

Parents' Care About Pneumonia Among Preschool Children

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Abstract

Background: Pneumonia is the inflammation of the lung parenchyma and it is one of the leading cause of mortality in children aged less than five years. **Aim:** Assess parents' care for preschool children with pneumonia. **Setting:** pediatric outpatient clinic at the Nasser Institute Hospital for Research and Treatment, Cairo, Egypt. **Research design:** A descriptive design was used in this study. **Sample:** A purposive sample composed of 135 children diagnosed with pneumonia and their parents attending the previous mentioned setting over a period of 6 months during the winter and the autumn season. **Tools:** First tool, an interviewing questionnaire designed by the researcher to assess a) socio-demographic data of children, b) socio-demographic data of parents, C) parent's knowledge, D) parent's practice. Second tool, consisted of a) Child medical record data, Physical examination tool. **Results:** More than half of the studied parents had unsatisfactory knowledge meanwhile, more than one third of them had satisfactory knowledge. More than half of the studied parents had not done practice meanwhile, more than one third of them had done practice. More than two thirds of the studied children had health problems meanwhile, more than one third of them had no health problems. More than half of the studied children had achieved needs meanwhile, more than one third of them had not achieved needs. **Conclusion:** There was a highly statistically significant relation between the studied parents demographic characteristics (age, education level and occupation) and satisfactory knowledge. There was a statistically significant relation between the studied parents demographic characteristics (age, education level and occupation) and done practice. There was a highly statistically significant positive correlation between total knowledge and total practice. **Recommendations:** Further research studies are needed for ongoing assessment of children and parents including large sample for generalization of results.

Keywords: Pneumonia – Preschool Children - Parents' Care

Introduction:

Pneumonia is the inflammation of the lung parenchyma characterized by cough, sore throat, running nose, fast & difficulty breathing, wheezing, fever, irritability, chest pain, chill, tachycardia etc. It is one of the major reason for which children are brought to the hospitals and health facilities. Most

children have 3 to 5 attacks of acute respiratory infection (ARI) in each year (Jena, 2014).

Approximately two million children under five die from pneumonia each year, accounting for nearly one in five child deaths globally. The incidence of clinical pneumonia in developing

countries range between 20-30% (Abdulkadir et al. 2016).

In developing countries, low socio-economic status, malnutrition, low birth weight, non-exclusive breastfeeding, indoor air pollution, crowding, parental smoking, zinc deficiency, mother's experience as a caregiver, mother's age, lack of education in the mother, humid conditions, high altitude, vitamin A deficiency, birth order and outdoor air pollution were found as possible risk factors associated with pneumonia among children (Cruz et al., 2015).

Diagnosis of pneumonia consists of two very important parts; first is to determine the syndrome by history clinical examination and chest radiology; and secondly is to determination of etiology by laboratory tests. Intensive physical examination should be done with the respiratory system being the main center of attention or focus. Important information can be gained through careful observation and it is of great importance especially in very young children as they difficult to examine (Kallander et al. 2016).

Treatments of pneumonia include either antibiotics or antiviral medicines, according to its type, if it is diagnosed early enough, and antibiotics may be prescribed to prevent secondary infections or complications. Pneumonia can be prevented among children less than five years by providing mothers by information about practicing good hygiene thorough frequent hand cleaning, avoiding interaction with any children who are sick, receiving good nutrition, Avoiding passive smoking . It is also important to increase access to immunization, reduce indoor and outdoor air pollution. Breastfeeding during the first six months is also very important in preventing pneumonia, because breast

milk contains a nourishing supply of nutrients, antioxidants, hormones and antibodies a child needs for growth and development (Center for Disease Control and Prevention CDC, 2016).

Prognosis of pneumonia is good in early diagnosis & early initiation of treatment in appropriate time otherwise leads to serious complications and may have fatal outcome. As prevention is better than cure, the rate of incidence can be reduced by giving adequate knowledge regarding the risk factors, etiology, clinical manifestation, prevention& when to seek medical help (Jena, 2014).

Insufficient knowledge about the danger signs and symptoms of pneumonia among the primary caregivers is another cause of delayed seeking care for childhood pneumonia, which could even be life threatening Regarding causative agent of pneumonia in children under five years bacteria, viruses, or fungi which live in the nose, mouth, sinuses can enter the lungs and create infections, including pneumonia. Also they can get the bacteria or viruses from people who are infected with them, whether they show symptoms or not (Abolwafa & Mohamed, 2017).

