

Mothers' Knowledge and Practice regarding Bronchial Asthma among Pre-school children



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1.ABSTRACT

Background Bronchial asthma is the most common chronic disease among children. It develops in childhood before age five years that impacts morbidity and mortality rates among children as well as their quality of life. Consequently, it is important to address mothers' awareness of the management and prevention of bronchial asthma attack among their children. The aim of this study is to assess mothers' knowledge and practice regarding bronchial asthma among pre-school age children. **Methodology:** A cross sectional study design was carried out on 383 mothers in selected family health centers and primary health care units at Mansoura districts. Four tools were developed by the researcher for collecting the data of this study as the following: socio-demographic and economic characteristics of mothers and their children, Structured interview questionnaire to assess knowledge, and subjective practice of mothers regarding bronchial asthma. **Results:** The study revealed that mothers had moderate level of knowledge about bronchial asthma in addition most of the studied mothers had improper practices regarding to prevention of bronchial asthma attack. **Conclusion:** It is necessary to improve mothers' knowledge and practice regarding bronchial asthma. Finally, the researcher recommended that a continuous health education program regarding bronchial asthma for mothers.

Keywords: Bronchial asthma – Mothers' Knowledge – Practice – Children

2.Introduction:

Bronchial asthma is a chronic respiratory disease characterized by inflammation and obstruction of airways as a result of exacerbated response to different stimuli. It affects boys more than girls and the median age of onset is 4 years but more than 20% of children develop symptoms within the first year of life (Abutiheen, Al-Saadi& Al-Quraini, 2019).

Bronchial asthma is more severe in young children because they are more prone to viral infections as cold and smaller airway size increases airway resistance (El-Mashad, Mahmoud & Abdel Hafez, 2016).

Bronchial asthma is affecting 10% to 15% of children worldwide. Bronchial asthma affects 300 million individuals worldwide with an expected increase to 400 million by 2025. Childhood bronchial asthma prevalence within Egypt ranged between 7.7% in Nile Delta to 9.4% in Cairo (Nadhem, Mohammed &Hundhal, 2018).

Exposure to environmental factors that are intertwined together with familial, immunologic, endocrine, and psychological factors are predisposing factors for bronchial asthma (Hockenberry& Wilson, 2015).

Bronchial asthma symptoms can differ from person to person, but most people experience a

worsening of symptoms at night and in the early morning. The most common symptoms of bronchial asthma including wheeze, cough, dyspnea, and chest tightness (Noureddin et al., 2019).

Successful asthma management relies upon parent awareness about bronchial asthma management (Klett-Tammenet al., 2015). Mothers play pivotal role in the child adjustment to the illness, especially children who suffer from severe episodic manifestations of bronchial asthma (Amin Elsamman, and Hussein, 2014).

Aim of the Study

The aim of this study is to assess mothers' knowledge and practice regarding bronchial asthma among pre-school age children.

Research questions

- 1.What is the mothers' level of knowledge related to bronchial asthma?
2. What are the mothers' subjective practices related to bronchial asthma?

3.Method

3.1. Design

A cross-sectional study design was utilized to accomplish this study.

3.2. Setting

This study was carried out in all different Maternal and Child Health Care Centers (MCHC), family health centers\ units at El Mansoura district, the total number of these units is 54, (13 in urban areas and 41 in rural areas).

3.3. Participants

Mothers of pre-school age children (1-5 years) who were diagnosed as bronchial asthmatic child.

3.4. Sampling size and sampling technique:

The sample size was estimated to be (383) mothers who have children fulfilling the inclusion criteria, when the prevalence of bronchial asthma is considered to be 50% among the total under five in Mansoura district which is 128690 children, the desired precision is 5% with 95% confidence level (Schaeffer, Mendenhall&Ott, 1990).

Stratified sampling technique was used to divide Mansoura district into two main strata that were urban and rural. - Each stratum was divided geographically to east, west, north, and south. While simple random sampling was used to select health units/ centers from each stratum, as well as in selecting mothers attending health unit/ center to be interviewed.

3.5. Data Collection

Data was collected by using Socio-economic scale that was adopted from Fahmy and El-Sherbini socio-economic scale 1983, which was modified by El-Gilany, El-Wehady& El-Wasify (2012). This scale was used to assess the socio-economic characteristics of studied mothers. This scale includes seven domains with total score out of 84. It classifies four socioeconomic levels depending on the quartiles of the score (very low 0-20, low 21-41, middle 42-62 and high level 63-84).

Health history structured interview questionnaire was used to assess the characteristics of studied children, family history of bronchial asthma. Exposure to predisposing factors of bronchial asthma.

