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Factors Influencing Knowledge of Mothers of Under-Five Children Regarding Immunization and Efficacy of a Need- Based Intervention Strategy on Mother's Knowledge

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ABSTRACT: Immunization is one of the most effective, safest & efficient Public Health Interventions¹. While the impact of Immunization on childhood morbidity & mortality has been great², its full potential is yet to be reached. Thousands of children still die from Vaccine-Preventable diseases each year. Vaccine Preventable Diseases contribute significantly to Under-five mortality³. In India Under-five mortality is 68.8/ 1000² Routine immunization is one of the most cost effective public health interventions & was 1st introduced in India in 1978⁴. Yet despite the concrete efforts of government & other health agencies, a large proportion of vulnerable infants & children in India remain unimmunized⁵. India has the highest no. (approx. 10 million) of such children in the world⁶. Considering the above background a Research Project had been planned with the ultimate aim of preventing under-five⁷ morbidity and mortality by way of educating mothers regarding importance of immunization.⁸

I. INTRODUCTION

Childhood immunization almost guarantees protection from many major diseases. It prevents more than 2 million deaths per year worldwide and is widely considered to be 'overwhelmingly good' by the scientific community. However, 2.5 million deaths a year continue to be caused by vaccine preventable diseases, mainly in Africa and Asia among children less than 5 years old. Vaccination coverage has now reached a plateau in many developing countries, and even where good coverage has been attained; reaching children not yet vaccinated has proved difficult⁹. Thus, there is an urgent need to find ways to increase vaccination coverage and particularly to encourage parents to have their children vaccinated^{1,10}.

It refers to an integral component of any study or research projects. It enhances the depth of the knowledge and inspires a clean insight into course of the problem. Literature review throws light on the studies and their reports about the problem under the studies.

Pankaj Bhatnagar et. al (June 2016), Bulletin of the World Health Organization, 21 June 2016. A Study was conducted to obtain relevant data covering the period 1999–2013 for each of 16 states and territories and the period 2001–2013 for the state of Jharkhand – which was only created in 2000. Objective of the study was to review the data, for 1999–2013, on state-level child vaccination coverage in India and provide estimates of coverage at state and national levels, on 253 samples. Conclusion The delivery of routine vaccination services to Indian children appears to have improved between 1999 and 2013. There remains considerable scope to improve the recording and reporting of childhood vaccination coverage in India and regular systematic reviews of the coverage data are recommended¹¹

In this connection the researcher done in-depth study to explore the factors and for immunization and others. The study entitled "factors influencing the knowledge of mothers of under-five children regarding immunization and

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Vol. 8, Issue 3, March 2019

efficacy of a need- based intervention strategy on mother's knowledge." The objectives of the following study are as follows:

1. To determine the present immunization status of under-five children in the selected setting.
2. To assess the existing level of knowledge of mothers of under-five regarding immunization.
3. To determine the factors influencing the knowledge of mothers of under-five children regarding immunization.
4. To develop and implement a need-based intervention strategy to improve the existing level of knowledge of mothers of under-five regarding
5. To determine the efficacy of the need based intervention strategy on the knowledge of mothers of under-five children regarding immunization
6. To determine the association between the pretest knowledge score with selected socio-demographic variables of mothers

II. RESEARCH HYPOTHESES

H01- There will be a significant difference between the pre and post test knowledge scores of mothers of under-five children regarding immunization.

H02- There will be a significant association between the pretest knowledge score of mothers of under-five children with their socio-demographic variables.

III. METHODOLOGY

Multimethod research methodology with a blend of both quantitative and qualitative perspective was used for the study⁹. One group pretest and posttest design were used for study. Statistical Analysis Adopted are descriptive **Statistics**, i.e. Frequency & Percentage Table was used to analyze mothers' Socio-Demographic Data **Non-Parametric Paired 't' test** was applied to determine the efficacy of the need based intervention strategy on the knowledge score of the mothers of under-five regarding immunization. Though it was not a randomized sampling, the near homogeneity of the subjects was ensured. **Descriptive Statistics, i.e.,** Frequency was calculated to estimate the factors influencing the knowledge and decision of mothers of under-five children regarding immunization. **Independent 't' test & One-Way ANOVA** was computed to find any association between the pretest knowledge score with selected socio-demographic variables of mothers

International Journal of Innovative Research in Science, Engineering and Technology