Significance of the study:

Pneumonia is the number one infectious killer of children under age 5 globally, killing an estimated 935,000 children each year, that's more than 2500 per day. Pneumonia causes 15% of all deaths in children under age 5 worldwide. Increase the capability of families to recognize danger signs of pneumonia in children and to encourage appropriate and early care-seeking behavior is important (Abuka, 2017). Therefore it is a necessity to assess parents' care about pneumonia among preschool children. Approximately 28,436 cases of pneumonia occur in Egypt accounting for

approximately 17,075 for male children and 11,361 for female children. And according to the A WHO statistical in Egypt cause of deaths in children under 5 year Approximately 11% from pneumonia in 2013. (WHO, 2018).

- It is hoped that, data generated from this study could help in increasing awareness of health care professionals of parents' care about pneumonia among preschool children .

- Role of community health nursing A booklet or pamphlet illustrating all information the parents may need should be developed.

- Further research studies are needed for ongoing assessment of children and parents including large sample for generalization of results.

Aim of the Study:

This study was carried out to assess parents' care for preschool children with pneumonia.

Research questions:

1) Is there a relationship between parent's socio demographic characteristics and their knowledge regarding pneumonia?

2) Is there a relationship between parent's socio demographic characteristics and their practices regarding pneumonia?

3) Is there a relationship between parent's knowledge characteristics and their practices regarding pneumonia?

Subjects and methods:

Research design: A descriptive research design has been utilized to conduct this study.

Setting: The study was conducted in pediatric outpatient clinic at the Nasser Institute Hospital for Research and Treatment, Cairo, Egypt.

Subjects: A purposive sample composed of 135 children diagnosed with pneumonia and their parents attending the previous mentioned setting over a period of 6 months during the winter and the autumn season. This period corresponds to the peak of acute respiratory infection in the region.

Inclusion Criteria:

- Age ranged from 1-5 years old.
- Children diagnosed with pneumonia.
- Children free from congenital anomalies and chronic diseases.
- The parents accepted to participate in the study.

Tools of data collection

Tool (I):

Data collected through used the following tools:

The first Tool: An interviewing questionnaire was designed by the investigator after reviewing the related literatures and it was consisted of four parts:

Part 1:

It concerned with the socio-demographic characteristics of the child (sex – age – birth order, child arrangement, nursery school).

Part 2:

It concerned with the socio-demographic characteristics of the parents in relation to (age, sex, level of education, income, family type, residence, and crowding index).

Part 3:

It concerned with parent's knowledge regarding their children with pneumonia and included the following items: (meaning, causes, sign & symptoms, risk factors, pneumonia prevention, vaccine of pneumonia, the most vulnerable groups are pneumonia, pneumonia complication, diagnostic tests, follow up and treatment decrease complication, medication names, known the medication by name, follow up purpose, follow up frequency, causes of relapse).

Scoring system: The correct answer was scored one, and wrong answer was scored zero. Total question items for knowledge (21) questions. These scores were summed-up and converted into a percent score.

▪ Score from < 50 referred to unsatisfactory knowledge.

▪ Score from >50 referred to satisfactory knowledge.

Part 4:

It concerned with parent's practice regarding their child with pneumonia: it

covers the following items; (fever, hand washing, oral and nose care).

Scoring system: The done correctly was scored one, and that not done incorrectly was scored zero. These scores were summed-up and converted into a percent score.

▪ Score from < 60 referred to not done correctly.

▪ Score from > 60 referred to done correctly.

The second tool:

A) Child medical record data were collected from child record kept in the outpatient clinic in relation to the child (investigations; CBC, Blood Chemistry, chest x-ray, onset of disease).

B) Physical examination tool adapted from (Burns, 2005) and was modified by investigator for assessing physical status of child from head to toe.

Content and Face Validity:

It was ascertained by a group of the experts in field of community nursing to test its content validity and reliability statistically.

Procedure

The investigator met the hospital director and explained the purpose and the methods of the data collection. Data were collected through six months periods / the investigator visited the clinic will be available 3 days per weeks (Sunday, Tuesday, Wednesday) from 10 am to 1pm. and data will be collected the time it takes to complete each from is half an hour till complete the sample. Each parents' care /child interviewed

individually using the previously mentioned study tools.

Fieldwork

The investigator first met with the parents' in the previously mentioned setting, explained the purpose of the study after introducing herself. The parents were assured that information collected would be treated confidentially, and it would be used only for the purpose of the research. Then, individual interviewing was done after obtaining parents oral consent to participate. Approval was obtained through an issued letter from Dean of Faculty of Nursing, Ain Shams University to directors of the previously mentioned setting explaining the aim of the study in order to obtain their permis

Ethical considerations

Verbal approval was obtained from the parents' care before inclusion in the study; a clear and simple explanation was given according to their level of understanding, physical and mental readiness. They secured that all the gathered data was confidential and used for research purpose only and assured to be free to withdraw from the study at any time.

