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Research article

Effectiveness of structured health teaching programme on knowledge regarding immunization among the mothers of under five children

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Abstract

A study to assess the effectiveness of planned health teaching programme on knowledge of mothers regarding immunization of under five children in pediatric ward of D. Y. Patil Hospital and Research Centre Nerul, Navi Mumbai. **Aim:** To assess pre and post-test knowledge of mothers regarding immunization of under five children in pediatric ward of D.Y. Patil Hospital and Research Centre. To find association between pre-test and post-test knowledge of mothers regarding immunization of under five children in pediatric ward of D.Y. Patil Hospital and Research Centre with selected demographic variable. **Method:** The research design selected for the present study was quasi-experimental one group pre-test and post-test design Non probability purposive sampling techniques were used for the selection of 50 mothers of under five children. The tool used for data collection was self-structured questionnaires, which comprised of LP items on demographic data and 25 items on knowledge regarding immunization. The reliability coefficient was found to be highly significant i.e 0.56. **Results :** The 50 samples, shows that majority 76% of the mothers of under five children in pre-test were having a moderate knowledge score (9-16), 12% of mothers of under five children in pre-test of study group were having adequate knowledge score (17-25) and only 0% mothers of under five children in the study group had inadequate knowledge score (0-8). The post-test majority 80% of the mothers of under five children had adequate knowledge score (17-25) and 20% of them in the post-test had moderate knowledge score (9-16). Out of 50 samples, shows that the mean pre-test score was 56.76, whereas the mean of post-test score was 74.24. Thus it can be concluded that, the planned health teaching programme regarding immunization is effective in delivering the knowledge and awareness. The present study aims to assess the effectiveness of planned health teaching programme in among the mothers of under five children.

Keywords: Effectiveness, structured teaching, immunization, mothers of under five children

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1.Introduction

The goal of immunizing children against chief diseases responsible for child mortality and morbidity is indeed a noble one. However, it is not an easy task to achieve. In a developing country like India, the sheer logistics of the numbers of the target population that stretches across geographically diverse regions make universal immunization of children a Herculean task. However, the health sector of this country is making admirable achievements in that several millions of potential life years have been saved from getting lost to vaccine

preventable diseases through the universal immunization program [1].

There are several reasons to aim for universal coverage. The factors that should be helpful are many. The Indian culture promotes safe nurturing of children. Hardly do we find parents who risk their children to life-threatening diseases, unless they being unaware or misinformed. All vaccines under the routine immunization programme are provided free-of-charge. However, the figures for the coverage of routine immunization (RI) are lagging. The current level of coverage of 'fully-immunized' children under the

national immunization programme is quite low, as pointed out by several studies [2]. The child needs to be protected from six infectious and vaccine preventable diseases. These diseases include tuberculosis, tetanus, diphtheria, whooping cough and poliomyelitis. The underfive children can be saved from deaths by immunizing them at the right age and right time and by completing the full course of immunization [2].

According to UNICEF immunization is currently preventing an estimated two million deaths among children under five every year [3]. India has one of the highest under five mortality rates in the world with an estimate of 64/1000 live births in 2010, the underfive mortality rate in the Karnataka state was 56/1000 live births in 2010. One of the factors contributing to underfive mortality is the ignorance of child care [3].

Global immunization coverage has greatly increased since WHO's expanded programme on immunization began in 1974. In India expanded programme on immunization was launched in January 1978. UNICEF renamed the expanded programme on immunization as Universal Immunization Programme (UIP) and it was launched in India in November, 1985 [4]. In 2010, global DPT3 (three doses of the diphtheria, pertussis, tetanus combination vaccine) coverage was 68% up from 50% in 2005. However, 27 million children worldwide were not reached by DPT3 in 2010, including 9.9 million on south Asia and 9.6 million in sub-Saharan Africa [5]. Each child has basic human needs like adults to fulfill the essentials of life and to promote growth and development. Immunization is one of the needs of the children. The responsibility of the nursing personnel is to help the parents to emphasize on promotion of health, prevention of illness, maintenance of health and restoration of health [6].

Immunization is one of the most effective public health interventions to reduce childhood mortality due to vaccine preventable diseases.