Structured interview questionnaire was to assess mothers' knowledge regarding bronchial asthma including manifestations, predisposing factors as well as preventive and controlling measures of bronchial asthma. The total score of knowledge ranged from was 62. The cut of point, the knowledge level was categorized into poor level scores less than 50% of total scores, fair level scores equal 50% to less than 65% of total scores

and good level with scores more than 65% of total scores.

Subjective practices assessment structured interview questionnaire was used to assess mothers' subjective practices to prevent bronchial asthma attacks. The total score of subjective preventive practice about bronchial asthma was 28 marks. The preventive practice was improper for scores less than 60% of total scores and proper for scores equal 60% and more of total scores.

Content validity of the developed tools was tested by a jury of five experts in the field of community health nursing and the required modification was carried out. Face validity of the developed tools was tested by conducting pilot study on (10%) of study sample (n=39 mothers) who had been excluded from the studied sample to evaluate the clarity, applicability of the study tools, and to estimate the approximate time required for data collection.

Official approval was issued from the dean of Faculty of Nursing- Mansoura University and the vice dean for higher graduate studies and submitted to the Ministry of Health and Population (MOHP) Directorate to obtain approval for conducting the study at the selected primary healthcare facilities.

Data was collected during the period from November 2019 to April 2020. Each mother of children under five years was interviewed individually for 25-30 minutes.

3.6. Ethical consideration. Approval was obtained from the Faculty of Nursing Research Ethics Committee. Oral approval from the participants during the initial data collection. The researcher explained the objectives of the study to mothers and assured them that their participation in the study is voluntary and the collected data is confidential and only used for the research purpose.

3.7. Data analysis. The collected data were coded, entered and analyzed by personal computer using Stand for statistical product and service solutions (SPSS) program version 20 and were presented by simple frequency tables. Mean and standard deviation for continuous variables and percentages for categorical variables. Correlation coefficient was used for correlation testing.

4. Results

Table (1) represents the characteristics of studied mothers and their children. It was observed that 84.8% of the studied mothers had been educated. Concerning residence, it clarified that

75.2 % of them were living in rural areas, 87.5 % were housewives and 92.2% of them were belonging to the middle socioeconomic class. The ages of 81.2 % of the studied children, ranged from three to five years with a mean age 3.49 (1.1) and 78.1% of them are males. In relation to predisposing factors of bronchial asthma among those children, the results revealed that 63.9% of the studied children had family history of bronchial asthma, and 78.3% were exposed to passive smoking at home.

Regarding mothers' knowledge about bronchial asthma results indicated that 96.9% and 99.5% of the studied mothers were knowledgeable about exposure to respiratory infection and cigarette smoke as triggers of asthma attack respectively. While nearly two thirds of studied mothers reported that many foods stuff may induce bronchial asthma attack. Strawberry, fish, mango, and egg was reported by 62.4%, 60.3%, 59% and 59.5% respectively. In relation to manifestations of bronchial asthma, coughing, wheezing, shortness of breath during exhalation and sleep disturbance were mentioned by 99.7% and 97.7%, 88.3%, 86.4% of mothers; respectively (Table 2).

Mothers' correct knowledge about preventive and management measures of bronchial asthma attacks, results in table (3) revealed that 99.7% and 98.4% of the studied mothers reported avoiding exposure to air draft and smoking respectively. While 84.1% of them mentioned avoid of allergic foods and drinks. Results indicated that 99% of mothers had correct knowledge about giving the prescribed medication as management measure of bronchial asthma attack, followed by 95% who knew administration of warm fluids. Concerning to technique of nebulizer usage, 66.8% and of studied mothers described the suitable dose and 65.8% described the technique of using the nebulizer. While 72.1% stated changing mask for every time as a precaution of nebulizer usage. Only 22.2% of them mentioned the correct position of child during inhaling medication by nebulizer (Table 3).

Knowledge score levels of mothers regarding bronchial asthma showed in table (4). Results indicated that 37.9% of the studied mothers had poor score level of knowledge about risk factors of bronchial, while 61.4% of them had fair knowledge about its manifestations. In relation to preventive measures, 34.7% of studied mothers had fair knowledge about preventive measures. Concerning to treatment of bronchial asthma, it was observed that 52% of mothers had fair knowledge and 38.6% of them had poor knowledge about

treatment. The mean of total knowledge score level of bronchial asthma, it was noticed that 33.7% of them had fair total knowledge score with a mean 47.0 (8.72).

Table (5) represents subjective practices of mothers regarding prevention of bronchial asthma attack. All of the studied mothers had improper score level of practice regarding diet. Moreover, improper practice reported by 97.7 % of the studied mothers regarding administration of warm herbal fluid and 96.1% in relation to precaution followed during winter season.

A positive significant correlation was observed in mothers' socioeconomic level in relation to knowledge scores and practice scores levels (Table 6).