Statistical design

The collected data was statistically analyzed and presented in tables and graphs, using appropriate valid statistical methods and tests version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean \pm standard deviation (SD). Qualitative data were expressed as frequency and percentage.

Results:

Table (1) shows that, the mean age of the studied children was 8.3 ± 1.2 , more than two thirds of them (61.5%) were males, more than one third of them (44.4%) were arranged as second child in the family and the majority of the studied children (88.1 %) go to nursery school.

Table (2) clarifies that, the mean age of studied mothers was 32.5 ± 3.4 and studied fathers 43.8 ± 4.5 , more than one third of mothers (31.9 %) were had technical institute education while more than one third of fathers (42.9%) were had basic education, more than two thirds of mothers (61.5%) were housewives and more than two thirds of fathers (61.5%) were employee, more than two thirds of them (78.5%) were nuclear family type, more than half of them (54.1%) were from rural area, more than two thirds of them (65.2%) had not enough monthly income and more than two thirds of them (79.3%) had crowding index of >3

Figure (1) reveals that, more than two thirds of the studied fathers (67.4 %) were smoking.

Figure (2) shows that, about one third of the studied parents (26.7%), the main source of their information was the television.

Figure (3) represents that, more than half of the studied parents (52.6%) had unsatisfactory knowledge meanwhile, more than one third of them (47.4%) had satisfactory knowledge.

Figure (4) demonstrated that, more than half of the studied children (56.3%) had achieved needs meanwhile, more than one third of them (43.7%) had not achieved needs.

Figure (5) reveals that, more than half of the studied parents (57.8 %) had not done practice meanwhile, more than

one third of them (42.2%) had done practice.

Figure (6) shows that, more than two thirds of the studied children (63.7%) had health problems meanwhile, more than one third of them (36.3%) had no health problems.

Table (3) illustrates that, there was a highly statistically significant relation between the studied parents demographic characteristics (age, education level and occupation) and satisfactory knowledge with p-value ($p < 0.001$).

Table (4) shows that, there was a statistically significant relation between the studied parents demographic characteristics (age, education level and occupation) and done practice with p-value ($p < 0.05$).

Table (1): Distribution of the studied children according to their socio-demographic characteristics (n=135).

Items	No	%
Sex		
Male	83	61.5
Female	52	38.5
Age (years)		
<2 years	42	31.1
2-4 years	56	41.5
5 years	37	27.4
Mean \pm SD		8.3 \pm 1.2
Child arrangement		
First	45	33.3
Second	60	44.4
Third	21	15.6
Fourth	9	6.7
Nursery school		
Yes	119	88.1
No	16	11.9

Table (5) clarifies that, there was a highly statistically significant positive correlation between total knowledge and total practice with p-value ($p < 0.001$).

Table (6A) illustrates that, about 67.4 % of the studied children respectively had normal in Laboratory investigations from (Blood Chemistry) so represents 36.3% of the studied children is Abnormal in Laboratory investigations from (Vital signs).

Table (6B) illustrates that, about 73.3% of the studied children respectively had Nane Cough in Respiratory Assessment so represents 48.1%, of the studied children respectively had Condition of Mouth is Cracked .

Table (2): Distribution of the studied parents according to their socio-demographic characteristics (n=135).

Items	Mothers		Fathers	
	No	%	No	%
Age (years)				
20-30 years	38	28.1	38	28.1
30-40 years	54	40.0	43	31.9
≥ 40years	43	31.9	54	40.0
Mean ±SD	32.5±3.4		43.8±4.5	
Education level				
Illiterate	20	14.8	10	7.4
Read and write	18	13.3	21	15.6
Basic education	30	22.2	58	42.9
Technical institute	43	31.9	26	19.3
Bachelors	24	17.8	20	14.8
Occupation				
Working	52	38.5	118	87.4
Not working	83	61.5	17	12.6
	No.		%	
Family types				
Nuclear	106		78.5	
Extended	29		21.5	
Residences				
Rural	73		54.1	
Urban	62		45.9	
Monthly income				
Enough	47		34.8	
Not enough	88		65.2	
Crowding Index				
≤3	28		20.7	
>3	107		79.3	

Fig. (1): Distribution of the studied parents according to their smoking (n=135).