Need for the study

The physical health of a child is important because it is associated with the mental and social development of children. Mothers are the first care providers of their children, is needed to reduce the underfive mortality rate. One of the ways to achieve reduction of underfive mortality is to educate the mothers on matters pertaining to child care [7].

A descriptive study was conducted to determine the relationship between the literacy status and immunization coverage among 100 mothers of underfive children in Kolar district in Bangalore. The analysis revealed a fairly low immunization coverage (<33%) for all vaccines and it was found that literacy status of mothers had a significant influence on the immunization level. Lack of awareness and motivation was cited as the main reason for non-immunization. The study recommended giving awareness by health care personnel among mothers to improve their knowledge which in turn changes their attitude [8]. Each year since 1990,

immunization with routine vaccines has reached more than 70 % of children worldwide. At the UN General Assembly special session in 2007 the international community adopted the specific target of immunizing by 2010 atleast 90 percent of childrens in each country [9]. Worldwide approximately 130 million children are born every year in which 91 million are from developing countries. America and Europe maintains over 90% of immunization and western pacific maintains 92% of immunization while eastern Mediterranean maintains 86% of immunization. 114 countries has reached 90% of immunization where 150 countries has reached 80% of immunization [10]. The child mortality rate or under-5 mortality rate is the number of children who die by the age of five, per thousand live births. In 2007, the world average was 68 (6.8%) In 2006, the average in developing countries was 79 (down from 103 in 1990), whereas the average in industrialized countries was 6 (down from 10 in 1990). The world's child mortality rate has dropped by over 60% since 1960 [11].

Around 10 million children die under the age of five every year and over 27 million infants in the world do not get full routine immunization. The predicted world's infant mortality rate during the year 2005 to 2010 is 47 per 1000 birth where the actual infant mortality rate is 57 per 1000 births [12].

In India over all statistics says that 80% immunization has been covered. In 1985, the Universal Immunization Program was started in India with the aim of achieving at least 85% coverage of primary immunization of infants. 93 percent of all under-5 deaths occur in Africa and Asia. Half of these deaths occur in five countries: India, Nigeria, Democratic Republic of Congo, Pakistan, and China [13].

Karnataka state is the ninth populous state of India with 66% of population of rural areas. However the infant mortality rate is 55 per 1000 births. Districts of southern Karnataka are better immunized than northern Karnataka with Bangalore rural reaching the coverage of 87% [14]. This area of study has been selected because even today the mortality of under five children is high and it is mainly due to diseases that can be prevented. Hence, the need was felt to identify the learning needs of mothers and educate them regarding immunization by introducing structured teaching programme and promoting health of underfive children which in turn reduces mortality among under five children.

Statement of problem

A study to assess the effectiveness of planned health teaching programme on knowledge of mothers regarding immunization of under five children in pediatric ward of D. Y. Patil Hospital and Research Centre Nerul, Navi Mumbai.

Aim and Objectives

- To assess pre and post-test knowledge of mothers regarding immunization of under five children in

pediatric ward of D.Y. Patil Hospital and Research Centre.

- To find association between pre-test and post-test knowledge of mothers regarding immunization of under five children in pediatric ward of D.Y. Patil Hospital and Research Centre with selected demographic variable.

Hypothesis

Ho: There will be no significant difference in the level of knowledge of mothers regarding immunization of under five children before and after planned health teaching programme.

H1: There will be significant difference in the level of knowledge of mothers regarding immunization of under five children before and after administration of planned health teaching programme.

2. Methods:

Sample source: The data will be collected from the mothers of under five children's in selected paediatric ward. An evaluative research approach was applied. One group pre-test and post-test experimental design was conducted. The study conducted in pediatric ward of D. Y. Patil Hospital, Nerul, and Navi Mumbai with total sample of 50 mothers of under five children using purposive sampling technique.

Inclusion Criteria

1. Mothers of under five children who are willing to participate in the study.
2. Mothers who can understand Hindi and Marathi.

Exclusion Criteria

1. Mothers with qualification in the medical profession.
2. Mothers of under five those who are not willing to participate in the study.
3. Mothers those who are not available at the time of data collection.
4. Mothers who can't understand Hindi and Marathi.

