

# Knowledge on Pneumonia and its Prevention among Mothers of under Five Children

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“Every child is a different kind of flower and all together makes this world a beautiful garden.”

**Abstract:** A study to assess the Knowledge on pneumonia and its prevention among mothers of under five children with the objectives to assess the knowledge regarding pneumonia and its prevention among mothers of under five children and to find out the association of knowledge with demographic variables. A descriptive cross sectional research design with convenience sampling technique was used for this study. The target population of the study was the mothers of under five children attending pediatric OPD and wards, of a tertiary hospital, Puducherry. All the available under five mothers who attended the OPD and wards during data collection period were the study population. 138 under five mothers who fulfilled the inclusion criteria were participated in this study. Purpose of the study was explained to each mother and a written consent was obtained in Tamil. A structured questionnaire was used to collect the data from the mothers after establishing validity from experts of specific subjects. Data was collected using structured questionnaire for assessing knowledge on pneumonia and its prevention by interviewing the mothers of under five children for about 15 minutes. Descriptive statistics (frequencies, percentages, mean and standard deviation) and inferential statistics (chi square test) were used to summarize the data and to test the hypothesis. The study result showed that Majority of the mothers age were between 20 - 30 years, most of the mothers belongs to upper middle class in Kuppusamy scale, almost 83.4% of mothers belongs to Hindu religion, 55.1% of mothers belongs to joint family, high proportion of mothers i.e., 76.1% were residing in rural areas, 57.2% of mothers under five children's were male, 46.3% of mothers children's were in the birth order of 2. The present study also showed that 91.4% of mothers had poor knowledge, 8.6% of mothers had moderate knowledge and no mothers had high level of knowledge regarding the pneumonia and its prevention and There was no significant association between knowledge and selected demographic variables of mothers of under five children,

**Keywords:** pneumonia, knowledge, prevention, mother, under five children

## 1. Introduction

Children are one third of our population and all of our futures but unfortunately the gift of health which makes the child to be part of future is affected by so many disease conditions among that one such dreadful disease is Pneumonia.

Pneumonia, inflammation of the pulmonary parenchyma, is common in childhood but occurs more frequently in infancy and early childhood. Clinically, pneumonia may occur either as a primary disease or as a complication of another illness. Incidence of pneumonia in developing countries like India range between (20-30)%. Lack of good nutrition, polluted air and poor hygiene are the main causes of pneumonia. India looks indeed like a leading third world Country; malnourished children breathe polluted air and suffer from lack of nutrition and hygiene. It leads the world with 27% of the global pneumonia cases. Worse, every minute, a child dies in India, followed by Afghanistan, China, Pakistan and Bangladesh. Annually, two million children under five dies from pneumonia and contributes to almost 20% of childhood mortality cases. It has been estimated that 26 per cent of neonatal deaths, or 10 per cent of all under-five deaths, are caused by severe infections during the neonatal period. And a significant proportion of these infections are caused by pneumonia/sepsis.

Pneumonia has been identified as the major “forgotten killer of children” by the United Nations Children’s Fund (UNICEF) and WHO. The World Health Organization defines pneumonia as an acute disease episode with cough combined with fast breathing with age specific cut-values for increased respiratory rate. This case definition of childhood pneumonia is widely used in poor-resource settings to guide the management of pneumonia. The

definition is also commonly used as an entry criteria or endpoint in different intervention and disease burden studies. Prevention includes vaccination, environmental measures and appropriate treatment of other health problems. It is believed that if appropriate preventive measures were instituted globally, mortality among children could be reduced by 400, 000 and if proper treatment were universally available, childhood deaths could be decreased by another 600, 000. Vaccination prevents against certain bacterial and viral pneumonias both in children and adults. Influenza vaccines are modestly effective against influenza A and B. The Center for Disease Control and Prevention (CDC) recommends yearly vaccination for every person 6 months and older. Vaccinations against Haemophilus influenzae and Streptococcus pneumoniae have good evidence to support their use. Vaccinating children against Streptococcus pneumoniae has led to a decreased incidence of these infections in adults, because many adults acquire infections from children. A Streptococcus pneumoniae vaccine is available for adults, and has been found to decrease the risk of invasive pneumococcal disease. Other vaccines for which there to support for a protective effect against pneumonia include: pertussis, varicella, and measles.

