

Mothers Knowledge Related To Preventive Measure of Pneumonia in Hospitalized Children Under 5 Years Age: A Tertiary Care Center Experience

Nabila Akand¹, Probir Kumar Sarkar², Md. Jahangir Alam³,
Md. Kamruzzaman⁴, Md. Mosharrof Hossain⁵, Md. Atiqul Islam⁶
Johora Akter⁷, Kamruzzahan Shima⁸

¹Registrar, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital.

²Associate Professor, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital.

³Professor and Head of the department, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital.

⁴Assistant Professor, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital.

⁵Assistant Professor, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital

⁶Assistant Professor, Department of Paediatric Infectious diseases & community paediatrics, Dhaka Shishu (Children) Hospital

⁷Resident Medical Officer, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital.

⁸Senior staff nurse, Department of Paediatric Respiratory Medicine (Pulmonology), Dhaka Shishu (Children) Hospital.

Abstract

Background: Pneumonia is one of the leading causes of under 5 mortality in children globally. Mother's knowledge about measures like good hygiene practice, exclusive breast feeding and immunization may significantly reduce the mortalities and morbidities resulting from pneumonia. The considerable number of children having pneumonia has delay in reaching health services in the appropriate time due to their mother's failure to recognize the seriousness of their infection.

Methods: Present hospital based cross-sectional study was conducted at the Department of paediatric respiratory medicine (pulmonology) in Dhaka Shishu (Children) Hospital between August 2019 to January 2020. Mother of children under 5 years of age, suffering from pneumonia and were admitted in the department of paediatric respiratory medicine were included and interviewed. Total 120 mothers were interviewed by using a close-ended, adapted questionnaire comprising of 16 closed-ended items. Written consent was taken from each participant before filling of the questionnaire. Data was entered and analyzed in SPSS version 21.00.

Results: Out of 120 subjects, 56% of mother's age ranged under 20 years, with mean age 27.3 ± 8.9 , 58.3% of mothers live in rural and 41.7% were living in urban. Among the subjects, 22.2% mothers were illiterate. 15.8% of mothers had fair knowledge whereas 55.5% had poor knowledge about pneumonia. And 28.7% of mothers did not know about pneumonia. 60.8% of respondents were unable to recognize sign and symptoms of pneumonia. Exclusive breast feeding habit was found in 63.5% mothers and knowledge about importance of hand washing was observed in only 37.6% of the mothers. While 90.5% of participants know about vaccination of pneumonia should be made essential for children. The proportion of mothers who correctly identified fast/difficult breathing as suggestive of pneumonia was similar irrespective of educational status or source of pneumonia information.

Conclusion: The study concluded that mother had poor knowledge of pneumonia, exclusive breast feeding and hand washing but good knowledge about importance of childhood immunization. The government should focus on raising public awareness about hand washing and exclusive breastfeeding as potent preventive strategies besides of immunization and fast/difficult breathing as a feature of pneumonia.

Keywords: Pneumonia, mothers, knowledge, prevention

Date of Submission: 12-03-2020

Date of Acceptance: 26-03-2020

I. Main Body

Background

Pneumonia is the one the important major causes of mortality of children under five years of age across the globe^{1,2}. pneumonia was found to be responsible for death of a total 920,136 children under the age of five years in 2015, accounting for 16% of all deaths of children under five year's old³. Fortunately, immunizations against *Streptococcus pneumoniae* and *Haemophilus influenzae*, the two commonest causes of severe pneumonia, have made huge reduction in pneumonia morbidity and mortality^{4,5}. Furthermore, timely and appropriate treatment could save the life of children diagnosed with pneumonia⁶. It is evident that pneumonia is an acute respiratory infection. In pneumonia, the alveoli are filled with pus and fluid, which makes difficulty in oxygen intake and causes painful breathing⁷. Pneumonia has been recognized as one of the commonest infections in children worldwide whereas it is most prevalent in South Asia and sub-Saharan Africa⁸. According to WHO (World Health Organization), in 2016 routine immunization programs prevented pneumonia in all countries⁹. Moreover, a substantial number of children having pneumonia could not access health services well at the proper time because their mothers fail to identify the seriousness of their illness¹. It is affirmed by current research that mortality of children can be minimized by identifying the sign and symptoms of pneumonia by mothers at earliest¹⁰. The WHO and UNICEF (United Nations International Children's Emergency Fund) have endorsed strengthening family's capability to identify danger signs and swift care seeking as one of the interventions for controlling pneumonia in children under five¹¹. It is confirmed by recent research that an enormous number of children suffering from pneumonia do not receive suitable treatment at health service¹². It is documentary evidence by researchers that pneumonia has become the primary reason of mortality in children under age in the developing countries¹³. In addition, clinical pneumonia incidence ranked top in South-East Asia (0.36 episodes per child-year), closely followed by Africa (0.33 episodes per child-year) and by the Eastern Mediterranean (0.28 episodes per child-year), and lowest in the Western Pacific (0.22 episodes per child-year)¹⁴. Previous studies from developing regions of the world where the burden of pneumonia is high have documented that mothers' knowledge of the common features of pneumonia is low¹⁵⁻¹⁷. Hence, mother's knowledge about preventive measures may reduce occurrence of pneumonia in children less than five years. The main objective of the present study is to describe the knowledge and preventive measures about pneumonia in mothers under five years of age admitted at the department of paediatric respiratory medicine (pulmonology) in Dhaka Shishu (Children) Hospital.

