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Knowledge, Perceptions and Practices of Caregivers of Under-Five Children on Pneumonia Management in Tribal Areas of Nandurbar, India

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Abstract

Introduction

Pneumonia is the main cause of under-five children worldwide with the burden in developing countries such as India. Caregivers are the primary care providers for their children. So, their knowledge becomes important in preventive efforts.

Methods

The study was conducted in Akkalkuwa block of Nandurbar district of Maharashtra State of India. The study was cross-sectional, mixed methods assessing knowledge, perceptions and practices of caregivers on pneumonia among children aged below five

years using a vignette. Systematic and convenience sampling was used to select the participants. The participants were selected from 29 villages under TWO Primary Health Centre areas located in plain and hilly area respectively.

Results

Total 107 caregivers of under-five children were interviewed from the Akkalkuwa block. More than half of the respondents were from 18-25 years age category. Less than one-fourth of the respondents were illiterate and one-fourth had completed higher secondary or junior college. Cough, flu, fever and stomach upset/distention were the commonly reported symptoms of pneumonia. Food ingestion, climate and heat-cold humoral been reported as perceived causes whereas private doctors, traditional healers and herbalists were the highest source of help seeking for pneumonia. More than 90% believe pneumonia can be cured and more than one-third consider it as a serious illness. Sadness/anxiety of reducing income or work was the highest reported concern after getting pneumonia. More than half of them consider pneumonia as strain for family finances. Little less than one-fifth received any information on pneumonia and half of them reported friend/family as source of information about pneumonia.

Conclusion

Health education need to be imparted among community members. Traditional healers, herbalists and private practitioners to sensitize about appropriate treatment of pneumonia. Messages need to be prepared in the local languages (Bhili, Pawri dialect) using the local terminologies to be used in formation of IEC material.

Key words: Pneumonia Management, Under-Five Children, Tribal Areas of Nandurbar.

INTRODUCTION

Pneumonia continue to be a public health problem with a leading cause of mortality in India specifically among neonatal period of children. (1) . It claims the lives of over 800,000 children under five every year, including over 153,000 newborns, who are particularly vulnerable to infection. That means a child dies from pneumonia every 39 seconds and almost all of these deaths are preventable. Targeting decline of under-five child death continues to be a priority focus area for sustainable development goal (2). NFHS – 4 records a 2.7% prevalence of ARI (Urban: 2.3% Rural: 2.9%) in children under five years of age. India adopted the IMNCI guidelines to reduce death proportion of under-five children including neonatal deaths.(3,4)

Information of knowledge on causes, recognition of signs and symptoms, prevention measures, perception on danger signs, home care practices and health seeking behavior due to pneumonia, helps policy makers set strategies to decrease pneumonia related childhood mortality. Knowledge of such sources would inform the policy makers of targeted interventions in the community by ensuring optimal use of well accepted and existing resources for health. (1,5)

The purpose of this study was to assess caregivers' knowledge on causes, signs and symptoms, risk factors, prevention measures, perceptions on danger signs and disease severity, and home care practices on children with pneumonia. The study was conducted in Akkalkuwa block of Nandurbar district in Maharashtra. The review suggests Nandurbar as the district with low Human Development Index (HDI), highest tribal population in the State and is prevalent for Diarrhoea and ARI among under-five children. Sixty-nine percentage of the population is tribal. (6,7) (Figure 1) (8).

METHODS

Caregivers of under-five children living in the selected tribal dominant TWO PHC areas i.e. Daab (hilly region) and British Ankushvihir (Plain area) of Akkalkuwa block. The study was mixed of qualitative and quantitative approaches. Semi-structured interview tool was used for the interviews. A vignette of Ram was explained to the respondent with symptoms similar to pneumonia illness and respondents were asked to identify the illness.