Description of tool

As per the expert opinion structured knowledge questionnaire will be prepared. It will consist of:

1: Socio demographic data - age, religion, education, occupation, diet, monthly income, birth order of children.

2: A structured knowledge questionnaire will be prepared to assess the knowledge of mothers of under five children regarding immunization.

- Meaning of immunization
- Type of immunization
- Age of vaccination
- Route, Dose of immunization
- Reaction
- Contraindication
- care of vaccination
- complication of immunization

Method of data collection and analysis:

a) Permission from the concerned authority

Prior to collection of data, permission was obtained from medical superintendent of the D.Y. Patil Hospital and research centre. Permission was also obtained from the sister incharge of pediatric ward. Then consent was taken from mothers of under five children.

b) Period of data collection

The data collection was done from 15th March 2016 to 15th of April 2016. During this study the investigator collected both pre and post test data and also implemented the plan health teaching programme.

c) Pre-test

Pre-test was conducted by using self structured questionnaire on immunization. The investigator distribute questionnaire to the mother of under five children and gave adequate time to fill the questionnaire, approximately 20-25 minutes. Then the filled questionnaire was collected back by the investigator.

d) Implementation of plan health teaching programme

Immediately after the pre-test the investigator gave health talk about immunization on the same day.

e) Post-test

Post-test was conducted after 3 days, by using the same questionnaire on the same mothers of under five children. After the data collection investigator thank for thanked all the study samples as well as authorities for their cooperation. The pilot study was conducted from 8th March to 12th March, 2016 on 10 selected mother under five year children, to assess the effectiveness of planned health teaching programme on knowledge of mother regarding immunization. In this study, the reliability of the tool was tested by implementing the questionnaire on mothers of under five children in selected pediatric ward of D.Y. Patil Hospital and research centre [15].

Statistical Analysis: The significant was calculated by using mean, standard deviation and calculated 'p' value. ANOVA was used to find the co-relation with every item and the findings were documented in tables, graphs and diagram. The association between knowledge score and demographic variables was assessed by using chi-square [16].

3. Result:

Section I: It deals with the distribution of sample in relation to demographic data using frequency and percentage.

Section II: It deals with analysis of data related to knowledge of mothers regarding immunization.

Section III: It deals with the analysis of data related to the effectiveness of planned health teaching programme on knowledge scores by comparison of pre-test and post-test knowledge scores.

Section IV: It includes analysis of data to find the relationship of the selected demographic variables with knowledge about immunization.

H1- There will be significant difference in the level of knowledge of mothers regarding immunization of under five children before and after administration of planned health teaching programme.

Levels of knowledge scores are as follows:

Table No: 1 Levels of knowledge scores

Level of knowledge	Total score
Inadequate	0-8
Moderate	9-16
Adequate	17-25

Section – I

Fig No 1: distribution of sample according to age group

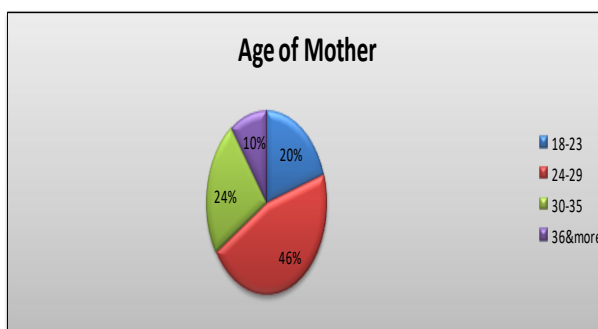


Figure 1: Among the 50 number of samples the highest number of samples belonged to the age group of 24-29 years is 23(46%), and the lowest number of samples belong to the age group 36 and more is 5 (10%). And there are 12 (24%) of the samples belonged to the age group of 30-35 years, and 10 (20%) of samples belonged to the age group of 18-23years.

