

Cross Sectional Study of Knowledge about Pneumococcal Conjugate Vaccine Among Medical and Nursing Students studying at Civil Hospital campus, Ahmedabad

Rajan K. Parmar¹, Bansi Trivedi²

¹Senior Resident, Department of Community Medicine, B. J. Medical College, Ahmedabad, Gujarat, India.

²Senior Resident, Department of Community Medicine, Government Medical College Bhavnagar, Gujarat, India

Correspondence : Dr. Bansi Trivedi, Email: bansijanaktrivedi@gmail.com

Abstract:

Introduction: India is committed to prevent pneumonia related deaths in children which is leading cause of vaccine preventable deaths among children under five globally and in India. **Objective :** To know awareness about pneumococcal (PC) vaccine among medical and nursing students of civil hospital, Ahmedabad. **Method:** This cross sectional study was conducted on medical and nursing students of civil hospital, Ahmedabad, Gujarat. Baseline knowledge of PC Vaccine, side effects of PC vaccine, was assessed by a self-administered structured questionnaire. Statistical analysis - Data analysis was done in Microsoft excel and chi square test was applied. **Results:** There were 444 respondents and among them 240 (54%) were medical students and 204 (46%) were nursing students, with male female ratio was 95:127. Awareness regarding PC vaccine integration to national immunization schedule found significantly more in nursing students as compare to medical students, (Chi-square = 63.4 at $p < 0.05$). Medical students had more knowledge about PC vaccine as compared to nursing students. **Conclusion:** There is still gap in awareness of PC vaccine integration to national immunization schedule among medical students. Field visits among nursing students have positive effects on awareness of nursing students. Medical students should visit to this type of field activities to improve their knowledge about ongoing activities like this.


Keywords: Knowledge, Medical students, Nursing students, Pneumococcal Conjugate Vaccine

Introduction:

The inclusion of pneumococcal conjugate vaccine (PVC) is an ambitious public health initiative of the Govt. of India to prevent pneumonia related deaths in children which is leading cause of vaccine preventable deaths among children under five globally and in India (7 per 1000 live births).^[1] It targets children under 5 years age group. High population immunity will then be sustained by incorporation into routine immunization schedule at 6 weeks, 14 weeks and 9 months.^[2] The PCV vaccine

has a robust safety and effectiveness profile. Under field conditions, seroconversion is 80% at 6 weeks and 85% at 14 weeks or more for streptococcus, and 85% or more than 85% when given 9 months. Adverse reactions are generally mild and transient.^[3]

For the integration of PCV to be effective, it is important that no child would be left behind. The current vaccination is implemented through existing health care facilities.^[4] Therefore, the ASHA worker and ANM staff are relied on to convey the importance of vaccination.

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Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of vaccination services.^[4] and it is critical to understand this period of indecision. In India, resistance to vaccination was due to ignorance in the past, though currently, the integration of PCV on social media such as WhatsApp—fuels a mix of conspiracy theories, safety concerns, and questions the need for the integration.^[5] Studies show that the messages are inconsistent and negative. This means that knowledge of medical and para-medical fraternity should be complete so that, they could pass the same message to the community. This study is done with the purpose of assessing the knowledge among the upcoming new generation of medical and para-medical fields. We conducted this study with objectives of to assess the awareness about pneumococcal conjugate vaccine among medical and nursing students and to evaluate the knowledge about integration of pneumococcal conjugate vaccine to national immunization schedule among the study participants.

Method:

A cross sectional study was conducted during December 2021 to January 2022. The study was carried out at respective college of medical and nursing school which were located at civil hospital campus of Ahmedabad. Total, 444 students (Third Year Part-1 Medical students =240 and Third Year B.Sc. Nursing students =204), (Male= 254, Female = 190) aged approximately 20-21years were included in the study by purposive sampling. Every student of the batch was included in study except those who were absent at the time of study. Those who didn't give informed consent were also not included in study. Data was collected by using structured questionnaire. The questionnaire included questions for assessing the knowledge regarding integration of PCV in national immunization schedule, knowledge regarding PC vaccine and usefulness of this campaign. Positive results (YES) regarding awareness were considered if they do know about integration of PCV in national

immunization schedule at Gujarat from 20/10/2021 with the session site at facility, anganwadi and outreach station, for children of up to 9 months of age. Positive results (YES) regarding PC vaccine were considered if they do know that polysaccharide conjugate vaccine was given by intra-muscular route at anterolateral aspect of right thigh with 0.5 ml dose. Positive results (YES) regarding usefulness of the integration of vaccine if they do believe that this campaign would be helpful to control pneumonia related deaths in children which is leading cause of vaccine preventable deaths among children under five in India. The results were expressed in percentages represented by tables and analysis was done by M.S. Excel 2007. Permission to carry out the research was obtained from both Nursing school and medical college authorities. As this study doesn't include active intervention, ethical permission wasn't required. Students were enrolled after obtaining informed consent and participation was purely voluntary and they were also assured that the study will not have any detrimental effect on the participant.