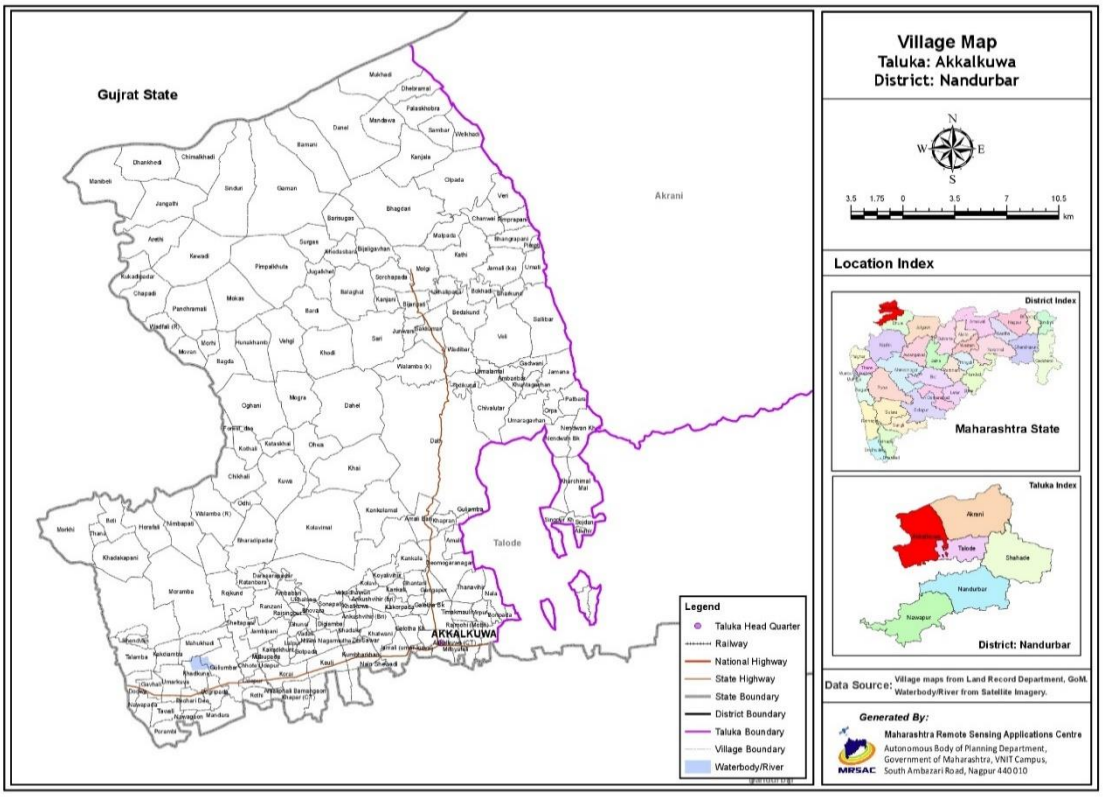
Stratified simple random sampling method was used. The sample of 100 was divided across all sub-centres of two Primary Health Centres. On next level, the villages under respective sub-centre were randomly selected and sample was distributed across these villages. A total of 109 caregivers having children in 0-5 years were selected from these villages by selecting every fifth household of the village till achieving the desired sample.

All the caregivers were asked if any of their under-five child had pneumonia (based on the symptoms or diagnosis by any health provider) in last one year (from day of interview); any of such cases were conducted with in-depth interview.

Written, informed consent was obtained from all the respondents. Participation in the study was entirely voluntary and no financial inducement whatsoever was involved. All information about the respondents were handled with utmost confidentiality and used only for intended purposes.

The quantitative data were checked for completeness, coded and entered into Microsoft excel program for analysis. Descriptive statistics were used to describe the characteristics of the sample. Logistic regression were used for further analysis across socio-demographic variables.

Figure 1- Akkalkuwa map in Nandurbar district, Maharashtra State of India



RESULTS

Demographic characteristics

Almost all caregivers were female respondents except one male respondent and were biological mothers. More than half of the respondents were between 18-25 years age group. Little less than half respondents were from nuclear family followed by 44% belong to joint family. All the respondents were married. Most of the respondents belong to Bhil community, 4 families belong to Pawra community whereas one family from Talvi community. Half of the respondents were studies till higher secondary or junior college

level whereas less than one-fourth were illiterate. About 70% of the respondents have children between one month and three years of age. More than two-third of the respondents have up to two children (Range 1-7 children). (Table-1). Average annual income of the respondents was reported as INR 24844/- (Range INR 1500-INR 72000).