II. Materials And Method

This cross-sectional study was accomplished at the department of paediatric respiratory medicine (pulmonology). The duration of the study was six months from July 2019 to January 2020. The section on knowledge of pneumonia had questions on definition of pneumonia, symptoms suggestive of pneumonia. Informed consent was obtained from mothers of each patient enrolled in the study. Mothers of children aged between one month to five years presenting with fever, cough, breathing difficulty, chest indrawing and whose chest x-ray showed variable ranges of opacity (diffuse inhomogeneous pulmonary infiltrates to consolidation) without any cardiac problem and admitted during the study period was enrolled consecutively as study population. Exclusion criteria were previous history of wheezing, any use of bronchodilators within 2 hours of presentation, chronic cardiac or respiratory disease or respiratory failure or requiring mechanical ventilation. After inclusion and exclusion this study included 120 mothers of patients with pneumonia. The response rate of participation of subjects was 100%. The data was collected by an adopted questionnaire, comprising 16 questions. The questionnaire was translated in the Bangla language. Consent was signed by the participants. While collecting data, respondents who felt difficulty understanding questions were made understand. The large number was only upto primary school certificate holders. Hence, the primary investigator helped to fill out the questionnaire. The participation of the subjects was voluntary. Confidentiality and privacy was maintained throughout the study. Data was analyzed in SPSS version 21.0. Quantitative variables were presented in Mean and Standard deviation and the qualitative variable was presented in frequency and percentages.

III. Results

Total 120 babies with pneumonia and their mothers were included in this study. 55% were male and 44% were female.

