

*Full Length Research Paper*

# Mothers' awareness of their children's needs during illness at Al-Mosheir hospital in Sakaka city, Saudi Arabia

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A large number of children suffering from pneumonia fail to reach health facilities well in the appropriate time because their mothers fail to recognize seriousness of their illness. Early recognition of symptoms of pneumonia by mothers and their participation in effective case management of pneumonia may reduce childhood mortality. This study assesses mothers' learning needs regarding pneumonia among children less than five years. A descriptive study were conducted on 160 mothers with their children under five years of age attending Al-Mosheir hospital in Sakaka city, Saudi Arabia. Data was collected using interview questionnaire covering Sociodemographic criteria of the mothers and multiple questions that cover mothers knowledge and perception about pneumonia. It was found that more than half (51.1%) of mothers who had children suffer from pneumonia their age were between 20-29 years. 75% of mothers have good level of knowledge and (94.1%) of their children have got pneumonia, as well as (64.3%) of mothers have fair level of perception and (97.1%) of their children have got pneumonia. There was a significant association between level of mothers' knowledge, perception and occurrence of pneumonia among their children this study concluded that mothers have good knowledge and fair perception regarding pneumonia among their children attending hospital. In spite of this, the recurrence of pneumonia among children was noticeable especially with young age mothers.

**Keywords:** Pneumonia, mother's learning needs, Saudi Arabia.

## INTRODUCTION

Each year more than 10 million children die before they reach their fifth birthday; seven to ten of these deaths are due to just five preventable and treatable conditions: pneumonia, diarrhea, malaria, measles and malnutrition and often a combination of these conditions (Black et al;2003). Community-acquired pneumonia (CAP) is the most severe form of an acute respiratory infection, accounting for 80% of all deaths from such an infection (Williams et al; 2002). There are approximately 150 million cases of childhood CAP reported each year. Although death from CAP is rare in industrialized countries, lower respiratory tract infection is one of the leading causes of childhood mortality in developing countries (Ruuskanen et al., 2011) Despite progress in life-support measures and antimicrobial therapy, the mortality of severe CAP has not varied since the mid-

1990s, suggesting that other factors are of crucial importance in the evolution of this infection (Boschi-Pinto et al., 2001).

Saudi Arabia is a country that has developed rapidly over the last decades as a consequence of oil to the world's economy. In Saudi Arabia pneumonia was not the major cause of deaths among less than five year children, it constitute 11.2% of children death under five years of age (Igo et al., 2008).. In spite of advanced technology, the population below poverty line is low and adding pneumococcal vaccine to obligatory vaccination schedules ,the morbidity of pneumonia among Saudi children under five years of age still noticeable (Worh Health Organization, 2006). In Aljouf area at the north of Saudi Arabia, the statistical department at maternity and children hospital in Sakaka city revealed that 251035

cases of respiratory diseases came to emergency department per year and 10603 cases of them diagnosed as pneumonia and admitted to inpatient pediatric ward for medical intervention that constitute 4.3% of total cases (statistical department, 2012). Recurrent pneumonia is generally defined as two episodes in 1 year or more than three episodes in a lifetime, and most children with recurrent pneumonia have an identifiable underlying predisposing factor (Irimi et al., 2008).

The seasonal pneumonia morbidity pattern corresponds to the temperature pattern throughout the year, with higher morbidity observed during the cold months and early springs, while lower morbidity observed during the warm months (Kurashi et al., 1992). The observed higher number of admission due to respiratory diseases including pneumonia among children was between January and April when the season in Saudi Arabia particularly at Al- Jouf area changes from cooler to dusty and hotter in the early spring. Earlier studies made by cruz et al., 2005; Al-Majhdi et al., 2009 reported similar findings that known as the influenza season and in many cases it precedes bacterial respiratory infections.