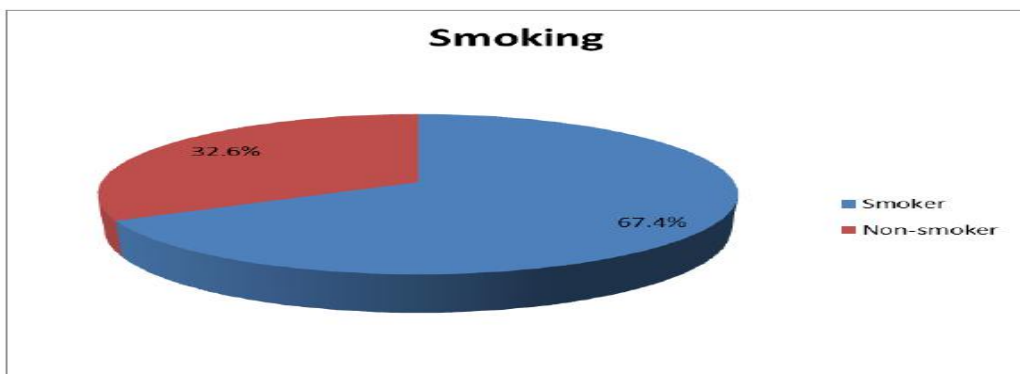


Fig. (2): Distribution of the studied parents according to their information sources (n=135).

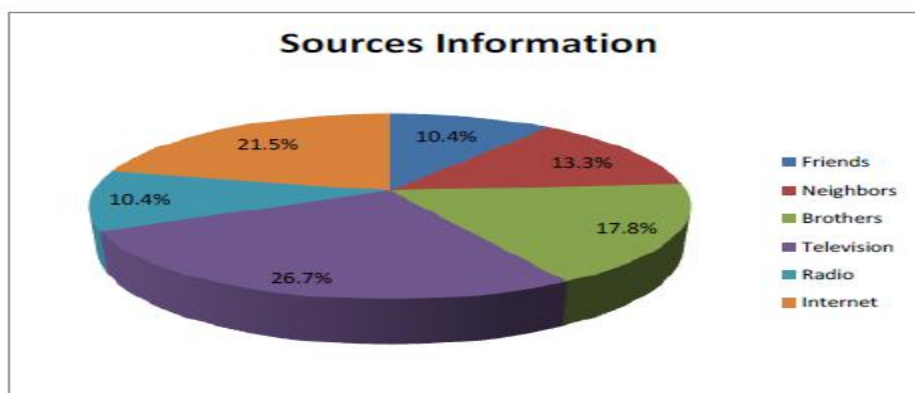


Fig. (3): Distribution of the studied parents according to their total score level related to knowledge about pneumonia (n=135).

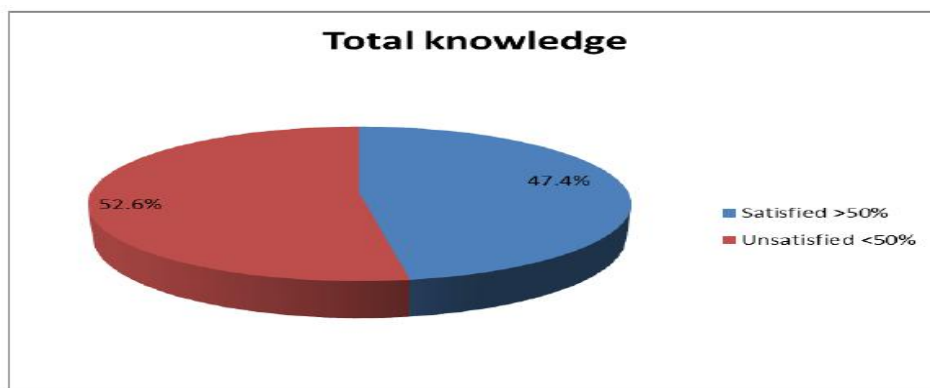


Fig. (4): Distribution of the studied children according to their total physiological needs (n=135).

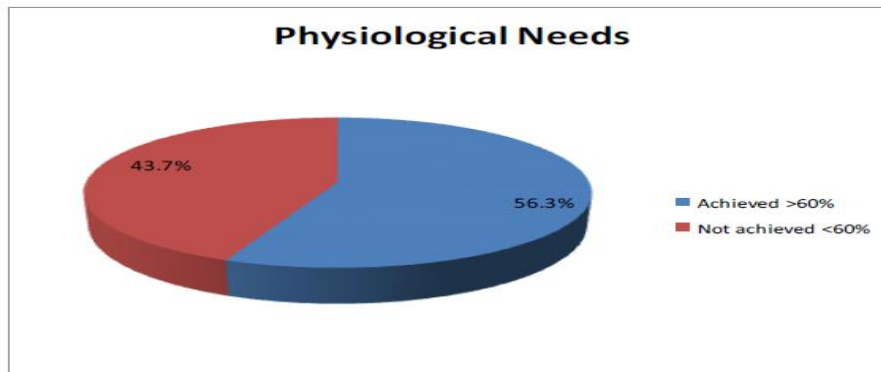


Fig. (5): Distribution of the studied parents related to total practice according to their children with pneumonia (n=135).