5. Discussion

Primary prevention considered the main line of treatment and prevention of asthmatic attack. Asthma induces burden on affected children and their families, although asthma morbidity and mortality are preventable when children and their families are adequately educated about the disease (Albarraq, 2019).

Passive smoking aggravates airway hypersensitivity; along with other predisposing factors as dust, outdoor triggering factors and allergens cause worsening of the case. The present study revealed that more than three quarters of the families were smokers. The result is similar to the results of Perera, and Abeysena (2019) study reported that the identification of triggering factors was highly related to smoking in the house (88.4%).

Regarding factors that cause asthma attack, the current study revealed that weather changes increase the chance of an asthma attack in the most of studied children and more than half of mothers reported that strong odor can cause asthma attack for their children. These findings similar to Perera and Abeysena (2019) study they identified that asthma triggering factors were highly related to weather changes.

Mothers are play an important role in helping children to live with the condition. Therefore, adequate knowledge of asthma management is essential for the prevention of asthma exacerbations in their children (Albarraq, 2019).

Generally, the current study found that mean scores of knowledge level considered good (more than 65% of the total scores). However about one

third of the studied mothers had fair knowledge about asthma and its management. This study finding may be contributed the mothers get their knowledge by experience through recurrency of bronchial asthma attack among their children. This finding agreed with Al- Otaibi, and Al- Ateeq, (2018) results who revealed that the majority of participants in this study have a fair knowledge total knowledge score.

The lowest level of knowledge was related to information about risk factors and treatment of bronchial asthma. Most of the studied mothers reported that respiratory infection is one cause of bronchial asthma, while less than half of them reported that bronchial asthma is hereditary. This finding in the same line with Gajanan, Padbidri and Chaudhury (2016) study who revealed that the majority of the parents considered respiratory tract infections as precipitating factor for asthma, and similar to Abutiheen, Al-Saadi and Al-Quraini, (2019) study whose stated that less than two thirds had right knowledge about genetic cause of asthma. However, most of mothers of the present study mentioned environmental factors as triggers for bronchial asthma attacks. These findings are important in which the improved awareness about modifiable predisposing factors such as exposure to pesticides, dust, smoking and use of domestic cleaning agents the disease will positively affects preventive and controlling of bronchial asthma attacks (Hallit et al., 2019).

As regard to manifestation of asthma, the result of the current study showed that most of mothers mentioned symptoms of asthma as cough and shortness of breathing. This study finding may be contributed to the mothers had known the common symptoms of asthma that occurred to their children, but they did not know other signs and symptoms. This result is agreement with Amin, Elsamman, and Hussein (2014). They reported that two fifths of mothers mentioned incomplete manifestations of asthma such as cough and shortness of breathing.

On the other hand, the result of the current study revealed that three quarters of the studied mothers know that how to use inhalers devices. This finding is similar to Bhagavatheeswaran, Kasav, Singh, Mohan & Joshi (2016) results. They found that more than three quarters of the parents responded did not know the inhaled corticosteroid and the procedure of using the inhalers.

With regarding to mothers' subjective practices towards prevention of bronchial asthma attack, the present study finding showed that they had improper subjective practices regarding bronchial asthma attack. This result needs to combine all the efforts of the health education program to equip mothers with instructions and guidelines to provide safe care for their children with asthma. The present study finding was in the same line with Koshapor, Rostami, Renani& Cheraghian, (2018). They reported that the overall practice level of parent is poor as regards care of their children with asthma.

Socioeconomic level was reported to be positively correlated with the level of knowledge and practice Nouredin et al.(2019). The present study reported similar a positive correlation between mothers' knowledge scores and practice scores to their socioeconomic scores. The fair knowledge level and the improper practice of studied mothers could be interpreted in the highlight of this correlation, in which the majority of studied mothers belong to the low socioeconomic class.

6. Conclusion

Despite fair level of knowledge of mothers regarding bronchial asthma, there is improper practice of prevention asthma attack. Hence, the mothers need more effort to improve knowledge help adopt better practices to help bridge the existing gap between recommended and actual practices regarding childhood asthma.

7. Recommendations

Based on the findings and conclusions drawn from the study, the following recommendations are suggested:

1. Conducting health education program regarding management of bronchial asthma for mothers whose children have bronchial asthma to improve mothers' knowledge and subjective practice.
2. Designing health educational materials about asthma and provide it to mothers who are attending to primary health care units/centers.