Several risk factors for acquiring respiratory infections in developing countries such as low parental education, low birth weight and lack of breast feeding have been described (Rudan et al., 2004). Nutritional factors also influence the risk of developing disease, family size and crowding have been linked to the risk of developing pneumonia, parent's smoking habits, bad weather in winter and sanitation influences many health outcomes and might affect the risk of developing pneumonia directly or indirectly (Ye et al., 2009). Over the past two decades, there have been several attempts to investigate the relationship between socio demographic risk factors and severe pneumonia in young children, but few reports have proven whether this relationship actually exists. The lack of epidemiological studies from developing countries makes it difficult to develop effective intervention strategies that may help to reduce the overall burden of this disease (Jackson et al., 2013).

Hence effective management of pneumonia entails active participation by mothers seeking appropriate health care and adequate adherence to home care messages. The involvement of mothers in pneumonia detection, assessment and prevention becomes an important factor in reducing morbidity and mortality of pneumonia in children (Simiyu et al., 2003). Therefore, assessing learning needs of mothers through their knowledge and perception to the severity of disease can be very important factors in reducing the occurrence of Pneumonia in children less than 5 years.

#### **Aim of the study:**

The aim of the study is to assess mothers' learning needs

regarding pneumonia among children less than five years of age attending maternal and children's hospital in Sakaka city.

#### **Research Question:**

1- What are the level of knowledge and perception about pneumonia among mothers of children under five years of age?

2- Is there association between the occurrence of pneumonia among children less than five years and mothers' knowledge and perception about pneumonia?

### **SUBJECTS AND METHODS**

#### **Design:**

Cross sectional descriptive design was used in this study.

#### **Setting:**

This study was conducted at inpatient pediatric ward, out-patient clinic and emergency ward of maternal and child hospital in Sakaka city. It is a tertiary governmental hospital that serves population in al -Jouf area at the north of Saudi Arabia

#### **Subjects**

A convenience sample of 160 mothers of children aged (2- 59 months) were selected from the previous mentioned setting during their attendance with their children to seek medical advice through two months (March and April) this period corresponds the peak of acute respiratory infection in the region, during academic year 2012-1013.

#### **Tools of data collection:**

A structured interview questionnaire was used to collect data and contain two parts:

##### **Part one:**

Socio demographic data about mother age, residence, education and occupation

##### **Part two:**

Multiple questions adopted from Siswanto et al., 2007 which was covered questions items related to mothers' knowledge and perception regarding pneumonia as the following:

**Table 1.** Percentage Distribution of Sociodemographic criteria of the studied sample.

Demographic criteria of mothers	No (n=160)	( %	Children diagnosed with pneumonia n=90	%
<b>Mother's age( years)</b>				
-20-29	65	40.7	46	51.1
-30-39	70	43.7	29	32.2
-40&more	25	15.6	15	16.67
<b>Marital status</b>				
-Married	141	88.1	79	87.8
-Divorced	10	6.3	4	4.44
-Widow	9	5.8	7	7.8
<b>Mother's occupation</b>				
-Employed	61	38.1	31	34.4
-House wife	99	61.9	59	65.6
<b>Mother's residence</b>				
-Urban	134	83.7	73	81.1
-Rural	26	16.3	17	18.9
<b>Mother's level of education</b>				
-Illiterate	75	46.9	42	46.7
-Primary	66	41.3	34	37.8
-Post primary	19	11.8	14	15.5

**• Mothers' knowledge about pneumonia that based on the theoretical model includes host, agent and environmental factors related to:**

- 1- Simple signs and symptoms of pneumonia.
- 2- Causes and factors related to pneumonia.
- 3- Simple assessment for pneumonia.
- 4- Pneumonia prevention.

**•Mothers' perception about pneumonia that based on health belief model as guidance that attempts to explain and predict health behaviors by focusing on the attitude and beliefs of mothers to perceived threat and net benefits through:**

- 1- Perceived susceptibility (mothers perception of their children risk to get pneumonia)
  - 2- Perceived severity (mothers perception to seriousness of disease and its potential consequences)
  - 3- Perceived barriers (mother's assessment of the influences that facilitate or discourage adoption of the promoted behavior according pneumonia prevention and assessment.
  - 4- Perceived benefits (Positive consequences of adopting the pneumonia assessment and prevention.
- Additional question for mothers of pneumonia children in pediatric ward: History of getting pneumonia in their children and hospitalization.