TABLE-1 PROFILE OF RESPONDENTS (N=107)

Indicator	n	%
Child's age who are under-five years		
0-1 month	7	6.5
1 month to 1 year	42	39.3
1 year to 3 years	32	29.9
3 years to 5 years	26	24.3
Total number of children respondents have		
1	35	32.7
2	37	34.6
3	19	17.8
>=4	16	14.9
Age category of respondent		
18-25 years	63	58.9
26-30 years	31	29
31-35 years	10	9.3
>=40 years	5	2.8
Type of family		
Nuclear	52	48.6
Joint	47	43.9

TABLE-1 PROFILE OF RESPONDENTS (N=107)		
Indicator	**n**	**%**
Extended	8	7.5
Tribe		
Bhil	102	95.3
Pawra	4	3.7
Talvi	1	0.9
Education		
Illiterate	21	19.6
Primary	6	5.6
Secondary	16	15
Higher secondary	28	26.2
Jr. college	27	25.2
Graduation	8	7.5
Post-graduation/diploma	1	0.9

Knowledge about pneumonia

More than one-third of the respondents identified the illness as pneumonia or *Vavlya* (local dialect used for pneumonia). Out of 107 respondents only one-fifth of them (n=26, 24.3%) reported that they have sought any information related to pneumonia. Out of them, friends/family, health workers, traditional healers and government hospital were the reported sources. Caregivers described pneumonia as excess cough and cold.

SYMPTOMS OF PNEUMONIA

Most respondents identified cough and fever as the highest reported symptoms followed by fast breathing and unable to suck milk (Figure xx). Binary logistic regression shows that for symptoms of Pneumonia, 72.5% respondents in the age group 31-45 years were less likely to report as compared respondents of 18-25 years age although the difference is not significant whereas for age group 26-30 years the knowledge regarding symptoms was 1.3 times higher than 18-25 years age group but not significant. Regarding difference in reporting correct symptoms of pneumonia across education; respondents with primary/secondary/higher secondary education have 1.7 times and with junior college/graduate and post-graduate have almost 4 times higher knowledge than illiterate respondents (Table 2).

CAUSES OF PNEUMONIA

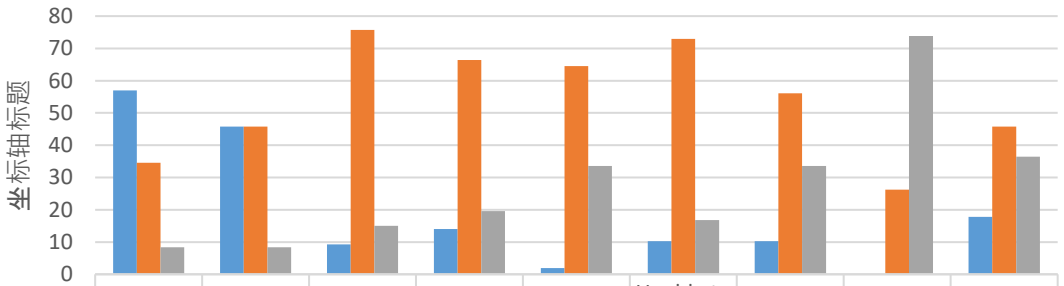
Regarding the causes of pneumonia, most of the respondents identified "Eating wrong food" as the cause of pneumonia. In contrast, (n=10, 9.3%) respondents reported germs/infection as causes of pneumonia (Figure 03). Binary logistic regression indicates that respondents of 26-30 years age group have higher knowledge of cause of pneumonia whereas 79% were less aware about causes than respondents of 18-25 years age group though the difference was not significant. For educational categories, respondents studied till primary, secondary/higher secondary have 1.7 time more knowledge and respondents studied till junior college/graduation/ post-graduation have 3.2 times more knowledge regarding cause of getting pneumonia as compared to illiterate respondents though the difference was not significant. (Table-3)

PREVENTIVE MEASURES

Hygiene and frequent hand-wash were the highest reported spontaneous preventive measures whereas vaccination, breastfeeding and keeping child warm were the probed reported preventive measures. The other preventive measures involved avoiding certain foods, children should avoid eating packet and fried food etc.

