To Assess the Perceived Learning Needs of Parents of Children with Pneumonia: A Descriptive Cross-Sectional Study

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***Abstract*—Background: Pneumonia remains a leading cause of morbidity and mortality worldwide particulary in vulnerable populations such as young children, especially of under-5 age group. If not treated on time can lead to severe and fatal complications. WHO defines pneumonia as a form of acute respiratory infection that affects the lungs and it is most commonly caused by viruses or bacteria. It can be prevented through simple interventions. Parents should be made aware of the disease condition and the important preventive measures.**

Method: The research design selected is descriptive cross sectional study design. Setting for the study was one of the selected tertiary care hospitals in Bangalore. The subjects for the study were selected using non-probability purposive sampling technique. Sample size was fifty-six. Demographic proforma was used to collect the baseline variables of the subjects. Perceived learning needs was assessed using structured perceived learning needs questionnaire.

Result: The findings of the study revealed the mean and mean percentage of perceived learning needs, 21.82 and 72.8% respectively, indicating there is higher learning needs among the parents of the children with pneumonia with highest scoring regarding the complications of pneumonia. The findings also revealed that there is a significant association of perceived learning needs of parents with their age (0.002), education status (0.008) and occupation (0.012). It also revealed there is association of perceived learning needs with number of siblings (0.038), birth order (0.014) and frequency of hospitalization (0.034) of the child.

Conclusion: The study showed that there is a high learning needs among the parents of children with pneumonia. Therefore it is important to pay attention to the learning needs of the parents and provide relevant information to them enhancing their knowledge so that they can take immediate and appropriate actions in the near future and prevent further worsening of the child's condition.

***Index Terms*—Perceived learning needs, pneumonia, morbidity, mortality**

I. INTRODUCTION

Pneumonia can be defined as the acute lower respiratory tract infection usually cause by bacteria, virus, fungi or combination of all these organisms leading to inflammation and fluid accumulation[1]. It usually affects the lower organs of the respiratory system i.e., the lungs. In pneumonia, the alveoli of the lungs get filled with pus or fluid leading to difficulty in breathing due to impaired gaseous exchange. It can be caused either due to bacterial, viral or fungal infection. Most of the mortality due to pneumonia is strongly linked with poverty related factors like malnutrition, lack of safe-clean drinking water, and poor sanitation, indoor and outdoor air pollution as well as limited access to health care services[2]. Pneumonia is the leading factor of morbidity and mortality of under 5 children around the world.

According to UNICEF, every 43 second a child is dying due to pneumonia around the world. Pneumonia kills more children than other infectious disease, claiming the lives of over 700,000 children under every year, or around 2000 every day, which includes 200,000 newborns. India comprise of 30.6 deaths per 1000 live births[3]. The number of Acute respiratory infection (ARI) cases reported in

Karnataka 2021 is approximately 1.5 million[4]. Through united attempts the world has made astounding advancement in reducing under-five mortality, from 12.5 million under-five deaths in 1990 to 5.7 million deaths in 2015. Regardless of this advancement, under-five mortality remains outrageously high and far off from global targets set out by the Sustainable Development Goals. Fortunately vaccines (Pneumococcal conjugate vaccine and Haemophilus influenza type b) have been implemented as a primary care for the prevention of pneumonia leading to decrease in the mortality rates[3].

Early detection and help from health care services can drastically reduce the prevalence of the deaths in children. Pneumonia symptoms resemble those of the common cold and cough, hence misleading the parents to identify the actual condition and seeking early medical help[5]. Researches have shown that exclusive breastfeeding and hand hygiene helps in the prevention of pneumonia in children[2]. Hence it is critical to breastfeed the newborns rather than giving them supplement feeds. details on causes, identification of signs and symptoms, preventive measures, perception on danger signs, home care practices and health seeking behavior due to pneumonia, helps policy makers lay plan of action in reducing pneumonia related childhood mortality[6]. The seasonal pneumonia morbidity pattern correlates to the temperature pattern all-round the year, with higher morbidity seen during the colder months and early springs, while lower morbidity seen during the warm months[4].