Pneumonia has received very little attention as there has been little research on the disease apart from vaccine trials that included the evaluations of the impact of these vaccines on pneumonia. Despite concrete evidence of effectiveness and affordability that costs of reducing pneumonia are relatively low, there has been slow progress in expanding coverage of these interventions. This is resulted from the serious lack of appreciation about the magnitude of the problem of childhood pneumonia. Expanding community-based approaches had been met with resistance due to concerns raised about lower-level health workers such as

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community health workers administering antibiotics to resistance.

According to WHO Pneumonia is considered as the forgotten killer of children and it is the leading cause of childhood morbidity and death in many developing countries causing 2 million deaths worldwide each year. Pneumonia is an important public health problem in India. The community should be educated to recognize the signs and symptoms of pneumonia to understand the importance of early detection and adequate treatment especially the incidence of pneumonia is more prevalent among under five children and these children are dependants on mother for their self care. Emphasis should be given on educating the mother on knowledge regarding pneumonia as a first step of its prevention.<sup>6</sup>

A paper in the world health organization (WHO) bulletin reviews the history and current status of knowledge on pneumonia in children's among under fives. The 1993 world development report estimated the proportion of childhood deaths caused by acute respiratory infections at around 30%. Pneumonia ranks first among health problems requiring attention in the health centre's. The most vulnerable members of the population are children under five who live in poverty around the coastal cities. On average 2-3% of children each year have pneumonia severe enough to require hospitalization and many of these disease episodes are potentially fatal. This suggests that of every thousand children born alive 12-20 die from pneumonia before their fifth birthday. World over pneumonia kills more than any other illness like AIDS, Malaria and Measles.

National institute of hygiene and epidemiology states pneumonia is the leading cause of death in children under the age of five. Bacterial pathogens were isolated from nasopharyngeal secretions and quantitatively cultured. Out of 164 patients 91 were diagnosed as having pneumonia. The results of this case control study suggest that the vertical spread of intense bacterial pathogens colonized in the nasopharynx to the lower airway leads to bacterial pneumonia in children under the age of five.

## 2. Methodology

A quantitative descriptive cross sectional research design was adopted to assess the knowledge on pneumonia and its prevention among mothers of under five children in pediatric OPD and ward of a tertiary care center.

### Inclusion criteria

Mothers of under five children:

- Who are willing to participate in the study
- Who can understand and communicate in Tamil or English.
- Who are available at the time of data collection

### Exclusion criteria

Mothers of under five children:

- Who have attended any training or education programme on pneumonia
- Who are sick during the data collection procedure

### Sample and sample size

The sample of the present study consisted of mothers of under five children attending pediatric OPD and ward during the course of data collection. 138 mothers of under five children were included as per inclusion and exclusion criteria.

**Sampling technique**-non-probability (convenience) sampling was adopted

**Tool:** The data collection proforma includes socio-demographic data of the subjects and structured questionnaire. The tool was translated into Tamil version and the validity and reliability was established with experts of concerned department.

**T-1: Demographic profile**-It includes 9 variables (age, education, occupation, religion, type of family, place of residence, gender of child, birth order, income of the family per month).

### T-2: Structured questionnaire for assessing knowledge on pneumonia and its prevention

Deals with questions for assessing knowledge on pneumonia and its prevention among mothers of under five children with total of 23 questions. It is divided into part A and part B for assessing knowledge of pneumonia and its prevention respectively.

Part	Number of Questions
Part A	13 questions
Part B	9 questions

### Validity and reliability

The tool used in this study is a structured questionnaire. The tool was validated by the experts from the Department of Nursing and Paediatrics.

### Protection of human subjects

Permission was obtained from the Institute (JIPMER) ethical committee, Human studies. Informed consent was obtained from every participant after a brief explanation regarding the study by the researchers. Confidentiality was maintained during the data collection.

