

## A Study to Assess Awareness About Pentavalent Vaccine Among Mothers Attending Immunization Clinic in Bharatpur

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### Abstract

**Background:** Government of India has introduced Hib as liquid pentavalent vaccine (LPV) combined with DPT and HepB in 10-dose presentation which is effective against five killer diseases – diphtheria, pertussis, tetanus, hepatitis B and *Hemophilus influenza* type B (Hib).

**Objectives:** The present study was conducted to assess awareness in terms of knowledge, attitude and practice about pentavalent vaccine among mothers attending immunization clinic in Bharatpur.

**Methods:** The present study was a hospital based cross sectional study carried out at immunization centre. Sample size calculated as 396 and selected by systematic random sampling method. We include mothers of under 2 years of children, coming to immunization clinic and who are willing to participate in study. Data collection was done in November and December 2019 by using predesigned and pretested questionnaire after taking written informed consent.

**Results:** Only 16.9% were having knowledge of pentavalent vaccine and 27% participants aware about its schedule. 71% participants were aware about adverse events following immunization (AEFI). 97.9% participants were willing to give pentavalent vaccine to their child, 90.9% were willing to advice to their relatives and 96.9% will follow the schedule for giving pentavalent vaccine to their child. 87.8% study participants vaccinate their child with pentavalent vaccine.

**Conclusion:** They are having poor knowledge about pentavalent vaccine, but they are having strong positive attitude and practices for pentavalent vaccine. Government needs to give more focus on IEC activity by proper utilization of mass media.

**Keywords:** Knowledge, attitude, practice, immunization, pentavalent vaccine, children, immunization clinic.

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## Introduction

Infectious diseases are a leading cause of morbidity and mortality worldwide. As of 2018, the total world population of children < 5 years of age was roughly estimated at 679 million[1]. Of these, an estimated 5.3 million children died of all causes in 2018[2], with an estimated 700,000 who died of vaccine-preventable infectious diseases[3]; 99% of the children who died had lived in low-and middle-income countries. India is a developing country with a population of 1,210 million and high infant and under 5 mortality rates of 47 and 59 per 1,000 live births, respectively[4,5].

The World Health Organization (WHO) considers infant Immunization is one of the most important public health interventions and a cost effective strategy to control the infectious diseases especially in children and for promoting a healthy society[6]. Complete immunization coverage in India has increased from below 20% in the 1980s to nearly 61% at present, but still more than 1/3rd of the children remain un-immunized[7-12]. Immunization coverage for third dose of diphtheria, pertussis and tetanus (DPT3) and hepatitis B (Hep B) vaccine is 71.5 and 58.9% respectively[12].

Government of India has introduced Hib as liquid pentavalent vaccine (LPV) combined with DPT and HepB in 10-dose presentation which is effective against five killer diseases—diphtheria, pertussis, tetanus, hepatitis B and *Hemophilus influenza* type B (Hib). The use of combination formulation has certain clear programmatic advantages. First, the number of injections per completed schedule will be less, consequently requiring fewer syringes and generating less potentially hazardous sharps waste. In addition, cold chain space will be saved as a single vial of LPV replaces DPT and Hep B vials. LPV has been recommended for all infants and will be given in a 3-dose schedule. The first dose is given at 6

weeks of age or older followed by dose 2 after a gap of at least 4 weeks and a gap of at least 4 weeks before dose 3. The vaccine is offered to all children younger than 1 year of age and the booster dose is not recommended in UIP in India[13].

By using pentavalent vaccine we increase the coverage level of hepatitis B and Hib vaccines. If the vaccines are given individually, the coverage of hepatitis B and Hib vaccines will be less than DPT coverage. This gap can be filled by combining these vaccines which is done in pentavalent vaccine. This will help India in combating a large but preventable burden of Hib disease as well as hepatitis B to achieving Millennium Development Goal 4 of reducing child mortality.

The pentavalent vaccine is newly introduced in national immunization schedule. So present study was conducted to assess the awareness in terms of knowledge, attitude and practice about pentavalent vaccine among mothers of under 2 year of children attending immunization clinic of tertiary care hospital at Bharatpur.

