

## **Evaluation of Primary School Teachers' knowledge and Role Regarding Asthma Management in Almatamma Village**

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### **Abstract**

This study was performed in Almatamma village to assess the primary school teacher's knowledge and role regarding asthma management, in the period from July to November 2017. Data was collected by questionnaire, 70 teachers were participated in the study.

The study revealed that teachers' knowledge regarding asthma symptoms was inadequate, but they had good attitude regarding asthma management in case of asthma attack. The educational level and years of experience of the teachers did not affect their knowledge about asthma.

Study recommended planning and implementing of training courses and workshops to increase teachers' knowledge about asthma and its management, to encourage all schools to develop specific places to safe the students in case of asthmas attack, and to train teachers about the triggers factors and proper use of metered dose inhaler.

### **Introduction**

Asthma is a common chronic disorder of the air way that is complex and characterized by variable and recurring symptoms, air flow obstruction, bronchial hyper responsiveness and an underlying inflammation<sup>(1)</sup>. Asthma is a chronic inflammatory disease of the lung in children who are genetically susceptible. It is caused by multiple interacting factor including exposure to tobacco smoke, indoor air contaminants , e.g ( pet dander , cockroach feces ) , outdoor air pollutants , recurrent respiratory viral infections and allergic disease (e.g., atopic eczema , food allergies). Protective factors include a large family size, later birth order, child care attendance,

dog in the family, and living on a farm .Protective factors increase exposure to infections early in life, enabling the child's immune system to develop along a non allergic pathway <sup>(2)</sup>.

The sudden appearance of breathing difficulty (cough, wheeze, or shortness of breath) is often referred to as an asthma episode or flare. The infant or child who has had episodes of frequent coughing or frequent respiratory infections should be evaluated for asthma. Frequent coughing specially at night, is the warning signal that the child's air way is very sensitive to stimuli, and it may be a sign in "silent" asthma. During an acute episode, respirations are rapid and labored, and the child often appears tired from the ongoing effort to breathe.

In cases of severe obstruction, wheezing may not be heard because of the lack of air flow. Head bobbing may be seen in young children if accessory muscles (sternocleidomastoids) are used to breath. Hypoxia and the cumulative effect of medications may cause behaviors ranging from wide-eyed agitation to lethargic irritability. In children who have repeated acute episodes, a barrel chest and the use of the respiratory accessory muscles are common findings <sup>(2)</sup> , Orthopnea , Rhinitis, sinusitis, and nasal polyps are often present in children with asthma <sup>(3,4)</sup>.

The symptoms of exercise-induced bronchospasm are cough, wheeze, chest pain or tightness, shortness of breath, and fatigue. Symptoms peak 5 to 10 minutes after completing the exercise session, and subside within 30 to 60 <sup>(2)</sup>.

The National Asthma Education and Prevention Program (NAEPP) classifies patients as having mild, intermittent, or persistent asthma . Persistent asthma is further classified as mild, moderate, or severe

The NAEPP periodically update guidelines for asthma management. Management is based on four interacting components: 1- accurate assessment of severity and regular monitoring of for control of symptoms. 2- Creating and maintaining a partnership for care that includes the child , parent , health provider , and school nurse ; 3- management or elimination of environmental triggers and coexisting conditions ; and 4- pharmacologic therapy (**NAEPP , 2007** ) Includes medications, hydration, education, and support of the parents and child <sup>(4)</sup>.

Symptoms that interfere with sleep, , or recreational activities sick days from school during asthma flare-ups. Permanent narrowing of the bronchial tubes (airway remodeling) that affects how well you can breath. Emergency room visits and hospitalization for severe asthma attacks. Side effects from long-term use of some medications used to stabilize severe asthma <sup>(5)</sup>. Side effects of medication (e.g. oral candidacies in those taking inhaled steroids). <sup>(6)</sup>.

Also pneumomediastinum in teenage and young adult. Allergic rhinitis, Gastroesophageal reflux associated recurrent pneumonia and chronic asthma, Pneumothorax, recurrent pulmonary disease <sup>(7)</sup>.