Logistic regression indicates no significant difference across age group though respondents of 26-30 years age group have 1.6 times high knowledge and 86% low knowledge among 31-45 years age group as compared to respondents of 18-25 years age group. Respondents with Primary/secondary/higher secondary schooling have 1.8 times higher knowledge and junior college/graduate/post-graduate respondents have 4.2 times higher knowledge regarding prevention measures for pneumonia and the difference was significant. ($p<0.01$). (Table- 3)

Figure 2 Reported symptoms of pneumonia



	Cough	Fever	Fast breathing	Trouble in sleeping	Blocked nose	Unable to suck breast milk	Breathlessness	Dusky skin	Nausea & vomiting
SP	57	45.8	9.3	14	1.9	10.3	10.3	0	17.8
PR	34.6	45.8	75.7	66.4	64.5	72.9	56.1	26.2	45.8
NO	8.4	8.4	15	19.6	33.6	16.8	33.6	73.8	36.4

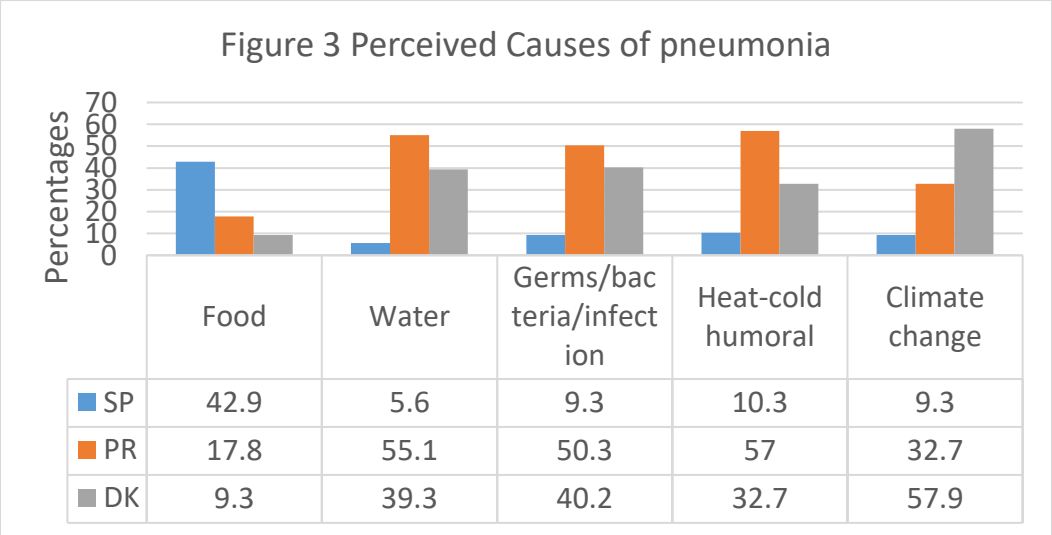


TABLE 2: BINARY LOGISTIC REGRESSION FOR TOTAL SYMPTOM SCORE

Socio-demographic Characteristics	**Total symptom score (Correctly reported)**		
	AOR	95% CI	**p-value**
Age Groups (years)			
18 to 25	Reference		0.705
26 to 30	1.347	(0.4830,3.760)	0.569
31 to 45	0.725	(0.1890,2.788)	0.640
Education			
Illiterate (Ref cat)	Reference		0.052
Primary/secondary/higher secondary	1.712	(0.681, 5.478)	0.2160
Jr.college/graduation/post graduation	3.893	(1.335, 15.480)	0.0150

p-value significant <0.05

TABLE 3: BINARY LOGISTIC REGRESSION FOR TOTAL CAUSE SCORE

Socio-demographic Characteristics	Total cause score (Yes/No)		
	AOR	**95% CI**	**p-value**
Age Groups (years)			
18 to 25	Reference		
26 to 30	1.018	0.237, 4373	0.981
31 to 45	0.792	0.087, 7.192	0.836
Education			
Illiterate	Reference		
Primary/secondary/higher secondary	1.739	0.183, 16.555	0.630
Jr.college/graduation/post graduation	3.226	0.351,29.683	0.301