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Visit: www.ijirset.com

Vol. 8, Issue 3, March 2019

IV. RESULTS

Table no 4.1 Showing Frequency and Percentage distributions of the socio-demographic characteristics of the mothers of under-five children

n =200

Sl. No.	Socio-demographic characteristics	Frequency (f)	Percentage (%)
1.	Age		
	• Below 20 years	35	17.5
	• 21 to 25 years	49	24.5
	• 26 to 30 years	56	28.0
	• 31 to 35 years	37	18.5
	• 36 to 40 years	19	09.5
	• 41 to 45 years	04	02.0
2.	Education		
	• Informal education	19	09.5
	• Primary education	99	49.5
	• Secondary education	61	30.5
	• Higher Secondary education	12	06.0
	• Graduation	09	04.5
	• Post graduation	00	00.0
• Professional education	00	00.0	
3.	Religion		
	• Hindu	53	26.5
	• Muslim	147	73.5
4.	Caste		
	• General	79	39.5
	• OBC	98	49.0
	• SC	22	11.0
	• ST	01	0.5
5.	Occupation		
	• Skilled	32	16.0
	• Unskilled	19	09.5
	• Housewife (home-makers)	149	74.5

International Journal of Innovative Research in Science, Engineering and Technology

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Vol. 8, Issue 3, March 2019

6.	Gross Family Income per month <ul style="list-style-type: none"> • Below 5000/pm • 5001 to 10,000 • 10001to 15000 • Above 15000 	80 103 14 03	40.0 51.5 07.0 01.5
7.	Type of family <ul style="list-style-type: none"> • Joint • Nuclear • Extended 	115 64 21	57.5 32.0 10.5
8.	Total family members <ul style="list-style-type: none"> • Below 5 • 6-10 • 11-15 • More than 16 	47 132 19 02	23.5 66.0 9.5 1.0
9.	Total No. of children <ul style="list-style-type: none"> • One • Two • Three • Four • More than four 	41 54 50 40 15	20.5 27.0 25.0 20.0 7.5
10.	Number of male child <ul style="list-style-type: none"> • 1 • 2 • 3 • 4 • 5 • 6 	94 60 13 02 01 30	47.0 30.0 6.5 1.0 0.5 15
11.	No. of female child <ul style="list-style-type: none"> • 1 • 2 • 3 • 4 • 5 • 6 	87 61 15 06 01 30	43.5 30.5 07.5 03.0 00.5 85.0

International Journal of Innovative Research in Science, Engineering and Technology

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Vol. 8, Issue 3, March 2019

12.	No. of school going children		
	• 0	83	41.5
	• 1	24	12.0
	• 2	50	25.0
	• 3	30	15.0
	• 4	9	4.5
	• 5	4	02
13.	Source of information about immunization	23	11.5
	• Newspaper	29	14.5
	• Television	8	4.0
	• Magazine	56	28.0
	• Relatives	32	16.0
	• Friends	34	17.0
	• Health care personnel	18	9.0
	• Other sources		

Table No. 1 Shows All the below mentioned information were as stated by the 200 mothers of under-five children.

1. Socio-demographic characteristics of mothers of under-five children

Thirty Five (35 – 17.5%) mothers were of below 20 years of age, majority (105-52.5%) were between 21 to 30 years, 37 (18.5%) were in the age group of 31-35 and remaining above 35.

Nineteen (19-9.5%) mothers had only informal education, i.e., out of the school experiences, maximum 99 (49.5%) had Primary education in local Govt. schools and Madrasa, 61 (30.5%) had studied upto Secondary level, 12 (6%) had Higher Secondary education and only 9 (4.5%) had reached upto Graduate level. None had progressed after that.

In the chosen setting the subjects belonged to only Hindu and Muslim Religions, with majority Muslim (147-73.5%) religion.

Maximum were of OBC category (98-49%), only one was ST, who was working in the PHC.

Majority mothers were home-makers (149-74.5%). Out of 32 (16%) Skilled Workers 13 worked in the Tailor's shops, 5 Junior Clerks in small private offices, 4 were teachers in private Primary Schools, 8 were managing phone booths and 2 were assisting in X-Rox shops. Unskilled 19 (9.5%) had no fixed job, seasonally worked as maid-servants or land-laborers.

Gross family income per month of Rs. 5001 to 10,000 was reported by the maximum number of mothers (103-51.5%), only one had that of above Rs. 15,000.

A maximum of mothers 115 (57.5%) was living in joint families, 64 (32%) were in nuclear family and 21 (10.5%) were living in extended families with in-laws.