## Materials and methods:

The present study was a hospital based cross sectional study carried out at immunization centre of tertiary care hospital attached to Government Medical College Bharatpur Rajasthan. This tertiary care hospital work as a referral center for nearby four district of Rajasthan as well as some districts of Utter Pradesh as it is situated near Rajasthan and Utter Pradesh border. Sample size calculated as 396 considering this population with expected probability of awareness of pentavalent vaccine as 50%, at confidence level 95%, acceptable error 5% and non-response rate 5%. As this immunization center is at tertiary care center, immunization services are available every weak and for two days in a weak. We include mothers of under 2 years of children, coming to immunization clinic to immunize their child and who are

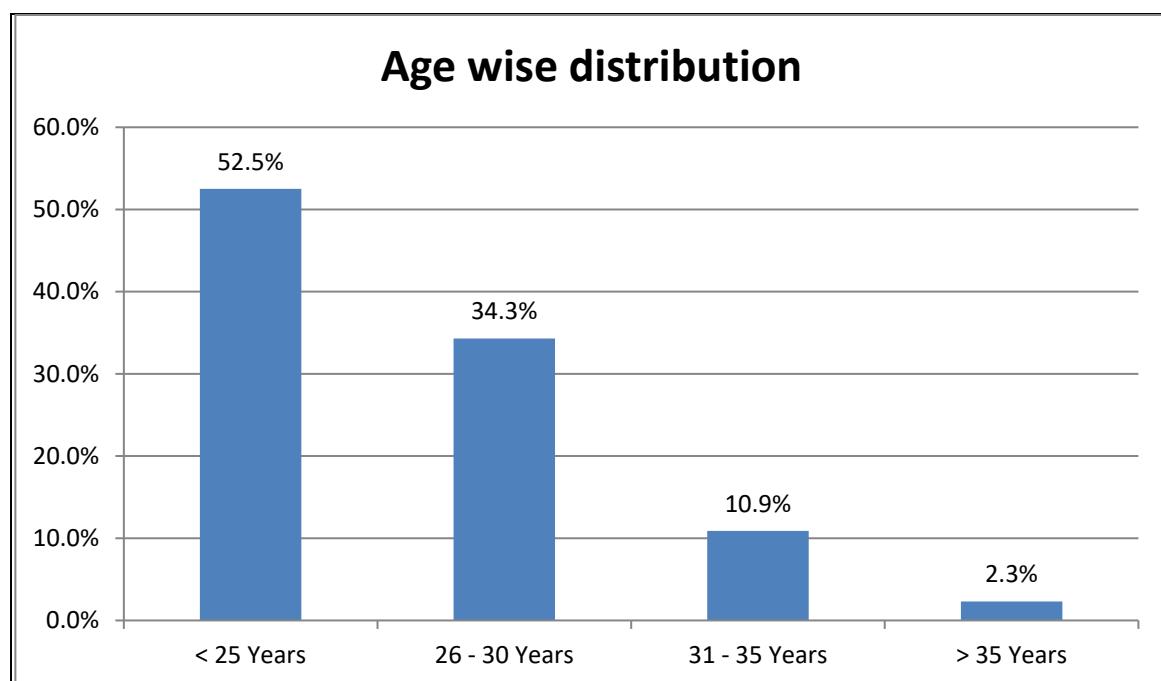
willing to participate and ready to give written consent. Sample size of 396 was selected by systematic random sampling method. Data collection was completed in 2 months (i.e. November 2019 to December 2019) by using predesigned and pretested questionnaire after taking written informed consent.

These questionnaires consist of demographic characteristics (age, education and occupation of spouses, religion and residence), knowledge regarding pentavalent vaccine (indication, contraindication, site of injection, vaccine schedule, diseases prevented and benefits), attitude towards pentavalent vaccine (belief about effectiveness, willing to give

