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**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/3197
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/3197>



RESEARCH ARTICLE

AWARENESS ABOUT EPILEPSY IN CHILDREN AMONG SCHOOLTEACHERS IN RIYADH, KSA

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Manuscript Info

Manuscript History

Received: 07 December 2016
 Final Accepted: 22 January 2017
 Published: February 2017

Key words:-

Awareness, Epilepsy, Seizure, Children,
 School Teachers, First Aid, Impact on
 Health.

Abstract

Introduction: Epilepsy is a brain disorder characterized by a pathological abnormality in electrical activity of the brain resulting in an unprovoked abnormal movement or behavior leading to a neurobiological, cognitive, psychological, and social consequence. The level of public awareness, and the attitudes and knowledge of epilepsy in the Saudi population is limited, and requires significant improvement.

Objective: This study aimed to assess the awareness about the definition of epilepsy in pediatric ages, types of epilepsy, managing an epileptic fit in children and awareness about the impact of epilepsy on children's educational and social performance among schoolteachers.

Methodology: 320 teachers were selected from different schools in Riyadh city KSA by a cross-sectional study. The data collected by 14 Statement questionnaires including our objectives. The data reviewed, and statistically analyzed using percentages and frequencies.

Result: the results show that 99.4% of teachers have heard about epilepsy, Most of the teachers want to learn more about epilepsy, and about 73% of teachers know that one type of seizure is generalized seizure, 35.9% know partial seizure. More than the half of the teachers has been a witness of an epileptic fit in their classes and around 43% of teachers' first reaction to an epileptic fit was trying to help. The first aid in epileptic fit, is to put a soft towel in the mouth to protect the tongue and keep airway open was 70%, and 46.3% think to secure the media around the patient. The media 38% encountered the most frequently as source of knowledge and an abnormal electrical activity in the brain 70.3% as cause of epilepsy.

Conclusion: This study has revealed a critical issue that a majority of schoolteachers do not have adequate knowledge about epilepsy. We recommend the mandatory implementation of epilepsy and basic life-support training and refreshing courses for all schoolteachers across KSA. In addition to enrolling in training courses, teachers must be aware of the availability of first aid kits at schools and the contact numbers of the Saudi Red Crescent Services.

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Introduction:-

Epilepsy is a common neurological disorder in Saudi Arabia, with a prevalence of 6.54 per 1000. The level of public awareness, and the attitudes and knowledge of epilepsy in the Saudi population is limited, and requires significant improvement¹. Epilepsy is a brain disorder characterized by a pathological abnormality in electrical activity of the brain resulting in an unprovoked abnormal movement or behavior leading to a neurobiological, cognitive, psychological, and social consequence². Epileptic seizures can be divided into two major classes, Partial-onset seizure is a seizure that begins on a focal area of the cerebral cortex. This class is further categorized as simple focal seizure the main characteristic thing about this seizure is that the level of consciousness is persevered. This type of seizures has subtypes, which are sensory, motor, autonomic, and psychic. Complex focal seizure; unlike simple complex seizure in this type of seizure there is an impairment of consciousness, those patients usually have an aura before their seizure and this aura is usually the simple focal seizure, it typically begins with a behavioral arrest followed by staring, automatism and postictal confusion. Secondary generalized seizure often begins with an aura then proceeds to complex focal seizure and then to generalized tonic clonic seizure.

