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## A study to the effectiveness of STP on knowledge and performance level of the health workers on Pentavalent vaccine at selected health centres at Gonda, Uttar Pradesh

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### Abstract

**Introduction:** Vaccine is a substance used to stimulate the production of antibodies and provide immunity against one or several disease scientists' take many approaches to designing vaccine against on microbes. The major cause of sickness and death of children in India is mainly due to Infectious disease.

**Title:** "The effectiveness of STP on knowledge and performance level of the basic health on pentavalent vaccine at selected health centres at Gonda.

**Material and Method:** In this study the quantitative research approach was adopted with pre-experimental research design to assess knowledge and performance level regarding pentavalent vaccination among health workers. The researcher recruited sixty health workers with purposive sampling techniques. The research instrument was divided into two parts, socio-demographic data and self-structured questionnaire. The criterion measure used in the study was extent of score on level of knowledge. Maximum obtainable score was 30 and divided into three categories that is adequate knowledge: 26-30, moderately adequate knowledge: 16-25 and Inadequate Knowledge:  $\leq 15$ . Tool was prepared by extensive review of literature and validated by experts of Pediatrician and child health nursing. Ethical permission was obtained from ethical and research committee of Institution. After gaining approval, permission was taken from Medical and Nursing Superintendent of selected hospitals to conduct research study. Confidentiality and anonymity were maintained during and after data collection.

**Result:** In this study it was majority age of health worker were between 24 – 28 years belong Hindu religious and education status were higher secondary with maximum have no experienced. The pre-test knowledge score of Health workers regarding Pentavalent Vaccine revealed that 53.33% Health workers had inadequate knowledge, and 46.66% Health workers had moderately adequate knowledge and the post-test knowledge scores of Health workers regarding Pentavalent Vaccine revealed that 13.33% Health workers had adequate knowledge, 83.33% Health workers had moderately adequate knowledge 3.33%. The pre-test attitude score of Health workers regarding Pentavalent Vaccine. It revealed that 10(16.66%) Health workers had good attitude and 12(20%) Health workers had average level of attitude about Pentavalent Vaccine, 38(63.33%) Health workers had poor attitude. The Post test attitude score of Health workers regarding Pentavalent Vaccine. It revealed that 16.66 Health workers had good attitude, and 80% Health workers had average level of attitude. 4% Health workers had poor attitude. The significant difference between the mean score of pre and post-test knowledge score of the health workers regarding Pentavalent Vaccine paired 't' test was 7.65. Hence the researcher concluded that gain in knowledge is not by chance but by STP on Pentavalent Vaccine. The 'r' value of post-test level of knowledge and attitude was -0.22, there was a negative correlation between knowledge and attitude which was not significant. Significance association between age of the health worker, and experience. There was no association between religions, education, and source of information.

**Conclusion:** In this study due to lack of educational status participants have very poor knowledge regarding knowledge and performance level of the health works on pentavalent vaccine & have association between knowledge regarding hypertension and there was no association between religions, education, and source of information.

**Keywords:** Knowledge and performance, health care worker, pentavalent vaccine, health center

### Introduction

Pentavalent Vaccine is one of the most co-effective interventions for disease prevention. The vaccines for the six killer diseases are already included in the National Pentavalent Vaccine

Schedule of the country. But in view of the severity of other infectious diseases during the past several decades, the Government of the developing countries like India is trying to include new vaccines *viz.* Hib vaccine, Hepatitis B vaccine, Hepatitis A, Typhoid vaccine, pneumococcal vaccine etc. The major cause of sickness and death of children in India is mainly due to Infectious diseases, many of which are preventable by Pentavalent Vaccine. Each year there are more than 150 million of childhood pneumonia and nearly 2 million children under five lose their lives to an acute bout of pneumonia. About 2,00,000 child death are attributed to pneumonia each year occur in neonatal period. In India, pneumonia is responsible for about 4,00,000 deaths in children under five and substantial proportion of these pneumonia deaths are pneumococcal.

