b>		
No	5	8.3
Yes	55	91.7

**Table (2):**showed that a statistically significant difference between whole pre-and post-mean scores of teachers regarding all dependent studied variables (knowledge, attitude and behavioral management strategies) with children with ADHD.

**Table (2):** comparison between Pre- and Post- mean scores regarding Dependent Studied Variables(N=60)

	Mean Scores		t- test	p- value
	Pre – test score	Post-test score		
<b>Knowledge of teachers</b>	47.41 ± 12.16	66.48 ± 7.85	13.289*	<0.001*
<b>Teachers’ Attitudes</b>	50.28 ± 5.54	54.93 ± 4.11	4.667*	<0.001*
<b>Teachers’ behavioral management strategies</b>	37.69 ± 16.08	47.47 ± 14.57	3.926*	<0.001*

t: Paired t-test \*: Statistically significant at  $p \leq 0.05$

**Figure (1)** clarified significant differences between mean scores of dependent variables pre/ post program intervention.

**Figure (1) Mean difference of Pre-test and Post-test mean score (N=60).**

Table (3): showed that, there is not statistically significant relation between pretest teachers’ knowledge and their attitudes towards children with ADHD, while a statistically significant relation was proved between posttest teacher’s knowledge and their attitudes ( $r=0.373$  at  $p0.003$ ).

**Table (3):** Correlation analysis between teacher’s knowledge and their attitudes towards children with ADHD pre/post program intervention.

Teacher Attitude		Knowledge of teacher
Assess teachers’ Attitudes(preprogram)	r	0.219
	p	0.092
Assess teachers’ Attitudes(post program)	r	0.373*
	p	0.003*

r: Pearson coefficient

**Table 4** shows statistically significant differences between pre-and post-assessment regarding teachers behavioral management strategies in all strategies except using planned ignoring strategy.

**Table (4):** Comparison between pre-and post-percent mean score regarding teacher’s behavior management strategies (N=60)

Behavior Management Strategies	Pre- test mean score	Post- test mean score	t	p
1-using reinforcement	55.14 ± 24.57	71.78 ± 14.31	4.563*	<0.001*
2-offering the child emotional support	50.35 ± 25.83	68.82 ± 11.49	5.440*	<0.001*
3- organizing the classroom and curriculum	39.17 ± 27.16	51.60 ± 28.72	2.498*	0.015*
4-using planned ignoring	26.81 ± 22.25	35.0 ± 30.87	1.788	0.079
5-using negative consequences	17.01 ± 15.86	10.14 ± 17.73	2.264*	0.027*
Overall behavioral strategies teachers	37.69 ± 16.08	47.47 ± 14.57	3.926	<0.001

t: Paired t-test \*: Statistically significant at  $p \leq 0.05$

**Table 5** shows association of the posttest knowledge score with demographic variables at 0.05 significant levels, there are statistically positive significant correlations between teachers’ knowledge and some variables as their ages, educational qualifications, and Years of teaching Experience.

**Table (5):** Association of teachers Demographic Variables with the Level of Post-Test Knowledge Score of Primary School Teachers.

Demographic Variables		No.	Mean	Test of sig.	P Value
Age in years	Below - 30	5	61.48±3.31	F = 7.462*	<0.001*
	30 - 39	25	62.52±8.17		
	40- 49	14	70.11±6.57		
	50 - above	16	71.06±5.10		
Gender	Male	17	63.40±8.27	t = 1.959	0.055
	Female	43	67.70±7.42		
Educational qualification	Diploma	13	62.11±3.08	F = 3.862*	0.027*
	Bachelor	33	66.67±7.58		
	Higher education	14	70.11±9.80		
Years of teaching Experience	Less 5 years	6	64.81±7.86	F = 4.281*	0.009*
	5 – 10	48	62.04±7.08		
	10 – 15	2	64.20±4.75		
	More than 15	4	69.97±8.51		
Teaching to ADHD child	yes	5	60.0±14.91	t = 1.976	0.053
	No	55	67.07±6.82		

F: F value for ANOVA test; Paired t -test\*: Statistically significant at  $p \leq 0.05$

#### IV. Discussion

ADHD is the most prevalent behavioral disorder, diagnosed psychiatric disorders of childhood. About 5–12% of children are worldwide involved in ADHD **Marsha et al. 2015; Sadock et al. 2009; Lacrimiora et al. 2007**. Teachers can play a key role in identifying and supporting children with ADHD. So, important for teachers to have knowledge and appropriate manner in dealing with ADHD children.