Generalized onset seizure; these are classified into six major categories:-

Absence seizure; brief episodes of blank staring with impaired consciousness, it's without aura or postictal confusion. Myoclonic seizure; brief rhythmic jerking motor movement. Clonic seizure; consist of rhythmic jerking motor movement with or without impairment of consciousness. Tonic seizure; sudden onset of tonic extension or flexion of the head, trunk and extremities for several seconds. Primary generalized tonic – clonic seizure (grand mal seizure); they consist of several motor behaviors, including generalized tonic extension of the extremities lasting few seconds followed by clonic rhythmic movement and prolonged postictal confusion. Atonic seizure (drop attacks); brief loss of postural tone often results in fall and injures. It is very important to know how to deal and handle an epileptic fit. When you see a person with an epileptic fit the first thing to do is, protect them from injury by removing harmful object, then cushion their head and time the length of the jerking movement, aid the breathing by gently placing the body in the recovery position, once the jerking have stopped, then stay with them until they fully recover, it is very important not to put anything in their mouth or try to restrain their movement, don't give them anything to eat or drink until they are fully recovered⁽²⁾. Epilepsy is a complex disorder that has an impact on many aspect of child's development, and school personals may have basic understanding about seizure and its related safety concerns but have less knowledge about the impact of seizure on child's emotional, behavioral and social adjustment. As a result, these children are at increased risk of learning difficulties and unsuccessful school experience; they might face difficulty in social engagement with friends and inadequate social skills and poor self-esteem. And that's why it's important for educators and family members and health care providers to partnership in the care of those children and provides a plan for academic success and safety³. A study was done on Kuwait among 824 teacher in 2016, about "Knowledge about Epilepsy and Attitudes toward Students with Epilepsy among Middle and High School Teachers in Kuwait", by cross-sectional study and randomly selected schools, and its show that there is a relatively poor knowledge about epilepsy among school teacher but they have positive attitudes toward students with epilepsy⁴. In 2015 a study about "Knowledge and practice of schoolteachers towards students with epilepsy in Khamis Mushate, Southern Saudi Arabia", among 315 male teachers. It shows that about three-quarters of schoolteachers had attended epileptic fits. About half of them believed that electrical discharges caused epilepsy. Most of them were not with teaching epilepsy separately, nor preventing them from activity. More than half of schoolteachers were not able to do first aid of seizure attacks⁵. In 2015 a study about "Knowledge and attitudes toward epilepsy among school teachers in West of Iran", conduct on 305 teachers from 25 schools. The study shows that the majority of schoolteachers heard about epilepsy. There were positive Attitude and knowledge about epilepsy, but there were deficits in first-aid of epileptic fit⁶. In 2014 a study about "Knowledge, attitude and practices of school teachers towards epileptic school children in Karachi, Pakistan". Among 120 teachers, it was showed that majority of the teachers heard about epilepsy, 14.5% of them think epilepsy is contagious while 72.7% see that epileptics children can succeed as other normal children. A 62.7% were willing to help if they attend epilepsy fit⁷. A study was conducted in 2013 by authors in King Abdulaziz University, Jeddah, about "Primary school teacher's knowledge and attitudes toward children with epilepsy", show that 17% of the teachers well informed about epilepsy. And according to the teachers' attitude, they found that it depends on teachers' knowledge, about 58% of teachers whom happened to have epileptic students in their class, didn't know what to do when they came across an acute seizure in the classroom as their first seizure attack they face⁸. A study was conducted on a sample of a 259 teachers and counselors in 2012 about "Knowledge and attitudes toward epilepsy among school teachers and counselors in Jordan". The results showed average knowledge of epilepsy, however they have poor knowledge about how to deal epileptic person⁹. A study in Pilsen, Czech Republic, that was published in 2012 about "Familiarity with and attitudes towards epilepsy among teachers at Czech elementary schools—The effect of

personal experience and sub specialization". They found significant differences between the teachers with and without personal experience in the aspect of their attitudes. Teachers without personal experience were convinced that epileptic student were more likely to have psychological problems and impaired self-realization than other student¹⁰. A study was done in Italy in 2011 about "Knowledge and attitudes toward epilepsy among primary and secondary schoolteachers in Italy". It was conducted on a random sample of 600 of Italian schoolteachers through a nationwide telephone interview, the result shows different knowledge and attitude among the teachers, around half of them believed epilepsy hereditary and incurable, and more than one third of them thought it requires support at school¹¹.

In 2011 done a study in Gezira State, Sudan about Knowledge, practice and attitude toward epilepsy among Two hundred primary and secondary school teachers, they found that the majority of them had never informed about epilepsy nor previously trained to deal with it. Some of teachers considered epilepsy as an attack from a demon or contagious. About 64% of secondary schoolteachers had knowledge of the initial behaviour toward a child with seizure compared to primary schoolteacher, which shows only 47%¹². A study was conducted by self-administered questionnaire on 189 teachers in Egypt 2010 about "Knowledge, attitude and practice with respect to epilepsy among school teachers in Assiut city, Egypt". Result show that all teachers had heard about epilepsy, and more than half of them deal with epileptic students as normal students¹³.