Education plays an important role in helping patients and their families adhere to the prescribed therapy and needs to begin at the time of diagnosis. Successful education involves teaching basic asthma facts, explaining the role of medications, teaching environmental control measures, and improving patient skills in the use of spacer devices for metered dose inhalers and peak flow monitoring <sup>(8)</sup>.

### **Material and method:**

**Study design:** Descriptive cross sectional community based study was done in Almatamma village in the River Nile State in the Sudan. From July to November 2017.

**Study area and setting:** Almatamma village contain five primary schools; Alkhansaa primary School, and Alhomairaa primary school for girls, Abu baker alseddig primary school, Omer Ibn Alkhatib primary school, and Elsanaher primary school for boys.

**Study population:** All teachers working in these schools.

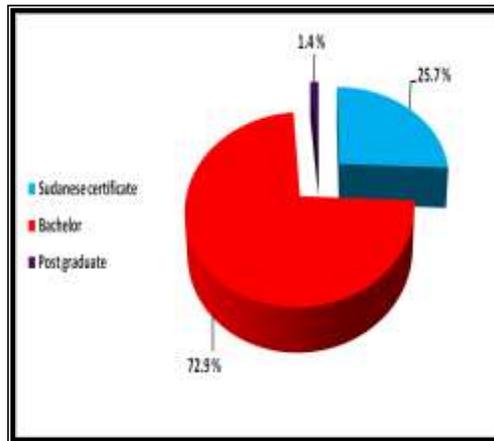
**Sampling:** All teachers (70) working in these schools in the study period were include in the study.

**Data collection tools:** Questionnaire was developed by the researcher depending on the important point of knowledge about asthma and interventions that used to resuscitate the child, The data was analyzed by using SPSS, and the results were presented in form of tables and figures.

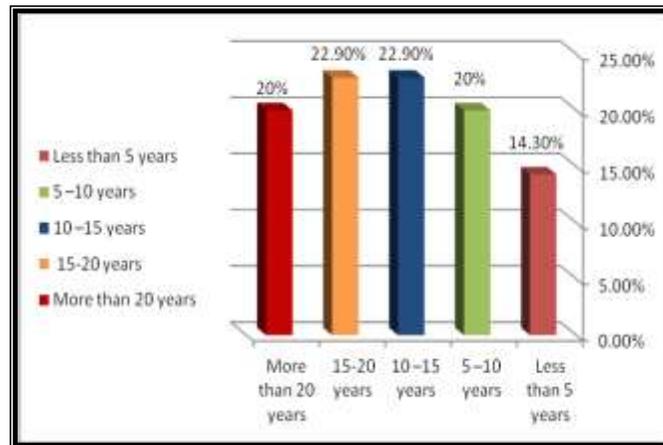
### **Ethical consideration:**

Permission was taken from head managers of the schools and then the teachers. The researcher explained the purpose of the study to the teachers and they have a choice to continue or stop at any time.

**Result**



**Figure (1): Teachers educational level.**

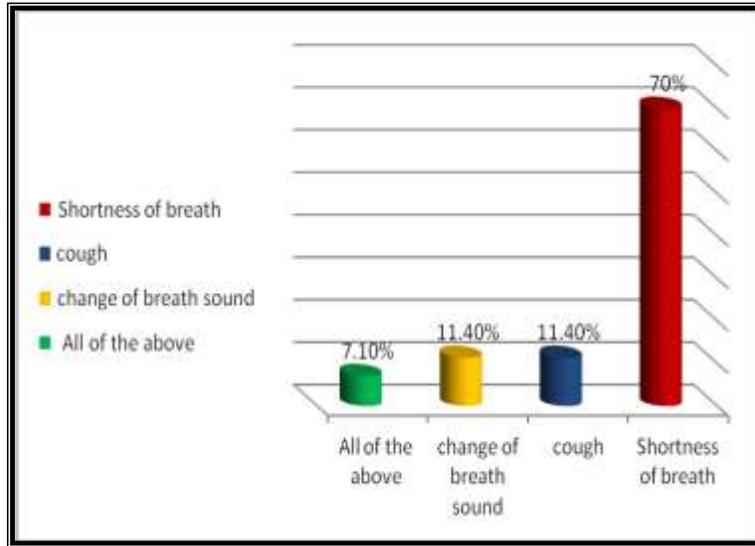


**Figure (2): Teacher's years of experience**

**Table (1): Teachers knowledge about asthma**

what is asthma	Frequency	Percentage
Genetic disease	40	55.7 %
Chronic disease	7	10.7 %
Caused by environmental	6	8.6 %
Disease that affects the lung	10	13.9%
All of the above	7	10.7%
Others	0	0%