Figure No 2: Distribution of sample according to religion

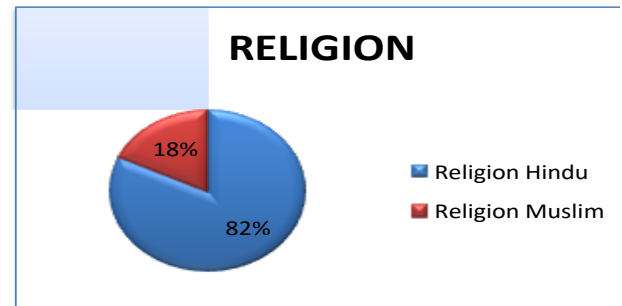


Figure 2: Among the 50 number of samples the highest number of samples belongs to Hindu religion 41 (82%) and the lowest number of samples belongs to Muslim religion 9 (18%).

Figure No 3: Distribution of sample as per educational qualification of mother

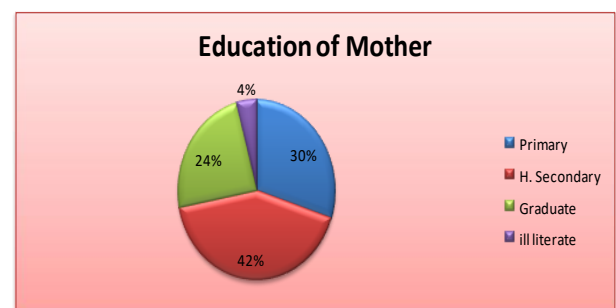


Figure No 3: Education: the highest number of sample 21 (42%) belongs to higher secondary education. The lowest number of samples that is 2 (4%) belongs to illiterate category. 30% belongs to primary education category and 24% belongs to graduate education.

Figure No 4: Distribution of sample as per educational qualification of father

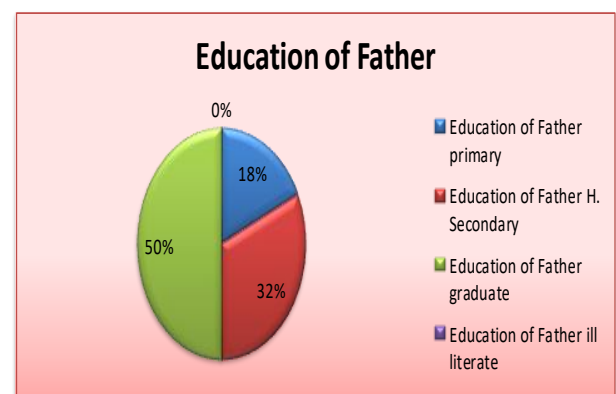


Figure 4: Education: Among the 50 sample, the highest number of sample 25 (50%) belongs to graduate education. The lowest number of samples that is 0% belongs to illiterate category. 9 (18%) belongs to

primary education category and 16 (32%) belongs to graduate education.

Figure No 5: Distribution of sample as per occupation of mother

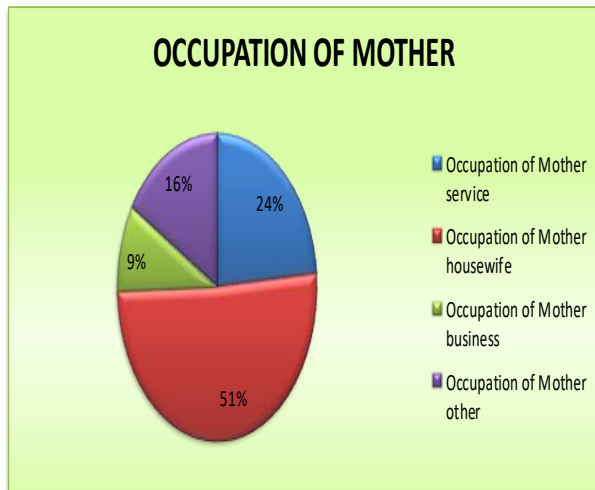


Figure 5: Occupation: Among the 50 sample, the highest number of samples belongs to a housewife that is 28(56%). The lowest number of samples belongs to 4(8%) to others. 13 (26%) of sample belongs to service and 5 (10%) of sample belongs to business.