A study was in 2008 about "Knowledge awareness and attitude about epilepsy among schoolteachers of primary and secondary levels in India". The results show that the majority of schoolteachers were aware that epilepsy is a brain disease. More than 30 % were unsure if epilepsy is related to insanity, and have low IQ. Half of them allow their children to play with an epileptic. 27% only had given first aid to epileptic fit, and only 16% giving it properly¹⁴. A study published in 2005 about "Perception and attitude to epilepsy among teachers in primary, secondary and tertiary educational institutions in middle belt Nigeria". It was conducted on 460 schoolteachers, and found that even though almost the entire almost teacher had heard about epilepsy negative attitude towards epilepsy is still there. More than half did not know the cause of epilepsy and several of them had wrong information on the etiology. Some of them misunderstood epilepsy for insanity¹⁵. In 2004 done "A study on awareness and attitude of teachers on epilepsy in Istanbul" the study done among 346 teachers, and it was showed that more than half of teachers heard about epilepsy, while 71.9% attended seizure attack, and 59.4% knew someone with epilepsy. There was some misconceptions like 2.3% think epilepsy is contagious, or a psychological disease 17.8%¹⁶.

In 2002 a study about "Awareness, attitudes and understanding towards epilepsy among schoolteachers in Medan, Indonesia", they found that 16% of the teachers are well informed about epilepsy, and there are significant proportion had negative attitude and misunderstanding the disease¹⁷. A study was conducted in 2001. About "knowledge and attitudes toward epilepsy among primary, secondary and tertiary level teachers ". Among 300 teacher, show that almost all the teachers had heard about epilepsy, some teacher believe that the epilepsy either contagious or they don't know, and (43%) of teachers had knowledge of the initial procedures during a seizure¹⁸. The goal of this study was to assess the awareness about the definition of Epilepsy in pediatric ages, types of epilepsy, managing an epileptic fit in children and awareness about the impact of epilepsy on children's educational and social performance among schoolteachers.

Materials and Methods:-

A cross-sectional study with a 14 Statement questionnaire about epilepsy knowledge was administered to teachers at general and private educational schools in Riyadh, KSA. The study was conducted for 6 weeks and starting November 2016. 32 schools were chosen randomly to be part of the study.

The questionnaire was designed to assess the knowledge among teachers about definition, types, management of epilepsy and epileptic fit and its impact on children's social and educational performance in school aged children. Teachers gave written consent before conducting the study.

The variables under study were having heard about epilepsy, sources of information about the disease, types of the disease, possible causes, the need of more knowledge about the disease, the differences when comparing epileptic children's behavior and school performance to their classmates, and finally whether they have ever encountered an epileptic fit, their first reaction and steps taken during management.

Ethical approval:-

The study was approved by the ethical committee at College of Medicine of Al Maarefa Colleges followed by approval of the ministry of education, Riyadh, Kingdom of Saudi Arabia.

Statistical analysis:-

After completion of data collection, it was reviewed, organized, tabulated and then statistically analyzed using percentages and frequencies

Results:-

The study conducted in Riyadh city KSA. The data was obtained from 320 teachers from different schools .The response rate was 100%, but many questions were unanswered. It was found 5.4% of teachers teaching kindergarten students, 37.2% teaching primary students, 35.3% teaching intermediate students and 22.1% teaching secondary students. 99.4% of teachers have heard about epilepsy, while 0.6% hasn't heard about epilepsy. Most of the teachers want to learn more about epilepsy, which represent 96.6%, while 3.4% don't care about it. About 73% of teachers know that one type of seizure is generalized seizure, 35.9% know partial seizure, 11% know complex partial seizure, 30% know absence seizure, 23% know generalized tonic clinic seizure, 28% know status epileptics and 7.7% know pseudo seizure (Table 1).

Table 1:-Demographic characteristics and epilepsy Knowledge among teachers.

