

## Original Research Article

## “A Study on Awareness Among Parents About Pneumococcal Conjugate Vaccine in Routine Immunization Program to Prevent Pneumococcal Diseases”

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### Abstract

**Background:** This study also tried to identify the associated factors favoring the awareness and immunization coverage of this newly-introduced pneumococcal conjugate vaccine. **Aim:** To evaluate the parental knowledge, attitude and perception of pneumococcal disease and pneumococcal conjugate vaccine. **Methods:** A semi-structured questionnaire consisting of open and closed-ended questions was developed to conduct this study and Immunization status with PCV was cross-examined with the immunization card. **Statistical analysis:** The final dataset was analyzed using SPSS for cross-tabulation, and binary logistic regression (Chi-square test with significance level at  $P \leq 0.05$ , will be performed to determine the association. **Results:** A total of 300 parents (father or mother) participated in this study, there was no significant association between awareness of PCV with father's and mother's education level. Association between awareness among parents about PCV and immunization with PCV (based on the eligibility of children and availability of immunization card) was assessed in this study and was found statistically significant. **Conclusion:** Appropriate programmatic support, wide acceptability of vaccinations, availability, and accessibility to vaccination center have a positive influence on the vaccination status of children.

**Keywords:** AIDS, clinicopathology, cutaneous lesions, HIV.

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### Introduction

Children living in impoverished communities suffer from substantial disease burden, and Pneumococcus was found consistently to be a leading cause of severe pneumonia, invasive disease, and death among children below the age of five years world wide.

Parents are the most common unit of analysis as decision-makers, a predictor of the acceptance of vaccination in terms of their education, affiliation to any social group, work status, etc.

This study also tried to identify the associated factors favoring the awareness and immunization coverage of this newly-introduced vaccine in the country.

### Aim

To evaluate the awareness among parents about pneumococcal conjugate vaccine in routine immunization program to prevent pneumococcal diseases.

### Objective

To evaluate the parental knowledge, attitude and perception of

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pneumococcal disease and pneumococcal conjugate vaccine.

### Materials and Methods

This study was conducted in a tertiary care hospital. A written protocol was implemented in our outpatient from May 2021 to August 2021.

**Type of study:** Descriptive cross sectional study

**Duration of study:** Three months

**Study population:** Parents of children aged below five years

**Sample size:** 300

**Inclusion criteria:** All infants and children who are attending as outpatient in department of paediatrics aged up to five years

**Exclusion criteria:** Children more than 5 years of age and parents who didn't give consent for participation in study.

### Methodology

A semi-structured questionnaire consisting of open and closed-ended questions was developed to conduct this study.

Informed consent for the study was also produced and tested before starting the data collection.

Data were collected on socioeconomic and demographic variables

The parents were asked to report about the vaccination center and distance from their residence to explore their awareness regarding the vaccination center available in their areas.

Immunization status with PCV was cross-examined with the immunization card.

**Statistical Analysis**

All the data was entered in the pre-designed Microsoft Office Excel template, later was imported to the statistical software called Statistical Package for the Social Sciences (SPSS), version 20. The final dataset was analyzed using SPSS for cross-tabulation, and binary logistic regression (Chi-square test with significance level at  $P \leq 0.05$ , will be performed to determine the association.

**Results**

**Characteristics of the respondents**

A total of 300 parents (father or mother) participated in this study. An equal number of respondents were selected from two areas (n = 150). Mostly females were available during the time of data collection,

which was 86.0%, and only 14.0% was male; 42.7% of the respondents belonged to the age-group of 20-24 years. The number of family members was found to be in the range of 1-4 person(s) (56.0%).

The majority of respondents (61.3%) were living in the slums for more than three years. One-third of the fathers (36.7%) and mothers (38.7%) had completed the primary level of education (Class 1-5). A good number of fathers were engaged as day-laborer (35.3%) and smothers were found to be homemakers (56.7%). 46.0% of the respondents' household income was in the range between 10,001-15,000, and some (10.0%) reported household income to be more than 15,000

**Table 1:** Association of parents' awareness of PCV by selected indicators

Characteristics	Urban	Rural	Total	P-Value
<b>Aware of PCV (N=300)</b>	n %	N %	N%	
Yes	58 (77.4)	48 (64)	106 (70.6)	0.78
No	92 (122.6)	102 (136)	194 (129)	
<b>Source of Information (N=106)</b>				
Neighbours	2 (6.8)	4 (16.6)	6 (11.4)	0.78
Television	--	2 (8.4)	2 (3.8)	
Motivation by Health service providers	56 (193.2)	42 (175)	98 (184.8)	

**Table 2:** Awareness of benefits of pcv

Aware of Benefits in Introducing PCV (N=106)	n %	n %	N%	p-value
Vaccinate against pneumonia	46 (158.6)	40 (166.6)	86 (162.2)	0.34
Strengthen communication with health service providers	--	6 (25)	6 (11.4)	
Do not know	12 (41.4)	2 (8.4)	14 (26.4)	