TABLE 4: BINARY LOGISTIC REGRESSION FOR TOTAL PREVENTION SCORE

Socio-demographic Characteristics	Total prevention score (Yes/No)		
	AOR	**95% CI**	**p-value**
Age Groups (years)			
18 to 25	Reference		
26 to 30	1.644	0.584, 4.627	0.346
31 to 45	0.860	0.167, 4.436	0.857

Education			
Illiterate	Reference		
Primary/secondary/ higher secondary	1.810	0.350, 9.343	0.479
Jr. college/ graduation/ Post-graduation	4.180	0.8270, 21.131	0.084

*** p-value significant <0.01**

PERCEPTION ABOUT PNEUMONIA

When asked if Ram's illness could be completely cured more than 90% agreed that it will be cured (n=99, 92.5%). More than two-thirds of the respondents were of the opinion that without appropriate treatment the illness may get worsen (n=83, 77.6%). When asked about seriousness of Ram's illness; more than one-third of them consider it as moderately or very serious illness (n=40, 37.4%) whereas one-fifth of the respondents were not sure about the seriousness (n=22, 20.5%). Sadness, worry and anxiety occurring due to the illness were leading reported concerns followed by stress of reducing income and concerns about actual illness. (Table 5)

TABLE 5 CONCERNS ABOUT THE ILLNESS

Concerns	**SP**	**PR**	**NR**
Less support from society	4 (3.7)	65 (60.7)	38 (35.5)
Sadness, anxiety & worry	46 (43)	56 (52.3)	5 (4.7)
Concern about illness	16 (15)	78 (72.9)	13 (12.1)
Reduced personal/family income	12 (11.2)	85 (79.4)	10 (9.3)
Concern for family & child	12 (11.2)	71 (66.4)	24 (22.4)

HELP SEEKING PRACTICES

First help seeking

More than half of the respondents preferred using herbs as a first help seeking option to treat pneumonia followed by health provider and traditional healers.

TABLE 6 FIRST HELP SEEKING OPTIONS

First Help seeking	n	%
Use of various herbs+ goat excreta pest- apply on child's chest	63	58.9
Traditional healer (*Bhagat)*	24	22.4
Doctor/health provider	27	25.2
Branding with hot rod on the stomach	6	5.6

Private health facility and traditional healer were the two leading reported help seeking preferences outside the home.

Most useful help seeking

Private practitioners and herbalists or government health facility were the reported most useful help seeking options to treat pneumonia. Further, chi-square test showed highly statistical significance across education categories; illiterate and primary/secondary/higher secondary educated respondents preferred traditional healing practices over allopath whereas respondents studied above junior college preferred allopath medicinal system over traditional system of medicine.

TABLE 7 MOST USEFUL HELP SEEKING

Most useful help seeking	Frequency	Percent
Government health centre/hospital	15	14.0
Private clinic	23	21.5
Local herbal leader	17	15.9
Traditional healer	14	13.1
Other	15	14.0
Both-Bhagat & dr	5	4.7
Can't say	18	16.8
Total	**107**	**100.0**

TABLE 8 MOST USEFUL HELP SEEKING ACROSS EDUCATION

Educational category		Most useful help seeking					Total
		Govt health centre/ hospital	Private clinic	Jadi-buti	Traditional healer	Both-Bhagat & dr	
Illiterate	**Total**	1	3	2	3	7	16
	Across education	6.3%	18.8%	12.5%	18.8%	43.8%	100.0%
Primary/secondary/higher secondary	**Total**	5	7	12	11	8	43
	Across education	11.6%	16.3%	27.9%	25.6%	18.6%	100.0%
Jr. college/graduation/post-graduation	**Total**	11	13	3	0	5	33
	Across education	33.3%	39.4%	9.1%	0.0%	15.2%	100.0%