	Frequency	Percent
Levels of teachers:		
Kindergarten	17	5.4%
Primary	118	37.2%
Intermediate	112	35.3%
Secondary	70	22.1%
Total	320	100%
Heard about epilepsy:		
Yes	315	99.4%
No	2	0.6%
Total	320	100%
Need to now about epilepsy:		
Yes	308	96.6%
No	11	3.4%
Total	320	100%
Types of seizure:		
Generalized seizure	199	72.9%
Partial seizure	98	35.9%
Complex partial seizure	30	11%
Absence seizure	84	30.8%
Generalized tonic clonic seizure	63	23.1%
Status epileptics	78	28.6%
Pseudo seizure	21	7.7%

It was found 55.2% of teachers have been a witness of an epileptic fit in their classes and 44.8% haven't been. 43% of teachers' first reaction to an epileptic fit was trying to help, 10.5% was feeling afraid and steeping back, 19.8% was calling for help and standing by and about 27% don't know what to do. 59% of teachers know the first aid in epileptic fit, 41.4% don't know (Table 2).

Table 2:- Comparison between teachers in dealing with a case requiring epilepsy.

	Frequency	Percent
Witness of an epileptic fit in class:		
Yes	99	44.8%
No	122	55.2%
Total	320	100%
First reaction:		
Feel afraid and step back	18	10.5%
Go and help	74	43%
Call for help and stand by	34	19.8%
I don't know what to do	46	26.7%
Total	320	100%
Knowing first aid:		
Yes	136	58.6%
No	96	41.4%
Total	320	100%

It was found 70% of teachers think that one of the first aid in epileptic fit is to Put a soft towel in the mouth to protect the tongue and keep airway open, 46.3% think to Secure the media around the patient, remove all harmful objects and put him on his left side, 43.6% think to try to put hard object in the mouth to protect the tongue and keep mouth open, 21.6% think to try to use any perfume to wake him up, 11.5% think to give him some water and about 10% think to give him his medication during the attack (Table 3).

Table 3:-Comparison between teachers in dealing with a case requiring first aid.

	Frequency	Percent
First aid:		
Try to put hard object in the mouth to protect the tongue and keep mouth open	99	43.6%
Secure the media around the patient, remove all harmful objects and put him on his left side.	105	46.3%
Put a soft towel in the mouth to protect the tongue and keep airway open.	160	70.5%
Try to use any perfume to wake him up.	49	21.6%
Give him some water	26	11.5%
Give him his medication during the attack.	23	10.1%

It was found about 38% of teachers know epilepsy from media, 22.1% from friends, 19.4% from relatives, 12% from affected member in their families and 8.4% from other sources (Figure 1).

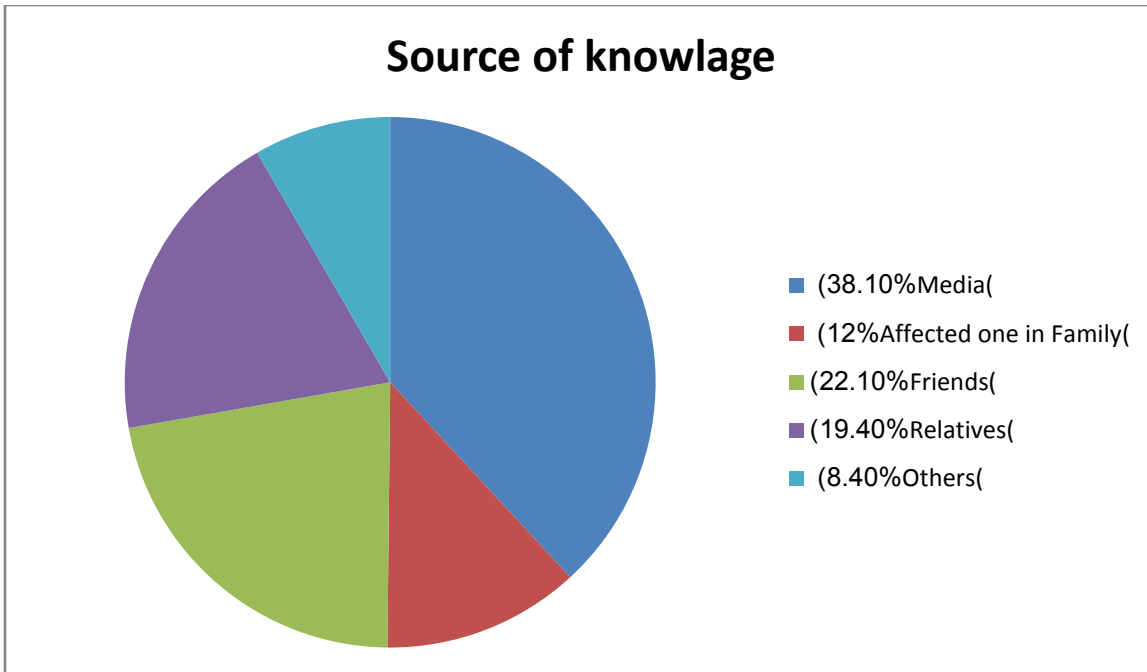


Figure 1:-source of knowledge about epilepsy among teachers.