The statistics of World Health Organization in year of 2008 shows the percentage of vaccination among children. Out of 26,913,000 births only 25,459,000 babies are surviving. In that only 87% had B.C.G vaccination. For the first dose of D.P.T it came down to 83% and in third dose of D.P.T it was only 66%. For the Measles vaccination it was 70%, the third dose of Polio was 67% and the second dose TT was 86%.

The statistics clearly pointing out the lack of Pentavalent Vaccine in children, which can lead to serious health hazards in future. Numerous new vaccines with major potential for improving health in developing countries are in the research and development. They include vaccine for rotavirus diarrhea which kill 3,00,000 to 6,00,000 children under age five-year, human papilloma virus a leading cause of cervical cancer which afflicts some 5,00,000 women each year 80% of them in developing countries a leading cause of cervical cancer which afflicts some 5,00,000 women each year 80% of them in developing countries, and pneumococcal disease which cause a large fraction of the would approximately two million annual deaths from childhood pneumonia.

In Northern Italy, prevalence of HCV Ab was 3.2%. Three studies in Central and Southern Italy showed a higher rate of HCV (8.4% - 22.4%), especially in the older population. Among patients of general practitioners in Lyon, France, the prevalence of HCV was estimated to be 1.3%, very similar to the French general population. Within the Russian army, frequency of anti- HCV was 1.5% among servicemen and donors with increased prevalence in the North Caucasus, Far East and Siberia (3.1-3.8%) compared to the Transbaikal region (0.7%). Low rates were found in Hungary (0.73%) Recently, HCV prevalence studies have come out of Pakistan in the Middle East. 751 out of 16,400 patients (4.57%) were found to +HCV Ab from 1998-2002 with the largest age group from 41-50. Among male blood donors in Karachi, Pakistan, the seroprevalence of HCV was 1.8% with a trend of increasing proportion of positive donors from 1998-2002. Rates were lower in Saudi Arabia (1.8%) and Yemen (2.1%). Nurses or properly trained health personnel should be the primary school contacts for parents on Pentavalent Vaccine issues.

Health departments and health care providers were used most often by school personnel for vaccine information. Studies are needed to understand why some parents choose to forgo vaccination for children who do not have true

medical contraindications to vaccines. School personnel trained in vaccine safety may serve as a valuable source of vaccine information for parents. Parents who have misconceptions about vaccines would likely benefit from discussions with health care providers

### Objectives of the study

- To assess the existing knowledge of basic health workers regarding pentavalent vaccines.
- To assess the performance level of basic health workers related to administration of pentavalent vaccines.
- To develop and administer the STP to improve the knowledge of basic health workers regarding pentavalent vaccines.
- To find out the association between knowledge level with demographic variable of basic health workers.
- To find out the association between performance level with demographic variable of basic health workers.

### Hypothesis

#### Hypothesis for Effectiveness

**H1:** There will be a significant difference between the mean pre-test and post-test knowledge score of basic health workers.

#### Hypothesis for Association

**H2:** There will be a significant association between the knowledge level and demographic variables of basic health workers.

**H3:** There will be a significant association between the performance level and demographic variables of basic health workers.

### Materials and Methods

The quantitative research approach was adopted with pre-experimental research design to assess knowledge and performance level regarding pentavalent vaccination among health workers who working in selected primary health centers. The study was conducted in selected Primary health center hospitals at Gonda Uttar Pradesh. The researcher recruited sixty health workers with non-probability purposive sampling techniques with inclusion and exclusion criteria. The research instrument was divided into three parts i.e. part A; socio-demographic data, part B; self-structured questionnaire (30 items) and to assess the knowledge and performance level among health workers regarding pentavalent vaccination. The criterion measure used in the study was extent of score on level of knowledge. Maximum obtainable score was 30 and divided into three categories that is adequate knowledge:26-30, Moderately adequate knowledge:16-25 and Inadequate Knowledge:≤15. Tool was prepared by extensive review of literature and validated by experts of Pediatrician and child health nursing. Ethical permission was obtained from ethical and research committee of Institution. After gaining approval, permission was taken from Medical and Nursing Superintendent of selected hospitals to conduct research study. Confidentiality and anonymity were maintained during and after data collection. The reliability of tool was estimated by Karl Pearson's coefficient of correlation and it was found to be 0.9 and 0.85.