**The current study revealed that female’s teachers of primary school had working with ADHD more than male teachers (Table 1).** In this regard, **Ghanizadeh et al (2006)** emphasized that the knowledge level did not differed between female and male teachers. This can be explained that females were more likely to perceive higher burden, give extra time and energy than male. Despite this, the difference between teachers’ knowledge and sex was not statistically significant. On the contrary, **Vazs. et al. (2015)** who provides greater insights into the significance of gender on attitudes towards teaching students with ADHD. Female teachers held more positive attitudes than male teachers.

**The results suggest that there is a substantial lack of knowledge among teachers of primary schools at Qaluibya with children having ADHD (Figure 1).** This may be related to lack of well-planned continuous skills development of teachers by ministry of education, in forms of seminars, training programs or workshops about common behavioral problems that are facing teachers dealing with children at schools. These results are similar to those of **Sciutto et al. (2000)** who reported an average of 47.8% for correct responses for their sample of American teachers and somewhat lower than the results of **Kos et al. (2004)** who reported that 60.7% of the items on the knowledge questionnaire were correctly answered by teachers in Australia. This result was in line with **Mariechen et al. (2010)** who showed a significant majority of the respondents (70.8%) had a lack of knowledge and held misperceptions of primary school teachers in towns on the periphery of the cape term metropole. Similarly, a study in Iran there is not yet any educational program on ADHD for teachers. Frequently, ADHD children may be rejected from class and few of them are referred to child psychiatrists (**Ghanizadeh. et al (2006)**).

**Teachers knowledge about ADHD was low with the mean total score knowledge being less than 50% (47.41 ± 12.16) (Table 2).** This result may be related to cultural impacts of sharing many misconceptions about ADHD, which in turns lead to improper teachers' attitudes. This result is consistent with data from both developed and developing nations, Knowledge levels were shown to be lower than the desirable in Bahrain (Trute et al., 2008) and insufficient in Saudi Arabia (Alkahtani, 2013). Average ADHD awareness has been reported among teachers in Canada (Blotnicky-Gallant et al., 2014) and Iran (Ghanizadeh et al., 2006), as opposed to desirable in Vienna/Austria (Schweifer, 2009). This result may be related to teachers believe that children displaying ADHD behavior should be taught by special education teachers as well as main sources of knowledge about ADHD from T.V and radio, friends and relatives, newspapers and magazines which Pointing to lack of knowledge among the majority of teachers. This result was in line with Munshi (2014).

**Regarding effectiveness of structured teaching program among teachers of primary schools, there were statistically significant changes at post intervention than before regarding participants 'knowledge, attitude, and behavior management strategies.** This result could be interpreted as increasing teachers 'knowledge lead to develop more self-confidence in their abilities in making necessary changes and control in classrooms, also help in utilizing less destructive behavior toward children with ADHD. This result is consistent with the report of the other studies where giving teachers knowledge through workshops, seminars and in-service training program had reported to be effective regarding increasing teacher's knowledge on various aspects of ADHD and practice more appropriate classroom management strategies. In this context, **Kopfer and McGovenn (2003)** reported that education was a potential means for implementing preventive strategies, as it may attribute in altering perception, increasing knowledge and in turn changing work practice. In the same line **Khademi et al. (2015) and Moldavsky et al. (2013)** who reported that educational interventions be intended to improve the knowledge, attitude, and behavior of the teachers.

**A statistical significant relation was proved between post-test teacher's knowledge and their attitudes (Table 3).** This may be due to with improving teachers 'knowledge, they become more tolerant and less stressful which reflects positively on academic and social health of the children. This result was in concordance with a study comparing continuing education of ADHD, a change was seen in teacher's attitude toward students with ADHD as well as their self-confidence to teach them and their ability in making necessary changes in classrooms after three months. (Zentall et al. (2007). In the same line, **Jeneva et al. (2008)** reported that workshop education to be more effective in increasing teacher's knowledge and their attitudes. Another study in Isfahan showed that holding educational workshops was an effective way to increase the mean scores in teacher's knowledge and attitude (Azahars and Safari (2010). This result is in the same line with **Bradshaw et al. (2013).**

On the other hand, there are reports that teachers attitude toward children with ADHD may be negative, with a description of a child with an ADHD label viewed that child significantly less favorably and their behavior as more disruptive to the classroom (Batzele et al. (2010), **Ohan et al. (2011).** This refers to the importance of teacher's background knowledge regarding ADHD, their ability to recognize the unique diversities of the children in the class and more aware of some outcomes of ADHD children. This is the key chain to develop positive and acceptance attitude towards ADHD children.