Total number of family members was 6-10 in 132 (66.0%) families, 19 (9.5%) mothers were from families of 11-15 members and only 2 (1%) had more than 16 family members. Joint families naturally had greater number of family members.

A maximum of 54 (27.0) had 2 children, 50 (25%) mothers had 3, 40 (20%) had 4, 15 (7.5%) had more than 4 and 41 (20.5%) had only one child.

International Journal of Innovative Research in Science, Engineering and Technology

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Visit: www.ijirset.com

Vol. 8, Issue 3, March 2019

Maximum of 94 (47%) mothers had only one male child, 60 (30%) had 2 each, 30 (15%) had 6 male children. More or less similar pattern was observed for female children.

There was no school-going children for 83 (41.5%) mothers, 50 (25%) had 2 and 30 (15%) had 3 school-going children and 4 (2%) mothers had 5 school-going children.

Maximum of 56 (28%) mothers got information about immunization from their relatives, 34 (17%) from health care personnel, 32 (16%) from friends, 29 (14.5%) from TV, and 23 mothers got information from newspapers

2. Immunization status of under-five children

Recent immunization status is based the fact and findings. Only 11% of all under-five children had been given the full schedule of immunization, 17% had irregular and incomplete schedule and remaining were not immunized at all. All 28% had OPV drops given at Pulse-Polio Program organized by local Rotary Club.

Immunization	f	%
DPT	31	15.5
BCG	29	14.5
Oral Polio	56	28.0
TT	22	11.0
Measles	33	16.5
Hepatitis B	22	11.0

Table no.02 Reveals information was obtained from the Immunization Cards kept with mothers.

3. The factors influencing the knowledge of mothers of under-five children regarding immunization

The factors influencing the knowledge, viewpoints and decision of mothers of under-five children regarding immunization were divided into six categories i.e. mothers' personal factors (5 items), effects of immunization (3 items), mode of information (2 items), immunization risks (3 items), presence of private clinic or PHC (3 item) and transportation facility to nearest health center (3 items).

- Among mothers' personal factors, "Taking leave from job to take the child to PHC for immunization leads to loss of money, which we can't afford" was expressed by majority 156 (78%), followed by "I do not get enough time to take the child to PHC for vaccination. My household works take away all my time" – 145 (72.5%). This showed availability of suitable time was an important factor.

- May be because of higher level of education, exposure and awareness, "we have not done anything wrong in life; God will protect my child, no need for immunization to child" was felt by less number of mothers – 89 (44.5%).

- The number of mothers knowing about the effects of immunization was more or less same in all 3 aspects, however, was less than 50%, i.e., inadequate in all areas.

- This point also added to the need of the study.

- About the mode of mothers' information about immunization there was mixed answers. However, lesser number of mothers had the source of information as the PHC Staff. That is something to think of.

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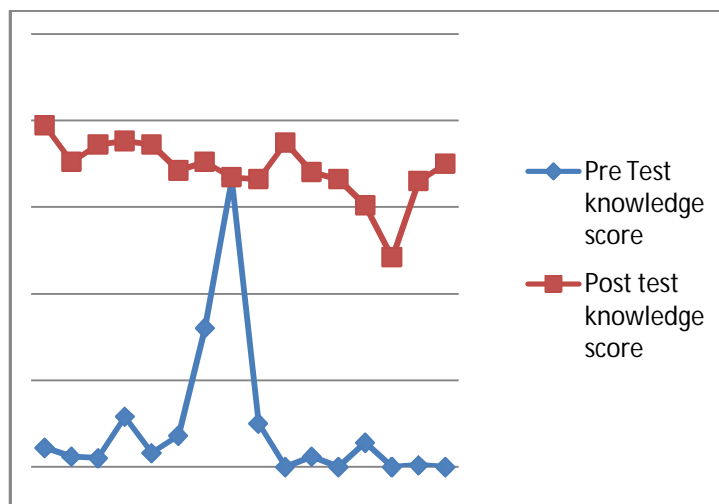
Visit: www.ijirset.com

Vol. 8, Issue 3, March 2019

- For the reasons **why mothers do not bring their children for immunization** had majority (152-76%) expressing that **“My children get fever, pain and discomfort after immunization”**, followed by 122 (61%) **“Even if my children get fever, pain and discomfort, I take them to PHC for immunization”** and 113(56.5%) were afraid that **“.....that immunization may cause more harm to my child, than good.”** These expressed feelings of mothers pointed out the need for organized awareness programs.
- About the **availability of health care services** majority mothers 145-72.5% opined that **“Getting sick-care is easy at PHC than getting immunization”**, 142 (71%) opined in contrary saying that **“Private clinics are more preferable for immunization, though costly”** and 131 (65.5%) mothers complained saying that **“There is always a long queue in PHC for immunization, it takes many hours, so very difficult.”**
- **Transport facilities** were a hindering factor for majority mothers (163-81.5%), this opinion was supported by 109 (54.5%), only 83 (41.5%) mothers had their homes near PHC, thus facilitating regular immunization of their under-five children.