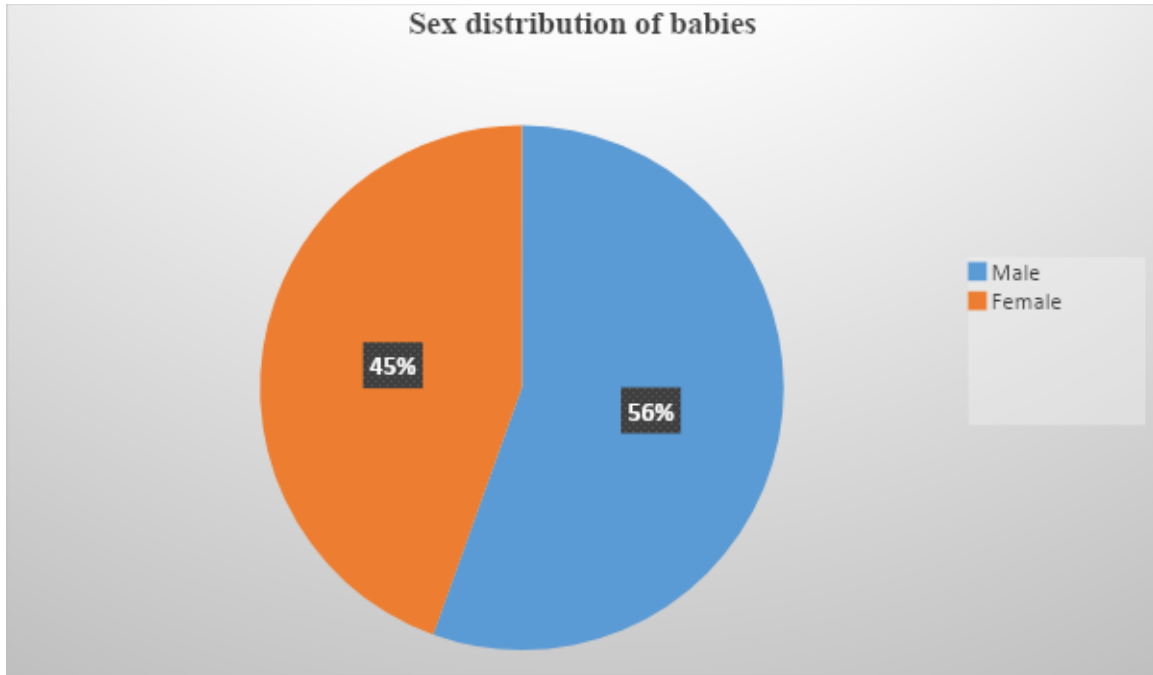


Figure 1. Sex distribution of babies (n=120)

Table 1: Distribution of age range of mothers

Age range in years of mothers	Numbers	Percentage
Under 20 years	67	56
21-30 years	20	16
31- 40 years	21	18
Above 40 years	12	10
Mean ± SD	27.3± 8.9	

Mean age of the mothers were 27.3± 8.9 and majority were under 20 years of age group (67%).

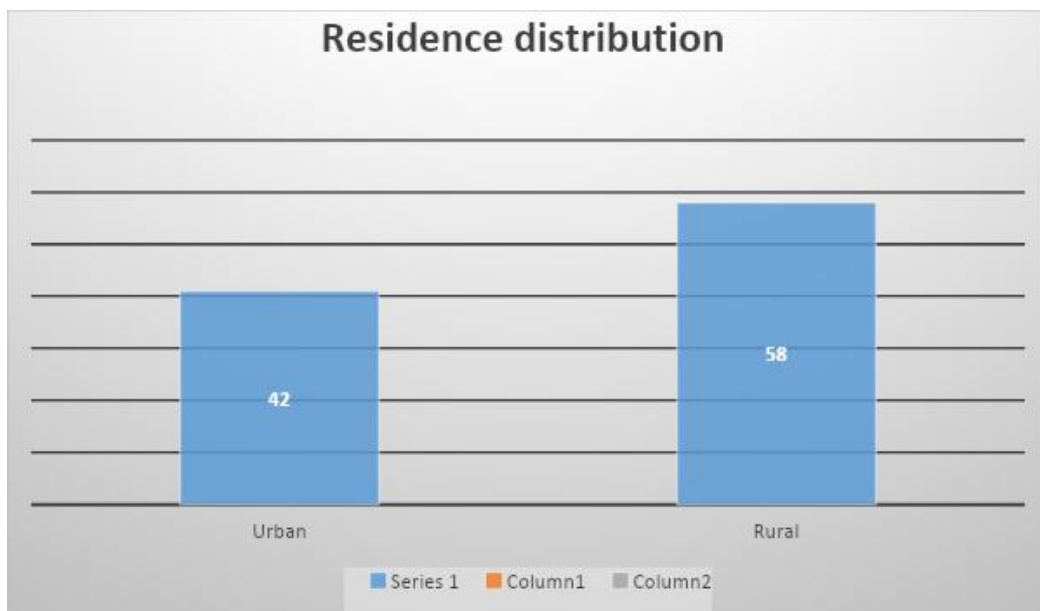


Figure-2: Distribution of mothers according to residence (n=120)

Among the patients, 58% patients came from rural areas and 42% came from urban areas.