It was found 70.3% of teachers think one cause of epilepsy is an abnormal electrical activity in the brain, 23.8% think it's from brain trauma, 21.6% from brain infections, 14.4% from genetic defect, 14.1 from anxiety and stress, 7.8% from birth defect, 4.1% from brain cancer and about 12% don't know the cause (Figure 2).

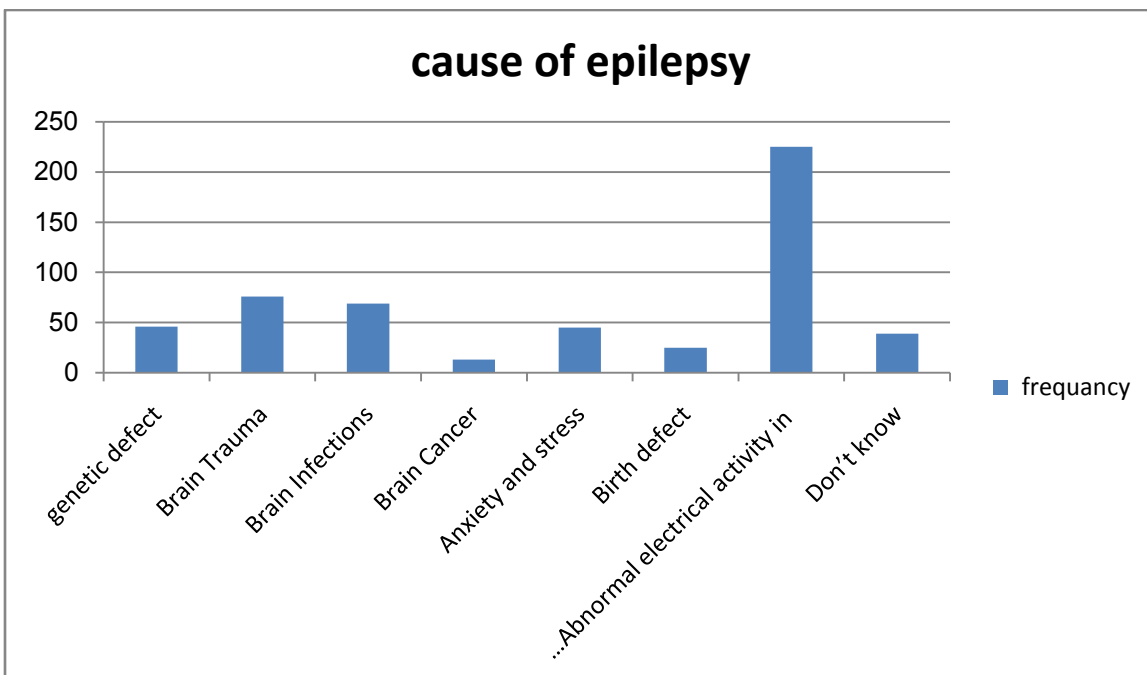


Figure 2:-Opinion about cause of epilepsy among teachers.

It was found most of teachers think that epilepsy is a neurological disease witch represent about 84%, 6.9% think it's psychiatric disease, 5% think it's hereditary disease and 4.4% think it's from evil spirit or spell. It was found 83.3% of teacher thinks that there are many types of seizure and about 16.7% don't think. It was found 55.7% of teachers notice that an epileptic student doesn't have low school performance, 39% notice some of them and 5.2% notice

they have low school performance. It was found 4.5% of teachers notice an epileptic student have social behavior issues, 34.2% notice some of them and 61% don't notice.

Discussion:-

Awareness about epilepsy is considered very important to the society in general, and among school teachers becomes even more, as they are in contact with children for long hours on daily basis, which makes them more prone to encounter epileptic fits or other emergencies. Therefore this research was made to assess the awareness of schoolteachers about epilepsy and how to manage an epileptic fit among children.