## METHODS

Ethical considerations: Before conducting the study an

approval from the dean of the faculty of applied medical science were taken and an official permission were taken from the director of the selected setting to conduct the study. An approval to participate in the study was taken from mothers during interview ensuring confidentiality and their right's to accept or refuse participation.

The questionnaire was translated to Arabic language; its content validity was tested by three jury in pediatric nursing specialty and reviewed by experts in faculty of education.

Scoring system: For 20 questions that measure mothers' knowledge, the score for each was given as 1 for correct answer, and 0 for not sure or wrong answer. The total was 20 and

mothers' knowledge was categorized as good (15-20), fair (10- less than 15) and poor (less than 10). While for 20 questions that measure mothers' perception about pneumonia score 3 was given for correct agreement/ disagreement, score 2 for no opinion and score 1 for incorrect agreement/ disagreement. Total score was 60 and mothers' perception categorized into: good (45- 60), fair (30- less than 45) and poor (less than 30).

A pilot study was conducted on 20 mothers to ensure that questions were clear and no ambiguous items.

### Statistical analysis:

Data was analyzed using SPSS (Statistical Package for Social Sciences) version 16. Qualitative variables were presented as number and per cent. Chi-square was used to determine association between the occurrence of pneumonia and both mothers knowledge and perception about pneumonia;  $p \leq 0.05$  was considered statistically

**Table 2.** Mothers knowledge about pneumonia in percentage distribution

Items of knowledge	know		Don't know		Not sure	
	No	%	No	%	No	%
<b>I- Simple signs and symptoms of pneumonia:</b>						
1- fever, cough and fast breathing are signs of pneumonia	106	66.25	18	11.25	36	22.5
2- Loss of appetite is sign of serious disease	79	49.37	36	22.5	45	28.12
3- Lower chest indrawing is also sign of pneumonia	80	50	20	12.5	60	37.5
4- Children with pneumonia sometimes have chest pain	108	67.5	7	4.37	45	28.12
5- Grunting, wheezing or others breathing sound can be related with pneumonia	84	52.5	17	10.63	59	36.87
<b>II- Causes and factors related to pneumonia:</b>						
6- Pneumonia is severe respiratory disease that's caused by germ or microorganisms.	82	51.25	17	10.62	61	38.13
7- Immunization can prevent your child from getting pneumonia.	131	81.87	15	9.37	14	8.75
8- Exclusive breast feeding will increase the immune system and decrease chance of body from getting pneumonia	141	88.12	15	9.37	4	2.5
9- Many family member in children's room doesn't increase children chance to get pneumonia disease or other respiratory infection	81	50.63	50	31.25	29	18.13
10- kitchen inside the house without proper ventilation can also increase risk of your children for getting respiratory infection and pneumonia	119	74.37	7	4.37	34	21.25
<b>III- Simple assessment for pneumonia:</b>						
11- The best you can do if you find your children has pneumonia is to bring your children to hospital/ health center	133	83.13	8	5	19	11.87
12- To sponge the sick child who has high fever with fresh water is good and easy way to reduce the temperature	109	68.13	12	7.5	39	24.36
13- The Dyspnea child having pneumonia should get oxygen therapy in hospital	153	95.63	5	3.13	2	1.25
14- Children may not able to drink or eat medicine if he/ she has massive vomiting	125	78.13	6	3.75	29	18.13
15- To give the sick child medicine on schedule for as long as the doctor direct and return back to hospital if the child's condition becomes worse is the better way to do if your child get pneumonia.	103	64.37	26	16.25	31	19.38
<b>IV- Prevention of pneumonia:</b>						
16- The sick child should sleep separately with other children to prevent the spreading of infection	122	76.25	9	5.63	29	18.13
17- Keeping someone's drinking glass and eating utensils separate from those of other family members if he or she has respiratory infection.	126	78.75	15	9.37	19	11.87
18- Wash hands frequently, especially after handling the sick child's utensils or dirty handkerchief	138	86.25	10	6.25	12	7.5
19- Keeping children from smoking parent	122	76.25	27	16.87	11	6.87
20- Keep the sick child in isolated room without open-close the window	41	25.63	64	40	55	34.37