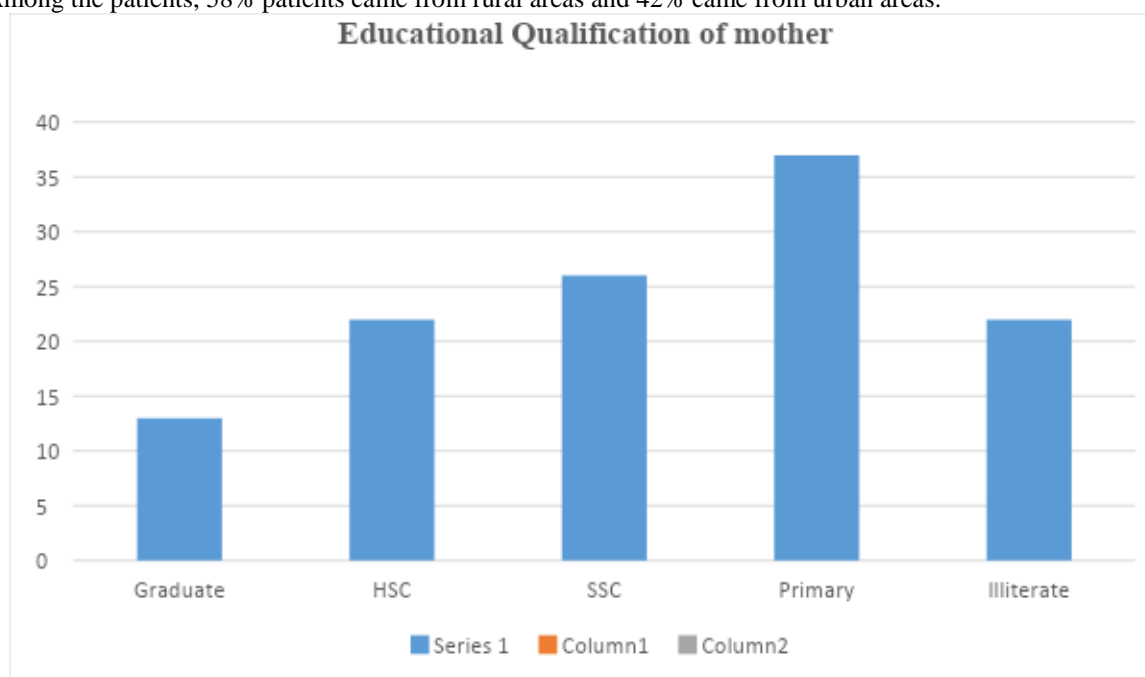


Figure-3: Distribution of mothers according to their educational qualification (n=120)

Majority of the mothers completed primary (37%), followed in decreasing order by 26% SSC, 22% HSC and illiterates and only 13% graduate.

Table 2. Mothers Knowledge and Preventives Measures for Pneumonia (N= 120)

Statements	Yes	No	Don't Know
1. Do you know that pneumonia is a leading cause of death globally?	73.3%	18.3%	8.4%
2. Is vaccination the most effective way of preventing pneumonia?	90.5%	86%	1.5%
3. Can mother's knowledge protect child from pneumonia?	20%	58%	22%
4. Is pneumonia a contagious disease?	50.8%	22.2%	27%
5. Children will get pneumonia easily if they do not get appropriate medication?	59.2%	27.5%	13.3%
6. Does under nourished children get pneumonia easily?	61.7%	20.8%	17.5%
7. Congested households get to spread infection easily among the family members?	49.2%	25.8%	25%
8. Cough and colds are typical condition for children, it will get worse if left untreated?	63.3%	21.7%	15%
9. Keeping household and environment clean will prevent pneumonia?	20%	56.7%	23.3%
10. Does good ventilation prevents pneumonia in children?	53.3%	30%	16.7%
11. Is it better to provide children full courses of vaccinations for pneumonia prevention?	60.8%	22.6%	16.6%
12. Are cough and fast breathing only serious symptoms of pneumonia?	15.8%	60.8%	23.4%
13. Cough and runny nose are only serious signs of pneumonia?	40.8%	39.2%	20%
14. Does washing hands prevent pneumonia?	45.8%	30%	24.2%
15. Is it compulsory for children to get govt EPI vaccination for pneumonia prevention?	90.5%	8%	1.5%
16. Does exclusive breast feeding prevent pneumonia?	63.5%	29.5%	10%