II. MATERIAL AND METHODS

The study follows quantitative approach. The subjects were selected using inclusion criteria that are the subjects should be parent of under 5 children diagnosed with pneumonia, the subject should be able to read and write English, hindi, kannada, tamil or telugu, and the subject should be belonging to the age group of 18-60 years. Exclusion criteria included parents of children with pneumonia and diagnosed with other co-morbidities like pneumonia with heart disease, renal failure, congenital anomalies etc.

The study was conducted in a selected tertiary care hospital, Bengaluru. The population comprised of the parents of children with pneumonia admitted in the in-patient unit of pediatric medicine and pediatric ITU ward. Non-probability purposive sampling technique was used to recruit the subjects based on the inclusion and exclusion criteria. A total of 56 subjects were selected for the study. Perceived learning needs of the parents were assessed using Structured Perceived Learning needs Questionnaire followed by baseline variable of both, the parents and the child.

The data analysis and interpretation of the study included descriptive and inferential statistics. The frequency, percentage, mean, mean percentage, and standard deviation of the selected baseline variable were computed. Association between perceived learning needs and the selected baseline variables were computed using Chi-square.

III. RESULTS

The mean perceived learning needs was 21.84 indicating parents had higher learning needs. The learning needs assessed were ranked as top five per the highest score. According to the ranking 39(69.6%) participants responded they must know what can happen if pneumonia is not treated on right time and what are the danger signs of pneumonia which needs immediate hospitalization. 35(62.5%) of the participants responded they must know how vitamin A and D supplementation can prevent occurrence of pneumonia, 33 (58.9%) of the participants responded they must know what are the causes of pneumonia and risk factors of pneumonia, 30 (53.6%) of them responded they must know how proper hand washing and controlling household air pollution prevent pneumonia and 28 (50.0%) of the participants responded they must know what are the supportive measures which aids in early recovery of the child.

The findings of the present study showed that there is a significant association in perceived learning needs with age, education status and occupation of the parents at 0.002, 0.008 and 0.012 levels respectively. The study also showed association in number of siblings ($p=0.038$), birth order ($p=0.014$) and frequency of hospitalization ($p=0.034$).

Table I: Description of the baseline variable of parents of children with pneumonia (n=56)

Sl no	Baseline variable	frequency	Percentage	Mean	SD
1.	Age				
	<20	4	7.1		
	20-30	26	46.4	29.3	6.59
	31-40	23	41.1		
	41-50	3	5.4		
2.	Gender				
	Male	20	36		
	Female	36	64		
3.	Educational status				
	Post graduate	2	3.6		
	Graduate	17	30.4		
	Intermediate/ Diploma	2	3.6		
	High School	30	53.6		
	Middle School	5	8.9		
	Primary School	0	0		
4.	Occupation				
	Professional	3	5.4		
	Semi-professional	0	0		
	Clerical/ Shop/ Farm	8	14.3		
	Skilled worker	3	5.4		
	Semi-skilled worker	11	19.6		
	Unskilled worker	3	5.4		
	Unemployed	28	50.0		
5.	Socioeconomic status				
	Low income	21	37.5		
	Middle income	35	62.5		
	High income	0	0		
6.	Place of residence				
	Rural	19	33.9		
	Urban	37	66.1		
7.	Previous information received about pneumonia				
	Yes	7	12.5		
	No	49	87.5		

Table II: Description of baseline variables of children with pneumonia (n=56)

SL NO	BASELLINE VARIABLE	FREQUENCY	PERCENTAGE
1.	Age		
	Infant	17	30.4
	Toddler	27	48.2
	Pre-Schooler	12	21.4
2.	Gender		

	Male	37	66.1
	Female	19	33.9
3.	Number of siblings		
	0	20	35.7
	1	28	50.0
	2	7	12.5
	3	1	1.8
4.	Birth order		
	1st child	21	37.5
	2nd child	28	50.0
	3rd child	5	8.9
	4th child	1	1.8
	5th child	1	1.8
5.	History of allergy		
	Yes	2	3.6
	No	54	96.4
6.	Exposure to passive smoking		
	Yes	6	10.7
	No	50	89.3
7.	Immunization status		
	Immunized	55	98.2
	Not immunized	1	1.8
8.	Frequency of hospitalization for the past 1 year		
	No hospitalization		
	1 time	35	62.5
	2 times	10	17.9
	3 times	6	10.7
	4 times	3	5.4
		2	3.6