**Table 3.** Level of knowledge about pneumonia among 160 mothers

Level of knowledge	No	%
Good	120	75
Fair	28	17.5
Poor	12	7.5

**Table 4.** Relation between level of mother's knowledge and occurrence of pneumonia among their children

	Good		fair		poor		Chi	p-value
	No	%	No	%	No	%		
Children have never got pneumonia	7	5.9	0	0	0	0	2.15	0.01
Children have got pneumonia	113	94.1	28	100	12	100		
Total	120	100	28	100	12	100		

\*Significant at  $p < 0.05$

**Table 5.** Mothers perception about pneumonia in percentage distribution

Items of pneumonia perception	Agree		Disagree		No opinion	
	No	%	No	%	No	%
<b>I- Perceived susceptibility:</b>						
1- Children will get pneumonia easily if they don't take appropriate immunization	117	73.13	33	20.63	10	6.25
2- People with cough/ cold may hug and kiss a young baby without harm the baby with their infection	65	40.63	53	33.13	42	26.25
3- The children will not have chance for getting pneumonia even though there are people who smoking in their room	43	26.87	90	56.25	27	18.87
4- Under nutrition children are easier to get pneumonia or other severs infectious disease than children who have better nutrition status.	40	25	24	15	96	60
5- Too many children in one bedroom will make respiratory infection spreads easily among room members	118	73.75	25	15.63	17	10.62
<b>II- Perceived Barriers:</b>						
6- Sever illness of child is due to the will of sprits, so the sick child should be taken to the monk or traditional healer first	59	36.87	80	50	21	13.12
7- Smoking habits among family members is very difficult to control, so its alright if keep the sick child around them	46	28.75	110	68.75	4	2.5
8- Cough and cold are normal conditions of children, so it will not getting worse even though it has not taken good care	80	50	33	20.63	47	29.37

Table 5. Continue

9- As well as the children are healthy or getting only mild diseases, why should we care to prevent pneumonia or other diseases	100	62.5	17	10.63	43	26.87
10- Giving baby bottle-feeding with instant milk is the simple , modern and healthy way for baby and mother	47	29.38	73	45.63	40	25
<b>III- Perceived Benefits:</b>						
11- Keep household and environment that surround it clean will prevent children from getting pneumonia.	152	95	5	3.13	3	1.87
12- Giving fresh air flow regularly to children's room will prevent children with cough and fever from getting pneumonia	137	85.63	17	10.62	6	3.75
13- Children having pneumonia will get good care and cure well if they are sent to hospital	153	95.63	4	2.5	3	1.87
14- It's better to give children complete immunization to prevent them from pneumonia	114	71.25	34	21.25	12	7.5
15- Regular weighing for children under five is necessary to be done according to measure nutritional status of the children	96	60	16	10	48	30
<b>IV- Perceived Severity:</b>						
16- Cough and fast breathing is serious sign of disease.	84	52.5	32	20	44	27.5
17- Children cannot drink or cannot sucking breast milk well is serious sign of disease	76	47.5	73	45.63	11	6.87
18- Running nose and cough only is serious sign of disease.	87	54.38	7	4.38	66	41.25
19- Breathing with grunting or wheezing sound is serious sign of disease.	67	41.87	12	7.5	81	50.62
20- Chest indrawing when child cries is serious sign of disease	99	61.87	9	5.63	52	32.5

significant.

## RESULTS

A total of one hundred and sixty mothers were interviewed to find out their knowledge and perceptions about pneumonia among their children. Regarding socio-demographic characteristics of all interviewed mothers as viewed in table (1), about half of them (43.7%) their age were between 30-39 year, while more than half (51.1%) of mothers of children diagnosed with pneumonia (n= 90) their age were between 20- 29 years. The majority of mothers (88.1%) were married and 83.7% of them belong

to urban areas, as well as about two third of mothers were house wife and about half of them were illiterate.