Table 2 discloses the mother's knowledge and prevents measures for pneumonia. First of all subjects were asked what do you know that pneumonia is one of the leading causes of deaths globally? For this question, 73.3% subjects stated that they know it is the leading cause of death while 18.3% were not agreed and 8.4% said that we don't know about this fact. With regard to the 2nd question, is vaccination the most effective way of preventing pneumonia? 63.3% of respondents reported that immunization is exceptionally compelling in avoiding pneumonia. 24.2% members stamped their reply with NO. As it were 12.5% didn't concur with either YES or NO. When the participants were asked Can a mother's knowledge prevent a child from pneumonia? 58% reacted in NO whereas 20% reacted in YES and only 22% said they don't know. Moving to the next question that was pneumonia is a contagious disease? 50.8% subjects chose Yes, 22.2% respondents clicked on No. And 27% members stamped on Don't know. Children will get pneumonia easily if they don't take appropriate Immunization? 90% subjects chosen on YES. 8.5% selected NO whereas 1.5% preferred the Don't

know option. Undernourished children are easier to get pneumonia or another severe infectious disease than children who have better nutrition status? 61.7% respondents reported on YES. 20.8% stated NO whereas 17.5% described on Don't know. When asked a question that congested houses allow respiratory infection spread easily among family members? 49.2% of subjects said that congested houses permit respiratory disease spread effortlessly among family individuals, 25.8% agreed on NO, while 20% marked on don't know. A cough and cold are typical conditions for children; it will not get worse, even if it is left untreated? Responding to this question, 63.3% respondents replied that cough and cold are usual conditions for children; it'll not get more unpleasant, indeed on the off chance that it is cleared out untreated?, and 21.7% participants don't think so, whereas 15% favored Don't know. Keeping the household and environment that surrounds it clean will prevent children from getting Pneumonia? 20% subjects approved that by keeping family and environment neat and clean may prevent children from getting pneumonia, on the other hand, 56.7% refuted this view and 23.3% marked on don't know. Providing fresh air regularly to children's rooms will prevent children from getting Pneumonia? 53.3% participants believed that by giving fresh air frequently to the children that can prevent the children from pneumonia, but 30% contradicted and 16.7% selected on Don't know.

Is it better to give children complete immunization to prevent them from pneumonia? Majority of 90.5% subjects agreed with the statement, however, 8% opposed the statement and 1.5% selected don't know. A cough and fast breathing is the serious sign of pneumonia? 15.8% respondent selected Yes while 60.8% reported No and 23.4% marked on Don't know. Running nose and cough only is the serious sign of pneumonia? Respondents which favored Yes are 40.8% while respondents which not agreed is 39.2% and which marked on Don't know is 20%. Washing your hands is the preventive measure of Pneumonia? 45.8% of subjects think that washing hands may prevent pneumonia, yet, 30% don't think so and 24.2% selected Don't know. When a question asked from participants that is pneumonia vaccination should be made compulsory for children and adults? 90.5% respondents reported YES, and 8% nominated on NO, while 1.5% designated on Don't know. When the last question asked from mothers whether exclusive breast feeding protects from pneumonia or not? 63.5% of mothers said Yes, 29.5% opted for No, while 10% selected Don't know.

IV. Discussion

Pneumonia is an infectious disease which can lead to deaths in children under five years of age. Mother's knowledge is very much essential to prevent and take care of pneumonia, as she is more close to her children, she could be the first to notice these changes in a child's health. It can solely be possible when mothers may be aware of pneumonia, its signs and symptoms, and when to seek medical help. Internationally, in many countries, different studies have been carried out, and several robust steps have been taken to spread awareness. The present study only focused on assessing mothers' knowledge pertinent to pneumonia and its preventive measures. Majority of mothers belong to the age group of under 20 years (56%), whereas other studies conducted in India were of 25-31 years (45.4%) and in Pakistan were of 31-41 years of ages (51.6%)^{18,19}. All these studies showed that age did not matter in increasing mother knowledge about pneumonia, whereas study conducted in Iran contradicts this finding they have revealed mother age and level of knowledge has association with each other²⁰. As far as the education level of a mother is concerned, our study participants were less illiterate 22.8% as compared to other studies had 32.6% illiteracy level in an Indian study and 59.2% in a Pakistani study^{18,19}. Although we did not compare the association of mothers' education level with their knowledge, another study has shown that there is a positive association between them²¹. The current study found that more than 50% mothers were able to identify the cause and related factors, which contribute towards pneumonia. And, this became an important finding of this study, as in other studies only 21%⁸. Further exploring about signs and symptoms of the disease, 60.8% of the participants were incapable to recognize accurate signs and symptoms. This result was much higher than the other study reported 41.3%¹⁸. This result shows that the majority of the mothers are not aware of the signs and symptoms of pneumonia, and thus this can be the reason why they do not bring their child early to the hospital for treatment. Whereas in other study majority of mothers were able to correctly pick signs and symptoms of pneumonia²². Only 20% mothers indicated that keeping clean environment will prevent children from getting pneumonia whereas this result was much lower as compared to the study conducted in Pakistan on acute respiratory infection in children less than of five years, reported 81%²³. Few study has been found that Pneumonia is more associated with malnourished children²⁴. We further investigated awareness about vaccination as a preventive measure and 90.5% of respondents recognized vaccination of pneumonia should be made compulsory for children which was very much higher in comparison to the findings of other studies^{18,19}. Exclusive breastfeeding may prevent pneumonia was accepted by 63.5% of the mothers which also correlates with another study^{18,19,24}. According to WHO report 2010 there is an extensive need for effective interventions program in all parts of the world in order to bring down mortality and morbidity rates due to pneumonia²⁵.