Total	70	100%
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**Figure (3): Teachers knowledge about asthma symptoms.**

**Table (2): Teachers knowledge about the irritants of asthma**

Irritant causes	Frequency	Percentage
Exposure to dust	45	64.3 %
Exposure to infection	3	4.3 %
Exposure to odors	6	8.6 %
Exercise	0	0%
Animals	0	0 %
All of the above	16	22.9%
Others	0	0%
Total	70	100%

**Table (3): Teachers knowledge about the curability of asthma**

liability of asthma to treatment or prevent	Frequency	Percentage
Curable	40	57.1 %
Not curable	15	21.4 %
Preventable	15	21.4 %
Total	70	100 %

**Table (4): Teachers knowledge about the type and rout of medication used.**

Type of medication	Frequency	Percentage
Bronchodilator	60	85.7 %
Antibiotic	9	12.9 %
Others	1	1.4 %
Total	70	100 %
Route of medication	Frequency	Percentage
Oral	11	15.7 %
Inhalation	17	24.3 %
Both of them	42	60 %
Total	70	100 %

**Table (5): Teachers knowledge about the correct methods for inhaler use and post inhalation action**

Correct method for inhaler use	Frequency	Percentage
Grasp and press by whole hands	11	15.7 %
Grasp by index and press by middle and thumb	35	50 %
Don't know	24	34.3 %

Total	70	100 %
<b>post inhalation action</b>	<b>Frequency</b>	<b>Percentage</b>
Stop of breath for 1 min	37	52.9 %
Expiration immediately	4	5.7 %
Don't know	29	41.4 %
Total	70	100 %

**Table (6): The effects of asthma on students school attendance and academic performance**

<b>Effect of asthma in student attendance</b>	<b>Frequency</b>	<b>Percentage</b>
Increase incidence of absenteeism	43	61.4 %
Do not effect in attendance	8	11.4 %
Some affection	19	27.1 %
Total	70	100 %
<b>Effects in academic performance</b>	<b>Frequency</b>	<b>Percentage</b>
Affect the academic performance	48	68.6 %
Do not affect	10	14.3 %
Some affection	12	17.1 %
Total	70	100 %

**Table (8): Attitude of asthmatic students**

<b>Student behavior</b>	<b>Frequency</b>	<b>Percentage</b>
Fear	22	31.4 %
Anxiety	40	57.1 %
Isolation	8	11.4 %
Total	70	100 %

**Table (9): Activities that asthmatic students are excluded from and Location of asthmatic students in the class room**

Activity	Frequency	Percentage
School cleaning	55	78.6 %
Board cleaning	0	0%
Running	1	1.4 %
Care of trees	6	8.6 %
All of the above	8	11.4%
Total	70	100%
Location	Frequency	Percentage
Good ventilated place	51	72.9 %
Choices by student	4	5.7 %
Accordingto student length	12	17.1 %
No limitation	3	4.3 %
Total	70	100 %

**Table (10): Teacher intervention in case of asthmatic attack**

Teacher intervention	Frequency	Percentage
Transfer to good ventilated place	43	32.4
Loose the tight clothes	3	4.3 %
Use inhaler if available with student	17	24.3 %
Transfer to hospital	7	10 %
Total	70	100 %

Table (11): Relation between educational level and knowledge about asthma.

Educational level	What is asthma					Total	p-value
	Genetic disease	Chronic disease	caused by environmental pollution	Disease that affect lung	All of above		
Sudanese certificate	11	1	0	3	3	18	
Baccalorea	28	6	6	7	4	51	0.796
Post graduate	1	0	0	0	0	1	
Total	40	7	6	10	7	70	

**Discussion:**

Asthma is the most common chronic respiratory disorder in childhood, affecting 15-20% of children worldwide there appears to have been a significant increase in the incidence of asthma over the last 30 years .This study done to asses Primary School Teachers' knowledge and Role Regarding Asthma Management in Almatamma Village

The present study showed that majority of teachers their educational level was bachelor, and their experience duration was (5 -10) years.