Table (2) shows mothers 'knowledge about pneumonia; two third of them (67.5%) and (66.25%) know that chest pain, fever, cough and fast breathing are main signs and symptoms of pneumonia .As regard causes and factors related to pneumonia the majority of mothers (88.12%) and (81.87%) know that exclusive breast feeding and immunization can reduce or prevent child from getting pneumonia, while (51.25%) of them know that pneumonia caused by germ or microorganism. Also, the majority of mothers (95.63%) and (83.13%) know that child with most of them knows that child with dyspnea should

**Table 6.** Level of perception about pneumonia among 160 mothers

Level of perception	No	%
Good	33	20.7
Fair	103	64.3
Poor	24	15

**Table 7.** Relation between level of mother's perception and occurrence of pneumonia among their children

	Good		fair		poor		Chi	p-value
	No	%	No	%	No	%		
Children have never got pneumonia	4	12.1	3	2.9	0	0	2.18	0.03
Children have got pneumonia	29	87.9	100	97.1	24	100		
Total	33	100	103	100	24	100		

\*\*Highly significant at  $p < 0.001$

get oxygen therapy and the best way is to bring child to hospital for assessment. In relation to mothers knowledge about prevention of pneumonia, the majority of them (86.25%) and three quarter of them (78.75%) and (76.25%) know that hand washing frequently, keeping child utensils separate from others, isolate child from others and keeping child away from smoking parent.

Regarding mothers' level of knowledge about pneumonia in table (3), 75% of mothers have good level of knowledge, 17.5% have fair level of knowledge and only 7.5% have poor level of knowledge. In spite of this 94.1% of mothers that had good level of knowledge their children have got pneumonia. There was statistical significant relation between mothers level of knowledge and occurrence of pneumonia ( $\chi^2=2.15$ ,  $p < 0.05$ ) table (4).

Table (5) clarifies mothers' perception regarding pneumonia, about three quarter of them (73.13%) agree that child who don't take appropriate immunization and too many children in one room are susceptible to acquire respiratory infection including pneumonia while the minority (25%) of them agree that under nutrition children are easier to get pneumonia. Regarding perceived barriers, two third of mothers (62.5%) and half of them (50%) perceived that no necessary to provide care to children either healthy or had got mild disease to prevent pneumonia as well as cough and cold are normal conditions of children. As regard perceived benefits, the majority of mothers (95.63%), (95%) and (85.63%) agree that children having pneumonia will get good care in hospital, keeping house and environment around child clean and fresh air flow regularly in child room will prevent child from getting pneumonia. In relation to perceived severity, about two third (61.87%) of mothers agree that chest indrawing is a serious signs and more than half of them (54.38%) perceived that running nose and cough is the only serious signs while (52.5%) of mothers perceived that cough and fast breathing is a

serious signs of pneumonia.

Table (6) shows mother's perception level regarding pneumonia (64.3%) of mothers had fair levels of perception, (20.7%) of them had good perception and only (15%) had poor perception. There was a significant relation between level of mother's perception and occurrence of pneumonia among their children as seen in table (7) as (97.1%) of mothers who had fair perception and (87.9%) of mothers who had good perception and (100%) of mothers who had poor perception their children got pneumonia.

## DISCUSSION

Pneumonia in children under five years of age is still the leading cause of childhood mortality in many developing countries (Iqbal et al., 2010). In Saudi Arabia there has been considerable progress in vaccination strategies for the prevention of childhood infections including pneumonia, the importance of measles and pertussis vaccine in reducing child mortality is well established, similar preliminary success with pneumococcal conjugate vaccine in Saudi raises the hope that we may soon have vaccines against the common bacterial pathogens which cause pneumonia (Banjaro, 2007; Obaro and Madhi, 2006). The sub-optimal child rearing practices and delays in care seeking are the major underlying factors for this disease (Ghimire et al., 2012).