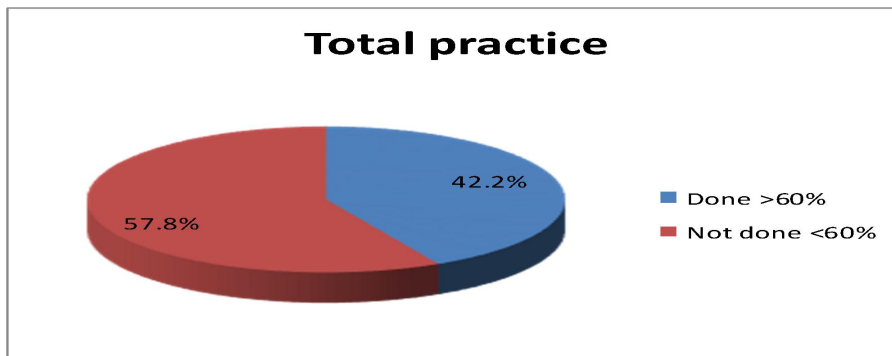


Fig. (6): Distribution of the studied children to their total score level regarding to health problems (n=135).

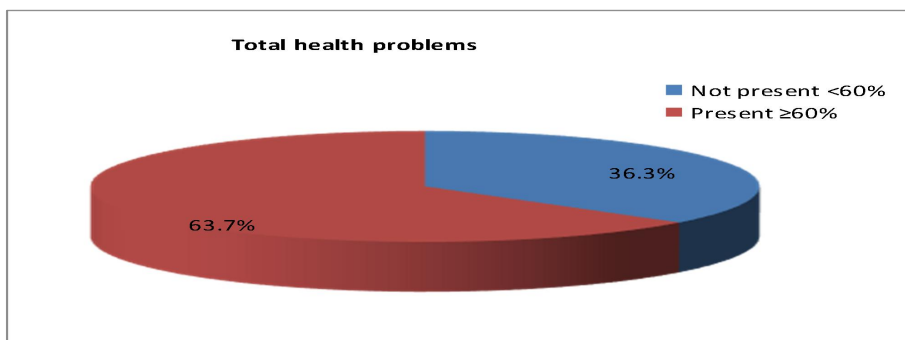


Table (3): Relation between parent's socio demographic characteristics and their knowledge regarding pneumonia (n=135).

Items	Total Knowledge				Chi-square test	
	Satisfied >50% (N=64)		Unsatisfied <50% (N=71)		x ²	p-value
	No.	%	No.	%		
Age (years)						
20-30 years	14	21.9	24	33.8		
30-40 years	19	29.7	35	49.3	15.466	<0.001**
≥ 40years	31	48.4	12	16.9		
Education level						
Illiterate	4	6.3	16	22.5		
Read and write	8	12.5	10	14.1		
Basic education	9	14.1	21	29.6	22.342	<0.001**
Technical institute	32	50.0	11	15.5		
Bachelors	11	17.2	13	18.3		
Occupation						
Worker	47	73.4	5	7.0	59.884	<0.001**
Not working	17	26.6	66	93.0		

Table (4): Relation between parent's socio demographic characteristics and their practices regarding pneumonia (n=135).

Items	Total Practice				Chi-square test	
	Done >60% (N=57)		Not done <60% (N=78)		x ²	p-value
	No.	%	No.	%		
Age (years)						
20-30 years	14	24.6	24	30.8		
30-40 years	19	33.3	35	44.9	4.803	0.021*
≥ 40years	24	42.1	19	24.4		
Education level						
Illiterate	5	8.8	15	19.2		
Read and write	7	12.3	11	14.1		
Basic education	12	21.1	18	23.1	14.093	0.007*
Technical institute	15	26.3	28	35.9		
Bachelors	18	31.6	6	7.7		
Occupation						
Worker	30	52.6	22	28.2	7.298	<0.001**
Not working	27	47.4	56	71.8		

Table (5): Correlation between knowledge of the studied parent's and their practices regarding pneumonia (n=135).