Table III: Description of perceived learning needs of parents of children with pneumonia (n=56)

VARIABLE	MAX. SCORE	RANGE	MEAN	MEAN%	SD
Perceived learning needs	30	6-30	21.84	72.8%	7.22

Table IV: Description of learning needs of parents of children with pneumonia, according to domains (n=56)

VARIABLE	MAX. SCORE	RANGE	MEAN	MEAN%	SD
Concept	6	0-6	4.3	71.66	1.838
Early identification	12	2-12	8.43	70.25	2.947
Complication	3	1-3	2.5	83.33	0.809
Preventive measure	9	0-9	6.66	74	2.503

Table V: Description of perceived learning needs of parents of children with pneumonia according to the items

SL NO	VARIABLE	DON'T WANT TO KNOW		NICE TO KNOW		DESIRABLE TO KNOW		MUST KNOW	
		f	%	f	%	f	%	f	%
1.	What is pneumonia	3	5.4	18	32.1	9	16.1	26	46.4
2.	What are the causes of pneumonia and risk factors of pneumonia	1	1.8	17	30.4	6	10.7	33	58.9
3.	What are the early manifestations of pneumonia	1	1.8	17	30.4	16	28.6	22	39.3
4.	What are the danger signs of pneumonia which needs immediate hospitalization	1	1.8	10	17.9	6	10.7	39	69.6
5.	How is pneumonia treated	1	1.8	27	48.2	9	16.1	19	33.9
6.	What are the supportive measures which aids in early recovery of the child	1	1.8	19	33.9	8	14.3	28	50.0
7.	What can happen if pneumonia is not treated on right time	0	0	11	19.6	6	10.7	39	69.6
8.	Is there any vaccine available for pneumonia	3	5.4	16	28.6	10	17.9	27	48.2
9.	How vitamin A and D supplementation can prevent occurrence of pneumonia	2	3.6	10	17.9	9	16.1	35	62.5
10.	How proper hand-washing and controlling household air pollution prevent pneumonia	1	1.8	17	30.4	8	14.3	30	53.6

Table VI: Perceived learning needs of parents of children with pneumonia according to rank

SL NO	PERCEIVED LEARNING NEEDS	RANK
1	What can happen if pneumonia is not treated on right time.	I
2	What are the danger signs of pneumonia which needs immediate hospitalization.	I
3	How vitamin A and D supplementation can prevent occurrence of pneumonia.	II
4	What are the cause of pneumonia and risk factors of pneumonia.	III
5	How proper hand washing and controlling household air pollution prevent pneumonia.	IV
6	What are the supportive measures which aids in early recovery of the child.	V

Table VII: Association of perceived learning needs of parents of children with pneumonia with selected baseline variables (n=56)

Rank I: Danger Signs

Baseline variables	Perceived learning needs					
	Other responses		Must know		Chi-square	p-value
Age	f	%	f	%	1.875	0.029*
<20	1	100.0	1	2.6		
20-30	0	0.0	17	43.6		
31-40	0	0.0	19	48.7		
41-50	0	0.0	2	5.1		
Educational status						
Post graduate	0	0.0	2	5.5	1.883	0.018*
Graduate	3	17.6	14	35.9		
Intermediate/Diploma	0	0.0	2	5.1		
High school	12	70.6	18	46.2		
Middle school	2	11.8	3	7.7		
Occupation						
Professional	0	0.0	3	7.7	1.827	0.012*
Clerical/Shop/Farm	1	5.9	7	17.9		
Skilled worker	0	0.0	3	7.7		
Semi-skilled worker	5	29.4	6	15.4		
Unskilled worker	0	0.0	3	7.7		
Unemployed	11	64.7	17	43.6		