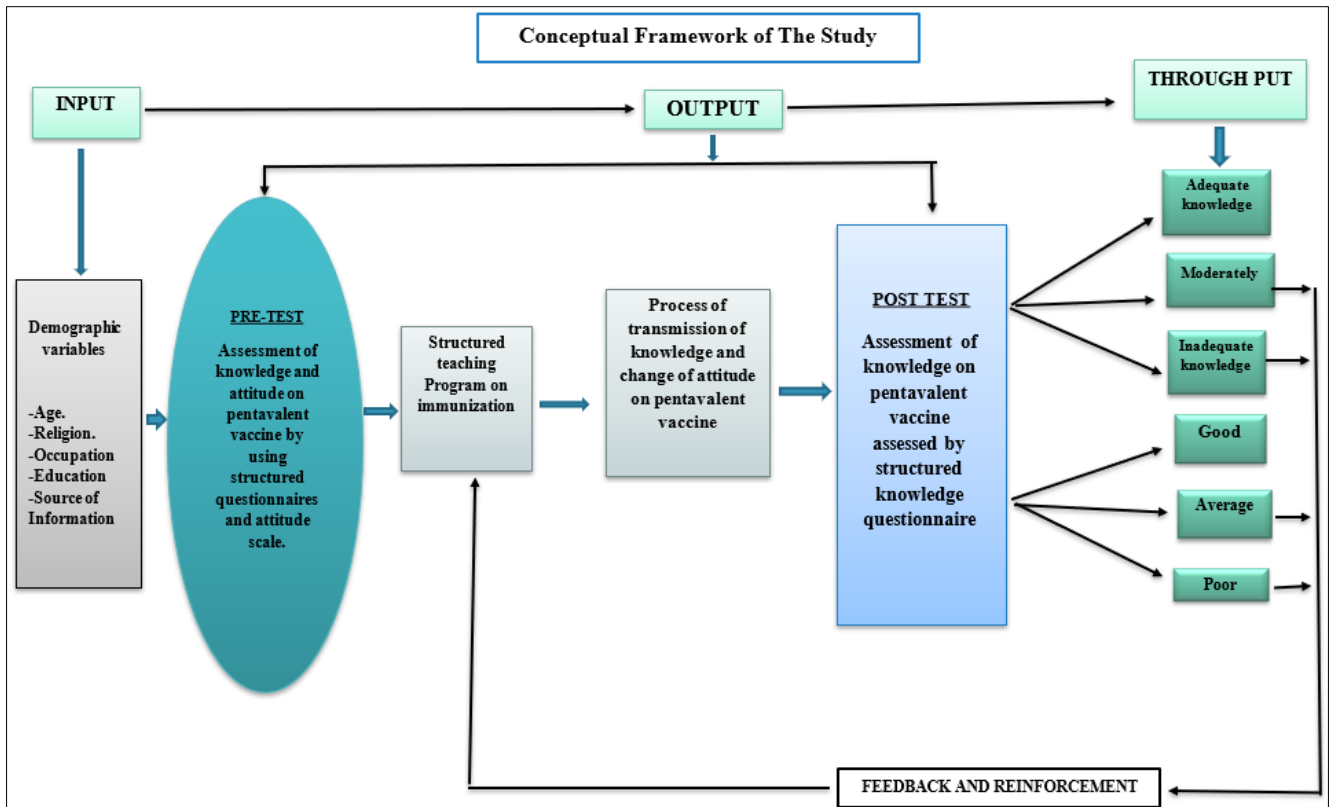


Fig 1: Conceptual framework based on general system theory model

**Results**

**Table 1:** Section-I: Frequency and percentage distribution of samples on selected demographic variables n = 60

S. No	Demographic Variables	Frequency	Percentage (%)
1.	<b>Age of the Health worker</b>		
	a. 18-23years	03	10
	b. 24-28 years	15	50
	c. 29-33 years	12	40
2.	<b>Religion</b>		
	a. Hindu	17	56.66
	b. Christian	08	26.66
	c. Muslim	-05	-16.66
	d. Others		
3.	<b>Previous Experience</b>		
	a. Experienced	4	13.33
	b. Not experienced	26	86.66
4	<b>Education</b>		
	a. Secondary	8	26.66
	b. Higher Secondary	9	30
	c. Diploma	5	16.66
	d. Under graduate	5	16.66
	e. Post graduate	3	10

