

# Factors Influencing Utilization of Immunization Services and Effectiveness of a Guided Health Action on Immunization Status among Parents of Under Fives in a Selected Area of Dehradun, Uttarakhand

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## Abstract

A True experimental pretest posttest study was conducted to assess the factors influencing the utilization and non- utilization of under five immunization services and to evaluate the effectiveness of guided health action on utilization of immunization services among parents of under five children in a selected area of Dehradun, Uttarakhand. The research hypothesis stated that the guided health action would significantly increase the utilization of immunization services in the experimental group and was test at ( $p < 0.05$ ). Total 120 children who met the selection criteria were selected using convenient sampling and were divided into experimental group (60) and control group (60). Pre interventional immunization status was assessed along with the reasons of not utilizing immunization services using a structured immunization checklist and structured questionnaire respectively in both the groups. Guided health action was given to the experimental group through a combination of SMS, phone calls and personal contacts followed by post intervention data collection. The results showed significant reduction in the missed vaccination doses in experimental group after intervention (43) as compared to the missed doses before intervention (142) ( $\chi^2 = 28.47$ ,  $p$  value  $< 0.05$ ). The major reasons reported by the parents for not immunizing their children were illness of the child and unawareness regarding need to return for 2<sup>nd</sup> and 3<sup>rd</sup> dose of immunization. The least reported reason was no faith in immunization. The findings of the present study revealed that the guided health action was effective in improving the utilization of under-five immunization status.

**Keywords:** Guided Health Action Under Five Children; Under-Five Immunization; Utilization of under Five Immunization Services.

## Introduction

Immunization is one of the most effective, safest and efficient public health interventions that protect millions of lives from vaccine preventable diseases [1]. Since Year 2000, several efforts are made to

meet the goals of the Global Immunization Vision and Strategy (GIVS) [2].

Although immunization rate has improved over a past decade, roughly three million children die each year due to Vaccine Preventable Diseases (VPDS). Most of these children live in developing countries [3].

In India government is providing under -five immunization for free of cost. Abundant resources have been spent on the immunization but the outcomes are still far from the desired goals.

## Problem Statement

A study on factors influencing utilization of immunization services and effectiveness of a guided health action on immunization status among

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Recived on 10.12.2016, Accepted on 09.01.2017

parents of under fives in a selected area of Dehradun, Uttarakhand.

### Objectives

- To assess the factors that influence the utilization and non- utilization of under five immunization services.
- To evaluate the effectiveness of guided health action on utilization of immunization services.

### Hypotheses

**H<sub>1</sub>:** The guided health action would significantly increase the utilization of immunization services in the experimental group.

### Material and Method

True Experimental pre test post test design was used in the present study. The study was conducted in a rural area of Dehradun, Uttarakhand. Ethical permission was taken from Principal, College of Nursing and Ethical committee. Written consent was taken from the participants. A total of 120 children who fulfilled the inclusion criteria were selected. They were randomly divided into experimental and control group with 60 samples in each group. Tools used in the present study were demographic variables checklist, immunization schedule checklist and structured questionnaire on reasons for not utilizing immunization services. The content validity of the tool was established by submitting tool to experts from various fields. Pilot study was conducted on 10 samples in selected area of Dehradun. Reliability of the tool was established by test retest method. Karl Pearson's coefficient was calculated which was found to be 0.8.

### Results and Findings

Table 1 shows that most of the children (36.6%) in the experimental group and (40%) in the control group were in the age group of 1 – 2 years. Most of the fathers (41.7%) in the experimental group and (53.3%) in the control group were having secondary level of educational status. Most of the mothers (46.7%) in the experimental group and (53.3%) in the control group were having primary level educational status. Majority of the fathers (55%) in the experimental group and (53.3%) in the control

group were self employed. Most of the mothers (46.6%) in the experimental group were self employed and majority (61.7%) of mothers in the control group was housewife. Majority of the parents (60%) in experimental and (96.6%) in control group belonged to Hindu religion. Majority of the children (68.3%) in experimental group and (61.7%) in control group were delivered in government hospital. Majority of the parents (66.7%) in experimental group and (53.3%) in control group belonged to joint family. Source of information about immunization for majority of the parents (73.3%) in the experimental group and (66.7%) in the control group were health care providers.