Rank I: Complication

Baseline variables	Perceived learning needs					
	Other responses		Must know		Chi-square	p-value
Occupation	f	%	f	%	0.874	0.045*
Professional	1	5.9	2	5.1		
Clerical/Shop/ Farm	1	5.9	7	17.9		
Skilled worker	0	0.0	3	7.7		
Semi-skilled worker	5	29.4	6	15.4		
Unskilled worker	0	0.0	3	7.7		
Unemployed	10	58.8	18	46.2		

Rank III: Causes and Risk Factors

Baseline variables	Perceived learning needs					
	Other responses		Must know		Chi-square	p-value
Occupation	f	%	f	%	1.262	0.027*
Professional	3	13.0	0	0.0		
Clerical/Shop/Farm	3	13.0	5	15.2		
Skilled worker	1	4.3	2	6.1		
Semi-skilled worker	5	21.7	6	18.2		

Unskilled worker	0	0.0	3	9.1		
Unemployed	11	47.8	17	51.5		
Birth order						
1st child	10	43.5	11	33.3		
2nd child	13	56.5	15	45.5		
3rd child	0	0.0	5	15.2	1.819	0.026*
4th child	0	0.0	1	3.0		
5th child	0	0.0	1	3.0		
Frequency of hospitalization						
0	15	65.2	20	60.6		
1 time	1	4.3	9	27.3		
2 times	2	8.7	4	12.1	1.485	0.034*
3 times	3	13.0	0	0.0		
4 times	2	8.7	0	0.0		

Rank IV: Hand washing

Baseline variable	Perceived learning needs					
	Other responses		Must know		Chi-square	p-value
Age	f	%	f	%		
<20	4	15.4	0	0.0		
20-30	15	57.7	11	36.7	2.865	0.002*
31-40	6	23.1	17	56.7		
41-50	1	3.8	2	6.7		
Educational status						
Post graduate	0	0.0	2	6.7		
Graduate	4	15.4	13	43.3		
Intermediate/Diploma	2	7.7	0	0.0	2.203	0.008*
High school	18	69.2	12	40.0		
Middle school	2	7.7	3	10.0		
Occupation						
Professional	0	0.0	3	10.0		
Clerical/Shop/Farm	4	15.4	4	13.3		
Skilled worker	0	0.0	3	10.0		
Semi-skilled worker	7	26.9	4	13.3	1.318	0.025*
Unskilled worker	0	0.0	3	10.0		
Unemployed	15	57.7	13	43.3		

Rank V: Supportive measures

Baseline variable	Perceived learning needs					
	Other responses		Must know		Chi-square	p-value
Occupation	f	%	f	%		
Professional	1	3.6	2	7.1		
Clerical/Shop/Farm	2	7.1	6	21.4	1.023	0.035*
Skilled worker	1	3.6	2	7.1		

Semi-skilled worker	9	32.1	2	7.1		
unskilled worker	0	0.0	3	10.7		
Unemployed	15	53.6	13	46.		
Number of siblings						
0	12	42.9	8	28.6	1.661	0.038*
1	14	50.0	14	50.0		
2	2	7.1	5	17.9		
3	0	0.0	1	3.6		
Birth order						
1st child	13	46.4	8	28.6	2.123	0.014
2nd child	14	50.0	14	50.0		
3rd child	1	3.6	4	14.3		
4th child	0	0.0	1	3.6		
5th child	0	0.0	1	3.6		

*significance

IV. DISCUSSION

DISCUSSION RELATED TO THE DESCRIPTION OF BASELINE VARIABLES OF PARENTS

A total of 56 parents of children with pneumonia were the participants of this study. Among them, 46.4% of the parents belonged to age group of 20-30 years old, with a mean age of 29.3. Majority (64.3%) of the parents were female (mothers), 53.6% were educated upto high school and 50.0% of the parent were unemployed (housewives). 62.5% of the family belonged to middle income family, 51.8% of them had nuclear family and majority (66.1%) of the family resided in urban area. In this study 87.5% (majority) of the parents had never received any information regarding pneumonia.