Table (1): Characteristics of studied mothers and their children

Items	N= (383)	
	N	%
Characteristics of studied mothers		
Mothers' education		
Non educated	58	15.1
Educated	325	84.8
Mother's work		
Housewife	335	87.5
Worker/ farmer	17	4.5
Professional	31	8.1
Income		
Indebt	36	9.4
Just meet routine expenses	262	68.4
Meet routine expenses & emergencies	83	21.7
Able to save / invest money	2	0.5
Residence		
Rural	288	75.2
Urban	95	24.8
Socioeconomic scale		
Very low socio-economic level	2	0.5
Low socio-economic level	353	92.2
Middle socio-economic level	28	7.3
Characteristics of studied children		
Child age		
1 - < 3	72	18.8
3 - 5	311	81.2
Mean ± (SD)	3.49 (1.077)	
Gender		
Male	299	78.1
Female	84	21.9
Predisposing factors of bronchial asthma		
Family history of bronchial asthma	245	63.9
Passive smoking at home	300	78.3
Dusty house	27	7.0
Presence of animals in house	173	45.2

Table (2): Mothers' correct knowledge regarding predisposing factors and manifestations of bronchial asthma

Item	N=(383)	%
Predisposing factors of bronchial asthma		
Respiratory infection	371	96.9
Genetic	184	48.0
Environmental exposure		
Smoking and industrial emission	381	99.5
Dust, air draft and temperature variations	368	96.1
Strong odor	343	89.6
Agriculture waste	186	48.6
Pets	101	26.4
Pollen	44	11.5
Foods & beverage		
Strawberry, mango, and banana	239	62.4
Fish and egg	231	60.3
Chocolate and milk	228	59.5
Manifestations of bronchial asthma		
Coughing	382	99.7
Wheezing during exhalation	375	97.9
Shortness of breath	338	88.3
Sleeping disturbance	331	86.4
Chest tightness	276	72.1
Cyanosed lips	74	19.3

Table (3): Mothers' correct knowledge regarding preventive measures and management of bronchial asthma attacks

Item	N=(383)	%
Environmental factors and hygienic practice		
Avoid exposure to air draft and smoking	382	99.7
Keep house properly ventilated and free of dust	373	97.4
Expose bed linen to sun	368	96.1
Use cotton clothes	360	94.0
Keep child away during cleaning	351	91.6
Avoid exposure to strong odor	347	90.6
Wash linen with hot water	328	85.6
Avoid exposure to extreme atmospheric temperature	324	84.6
Keep toys clean	228	59.5
Use cotton linen	157	41.0
Use wet sweeping	86	22.5
Keep animal away from home	66	17.2
Controlling beverage and foods		
Avoid spicy foods	383	100
Avoid allergic foods and drinks including colored foods	322	84.1
Physical exercise and activities		
Avoid extraneous exercise	14	3.7
Practice breathing exercise	14	3.7
Management of bronchial asthma attacks		
Give medication as physician prescription	379	99.0
Give child warm fluids	364	95.0
Use inhaler or sprayers	105	27.4
Put the child in semi-setting position	85	22.2
Make breathing exercises	8	2.1
Keep child calm as possible	68	17.8
Technique of nebulizer usage		
Put suitable dose in appropriate place	256	66.8
Switch on device	252	65.8
Put mask on child nose	236	61.6
Precaution of nebulizer usage		
Change mask for every time	276	72.1
Keep child straight sit	85	22.2
Don't use with difficult breathing and during wheezing	12	3.1

Table (4): Knowledge score levels of mothers regarding bronchial asthma

Items	Scores	N (383)						\bar{X} (SD)	% of scores
		Poor		Fair		Good			
		N	%	N	%	N	%		
Risk factors	24	145	37.9	163	42.6	75	19.6	14.28 (4.46)	59.5
Manifestation	10	18	4.7	235	61.4	130	33.9	6.96 (1.52)	60
Preventive measures	20	20	5.2	133	34.7	230	22.7	15.11 (2.51)	75.5
Treatment	7	148	38.6	199	52.0	36	9.4	3.40 (1.76)	48.5
Total score	62	48	12.5	129	33.7	208	54.3	47.0 (8.72)	75.8

Note. Poor = scores less than 50% of total scores
 Fair = scores 50% to less than 65% of total scores
 Good = scores 65% and more of total score

Table (5): Subjective practices score levels of mothers regarding bronchial asthma

Practice	N (383)			
	Proper		Improper	
	N	%	N	%
Administering of proper diet	0	0	383	100
Administering of warm herbal fluids	9	2.3	374	97.7
Adequacy of cleaning of child's room	112	29.2	271	70.8
Frequency of house cleanliness	75	19.6	308	80.4
Using of proper detergents	0	0	383	100
Follow appropriate precaution during winter season	15	3.9	368	96.1
Administering of medication	46	12.0	337	88.0
Follow up	10	2.6	373	97.4

Note. Improper = scores less than 60 % of total scores
 Proper = scores more than 65% of total score

Table (6): Correlation between mothers' total scores of knowledge and total score of practice to their socioeconomic score

Items	Socioeconomic score	
	R	P
Knowledge score	0.301	0.000*
Practice score	0.263	0.000*

Note. r: for Pearson correlation
 * (P) Significant ($p \leq 0.05$)

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