Table 2 shows that in experimental group missed Hepatitis B immunization doses were 50% (zero dose), 6.6% (first dose), 11.6% (second dose), and 16.6% (third dose). Missed DPT doses were 25% (first dose), 8.3% (second dose), 10% ((third dose) and 21.6% (Booster). Missed measles doses were 25%. Missed Vitamin A prophylaxis was 61.6%. While in control group missed Hepatitis B immunization doses were 41.6% (zero dose), 61.6% (First dose), 21.6% (second dose), and 15% (third dose). Missed DPT doses were 8.3% (first dose), 11.6% (second dose), 8.3% ((third dose) and 41.6% (Booster). Missed measles doses were 35%. Missed Vitamin A prophylaxis was 46.6%.

Effectiveness of Guided Health Action on Utilization of Immunization Services among Experimental and Control Group.

Table 3 illustrates that the total pre-intervention missed doses in the experimental group were 142 and in control group were 168. After guided health action total number of missed doses in the experimental group was 43 and in the control group was 153.  $\chi^2$  was 28.47 at df 1 and the p value obtained is less than 0.001. Hence the researcher rejected the null hypothesis and alternative hypothesis was accepted. Therefore the researcher inferred that guided health action was effective in increasing the utilization of under-five immunization services.

Table 3.1 shows that in experimental group there were 30 pre- intervention missed doses of Hepatitis-B (zero dose) and in control group there were 25 missed doses. After guided health action the post-intervention missed Hepatitis- B (zero dose) of the experimental group was 11 and of the control group was 23. The  $\chi^2$  value obtained was 4.165at df 1. The p value is less than 0.001. Therefore the researcher inferred that guided health action was effective in increasing the utilization of Hepatitis B zero dose among under-five.

Table 3.2 shows the total pre-intervention missed

doses of Hepatitis-B (3<sup>rd</sup> dose) in the experimental group were 10 and in control group were nine. After guided health action total number of missed doses in the experimental group was zero and in the control group were eight.  $\chi^2$  was 6.687 at df 1 and the p value obtained was less than 0.001.

Table 3.3 shows that total pre-intervention missed doses of DPT (2nd dose) in the experimental group were five and in control group were seven. After guided health action total number of missed doses in the experimental group was zero and in the control group were seven.  $\chi^2$  was 3.958 at df 1 and the p value obtained was less than 0.001.

Table 3.4 shows that total pre-intervention missed doses of DPT (booster) in the experimental group were 13 and in control group were 45. After guided health action total number of missed doses in the experimental group was three and in the control group were 43.  $\chi^2$  was 4.977 at df 1 and the

p value obtained was less than 0.001.

Table 3.5 shows that total pre-intervention missed doses of Measles in the experimental group were 15 and in control group were 21. After guided health action total number of missed doses in the experimental group was four and in the control group was 21.  $\chi^2$  was 4.532 at df 1 and the p value obtained was less than 0.001.

Figure 1 shows that majority of the parents (86%) reported illness of child was the reason for not utilizing under five immunization services. Sixty percent (60%) parents reported that they did not think that immunization is important. Twenty percent (20%) reported that they did not have any source of information about immunization. Twenty two percent (22%) reported that vaccinator was absent on the day of immunization and forty nine (49%) percent reported that they were unaware of the need to return for 2<sup>nd</sup> and 3<sup>rd</sup> dose.