DISCUSSION RELATED TO THE DESCRIPTION OF BASELINE VARIABLES OF CHILDREN WITH PNEUMONIA

The findings of the present study shows that 48.2% of the children were toddlers and majority (66.1%) of them were male. 50.0% of the children had 1 sibling, 50.0% were second born, and majority (96.4%) of the children had no significant history of any allergy. 89.3% of the children were not exposed to passive smoking but 10.7% of them were exposed to passive smoking, either from their father or grandfather (cigarette smoking). Majority (98.2%) of the children were immunized upto the age as per universal immunization schedule and only 1(1.8%) of the child was not immunized, as per parents information. The concerned staffs were notified and necessary education was given regarding the importance of immunization. This clearly shows that the parents are aware about the importance of vaccinating their children and government also has played a major role by providing the immunization through National Immunization program and covering each and every child thus protecting them from life threatening disease. Majority (62.5%) of the children were admitted for the first time to the hospital. They had no significant history of past hospitalization.

DISCUSSION RELATED TO THE PERCEIVED LEARNING NEEDS OF PARENTS OF CHILDREN WITH PNEUMONIA

The perceived learning needs of parents of children with pneumonia were assessed with the help of a structured questionnaire. The data was collected from 56 participants. The questionnaire had 10 questions with 4 domains such as concept, early identification of symptoms and management, complication and preventive measures. Perceived learning needs were categorized as don't want to know, nice to know, desirable to know and must know. According to the data collected 39 (69.6%) participants responded they must what can happen if pneumonia is not treated on

right time and what are the danger signs of pneumonia which needs immediate hospitalization. 35 (62.5%) of the participants responded they must know how vitamin A and D supplementation can prevent occurrence of pneumonia, 33 (58.9%) of the participants responded they must know what are the causes of pneumonia and risk factors of pneumonia, 30 (53.6%) of them responded they must know how proper hand washing and controlling household air pollution prevent pneumonia and 28 (50.0%) of the participants responded they must know what are the supportive measures which aids in early recovery of the child.

Parental unawareness about pneumonia in India may stem from low literacy levels in rural areas, limited access to health education, cultural beliefs, and reliance on traditional remedies. Inadequate health communication by healthcare providers and lack of mass awareness campaigns further contribute, promoting early recognition and timely care for pneumonia in children. Even educated parents in urban areas may lack information about pneumonia due to reliance on non- credible sources like social media, where misinformation spreads easily

DISCUSSION RELATED TO ASSOCIATION OF PERCEIVED LEARNING NEEDS OF PARENTS OF CHILDREN WITH PNEUMONIA WITH SELECTED BASELINE VARIABLES

The findings of the present study showed that there is a significant association in perceived learning needs with age (p=0.002) of the parents indicating learning needs was higher in the age group between 31-40 years. There is also significant association with education status and occupation at 0.008 and 0.012 levels respectively.

Specifically, the study found that parents aged 31-40 years had higher learning needs, suggesting that this age group is more interested in or aware of the importance of gaining knowledge about child health issues. This could be due to their active parenting role, increased responsibility, or better recognition of the need for health information.

The study also showed association in number of siblings (p=0.038), birth order (p=0.014) and frequency of hospitalization (p=0.034).

A similar study done in Pune where mothers knowledge about pneumonia was assessed. It showed significant association between knowledge level and education and occupation of the parents at 0.011 and 0.03 levels respectively[7].

The study finding can be used by the nursing administrators to develop standard and protocols to meets the parents' needs. It also can be used by the nurses to understand the needs of the parents and emphasize that fundamental information be given to parents prior to being discharged from hospitals. The study findings serve as a base for the future studies.

V. ACKNOWLEDGEMENT

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ETHICAL CLEARANCE

Institutional ethics committee approval was obtained before conducting the study.

Study number-TH-66/2024, 26th February 2024.

INFORMED CONSENT

Informed consent was taken before conducting the study. Subject information sheet containing all the details about the study was explained to the subjects. The study was carried out in accordance with the principles as enunciated in the declaration of Helsinki.

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