Abut half of teachers knew that asthma was genetic disease (55.7%), (10.7%) say chronic disease, (8.7%) said that asthma is disease caused by environmental trigger. Asthma is a chronic inflammatory disease of the lung in children who are genetically susceptible<sup>(1)</sup>.Teachers knowledge regarding asthma symptoms was poor ,although (70%) knew shortness of breath only(11.4%) knew cough as a presenting symptom. It is paramount that school personnel be able to recognize and manage symptoms appropriately major symptoms are breathing difficulty, cough, wheeze, or shortness of breath <sup>(1)</sup>. Asthma attack usually triggered by irritant causes such as pollen, animal dander, mold, or dust <sup>(8)</sup>. Those known by the teachers were dust, infection, odors, exercise and animal. Asthma is not caused by psychological problems. Emotional upset, however, can exacerbate asthma symptoms. Laughing, crying, or shouting can act as mechanical triggers <sup>(9)</sup>.Regarding liability of asthma to treatment or prevention majority of teachers believed that asthma was curable, this was not correlated with previous study which reported that most teachers strongly agreed that asthma could not be cured, but managed <sup>(7)</sup>.

Teachers knowledge about drugs used in case of developing symptoms is good (85.7%) say that the used drug is bronchodilator .About the route of medication administration the majority of teachers know both inhalation and oral route. Inhalation route delivers the drug directly to the airways and systemic side-effects occur more frequently when a drug is given orally rather than by inhalation <sup>(11)</sup>. Only half the teachers knew that the MDI should be grasped by index finger and pressed by thumb and middle fingers, and after use of medication the breathing is stopped for 1min <sup>(6)</sup>. There is false believe of the teachers that MDI leads to dependence. This correlates with Mhammadzadeh who reported that misconceptions about asthma medication were evident among a considerable proportion of the staff <sup>(10)</sup>.

Regarding the effect of asthma in student attendance the majority of teachers said that asthma increase the incidence of absenteeism and decrease their academic performance. Asthma it is an important cause of school absenteeism <sup>(2)</sup> .About the student knowledge about the disease and it is irritants majority of teachers said that the students had insufficient knowledge.

Asthma it is an important cause of anxiety <sup>(2)</sup>. All the teachers agree with this, that asthma cause psychological effect in the students and it is mainly anxiety. Many activities can trigger asthma attack like school cleaning, board cleaning, running and care of trees. The teachers exclude students from school cleaning but not from board cleaning ,running and caring of trees .The location of the student in the class room is an important item to be noticed by the teachers .(72.9%) of teachers seat the student in good ventilated place and(17.1%) according to student height .

The teacher intervention as the first aids, they transfer the student to good ventilated place, use inhaler if available with the student and transfer him to hospital. This supported by Abdel Gawwad ES who found that teachers management practice were fairly good .Reassurance of students, asking him to take the inhaler, transferring him to well ventilated room, offering drink /water and calling parent <sup>(11)</sup>. The educational level of the teachers did not affect their knowledge about asthma and their intervention as first aid this correlate with no differences were found among teachers based on their level of educational attainment <sup>(7)</sup>. But does not correlate with Mohammad zaeh I (2010) who revealed significant difference in knowledge score regarding educational degree of the teachers. Teachers with bachelor degree had higher knowledge scores than diploma and junior college <sup>(10)</sup>.All the teachers involved in the study agreed that there is no specific place to safe and manage the students

### **Recommendations**

Asthma is an increasing health problem and the students spend many hours at school there for the study recommended the following:

- 1- Health care provider should Planning and implementing straining courses and workshops to increase teacher's knowledge about asthma.
- 2- Provision of training for teachers about how to use metered dose inhaler in proper way
- 3- Planning and participating with local health to develop the system of school health and school nurses. .

- 4- Modifying and controlling of school and class room environment to decrease the exposure to irritants..
- 5- Asthmatic students should be excluded from all activities that increase exposure to irritants like board cleaning, running, and care of trees.

### **Acknowledgment:**

The authors would like to thank the primary school teachers in Almmatma village to their kind participation and support during this study.

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