**Table 2:** Section-II: Distribution of samples according to the pre-test knowledge scores of health workers regarding pentavalent vaccine Table-II (n=60)

Level of knowledge	Per test	
	Frequency	Percentage (%)
Adequate Knowledge	0	0
Moderately adequate knowledge	28	46.66%
Inadequate knowledge	32	53.33%

**Table 3:** Section-III: Distribution of samples according to the post test knowledge scores of health workers regarding pentavalent vaccine (n= 60)

Level of knowledge	Post test	
	Frequency	Percentage (%)
Adequate Knowledge	8	13.33%
Moderately adequate knowledge	50	83.33%
Inadequate knowledge	1	3.33%

**Table 4:** Section-IV: Distribution of samples according to the pre-test attitude scores of health workers regarding pentavalent vaccine (n=60)

Level of Attitude	Pre-test	
	Frequency	Percentage (%)
Good	10	16.66%
Average	12	20%
Poor	38	63.33%

**Table 5:** Section-V: Distribution of samples according to the post test attitude scores of health workers regarding pentavalent vaccine (n=60)

Level of Attitude	Post test	
	Frequency	Percentage (%)
Good	10	16.66%
Average	48	80%
Poor	2	3.33%

**Table 6:** Section-VI: Comparison of the pro-test and post-test knowledge score on health workers regarding Pentavalent vaccine (n=60)

Knowledge score	Mean	SD	't' Test Value
Pre test	11.16	3.42	7.65*
Post test	14.2	3.37	

**Table 7:** Section-VII: Comparison of the pre- test and post-test attitude score on health workers regarding pentavalent vaccine (n=60)

Knowledge score	Mean	SD	't' test value
Pre test	14.6	4.2	6.46*
Post – test	17.4	3.25	

The table shows that, mean post-test attitude score of the health workers regarding Pentavalent Vaccine are significantly higher than their mean pre-test attitude scores. In order to find out the significant difference between the mean score of pre and post-test attitude score of the health workers regarding Pentavalent Vaccine paired 't' test was computed. The calculated value is higher than the table value, the null hypothesis was rejected and the research hypothesis was accepted. Hence the researcher concluded that change of attitude is not by chance but by STP on Pentavalent Vaccine.

**Table 8:** Section-VIII: Relationship between post-test level of knowledge and attitude among under five Health workers.

S. No	Calculated 'r' value	Table "r" value
1.	-0.22 <sup>NS</sup>	0.381

The 'r' value of post-test level of knowledge and attitude was -0.22, there was a negative correlation between knowledge and attitude which was not significant.

**Section VIII: Association between the post-test knowledge scores on health workers regarding pentavalent vaccine and demographic variables**

To identify the association between the post-test knowledge scores on Pentavalent Vaccine of Health workers and the selected demographic variables. The following null hypothesis was stated.

Demographic Variable	Frequency Numbers	Knowledge level			Chi-Square 2
		Inadequate	Moderately Adequate	Adequate	
<b>Age of the Health worker</b>					
18-23 years	60	2	4	0	11.50*
24-28 years		-	28	2	
29 above		-	18	6	
<b>Experience</b>					
Experienced	60	4	4	2	7.58*
Not experienced		-	46	6	
<b>Education</b>					
10 <sup>th</sup>	60	-	32	0	8.70
Higher secondary		2	5	0	
Diploma		-	5	-	
Under graduate		-	8	2	
Post graduate		-	6	-	
<b>Religion</b>					
Hindu	60	02	28	4	0.99
Muslim			14	2	
Christian			08	2	
Others					
<b>Source of Information</b>					
Television		-	8	2	
		-	16	-	

Radio		-	06	2	10.07
News paper	60	-	06	4	
Neighbour		02	10	-	
Health centre		-	04	-	
Health card					

The table shown above chi-square is carried to find out the association between the knowledge on Pentavalent Vaccine of the Health workers and demographic variables. The result shows there is a significance association between age of the health worker, and experience. there was no association between religions, education, and source of information.