Results:

In India, 500000 children Under five years of age die annually accounting for vaccine preventable disease out of them 15% death are due to pneumonia, most of them were not vaccinated by Pneumococcal vaccine. To combat this situation, India has committed the goal of control of pneumonia related deaths in children. In Gujarat, this was implemented on 20/10/2021.^[1]

Table 1 shows awareness regarding campaign which was 91.8% among medical students and 84.3% among nursing students. This difference was not statistically significant. Only 32% medical students were aware of duration in which this integration was ongoing while surprisingly 84.3% nursing students, were aware about integration duration. This difference was statistically significant. (Chi square = 63.4 with p value < 0.05). The Vaccination was supposed to be given to eligible

Table 1: Awareness regarding PC vaccine integration to national immunization schedule among Medical and Nursing Students (N-444)

AWARENESS	MEDICAL (n = 240)		NURSING (n = 204)		χ^2	p value
	YES (%)	NO (%)	YES (%)	NO (%)		
CAMPAIGN	224(91.8)	20(8.2)	172(84.3)	132(14.7)	2.45	> 0.05
DURATION	76(32)	164(68)	172(84.3)	32(14.7)	63.4	< 0.05
AGE-GROUP	68(56.6)	104(43.4)	174(85.3)	30(14.7)	21.69	< 0.05
SESSION SITE	100(41)	140(59)	67(65.7)	70(34.5)	13.58	< 0.05

Table 2: Awareness regarding PC Vaccine among Medical and Nursing student.(N-444)

MR VACCINE	MEDICAL (n = 240)		NURSING (n = 204)		χ^2	p value
	YES (%)	NO (%)	YES (%)	NO (%)		
TYPE	168(68.9)	72(31.1)	184(90.2)	20(9.8)	15.03	< 0.05
DOSE	146(59.8)	94(40.2)	184(90.2)	20(9.8)	26.39	< 0.05
ROUTE	182(74.5)	58(25.5)	140(68.6)	64(31.4)	0.97	> 0.05
SITE	180(73.8)	60(26.2)	154(75.5)	50(24.5)	0.086	> 0.05

Table 3: Awareness regarding usefulness PC Vaccination integration(N-444)

USEFULNESS	MEDICAL (n = 240)		NURSING (n = 204)		χ^2	p value
	YES (%)	NO (%)	YES (%)	NO (%)		
CAMPAIGN	100(41.8)	140(58.2)	164(80.4)	40(19.6)	34.29	< 0.05
COMBINATION OF VACCINE	24(11.5)	216(88.5)	74(36.3)	130(63.7)	19.42	< 0.05

children (up to 9 months) at various sites like in the school, anganwadi and out-reach station.^[1] Knowledge about age group included in campaign was known to 56.6% medical students and 85.3% nursing students, This difference was statistically significant. (Chi-square = 63.4 with p value < 0.05) Nearly 41% medical students and 65.7% nursing students had awareness regarding session site of the vaccination. This difference was statistically significant. (Chi-square = 13.58 with p value < 0.05)

For this integration to be effective, it is important that no child be left behind. The current campaign is implemented through fixed sites sessions as well as in schools and outreach centers.^[1] Therefore, the teachers are relied on to convey the importance of vaccination.^[6]

Table 3 shows that 41.8% medical students and 80.4% nursing students were aware about usefulness of vaccine integration. This difference was statistically significant (Chi square = 34.29 with p value < 0.05). PC vaccine integration is a part of global efforts to reduce illness and pneumonia related deaths in children which is leading cause of vaccine preventable deaths among children under five globally and in India (7 per 1000 live births).^[1] Pneumococcal vaccination directly contributes to the reduction of under-five child mortality.

Discussion:

Present study found adequate awareness regarding campaign among (91.8%) students and (84.3%) nursing students and difference was not

statistically significant. In study by Mrs. Kirandeep Kaur et al, 53.3% of her study participants had moderately adequate knowledge about the vaccine integration.^[7]

Current study found statistically significant difference in knowledge about age group included in campaign between medical students and nursing students. Study also found statistically significant difference in awareness regarding session site of the vaccination between medical students and nursing students. A knowledge assessed in an Egyptian University revealed that their students were generally poorly informed about vaccine's adverse effects, and contraindications although medical students tended to be better informed than other students.^[8]

The polysaccharide conjugate vaccine was given by intra-muscular route at anterolateral aspect of right thigh with 0.5 ml dose during vaccination.^[1] This knowledge was varying from 59.8% to 74.5% among medical students and from 25.5% to 40.2% among nursing students. (Table 2)

Study had some limitation such as single centric study. Pneumococcal Vaccination integration may have been more successful with better use of health education message especially in medical and para-medical personnel, as they are the bridge population between public and professional health team.

Conclusion:

There is still gap in awareness of PC vaccine integration to national immunization schedule among medical students. Field visits among nursing students have positive effects on awareness of nursing students.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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