Total Practice	Total Knowledge		Spearman Correlation Coefficient	
	Satisfied >50% N=64	Unsatisfied <50% N=71	rs	p-value
Done >60% (N=57)	46 (71.9%)	11 (15.5%)	0.561	<0.001**
Not done <60% (N=78)	18 (28.1%)	60 (84.5%)		

Table (6A): Distribution of the studied children according to their laboratory investigations (n=135).

The Medical Record	Normal		Abnormal	
	No.	%	No.	%
Laboratory investigations				
CBC	87	64.4	48	35.6
Blood Chemistry	91	67.4	44	32.6
Chest x-ray	87	64.4	48	35.6
Vital signs	86	63.7	49	36.3

According to reference of Laboratory test.

Table (6B): Distribution of the studied children according to their physical examination (n=135).

Physical Examination Sheet for children	NO.	%
Items		
Onset of disease		
• <1 year	82	60.7
• > 1 year	53	39.3
BMI [wt/(ht)²]		
• Under weight	0	0
• Normal	82	60.7
• Over weight	53	39.3
Condition of Nose		
• Nares patent	78	57.8
• Deviated	57	42.2
Condition of Mouth		
• Lips intact	70	51.9
• Cracked	65	48.1
State of Oral mucosa		
• Pink	85	63.0
• Dry	50	37.0
State of Swallowing		
• Smooth	89	65.9
• Dysphagia	46	34.1
Skin Integrity Assessment		
State of Skin		
• Warm	91	67.4
• Clammy	44	32.6
Colour of Skin		
• Normal	80	59.3
• Pale	55	40.7
Respiratory Assessment		
Condition of Breathing		
• Regular	91	67.4
• Irregular	44	32.6
• Nane Cough	99	73.3
• Productive	36	26.7
Gastrointestinal Problems:		
Condition of Abdomen		
• Soft	94	69.6
• Distended	41	30.4

Discussion:

Pneumonia is an illness, usually caused by infection, in which the lungs become inflamed and congested, reducing oxygen exchange and leading to cough and breathlessness. It affects individuals of all ages but occurs most frequently in

children and the elderly. Among children, pneumonia is the most common cause of death worldwide. In the developing world today, many deaths from pneumonia are also preventable by immunization or access to simple, effective treatments (Jena, 2014).

The current study results revealed that, more than one third of the studied children were 2-4 years with mean age of 4.2, less than two thirds of them were males (**Table 1**). These findings were consistent with **Abuka (2017)** who found that, in a study about prevalence of pneumonia and factors associated among children 2-59 months old in Wondo Genet district, Sidama zone, SNNPR, Ethiopia, children aged 12-59 months accounts largest proportion of surveyed children and male accounts more than half of the participated children.

Concerning child arrangement, more than one third of the studied children were arranged as a second child in the family and the majority of them went to nursery school (**Table 1**). These findings agreed with **Fekadu et al (2014)** who found that, in a study about prevalence of pneumonia among under-five children in Este town and the surrounding rural kebeles, Northwest Ethiopia; A community based cross sectional study, about one fifth of the studied children was ranked as second child. Also, **Haskins and Kotch (2010)** stated that, in a study about day care and illness: evidence, costs, and public policy, USA, a high ratio of children are admitting to day care centers as a close to 50 percent of mothers of infants work out of home.

In relation to parents' age, the mothers' mean age was 32.5 ± 3.4 , and that of fathers was 43.8 ± 4.5 (**table 2**). This finding was in the same line with **Fekadu et al (2014)** who found that, the mean age of mothers was 28.4 and that of fathers was 36.8.

As regard to educational level, less than one third of mothers were had technical institute education while more than one third of fathers were had basic education (**table 2**). In the investigator's

point of view, assessment of parents' education is essential because low educational attainment was the strongest predictor of child disease. This finding disagreed with **Abuka (2017)** who stated that, more than half of mothers attended primary education and less than one fifth of fathers attended secondary and above level.

Regarding occupation status of parents, less than two thirds of mothers were housewives and two thirds of fathers were employee (**table 2**). This finding was supported by **Abuka (2017)** who stated that, more than two thirds of mothers were housewives and more than one third of fathers were farmers.

The current study results revealed that, more than three quarters of the studied subjects had nuclear family and more than two thirds had no enough income (**table 2**). These findings were in the same line with **Hui (2010)** who stated that, in a study about risk factors of pneumonia among children under five years of age at Queen Sirikit National Institute of Child Health, Bangkok, Thailand, the majority of the studied subjects were had nuclear family. Meanwhile, **Zaman (2010)** reported that, in a study about knowledge, perception and self care practice associating with pneumonia and bronchitis in children under five years of age, Bangkok, Thailand, the majority of the studied subjects were had average (medium level) family income.