**Discussion**

The analysis shows that 46.66% Health workers had moderate knowledge, 53.33% Health workers had inadequate knowledge and no health workers had adequate knowledge about Pentavalent vaccine. In attitude 16.66% Health workers had good attitude, and 20% Health workers had average level of attitude about Pentavalent vaccine, 63.33% Health workers had poor attitude.

This can be explained by due to the lack of awareness about the Pentavalent vaccine the health workers were having inadequate knowledge and attitude. Zagminas K, *et al.*, (2007). also said that, the lack of provider recommendation and lack of parental awareness of Pentavalent vaccine were the two most significant factors associated with failure to receive vaccine. The data shows 13.33% Health workers had adequate knowledge, 83.33% Health workers had moderate knowledge and 3.33% mother had inadequate knowledge about Pentavalent vaccine. Regarding attitude 16.66% Health workers had good attitude, and 80% Health workers had average level of attitude about Pentavalent vaccine, 3.33% Health workers had poor attitude. Allred NJ, *et al.*, (2011) conducted a study to find the parents vaccine safety concerns results from the national Pentavalent vaccine survey.

The parental structural teaching module was administered. The health workers were given questions regarding knowledge and attitudes toward vaccine safety and side effects, simultaneous vaccine administration, and acceptance of new vaccines. Multivariate logistic regression analyses examined associations between attitudes and up-to-date vaccination coverage. The study results showed that after giving teaching module 93% of parents rated vaccines as safe, 6% as neither safe nor unsafe, and 1% as unsafe. The analysis (Table IV) shows that the pre-test knowledge mean score regarding Pentavalent vaccine was 11.1 and standard deviation was 3.56. In the post test knowledge mean score was 21.5 and standard deviation was 3.18. Regarding pre-test attitude mean score regarding Pentavalent vaccine was 14.6 and standard deviation was 4.2.

In the post test attitude mean score was 17.4 and standard deviation was 3.25. In order to find out the significant difference between the means of protest and post-test knowledge scores of the samples paired 'T' test was computed. Paired t test value is 7.65. The calculated value is higher than the table value, hence the null hypothesis was rejected and the research hypothesis was accepted. Hence the researcher concluded that gain in knowledge is not by chance but by the structured teaching programme on Pentavalent vaccine. In order to find out the significant difference between the mean score of pre and post-test attitude score of the Health workers regarding Pentavalent



vaccine paired 't' test was computed. Paired t test value is 6.46. The calculated value is higher than the table value, the null hypothesis was rejected and the research hypothesis was accepted. Hence the researcher concluded that change of attitude is not by chance but by STP on Pentavalent vaccine. This may be due to before giving structured teaching programme they have very little knowledge and poor attitude about Pentavalent vaccine and they gained more knowledge and change of attitude after given the structured teaching programme regarding Pentavalent vaccine. Vila –corcoles *et al.* (2012) conducted a quasi-experimental study regarding Pentavalent vaccine, there are 60 samples were selected. The study setting was Bouzouki, Niamey, Niger and surrounding areas. The findings revealed that 45(75%) Health workers

### Conclusion

The study was undertaken to assess knowledge and Performance level of the health workers on pentavalent vaccine. The study results revealed that majority of the participants were 60% with age group 18 -23 years. The posttest knowledge score of health worker regarding pentavalent vaccine was found to be higher than pretest (post-test 14.2.72, pretest 11.88) and t value was found to be 7.65 in terms of knowledge and performance. The majority of sample 53.33% in pretest knowledge score were found in average score, but after implementation of structured teaching program the majority of sample 83.33% had moderate adequate knowledge. In the present study, there was significant difference between pretest and post-test knowledge and performance of health workers pentavalent vaccine.

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**Conflict of interest:** The authors have no conflict of interest to declare.

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