**Table 1:** Frequency and percentage distribution of base line data of the participants

Socio-demographic variables	Sample characteristics	Experimental Group (n=60)		Control group (n=60)		Total	
		F	%	F	%	F	%
Age of children	0 - 1 yrs	10	16.6	09	15	19	15.8
	1 - 2 yrs	22	36.6	24	40	46	38.3
	2 - 3 yrs	17	28.3	16	26.6	33	27.5
	3 - 4 yrs	03	05	08	13.3	11	9.1
	4 - 5 yrs	08	13.3	03	05	11	9.1
Gender of the children	Male	28	46.7	30	50	58	48.3
	Female	32	53.3	30	50	62	51.6
Education status of father	Higher education	12	20.3	13	21.7	25	20.8
	Secondary education	25	41.7	32	53.3	57	47.5
	Primary education	21	35	15	25	36	30
	No formal education	02	3.3	00	00	02	1.6
Education status of mother	Higher education	08	13.3	7	11.7	15	12.5
	Secondary education	14	23.3	21	35	35	29.1
	Primary education	28	46.7	32	53.3	60	50
	No formal education	10	11.7	00	00	10	8.3
Occupation of father	Employed	25	41.7	27	45	52	43.3
	Self-employed	33	55	32	53.3	65	54.1
	Unemployed	02	3.3	01	1.7	03	2.5
Occupation of mother	Employed	08	13.3	05	8.3	13	10.8
	Self-employed	28	46.6	18	30	46	38.3
	Unemployed	24	40	37	61.7	61	50.8
Religion	Hindu	36	60	58	96.7	94	78.3
	Muslim	24	40	02	3.3	26	21.6
Delivery setting	Government setup	41	68.3	37	61.7	78	65
	Private setup	19	31.7	23	38.3	42	35
Type of family	Joint	40	66.7	35	58.3	75	62.5
	Nuclear	20	33.3	25	41.7	45	37.5
Source of information about immunization	Family members	14	23.3	08	13.3	22	18.3
	Healthcare providers	44	73.3	40	66.7	84	70
	Media	02	3.3	12	20	14	11.6

**Table 2:** Frequency and percentage distribution of Pre- intervention missing doses of immunization among experimental and control group

Immunization doses	Experimental Group (N=60)		Control Group (N=60)	
	F	%	F	%
Hepatitis B				
0	30	50	25	41.6
1	04	6.6	10	16.6
2	07	11.6	13	21.6
3	10	16.6	09	15
DPT				
1	15	25	05	8.3
2	05	8.3	07	11.6
3	06	10	05	8.3
DPT Booster	13	21.6	45	41.6
Measles	15	25	21	35
Vitamin A	37	61.6	28	46.6

**Table 3:** Effectiveness of guided health action on utilization of immunization services among experimental and control group N= 120

Groups	Total No. of Pre-intervention missed doses	Total No. of post-intervention missed doses	Total	Chi-square	P value
Experimental group	142	43	185	28.47	<0.001*
Control group	168	153	321		
Total	310	196	506		

\* $\chi^2 = 28.47$ , at df = 1, p value <0.001

**Table 3.1:** Effectiveness of guided health action on utilization status of Hepatitis-B 0 dose N=120

Group	Pre intervention missed doses	Post-intervention missed doses	Total	Chi square	P-value
Experimental group	30	11	41	4.165	<0.001*
Control group	25	23	48		
Total	55	34	89		

\* $\chi^2 = 4.165$ , at df = 1, p value <0.001

**Table 3.2:** Effectiveness of guided health action on utilization status of Hepatitis-B 3<sup>rd</sup> dose N=120

Group	Pre-intervention missed doses	Post-intervention missed doses	Total	Chi square	P-value
Experimental group	10	00	10	6.687	<0.001*
Control group	09	08	17		
Total	19	08	27		

\* $\chi^2 = 6.687$ , df=1, p value <0.001

**Table 3.3:** Effectiveness of guided health action on utilization status of DPT 2<sup>nd</sup> dose N=120

Group	Pre-intervention missed doses	Post-intervention missed doses	Total	Chi square	P-value
Experimental group	05	00	05	3.958	<0.001*
Control group	07	07	14		
Total	12	07	19		