More than half of the studied parents lived in rural area (**table 2**). This finding supported by **Abolwafa and Mohamed (2017)** who illustrated that, in a study about effect of educational program on mothers knowledge about prevention of pneumonia for their children under five years, Egypt, the

majority of the studied subjects lived in rural area.

More than two thirds of the studied fathers were smoking (**fig. 1**). This finding was supported by **Sofoluwe (2010)** who confirmed that, in a study about smoke pollution in dwellings of infants with bronchopneumonia, Nigeria, smoke associated with childhood pneumonia and bronchiolitis.

In relation to information sources, nearly one third of the studied parents had their information from TV and slightly more than one fifth of them were had their information from internet (**fig. 2**). This finding disagreed with **Siswanto et al. (2010)** who confirmed that, in a study about Knowledge and Perception of Pneumonai Disease among Mothers of Children under Five Years attending Nakhon Pathom General Hospital, Thailand, health personals were the main source of information about pneumonia.

The current study results revealed that, slightly more than half of the studied parents were had total unsatisfactory knowledge about pneumonia whereas, more than one third of them were had total satisfactory knowledge (**fig. 3**). This finding is not compatible with **Siswanto et al. (2010)** who clarified that, more than two thirds of the parent had fair knowledge about pneumonia.

More than half of the studied children were had achieved physiological needs, whereas more than one third of children were had not achieved physiological needs (**Fig. 4**). These findings were supported by **Mbugua (2011)** who stated that, in a study about pneumonia in preschool children, Turku, the child with pneumonia had may physical needs that must be met.

More than half of the studied parents were had not done practice, whereas more than one third of parents were had done practice (**Fig. 5**). This finding was in accordance with **Aung et al. (2010)** who pointed out that, in a study about knowledge, attitudes and practices of mothers on a childhood acute respiratory infection, Myanmar, practice of parents toward care of child with pneumonia was not satisfactory. Meanwhile, this finding disagreed with **Bham et al. (2016)** who confirmed that, in a study about knowledge, attitude and practice of mothers on acute respiratory infection in children under five years, Karachi, practice of parents was found satisfactory toward care of child with pneumonia.

More than two thirds of the studied children were had health problems meanwhile, more than one third of them were had no health problems (**Table 3**). This finding was in accordance with **Maganga (2014)** who revealed that, in a study about pneumonia case fatality rate in children under five: understanding variations in district hospitals in Malawi, the majority of the studied children were had health problems.

The current study results revealed that, there was a highly statistically significant relation between socio-demographic characteristics of the parents and their satisfactory knowledge about pneumonia (**Table 4**). This finding was in the same line with **Pradhan et al. (2016)** who stated that, in a study about Knowledge and perception regarding childhood pneumonia among mothers of under five children in rural areas of Udupi Taluk, Karnataka, India: A cross-sectional study, there was a significant association between parent's socio-demographic characteristics and their level of knowledge.

The present study results clarified that, there was statistically significant relation between socio-demographic characteristics of the studied parents and their done practice (**Table 5**). This finding was consistent with **Bilata (2015)** who stated that, in a study about assessment of knowledge, attitude, practice and factor affecting mothers regarding pneumonia among under five children at Lideta subcity, Addis Ababa, Ethiopia, there was a significant association between parent's socio-demographic characteristics and their level of practice.

The current study results showed that, there was a highly statistically significant positive correlation between knowledge of the studied parents and their practice (**Table 6**). This finding agreed with **Aung et al. (2010)** who found that, there is a strong positive correlation with a highly statistical significant difference between the studied parents total knowledge score level and their total practice score level.

Conclusion:

On light of the current study results, it can be concluded that, There was a highly statistically significant relation between the studied parents demographic characteristics (age, education level and occupation) and satisfactory knowledge. Also, there was a statistically significant relation between the studied parents demographic characteristics (age, education level and occupation) and done practice. Moreover, there was a highly statistically significant positive correlation between total knowledge and total practice.

Recommendations:

- Establishing an educational program to provide parents with adequate knowledge

and training to improve knowledge and practice and that to overcome children problems and needs.

- A booklet or pamphlet illustrating all information the parents may need should be developed.

- Further research studies are needed for ongoing assessment of children and parents including large sample for generalization of results.