**Table 3:** Eligibility and vaccination status of children

Eligible for PCV	Urban	Rural	Total	P-Value
Yes	98 (188.4)	110 (186.4)	208 (187.4)	1.64
No	6 (11.6)	8 (13.6)	14 (12.6)	
<b>Vaccination status of PCV (N=208)</b>				
Yes	92 (187.8)	104 (189)	196 (188.4)	1.76
No	6 (12.2)	12 (11.6)	12 (11.6)	
<b>Eligiblefor PCV-2</b>				
Yes	90 (173)	90 (152.6)	180 (162.2)	0.32
No	14 (27)	28 (47.4)	42 (37.8)	
<b>Vaccination status of PCV-2(N=180)</b>				
Yes	82 (182.2)	74 (164.4)	156 (173.4)	0.42
No	8 (17.8)	16 (35.6)	24 (26.6)	
<b>Eligible for PCV-3</b>				
Yes	82 (157.6)	68 (115.2)	150 (135.2)	0.02
No	22 (42.4)	50 (84.8)	72 (64.8)	
<b>Vaccination status of PCV-3(N=150)</b>				
Yes	68 (165.8)	46 (135.2)	114 (152)	0.24
No	14 (34.2)	22 (64.8)	36 (48)	

**Table 4:** Comparison between awareness of pcv and vaccination status

Cha Characteristics	Aware of PCV Total P-value			P-Value
Vaccination status of PCV-1 (N = 208)	Yes's	No	To Total	
Yes	82 (200)	114 (181)	196 (188.4)	0.08
No	0.0	12 (19)	12 (11.6)	
Vaccination status of PCV-2 (N = 180)	Yes's	No	To Total	P-Value
Yes	72 (200)	84 (155.6)	156 (173.4)	<0.002
No	0.0	24 (44.4)	24 (26.6)	
Vaccination status of PCV-3 (N = 150)	Yes's	No	To Total	P-Value
Yes	50 (185.2)	64 (133.4)	114 (152)	0.02
No	4 (14.8)	32 (66.6)	36 (48)	

**Discussion**

This study demonstrates how awareness among parents about the PCV in routine immunization program influence the vaccination status of their children. Hence documented a number of issues that demonstrated the

association between parental awareness of PCV and vaccination status of children with PCV.

Only 35.3% were found aware of PCV, and a significant number of respondents (66.6%) failed to mention the vaccination status of their children with PCV.

This study revealed that a good number of parents without having formal education and with low socioeconomic status are aware of PCV as informed by the health service providers.

They had easy access to immunization services at their doorsteps mostly provided by the anganwadi workers.

In this study, a significant association was found between awareness among parents about PCV and the vaccination status of children with PCV, following the immunization card.

In the case of PCV-1 and PCV-2, all aware parents vaccinated their children upon their eligibility for receiving the vaccine according to the age of their children.

Despite awareness of PCV, a few numbers of parents (7.4%) did not vaccinate their children with PCV-3 due to a child's sickness or other priorities in household work.

It is apparent that the third dose of PCV was lagging compared to the previous two doses.

Moreover, the mother had the knowledge gap in the immunization schedule and the number of doses.

The findings of this study also demonstrated that a good number of respondents failed to mention the vaccination status of their children with PCV, which reflects their inadequate awareness of the vaccination schedule.

Therefore, more investigation is needed on the reasons, especially in the slum areas where mothers are found having less aware of specific vaccines and preventable diseases; we need to identify the pathway to reach those dropouts.

Community trust towards the health service providers and effective social mobilization created a strong demand for immunization services, with rapid adaptation to the new immunization schedule.

This is also reflected in this study as health service providers have been mentioned by 92.4% of aware respondents as sources of information on PCV.

Significant determinants of PCV uptake revealed in this community included awareness of PCV, lack of knowledge on diseases preventable by PCV, benefit and side-effects of the vaccine, and work-related reasons hindering parents from taking the child for immunization.

Health service providers should use innovative approaches (e.g., pictorial education intervention) to disseminate information on the vaccine, including its benefits and proper guidance on possible side-effects to the parents, which can possibly reduce the dropout rates in vaccination. This study found that having awareness about a particular vaccine has an implication on the vaccination status, which may be applicable to other vaccines as well.

### Conclusion

The present study demonstrated that awareness among parents about PCV in the routine immunization program has a significant influence on the vaccination status of their children.

Appropriate programmatic support, wide acceptability of vaccinations, availability, and accessibility to vaccination center have a positive influence on the vaccination status of children.

Key messages provided by the health service providers should be enhanced, and the use of innovative approaches for PCV administration, including dissemination of messages on its benefits and proper guidance on possible side-effects to the parents could possibly reduce the dropout rates.

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