Our study has some limitations. We studied mothers attending the hospital rather than in the community, hence our sample may not be representative of the general population and may have explained the

higher proportion with the correct knowledge and preventive measures about childhood pneumonia in the present study. Some of the respondents had the questionnaire read to them because they could not read, and this could have introduced some bias; however, a community based study with larger sample size should be conducted.

V. Conclusion

It is concluded that the mother had poor knowledge about pneumonia and their preventive measures. Mothers had poor knowledge about pneumonia, role of exclusive breast feeding and hand washing as preventive strategies but surprisingly good perception of immunization in prevention of pneumonia.

Limitations: The present study was a hospital-based study. Hence our sample may not be representative of the general population and may have explained the higher proportion with the correct knowledge and preventive measures about childhood pneumonia in the present study. Some of the respondents had the questionnaire read to them because they could not read, and this could have introduced some bias. So an extensive population-based research including health care facilities at community level, primary, secondary and higher health care institutes should be conducted. Another limitation of this study was small sample size.

Declarations:

Ethical consideration

This study was approved by the ethical committee of the DSH. Moreover, the researchers were duly concerned about the ethical issues and the ethical issues were maintained in accordance with the current Declaration of Helsinki.

Consent of Publication: Not applicable

Availability of data and material: Data and materials supporting study findings in the manuscript will not be shared. It was not in accordance with participants' written informed consent. However, it can be shared with the reviewer team on request.

Conflict of Interests: The authors declare that there is no conflict of interests regarding the publication of this paper.

Funding: No external funds were received for this research.

Acknowledgments:

Author thanks to the entire medical and nursing staff at the Dhaka Shishu Hospital for their cooperation and support especially during data collection.

Supplementary Materials: Available on request.

References

- [1]. Abusaad FE, Hashem SF. Mothers learning needs assessment regarding pneumonia among children less than five years at Saudi Arabia. Iran J Nurs Midwifery Res. 2014; 3(5):85-93.
- [2]. Abass N, El Aziz MA, Hal N, et al. Effect of structured patient education program on the knowledge level of mothers regarding childhood gastroenteritis and pneumonia at El-Raml Pediatric Hospital. CurrPediater Res. 2017; 21(3): 368-374.
- [3]. WHO. (2016). Pneumonia. Media Centre, 50-62 [Internet] . Website : <http://www.who.int/mediacentre/factsheets/fs331/en/>. Retrieved on February 12, 2016.
- [4]. Kellner JD, Church DL, MacDonald J, Tyrrell GJ, Scheifele D. Progress in the prevention of pneumococcal infection. CMAJ 2005;173(10):1149-51.
- [5]. Progress in introduction of pneumococcal conjugate vaccine-- worldwide, 2000-2008. MMWR Morb Mortal Wkly Rep 2008;57(42):1148-51
- [6]. Bhutta ZA, Das JK, Walker N, Rizvi A, Campbell H, Rudan I, et al. Interventions to address deaths from childhood pneumonia and diarrhea equitably: what works and at what cost? Lancet. 2013; 381(9875):1417-29.
- [7]. Janssens JP, Krause KH. Pneumonia in the very old. Lancet Infect Dis. 2004; 4(2):112-24.
- [8]. Siswanto, E., Bhuiyan, S. U., Chomikuj, J. Knowledge and Perception of Pneumonia Disease among Mothers of Children under Five Years attending Nakhon Pathom General Hospital, Thailand. J Pub Health Dev, 2007; 5(2): 43-54.
- [9]. WHO. Pneumonia. Media Centre, 2016; 50-62.
- [10]. [Internet] . Website : <http://www.who.int/mediacentre/factsheets/fs331/en/>. Retrieved on February 25, 2016.
- [11]. Agarwal M, Bajpai P. Perception about childhood pneumonia among caregivers attending immunization clinics of tertiary care hospitals in Lucknow City. Int J Pharm Sci Res. 2015; 4(4): 127-30.
- [12]. Ndu IK, Ekwochi U, Osuorah CD et al. Danger signs of childhood pneumonia: caregiver awareness and care seeking behavior in a developing country. Int J Pediatr. 2015; 15(1): 1-7.
- [13]. Theodoratou, E., Jilaihawi, S. A., Woodward, F., Furguson, J., Jhass, A., Balliet, M., et al. The effect of case management on childhood pneumonia mortality in developing countries. Int J Epidemiol. 2010. 40(2): 155-171.