### Procedure for Data Collection

The study was approved by the Nursing Research monitoring committee, JIPMER and the Institute (JIPMER) ethical subcommittee (Human studies). The investigator obtained clearance from Departmental HOD, Department of Paediatrics, JIPMER. Nursing staff in-charge will also be informed about the study.

Privacy was maintained during the course of interview. Investigators first introduced themselves to the participants and developed good rapport with them. Investigator first informed the purpose of the study and then gained their confidence by obtaining a written consent from the participants. The investigator also spent time in listening to their other related health problems apart from the data collected.

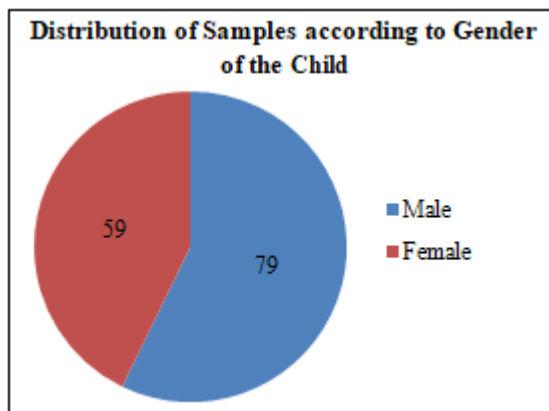
### Data analysis

The data collected from the subjects were transferred into Excel master sheet and analyzed using statistical package for social sciences (SPSS)-version 21. Descriptive (frequency, percentage, mean and standard deviation) and inferential statistics (Analysis of variance, T test and Spearman’s rank co-relation) were used in the study. All statistical analysis were carried out at 5% level of significance.

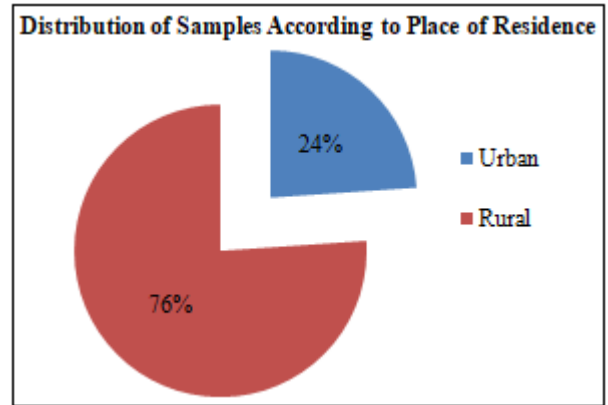
**3. Analysis and Interpretation**

**Table 1:** Distribution of subjects based on socio-demographic variables, N=138

Variables	Category	Frequency (N)	Percentage (%)
Age	< or = 20 years	7	5.1
	21 to 30 years	96	69.6
	31 to 40 years	33	23.9
	>40 years	2	1.4
Kuppusamy scale	Upper	17	12.4
	Upper middle	94	68.2
	Lower middle	23	16.7
	Upper lower	4	2.7
	Lower	0	0
Religion	Hindu	115	83.4
	Muslim	11	7.9
	Christian	9	6.6
	Others	3	2.1
Family	Nuclear	60	43.5
	Joint	76	55.1
	Extended	2	1.4
Residence	Urban	33	23.9
	Rural	105	76.1
Gender	Male	79	57.2
	Female	59	42.8
Birth order	1	50	36.2
	2	64	46.3
	3	20	14.6
	4 and above	4	2.9



**Figure 1:** Distribution of Samples According to Gender of the Child

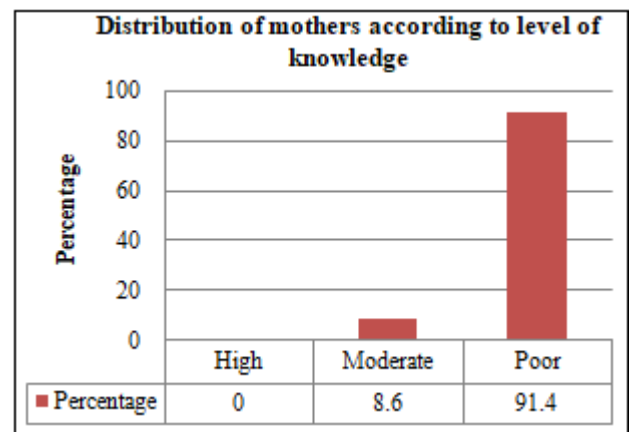


**Figure 2:** Distribution of Samples According to the Place of Residence

**Table 2:** Distribution of knowledge regarding pneumonia and its prevention among mothers of under five children. N=138