In our study, a sample made of 300 male/female teachers, from deferent levels, ranging from kindergarten to secondary grades. The majority were primary school teachers. Almost all of the teachers heard about epilepsy, from deferent sources, mostly from media. However, the majority emphasizes the fact that they want to know more about epilepsy.

There are deferent believes among people in the society regarding the nature of the disease, this intern, can affect how people adapt and behave towards it, many people are shy to even tell that they have an epileptic member in the family. In our study we found that most of teachers think that epilepsy is a neurological disease, in contrast to a study that was done in Italy in 2011 about "Knowledge and attitudes toward epilepsy among primary and secondary schoolteachers in Italy" that showed half of the sample believed epilepsy is a hereditary and incurable disorder. Surprisingly still there are some who think that epilepsy is a result of power from evil spirit. In another study done in Gezira State, Sudan about Knowledge, practice and attitude toward epilepsy among Two hundred primary and secondary school teachers, Some of teachers considered epilepsy as an attack from a demon or contagious.

The majority of the sample has a good knowledge about the cause of the disorder as they mention the correct answer that it is abnormal electrical activity in the brain.

In this study the majority of the school teachers knew that seizure has different types but mostly recognized generalized tonic clonic seizure and only one third of the sample knew about partial seizure, although a study that was made in Finland about " Distribution of seizure types in an epileptic population¹. ", and showed that partial seizure accounts for 50% of epileptic disorders in children.

When teachers were asked about low school performance, more than half of the study sample noticed that epileptic students don't have a low school performance. And this result is supported by a study made in Nigeria about Academic performance of school children with epilepsy and ²where they found that the overall academic performance of epileptic children without other chronic disorders attending normal schools is not different from that of normal children in the same setting, though they are under-achieving in some subjects.

In regards of the impact of the disorder on social behavior of epileptic children most of the teachers didn't notice any behavioral issues.

This study showed that there is no significant differences in the number of teachers have been a witness of an epileptic fit in their classes and those who haven't been. However, less than the half percentage of our sample had attended epileptic fits. In comparison with other researches that have same sample conducted in different cities in Saudi Arabia, it indicate d that the teachers in Khamis Mushate and Southern Saudi Arabia have attended epileptic fits more than in Riyadh, and Jeddah had the least attendance. In our study results, we found that most of schoolteachers know how to provide first aid when seizure attacks happened in classrooms, this was noticed by choosing the correct steps of management that was asked in the questionnaire. However, still there is more than half percentage of schoolteacher's think that they need more knowledge in handling a situation of an epileptic fit. As our study showed that most of our sample knew about epilepsy, however, the majority as well didn't know how to deal with an epileptic fit. This finding was similar to many other studies conducted about "knowledge and practice of school teachers toward students with epilepsy in Khamis Mushate, Southern Saudi Arabia, West of Iran, Jeddah, Jordan, Egypt, India, Indonesia and Italy". Gezira state and Sudan, showed higher percentage of knowledge about the initial steps taken toward a seizing child. When asking about the first aid in managing a child who is seizing, many teachers choose to put a soft towel in the mouth to protect the tongue and keep airway open and only Few teachers choose to secure the media around the patient and remove all harmful objects and put him on his left side and try to put hard object in the mouth to protect the tongue and keep mouth open. This study has confirmed that

most of schoolteachers have poor knowledge of how to deal with seizure attack as first aid. And accordingly we need to arrange more school activities talking about the awareness of epilepsy and let the teachers do practical application of first-aid management of epileptic patient.

Conclusion:-

This study has revealed a critical issue that a majority of schoolteachers do not have adequate knowledge about epilepsy. We recommend the mandatory implementation of epilepsy and basic life-support training and refreshing courses for all schoolteachers across KSA. In addition to enrolling in training courses, teachers must be aware of the availability of first aid kits at schools and the contact numbers of the Saudi Red Crescent Services.

Authors' contribution:-

All authors took part equally in writing, revising and final approval of the manuscript.

Conflict of interest:-

The authors have no conflict of interest to declare.

Acknowledgements:-

We would like to thank professor dr. Fawzia Ahmed Habib and associate professor dr. Basel Abdulbaset Alkahilfor there helpful supervision and contributions to this the study. We are also grateful to the ministry of education leadership and all teachers participating in this study.

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