References:

- Abdulkadir, M.B., Abdulkadir, Z.A. & Johnson, W.B. (2016).** An analysis of national data on care-seeking behaviour by parents of children with suspected pneumonia in Nigeria. *SAJCH* 10 (1) 92.
- Abolwafa, N.F. & Mohamed, A.H. (2017).** Effect of Educational Program on Mothers Knowledge about Prevention of Pneumonia for their Children under Five Years. *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 6 (5)1, 5-12.
- Abuka, T. (2017).** Prevalence of pneumonia and factors associated among children 2-59 months old in Wondo Genet district, Sidama zone, SNNPR, Ethiopia. *Curr Pediatr Res* 2017; 21 (1): 19-25
- Aung, T., Tun, K.M., Thinn, K. et al. (2010).** Knowledge, attitudes and practices of mothers on a childhood acute respiratory infection. *SOUTHEAST ASIAN J TROP MED PUBLIC HEALTH* 25 (3) 593
- Bham, S.Q., Saeed, F. & Shah, M.A. (2016).** Knowledge, Attitude and Practice of mothers on acute respiratory infection in children under five years. *Pak J Med Sci.* 2016 Nov-Dec; 32(6): 1557-1561.
- BILATA, D. (2015).** Assessment Of Knowledge, Attitude, Practice And Factor Affecting Mothers Regarding Pneumonia Among Under Five Children At Lideta Subcity, Addis Ababa, Ethiopia,2015.

- URI: <http://hdl.handle.net/123456789/6810>, 12/4/2018
- Burns, C., (2005).** Pediatric primary care: A handbook for nurses. Philadelphia: W. B. Saunders. pp. 1035–1079.
- Center for Disease Control and Prevention CDC (2016).** <https://www.cdc.gov/features/pneumonia>, 24/5/2018.
- Cruz, M., Morales, J.J& Mendoza, M. (2015).** Respiratory tract infections in children in developing countries. Seminars in Pediatric Infectious Diseases: Pediatric Infections in Developing Countries.; 16(2): 84-92.
- Fekadu GA, Terefe MW, Alemie GA. (2014).** Prevalence of pneumonia among under-five children in Este Town and the surrounding rural Kebeles, Northwest Ethiopia: A community based cross sectional study. Science Journal of Public Health 2014; 2: 150-155
- Haskins R & Kotch J. (2010).** Day care and illness: evidence, costs, and public policy. Pediatrics;77(6):951-82.
- Hui, H. (2010).** Risk factors of pneumonia among children under children under five years of age at Queen Sirikit National Institute of Child Health, Bangkok, Thailand. [M.P.H.M. Thesis in Primary Health Care Management] NakhonPathom : Faculty of Graduate Studies, Mahidol University.
- Jena, M. (2014).** Effectiveness of Information Booklet on Knowledge & Practice about Prevention of Pneumonia among Mothers of Under Five Children. IOSR Journal of Nursing and Health Science (IOSR-JNHS); 3 (1) 25-30.
- Kallander K, Tomso G, Nsabagasani X, Sabiiti JN, Pariyo G, Peterson S. (2016).** Can community health workers and caretakers recognize pneumonia in children? Experiences from western Uganda. Transactions of the Royal Society of Tropical Medicine and Hygiene.; 100(10): 956-63.
- Maganga, E.R. (2014).** pneumonia case fatality rate in children under five: understanding variations in district hospitals in Malawi, Master of Philosophy in International Community Health, Faculty of Medicine University of Oslo, Norway, p21.
- Mbugua, S. (2011).** Pneumonia In Pre-School Children. Bachelor's thesis, faculty of nursing, Turku university, pp 14-18.
- Pradhan, S.M., Rao, A.P., Pattanshetty, S.M. et al. (2016).** Knowledge and perception regarding childhood pneumonia among mothers of under-five children in rural areas of Udupi Taluk, Karnataka: A cross-sectional study. Indian Journal of Health Sciences 9 (1) 38
- Siswanto, E., bhuiyan S.U. & Chompikul J. (2010).** Knowledge and Perception of Pneumonai Disease among Mothers of Children under Five Years attending Nakhon Pathom General Hospital, Thailand. Journal of Public Health and Development, 5(2) 34-54.
- Sofoluwe, G.O (2010).** Smoke pollution in dwellings of infants with bronchopneumonia. Arch. Environ. Health; 16: 670-672
- World Health Organization (WHO) (2018).** Pneumonia. Available at <http://www.who.int>, accessed at 19/4/2018
- Zaman BU. (2010).** Knowledge, perception and self care practice associating with uri and pneumonia and bronchitis in children under five years of age. Bangkok: Faculty of graduated studies, Mahidol University.