The current study revealed that the higher occurrence of pneumonia disease among children less than five years was founded among mothers aged between 20-29 years than older mothers. This may be due to lack experience of young age mothers by common respiratory diseases including pneumonia among this age, In addition to these most of mothers were illiterate and none working (table1). Several studies showed that mother's lack of education and being inexperienced as a caregiver were the two major risk factors for not recognizing childhood

childhood pneumonia. This findings correlates with the finding of a study made by Memon, 2013 that revealed statistically significant association between recognition of symptoms of pneumonia and maternal educational status ( $p=0.04$ ).

According to Integrated Management of Neonatal and Childhood Illnesses, fast breathing and chest in drawing are the two basic parameters to identify pneumonia and its severity in children. In the current study, two third of the interviewed mothers reported that chest pain, fever, cough and fast breathing were signs and symptoms for pneumonia. This results corresponding with a study conducted by Uwaezuoke et al., 2002, that revealed 61% of mothers recognizing pneumonia by difficult breathing; while fast breathing was reported by 42% of the mothers and 26.5% of the mothers were of the opinion that severe cough was the symptom of pneumonia.

The current study indicated that the majority of mothers (75%) had good level of knowledge about acute respiratory infection especially pneumonia regarding simple signs and symptoms, causes and factors, simple assessment and prevention of pneumonia. In spite of this (94.1%) of mothers with good knowledge their children have got pneumonia. There was significant association between mothers knowledge and occurrence of pneumonia ( $\chi^2= 2.15, p < 0.05$ ). This results agreed with Ukwaja, 2010 who tested mothers knowledge of signs and symptoms of pneumonia and found that only 23% were very familiar with the cardinal signs and symptoms of pneumonia, 58% had scanty information and 19% had no knowledge. Hence, less than a quarter of caretakers can take a correct and timely decision about attending a clinic, mothers including the group of good knowledge of signs and symptoms of pneumonia mentioned that pneumonia are difficult to distinguish. Other studies made by Capelastegui, 2004; Siswanto et al., 2007 revealed no significant association between the occurrence of pneumonia and mothers knowledge that is contradicted with the findings of this study.

As regard mothers perception about pneumonia some of them have correct and others have incorrect perception with (64.3%) from the total interviewed mothers has fair level as regard perceived susceptibility, perceived barriers, perceived benefits and perceived severity of pneumonia, this perception may resulting from their believes, customs, attitude and past experience. while only (15%) of them has poor perception about pneumonia. There was significant association between mothers level of perception and occurrence of pneumonia as 97.1% of mothers with fair perception their children had got pneumonia ( $\chi^2 2.18 p < 0.03$ ). These findings disagreed with study made by Siswanto, 2007 found no significant association between the occurrence of pneumonia and mothers perception. Another previous study made by Zaman, 1994 also found no significant association between the occurrence of pneumonia and mothers perception.

Community-acquired pneumonia (CAP) is one of the most common and serious infections in children, with an incidence of 34 to 40 cases per 1,000 in industrialized countries. In the developing world, CAP is even more common and more severe and is the largest killer of children. Because pneumonia is common and is associated with significant morbidity and mortality, properly diagnosing pneumonia, correctly recognizing any complications or underlying conditions, and appropriately treating children are important (McIntosh, 2002). In this study we still found lack of knowledge among mothers especially about germs. In spite of the low perception to perceived severity that was dominant among all the perception's dimensions, there was only a few mothers gave correct opinion about chest indrawing, running nose and cough in term of severity of pneumonia.

## CONCLUSIONS AND RECOMMENDATIONS

In conclusion mothers have good knowledge and fair perception regarding pneumonia among their children attending hospital. In spite of this, the recurrence and frequent hospital admission of children with pneumonia was noticeable particularly among mothers of young age. So health education is recommended during the vaccination sessions to increase mother's awareness about pneumonia, enable them to recognize signs of pneumonia in order to improve the case detection of pneumonia, its early referral and consequently reducing morbidity and mortality of pneumonia.

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