The necessity for determining the factors influencing mothers’ knowledge and decision to immunize their under-five children were proved very strongly, as it showed evidently the need for organized awareness drive and improving the immunization related health care services in its true sense, i.e., **“taking health to the door-steps of people.**

Comparison between pre test & post test knowledge scores of mothers of under-five children regarding immunization:



Linear graph No. 01 shows a line with marker Shows the Area wise comparison of frequency of pretest and posttest knowledge scores of mothers.

Knowledge scores had improved substantially in posttest. Especially number of mothers’ awareness about the duration between two DPT vaccines (K 12); need for MMR vaccine (K 14) and where immunization could be given (K 18) was nil (zero). In posttest in all three areas the number of mothers was increased to 187, 166 and 175 respectively. Surprisingly, the number of mothers dwindled in scoring in answering **“What will you do if the baby gets high fever after vaccination”** (K 10).

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Vol. 8, Issue 3, March 2019

The data depict that the posttest knowledge scores regarding immunization were higher than that of pretest knowledge scores. The significant improvement in knowledge scores can be attributed to the awareness programme administered between Pretest & Posttest.

But the paired sample t test was computed to test the null hypothesis, that there was no significant difference between the pre and post knowledge scores. The calculated t value 80.75 was higher than that of tabulated t value of 1.7 (degree of freedom =199, P=0.05 level of significance). Therefore the null hypothesis was rejected and the research hypothesis was accepted. So it could be ascertained that the increases in the mothers' mean knowledge score could be attributed to the intervention which was done between the pretest and posttest knowledge assessment.

4. Association between the pretest knowledge score and socio-demographic variables of mothers of under-five children:

There was no statistically significant difference in knowledge scores of mother who were Hindu and Muslim. One Way ANOVA test was used to compare mean knowledge score of three or more than three groups on their socio-demographic variables. The mean knowledge score of mother who were aged between 36-40 years of age was higher than the age groups. It was observed that as the age increased proportionately knowledge also increased, but there was no statistically significant difference between the knowledge scores and age of mothers.

5. Other Findings

1. Quite a few serendipitous phenomena were observed which were beyond the scope of the study focus and statistical measures. These were –

- Mothers of younger age-group had higher levels of education, more number of them were skilled workers
- There was more or less similar number of children of both male and female genders and school-going children. This changing trend would bring hope for the coming generation of under-five children in relation to immunization.
- Number of mothers getting information from relatives about immunization was more than that from the health care workers. This observation added to the justified need for the study.

2. Many of the mothers expressed that the joint family members, especially elders (their parents or in-laws) did not give much importance to under-five immunization, irrespective of the child's gender. And without family's permission young mothers could not go to PHC for their children's immunization. In the nuclear families father was busy providing for the family and thus did not have free time to help. Many of them sent their older children to get the young ones immunized, which was irregular.

3. Mothers numbering 113(56.5%) were afraid that **“.....immunization may cause more harm to my child, than good.”**

Statistical correlation was not done between the mothers' socio-demographic characteristics and their beliefs about immunization. But it was observed that mothers of older age-group, especially over 35 years was more prone to believe in the harmful effects of immunization⁹, than the younger ones. Even during the Focus Group Discussion they were trying to influence the younger mothers. Also mother with higher education and working mothers¹⁰, exposure to outside world were observed to have beneficial effects on mothers' beliefs about immunization.

V. CONCLUSION


The data obtained were summarized in the master data sheet and both descriptive and inferential statistics were used for analysis. Frequencies and percentages were used to analyze the socio-demographic variables of the subjects. Mean, standard deviation and paired t test were computed to describe the effectiveness of the awareness program on knowledge of mothers regarding under-five immunization.

International Journal of Innovative Research in Science, Engineering and Technology

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Vol. 8, Issue 3, March 2019

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