***Highly significant for Chi square test p-value =0.001

TABLE 9 MOST USEFUL HELP SEEKING ACROSS AGE GROUP

Age group		Most useful help seeking						Total
		Govt health centre/ hospital	Private clinic	Jadi-buti	Traditional healer	Both-Bhagat & dr	Not applicable	
18-25	**Tot**	11	11	12	8	11	1	54
	Across age cat	20.4%	20.4%	22.2%	14.8%	20.4%	1.9%	100.0%
26-30	**Tot**	4	10	4	5	4	0	27
	Across age cat	14.8%	37.0%	14.8%	18.5%	14.8%	0.0%	100.0%
31-45	**Tot**	2	2	1	1	5	0	11
	Across age cat	18.2%	18.2%	9.1%	9.1%	45.5%	0.0%	100.0%
Total	**Tot**	**17**	**23**	**17**	**14**	**20**	**1**	**92**
	Across age cat	**18.5%**	**25.0%**	**18.5%**	**15.2%**	**21.7%**	**1.1%**	**100.0%**

Chi square test p-value =0.597

Private practitioners and local herbal leader were the highest reported help seeking ways by the community. Out of 107 respondents only one-fifth of them (n=26, 24.3%) reported that they have sought any information related to pneumonia. Out of them, friends/family, health workers, traditional healers and government hospital were the reported sources. The information received was related to keeping food taboos (mother to avoid eating food which creates gases such as beans, brinjal, buffalo milk, cluster beans etc.) by mother to prevent child's stomach getting hard or extended as well as applying herb and goat's excreta pest on chest of the child. There was a significant difference observed across education categories but no significant observed across age categories.

Received information about pneumonia

Only one-fourth of the respondents have mentioned receiving of any information about pneumonia (n=26, 24.3%). Friends and family and health workers were the highest reported sources of information.

TABLE 10 SOURCE OF INFORMATION FOR PNEUMONIA

Source of information	n	%
Health worker	8	7.5
Government hospital	1	0.9
Friend/family	13	12.1
Traditional healer	4	3.7

DISCUSSION

Low awareness among caregivers regarding symptoms, causes and preventive measures for pneumonia was observed among tribal communities of study area. The low awareness could be attributed to less exposure to social media, medical/health personnel as well as IEC material. A study by Amuka et.al. in rural and urban slums Kenya also reports inadequate knowledge regarding pneumonia causes, risk factors and prevention. But, another study assessing knowledge of mothers of Mithi Tharparkar desert in Pakistan regarding ARI indicates high knowledge regarding ARI symptoms and preventive measures (11).

Causes related to food ingestion. Both parents have role in decision making of treatment provision. Private and traditional providers preferred over government health facilities.

Limited reliable sources of information for seeking information about pneumonia. A study from Pakistan among frontline workers and caregivers indicated unsanitary environmental conditions and unhygienic caregiver practices as perceived causes of pneumonia. (13)

The causes are associated with women (lactating) eats something "wrong" meaning which causes gaseous in the stomach (vegetables such as brinjal, cowpea (*chawali*), buffalo milk, cluster beans etc. A study from Pune city in India on acceptance of AIV also indicates similar findings about causes of getting an influenza(9). Pneumonia is associated with stomach related illness rather than distress in breathing. It could be due to fast movement of stomach is paid more attention rather than short of breath. It was also observed that the causes were also associated with "spoiled breast milk"; (*dudh fato/ubalya*). The pattern of thinking regarding defining meaning of illness (pneumonia aka Vavlya), correlating the causes with most emphasizing/ indicating signs and symptoms, continued belief on herbal medicines or burning the stomach with rod or going for oil massage. (10)

Self-treatment with use of over-the counter drugs was reported by the community in Kenya. The knowledge, perceptions and practices of caregivers from other studies suggest health education efforts with locally appropriate interventions such as radio, television and health campaign. (11–13)

Anthropological Research mainly focuses on traditional medicine and it is suggested that other scientific disciplines should be incorporated in order to further rescue and revalue this part of the cultural heritage that has contributed substantially to human health and to the development of indigenous medical knowledge and its resources.(14)

CONCLUSION

Knowledge and awareness about symptoms, ways of prevention and treatment measures of the community to be raised to diagnose and treat childhood pneumonia early. Health awareness messages need to be prepared in the local languages using the local terminologies. A separate in-depth inquiry need to be conducted on herbal medicines used by community members for treating pneumonia. Operational Research for further inquiries is needed to understand the problem of pneumonia holistically.

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