**A positive statistical significance differences was found between pre-and post-assessment regarding teacher's behavior management strategies (Table 4).** Results are consistent with literature on behavioral teacher program, revealing improvements in teacher's behavior management strategies after using the program (Ostberg and Rydell (2012); **Pelham et al. (2000), Betty Veenman et al. (2016).** This indicates that those teachers who know more about ADHD have a more tolerant attitude, less stressed, and behavioral changes was obvious post-program. Most teachers show post program that they intended to use program in the future, which indicating high satisfaction and effectiveness of the program. The key behind this behavioral changes would be increasing teacher's knowledge on ADHD. **Jawaid et al (2008)** mentioned that educational programs can increased awareness among teachers about the symptoms, and consequences of ADHD in recent years. That is why in service-training are the primary sources of information about ADHD for teachers.

**Furthermore, results showed no statistical significant correlations between teachers' knowledge and teaching to ADHD child (table 5).** This finding contradicted by **Kos et al. (2004) and Sciutto et al. (2000)** who stated that taught a child with ADHD significantly affected knowledge scores and triggered teachers to seek information and accept additional training resources. The same findings by **Zental (2006)** who mentioned that the knowledge teachers have ADHD may influence they communicate with, and understanding ADHD will enable teachers to change their classroom management, adapt the curriculum, use a variety of teaching strategies in order to create a positive learning environment. This probably could be attributed to lack of sufficient knowledge, improper attitudes by teachers reached to a point of neglect and not aware of one of the hallmark symptoms of ADHD.

On the other hand, another finding of this study was the positive significant effect between teachers age as well as their educational qualification and teacher's post-test knowledge of ADHD (Table 6). This result is in line with a study done in Qatar by Bradshaw (2013). This indicate that when teachers have higher educational qualification, they gain more knowledge and receive information about ADHD /SDL from conferences and in-service training.

Regarding the correlation between teacher's years of teaching experience and their post-test knowledge. There are statistically positive significant correlations between teacher knowledge and years of teaching experience (Table 6). The present findings support Scitutto et al. (2000), indicating that teachers in the United States with more years of teaching experience obtained higher scores of knowledge than teachers with less teaching experience as well as the findings of Kos et al (2004), Verels and Diperna (2004).

From the study results it can be concluded that teacher's knowledge and attitudes as well as their behavioral more readily influenced through up-to-date workshops and in-service professional development programs. We have a responsibility towards our children to make sure that teachers are knowledgeable about ADHD and in a position to offer support to children in order to manage their behavior and achieve success academically.

## V. Conclusion

1. The findings of the present study indicated that the structured teaching program for primary school's teachers had a positive effect on their knowledge, attitudes and behavioral management strategies after receiving structured teaching program. The findings were supported by our data.
2. There was a statistically significant positive correlation between teachers' knowledge and their attitudes immediately post intervention. Some of teacher's demographic variables as their ages, educational levels and teaching experiences /years proved statistically significant differences regarding knowledge of post intervention. This study program has a great implication in nursing practice, education, research and administration.

### Limitations of the Study:

The following points were beyond the control of the investigator.

1. Selection of sample based on convenience rather on randomization
2. Sample was selected only from Qaluibya District.
3. The study was confined to 60 subjects, which resulted in reduced power in statistical analysis.
4. The study is limited to primary school teachers who are willing to participate in the study.

## VI. Recommendations

Based on the findings of the present study recommendations offered for the future study are:

1. Teachers must be trained to recognize students with behaviors problems / disorders in their classes to provide them with proper and timely education as well as necessary referral for their assessment.
2. Ministry of Education needs to take a more proactive approach by designing and conducting Specialized in-service training courses for primary school teachers in order to increase recognition and awareness of these disorders
3. Similar study can be conducted on a larger sample and different setting.
4. A comparative study can be conducted with control group of teachers.
5. Follow up assessment post-tests taken in the 6<sup>th</sup> month and 9-month post-intervention in order to check the retention of teachers' knowledge and its application of the strategies in classrooms.

This study and other similar studies be used in educational planning and policy making in the Ministry of Education.

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