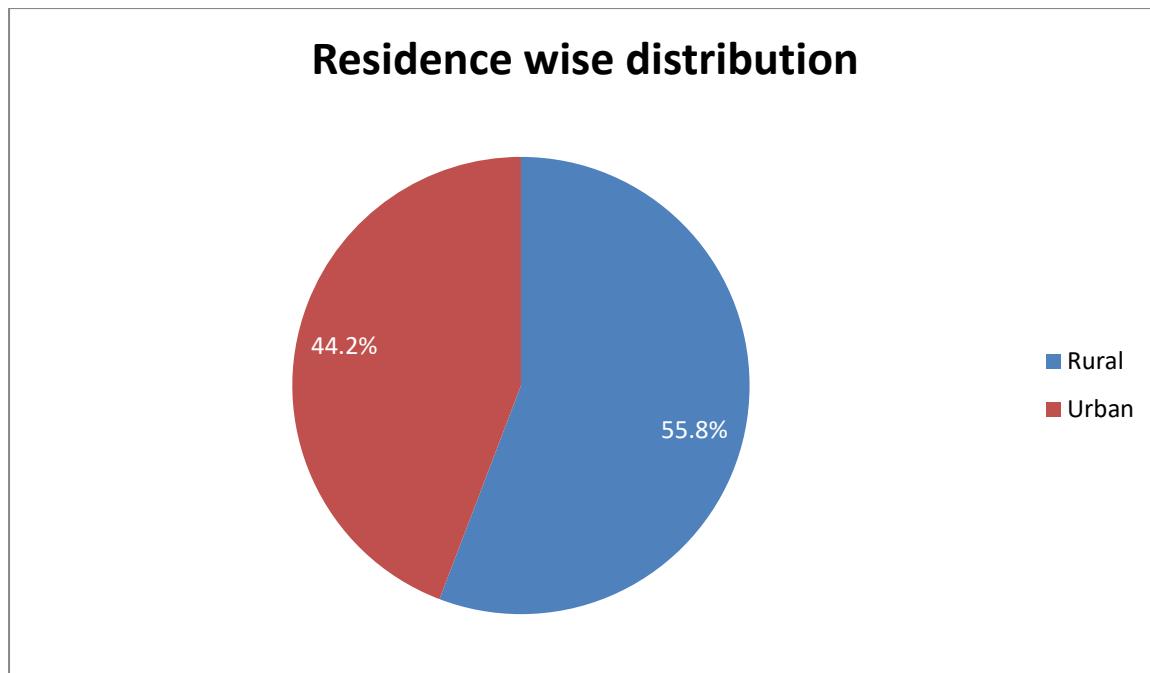
their child, willing to advice to relative and friends) and regarding practices of administering pentavalent vaccine. Data was entered in Microsoft Excel 2007 software and analyzed using Epi-Info software version 7.2.5.

### **Results:**

In this study total 396 mothers of under 2 year of children were interviewed. Among these 396 participants 208 (52.5%) were from age group less than 25 years while only 9 (2.3%) were of age more than 35 years [Figure 1]. Majority of the participants (i.e. 55.8%) were from rural area and 175 (44.2%) participants were resides in urban locality [Figure 2].



**Figure 1: Age wise distribution (n=396)**



**Figure 2: Residence wise distribution (n=396)**

**Knowledge of pentavalent vaccine:**  
Knowledge of pentavalent vaccine was assessed by question on disease prevented by this vaccine, its immunization schedule, adverse events and then to whom we contact after AEFI. Among study participants only 16.9% were having knowledge of pentavalent vaccine. Majority of study participant (i.e. 82.1%) got information about pentavalent vaccine from hospital workers while 11.8% were from communication media and 6.1% from neighbors or relatives. Name of five diseases which are prevented by this vaccine was known to only 8.8% participants and 27% participants aware about its schedule. Among these participants 71% aware about adverse events following immunization (AEFI) and 92.9% participants know about to whom they contact after AEFI [Table 1].

Attitude and practices of study participants about pentavalent vaccine. Attitude about

pentavalent vaccine was assessed by willing to give vaccine to their child, willing to follow vaccine schedule and willing to advice to friends and relatives. Among the study participants 97.9% were willing to give pentavalent vaccine to their child, 90.9% were willing to advice to their relatives and 96.9% will follow the schedule for giving pentavalent vaccine to their child [Table 2]. Pentavalent vaccination practices of study participants were assessed and found that, 87.8% study participants vaccinate their child with pentavalent vaccine, mother bring their child for immunization in 73.9% cases while accompanying by father for immunization was seen in only 5.1% cases. Among study participants 76.1% vaccinate their child according to schedule and 67.9% preserve their child immunization card for future purpose [Table 3].