- [14]. Aftab S, Ejaz I, Waqar U, Khan HI, Hanif A, Usman A, Mushtaq A, Nadeem IM, Asmara HS, Baig AA. Risk Factors for Childhood Pneumonia in North Eastern Pakistan: A Case-Control Study. *MJPCH*. 2017; 22(2):26-34.
- [15]. W H O .[Internet] . Website : <http://www.who.int/bulletin/volumes/86/5/07-048769/en/>. Retrieved on March 20, 2016.
- [16]. Muhe L. Mothers' perceptions of signs and symptoms of acute respiratory infections in their children and their assessment of severity in an urban community of Ethiopia. *Ann Trop Paediatr* 1996;16(2):129 -35. 10.
- [17]. Kundi MZ, Anjum M, Mull DS, Mull JD. Maternal perceptions of pneumonia and pneumonia signs in Pakistani children. *SocSci Med* 1993;37(5):649-60. 11.
- [18]. Galvez CA, Modeste N, Lee JW, Betancourt H, Wilkins RL. Peruvian mothers' knowledge and recognition of pneumonia in children under 5 years of age. *Rev PanamSaludPublica* 2002;11(2):99-108.
- [19]. Pradhan SM, Rao AP, Pattanshetty SM, Nilima AR. Knowledge and perception regarding childhood pneumonia among mothers of under-five children in rural areas of Udipi Taluk, Karnataka: A cross-sectional study. *Indian J health Sci*. 2016; 9:35-49.
- [20]. Adeel Eliyas1, Badil2, Nasir Alia, SheraliShaheen, Khan Imran, Khan Kamran, Fayyaz. Mothers knowledge related preventive measure of pneumonia in slum community, Karachi, Pakistan. *Pakistan Journal of Public Health*.2018; 8:156-159.
- [21]. Farhad J, Malihe A, Fatemeh A, Mahmood S. The knowledge, attitude and practice of mothers regarding acute respiratory infections in children, Iran. *Biosciences Biotechnology Research Asia* 2014; 11:343-348.
- [22]. Ekure EN, Esezobor CI, Balogun MR, Mukhtar-Yola M, Ojo OO, Emodi JJ, et al. Mothers and childhood pneumonia: What should the focus of public campaigns be?. *Niger J Paed*. 2013; 40:24-29.
- [23]. Athumani J. Knowledge, Attitudes and Practices of mothers on symptoms and signs of integrated management of Childhood Illnesses (IMCI) strategy at Buguruni Reproductive and Child Health clinics in Dar es Salaam. *Dar Es Salaam Medical Students' Journal*. 2008; 15(1):4-8.
- [24]. Bham SQ, Saeed F, Shah MA. Knowledge, Attitude and Practice of mothers on acute respiratory infection in children under five years. *Pak J Med Sci*. 2016; 32(6):1557-1561.
- [25]. Nannan N, Norman R, Hendricks M, Dhansay MA, Bradshaw D. Estimating the burden of disease attributable to childhood and maternal undernutrition in South Africa in 2000. *S Afr Med J*. 2007; 97(8):733-739.
- [26]. Nga Tong. A Public Health Approach to Innovation. 2003. [Internet]. Website: <http://apps.who.int/medicinedocs/documents/s20269en/s20269en>. Retrieved on July 15, 2018.