Knowledge level	Frequency (N)	Percentage (%)
High (> 80%)	0	0
Moderate (60-80%)	12	8.6
Poor (< 60%)	126	91.4

The table 2 shows distribution of knowledge regarding pneumonia and its prevention among mothers of under five children. The level of knowledge was further classified into 3 categories as poor knowledge (<60%), moderate knowledge (60-80%), and high (> 80%). Among 138 samples majority of the mothers (91.4%) were having poor knowledge and 8.6% were having moderate knowledge. None of the mothers were having good knowledge. Hence it was interpreted that knowledge of mothers regarding pneumonia and its prevention was low.



**Figure 3:** Distribution of mothers according to level of knowledge

**Table 3:** Association of level of knowledge regarding pneumonia and its prevention among mothers of under-five children with demographic variables, N=138

Variables	Category	Frequency (N)	P value
Age	< or = 20 years	7	0.3
	21 to 30 years	96	
	31 to 40 years	33	
	>40 years	2	
Kuppuswamy scale	Upper	17	0.07
	Upper middle	94	
	Lower middle	23	
	Upper lower	4	
	Lower	0	

Religion	Hindu	115	0.9
	Muslim	11	
	Christian	9	
	Others	3	
Family	Nuclear	60	0.6
	Joint	76	
	Extended	2	
Residence	Urban	33	0.4
	Rural	105	
Gender	Male	79	0.2
	Female	59	
Birth order	1	50	0.4
	2	64	
	3	20	
	4 and above	4	

P<0.05

The table 3 Association of level of knowledge regarding pneumonia and its prevention among mothers of under-five children with demographic variables shows that there was no significant association between the level of knowledge and the demographic variables being analyzed with P<0.05.

#### 4. Discussion

The study was carried out in single group which consists of 138 mothers of under five children and the description of sample characteristics were

Majority of the mothers age i.e., 69.6% were between 20 - 30 years, most of the mothers belong to upper middle class (68.2%), almost 83.4% of mothers belong to Hindu religion, 55.1% of mothers belong to joint family, 43.1% were from nuclear family and only 1.4% was in extended family, high proportion of mothers i.e., 76.1% were residing in rural areas and 23.9% were in urban areas, 57.2% of mothers under five children's were male, 46.3% of mothers children's were in the birth order of 2, 36.2% with birth order of 1, 14.6% were in the birth order of 3 and 2.9% were with the birth order of 4 & above.

The findings of the study are discussed under each objective.

**The first objective of the study was to assess the knowledge regarding pneumonia and its prevention among mothers of under five children. The related assumption was:** "Mothers of under five children may have less knowledge about the pneumonia and its prevention". **The assumption was supported by the study findings (Table 2).**

Among 138 mothers of under five children 91.4% of mothers had poor knowledge, 8.6% of mothers had moderate knowledge and no mothers had high level of knowledge.

The study conducted by Jena to assess the Effectiveness of Information Booklet on Knowledge & Practice about Prevention of Pneumonia among Mothers of under Five Children showed that 52% of mothers had no knowledge regarding prevention of pneumonia. The present study also showed that 91.4% of mothers had poor knowledge regarding the pneumonia and its prevention.<sup>14</sup>

A descriptive study conducted by Bijapur on the effectiveness of planned teaching programme on prevention

of pneumonia among mothers of children having acute respiratory infection. The assessment score showed that among 60 mothers of under-five children, 14 mothers had (23.33%) inadequate level of knowledge and 46 mothers had (76.67%) moderate level of knowledge.<sup>16</sup> But the present study showed that majority of the mothers of under five children had poor knowledge.