**Table 1: Knowledge of pentavalent vaccine among study participants (n=396)**

<b>Variables</b>	<b>Category</b>	<b>Frequency (%)</b>
Knowledge of pentavalent vaccine	Yes	67 (16.9)
	No	329 (83.1)
Source of information about pentavalent vaccine	Communication media	47 (11.8)
	Hospital workers	325 (82.1)
	Neighbors / relatives	24 (6.1)
Knowledge of diseases prevented by pentavalent vaccine	Know	35 (8.8)
	Don't know	361 (91.2)
Knowledge of immunization schedule	Yes	107 (27.0)
	No	289 (73.0)
Knowledge of AEFI due to pentavalent vaccine	Yes	281 (71.0)
	No	115 (29.0)
Knowledge of contact person after AEFI	Yes	368 (92.9)
	No	28 (7.1)

**Table 2: Attitude towards pentavalent vaccine among study participants (n=396)**

<b>Variables</b>	<b>Category</b>	<b>Frequency (%)</b>
Willing to give pentavalent vaccine to their child	Yes	388 (97.9)
	No	8 (2.1)
Willing to advice pentavalent vaccine to relatives and friends	Yes	360 (90.9)
	No	36 (9.1)
Will you follow the schedule for the immunization	Yes	384 (96.9)
	No	12 (3.1)

**Table 3: Pentavalent vaccination practices among study participants (n=396)**

<b>Variables</b>	<b>Category</b>	<b>Frequency (%)</b>
Have you vaccinate your child for pentavalent vaccine	Yes	348 (87.8)
	No	48 (12.2)
Who bring the child for immunization	Mother	293 (73.9)
	Father	20 (5.1)
	Other relative	83 (21.0)
Have you vaccinate your child according to schedule	Yes	301 (76.1)
	No	95 (23.9)
Have they preserved immunization card	Yes	269 (67.9)
	No	127 (32.1)

### Discussion:

The present study was conducted to assess awareness about pentavalent vaccine among mothers of under 2 years of child attending immunization clinic of tertiary care hospital. Total 396 participants were interviewed by questioner and was found that nearly half (i.e. 52.5%) were from age group less than 25 years and majority (i.e.

55.8%) were resides in rural locality. Similar findings were also seen in study conducted by Okafor KC et al[14] among pregnant women attending antenatal care in Nigeria this might be because in India age of marriage for girls is 18 years and most of the women complete their family in 5-6 years of their marriage i.e. by nearly 25 years of age.

Participants were having poor knowledge about pentavalent vaccine. In our study only 16.9% were having knowledge of pentavalent vaccine and only 8.8% participants know about name of five diseases prevented by this vaccine. While 82.1% participants got information of pentavalent vaccine for their child from hospital person like doctor, nurses etc. Similar finding was seen in study conducted by Sankar BK et al[15] among mothers in teaching hospital of south India. This information clearly suggest that health information is very well given by health person still knowledge among participants is poor that might be because of low educational status of participants. In this study very few participants (11.8%) got information of pentavalent vaccine through communication media (TV, Radio, hoardings etc). So government can utilize properly and strengthen communication media to encourage the people to vaccinate their child in this area. Peoples were aware about AEFI of the vaccine and nearly all know about to whom one should contact if AEFI occurs. Similar finding regarding AEFI and to whom one should contact after AEFI was seen in study conducted by Sankar BK et al[15]. This knowledge of AEFI and contact person after AEFI will be helpful to prevent the complication and death due to AEFI to young children in a community.

In present study participants were having positive attitude towards pentavalent vaccine. 97.9% were willing to give pentavalent vaccine to their child and 90.9% were ready to advice to their relatives about pentavalent vaccine. Similar positive attitude was observed among pregnant women attending antenatal clinic in study conducted by Okafor KC et al[14] and among mothers of teaching hospital in south India in study conducted by Sankar BK et al[15]. This

positive attitude will help to increase the immunization coverage in that area.

In majority of cases, mothers of under 2-year children were vaccinate by pentavalent vaccine to their child and they personally accompany the child during immunization session also mostly they follow schedule and preserve the immunization card for future use. This may be because of women are present in house during that time and they take care of their child while mostly males go outside for their job or work during that time. Similar finding were seen by the study conducted by Sankar BK et al[15].

### **Conclusion:**

Knowledge of pentavalent vaccine, diseases prevented by this vaccine and vaccine schedule is poor but almost all have good knowledge about AEFI and to whom they contact if AEFI occurs. They nearly all have positive attitude towards pentavalent vaccine and practically they follow the schedule of vaccine, they vaccinate their child and also preserve the immunization card. So though they are having poor knowledge about pentavalent vaccine their positive attitude and practices will help to increase the compliance and ultimately improve the immunization coverage. Government need to give more focus on IEC activity by proper utilization of mass media which will be helpful to achieve Millennium Development Goal 4 of reducing child mortality through immunization program.

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