\* $\chi^2 = 3.958$ , df=1, p value <0.001

**Table 3.4:** Effectiveness of guided health action on utilization status of DPT booster

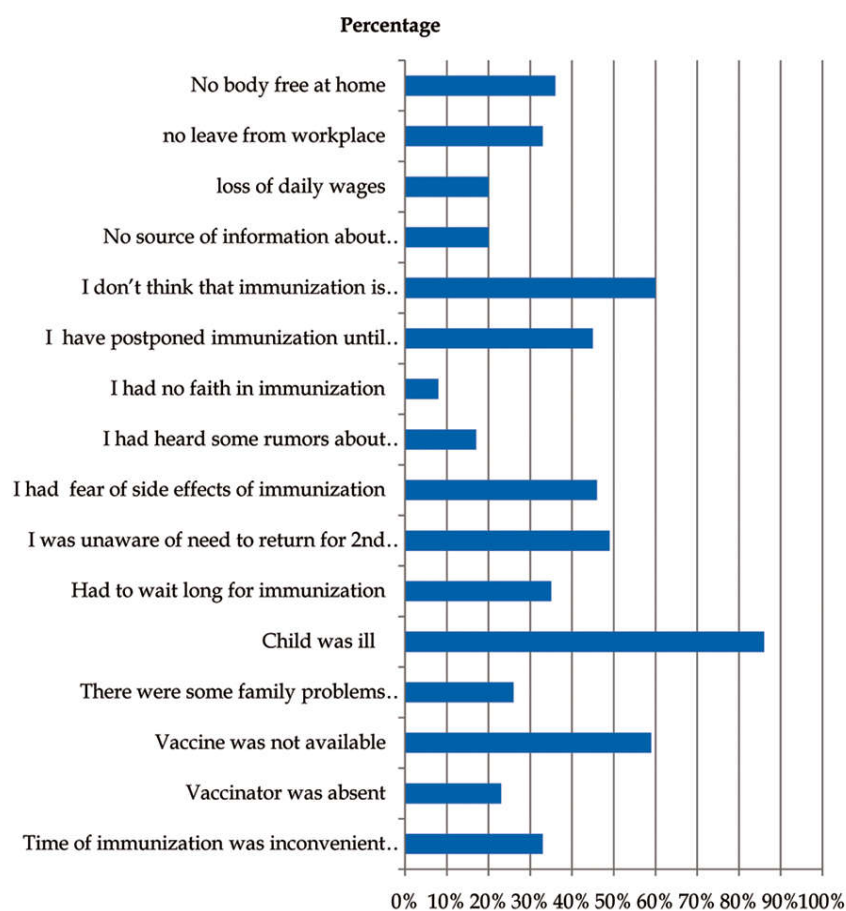
Group	Pre-intervention missed doses	Post-intervention missed doses	Total	Chi square	P-value
Experimental group	13	03	16	4.977	<0.001*
Control group	45	43	88		
Total	58	46	104		

\* $\chi^2 = 4.977$ , df=1, p value <0.001

**Table 3.5:** Effectiveness of guided health action on utilization status of Measles

Group	Pre- intervention missed doses	Post-intervention missed doses	Total	Chi square	P-value
Experimental group	15	04	19	4.532	<0.001*
Control group	21	21	42		
Total	36	25	61		

\* $\chi^2 = 4.532$ , df=1, p value <0.001



**Fig. 1:** Percentage of reasons for not utilizing immunization services in experimental and control group

## Discussion

In the present study majority of the respondents (86%) reported illness of child as the reason for not utilizing under-five immunization services. It was contradictory to Kar et. al. (2001) study results in

which 30.8% reported illness of child as reason for not immunizing their child [1]. Similar results were found in Sharma B.et. al. (2012) which stated 29.52% children were not immunized due to sickness [3,5].

The findings of the preset study can be applicable in various area of nursing like nursing practice,

education, research and administration. As illiteracy and lack of knowledge of parents are found to be associated with health and immunization status of children, health care workers should give more importance to educate public regarding this. Improvement in immunization status can be enforced through various activities. Parents should be informed about immunization schedule and importance of timely immunization. Nurses should address the issues of poor utilization of immunization services and factors responsible for it to the concerned authorities.

The present study was limited to only those under five children who had immunization card and also it does not establish any association between the socio demographic variables and immunization status. The researcher recommends to conduct a similar study with larger sample size for better generalization and to find the association between various socio demographic variables and immunization status.

## Conclusion

It can be concluded from the results of the present study that most of the children were partially immunized for age. The major reason reported by parents for not immunizing child was illness of child and unawareness about need to return for 2<sup>nd</sup> and 3<sup>rd</sup> doses. The guided health action was effective in improving the utilization of under-five immunization services.

## Acknowledgement

I would like to express special thanks to Ethical committee and Research committee, Himalayan College of Nursing, Swami Rama Himalayan University for their support and cooperation.

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- 12 Chandan Kumar et. al. / Factors Influencing Utilization of Immunization Services and Effectiveness of a Guided Health Action on Immunization Status among Parents of Under Fives in a Selected Area of Dehradun, Uttarakhand

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