A study by Simyu et al on 309 mothers showed that only 18% of mothers described pneumonia satisfactorily. The study reveals that the mothers had good knowledge of mild forms of ARI but not the severe forms like broncho pneumonia.<sup>23</sup> The present study also showed that 91.4% of mothers had poor knowledge on pneumonia and its prevention.

**The second objective was to find out the association of knowledge with demographic variables.**

Regarding the association between knowledge and selected demographic variables of mothers of under five children, the investigator found that there was no significance found between the level of knowledge regarding pneumonia and selected demographic variables like age, religion, type of family, place of residence, gender of the child and birth order of the child (Table 3).

Uwaezuoke et al study reported that among 400 women. The maternal knowledge score on pneumonia signs increases significantly with educational status and social class (p < 0.05).<sup>20</sup> The present study showed no significant association between level of knowledge and selected demographic variables.

#### 5. Limitations

The limitations of the study were:

- The findings of the study cannot be generalized due to small sample size.
- Non probability sampling (convenience sampling) was used for the study.
- The data collection period is limited to only 7 days.

#### 6. Conclusion

The present study was conducted among one thirty eight mothers of under five children in JIPMER, Puducherry. The knowledge of mothers was assessed using Structured Questionnaire which is validated by the experts. The study showed that 91.4% of mothers had poor knowledge, 8.6% of mothers had moderate knowledge and no mothers had high level of knowledge regarding the pneumonia and its prevention. There was no significant association between knowledge and selected demographic variables of mothers of under five children.

#### 7. Implications to Nursing

The findings of the study have several implications for nursing service, education, administration and research which are discussed below.

**Nursing practice:**

As per the result of present study most of the mothers of

under five children had poor knowledge regarding pneumonia and its prevention, so efforts should be taken by the pediatric nurses to create awareness on pneumonia for the promotion of health and well being of under five children. Most of the health problems among under five children are preventable or controllable if anticipated, recognized and treated early. Pediatric nurses play a vital role in care of children. Regular screening by pediatric nurses should be carried out to identify respiratory infections among under five children for early treatment and referral services. The pediatric health nurse should conduct health awareness programme for the mothers of under five children regarding pneumonia and its prevention.

#### Nursing education:

To build a strong, effective and innovative clinical profession education forms the basis. Nurse educators and students should possess adequate communicative skills and detailed knowledge about the concepts and the importance of pneumonia and its prevention which will facilitate them to educate the mothers of under five children. Education on prevention of pneumonia can be a part of clinical requirements in nursing curriculum.

#### Nursing administration:

The nurse administrators can organize a special clinics as a part of child care for teaching the mothers of under five children regarding pneumonia and preventive measures after attending their regular health visits. Specialized respiratory nurses can also be appointed and utilized for this purpose. A separate area in pediatric OPD can be recommended for creating awareness with audio-visual aids and information booklets. Nurse administrators should also encourage the nursing students to participate in health education programmes on pneumonia in order to improve the mothers knowledge. Administrators can also take the step to strengthen the child health programmes on prevention and control the risk factors during childhood period.

#### Nursing research:

Extensive and vigorous research activities should be carried by the nurses and nursing students regarding pneumonia and its prevention. As a part of nursing research, knowledge on pneumonia among the mothers of under five children can be assessed with the tool used in this study and education can be imparted based on the knowledge. Studies on pneumonia can be conducted in different settings so that the knowledge can be assessed based on many different dimensions. The contributions of present research findings will be useful as a reference material for future researchers. Nurses need to engage in multi-disciplinary research studies to improve their knowledge and to solve the childhood health problems.

### 8. Recommendations for Further Research

Considering the current findings of the study, the following recommendations are given:

- A similar kind of study can be done in future with large number of sample size to make generalizations.
- A similar study can be performed in community health workers.

- A comparative study can be carried out between urban and rural population.
- An experimental study can be undertaken to find out the effectiveness of structured teaching programme on pneumonia.
- Qualitative research on the experience of children with pneumonia can be conducted.
- A similar study can be performed among fathers of under five children.

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