Fig No 6: Distribution of sample as per occupation of father

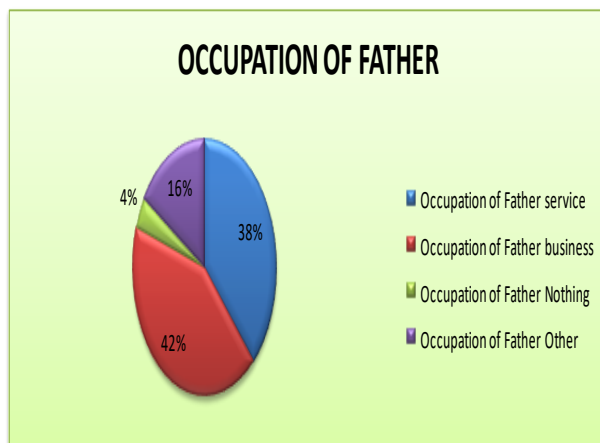


Figure 6: Occupation: Among the 50 sample, the highest number of samples belongs to a business that is 21 (42%). The lowest number of samples belongs to 8 (4%) to others. 19 (38%) of sample belongs to service and 2 (16%) of sample belongs to unemployment.

Figure No 7: Distribution of sample as per food category

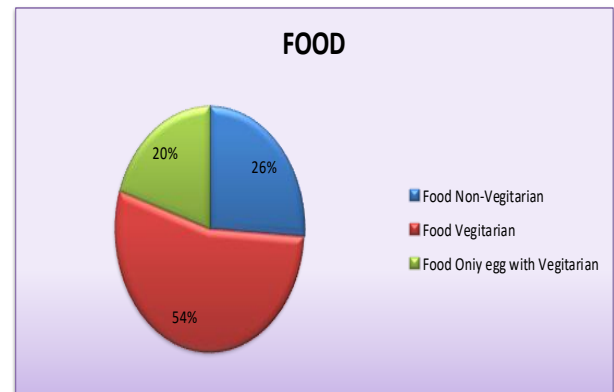


Figure 7: Among the 50 sample, the highest number of samples belongs to vegetarian 27 (54%) and lowest number of samples belongs to ovo-vegetarian 10 (20%). The number of sample belongs to non-vegetarian is 13 (26%).

Fig No 8: Distribution of sample as per monthly income

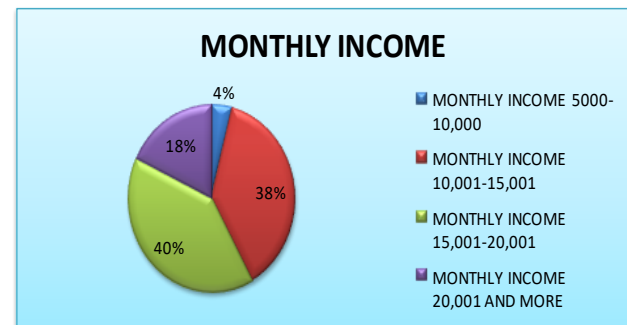


Figure 8 : Among the 50 sample, The monthly income is higher in Rs.15, 001 – Rs.20, 001 that is 20 (40%) and the monthly income is lower in Rs.5000 – Rs.10, 000 that is 2 (4%). The monthly income rate is 19 (38%) in Rs.10, 001 – Rs.15, 001 and 9 (18%) in Rs.20, 001 and more.

Figure No 9: Distribution of sample according to birth order of children

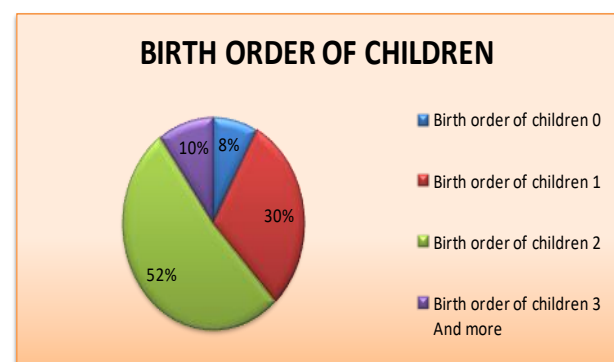


Figure 9: The highest birth order of children is 2 (52%). The lowest birth order of children is 0 (8%). And birth

order of children is 1 (30%) and birth order of children is 3 and more (10%).

Figure No 10: Distribution of sample as per immunized the children

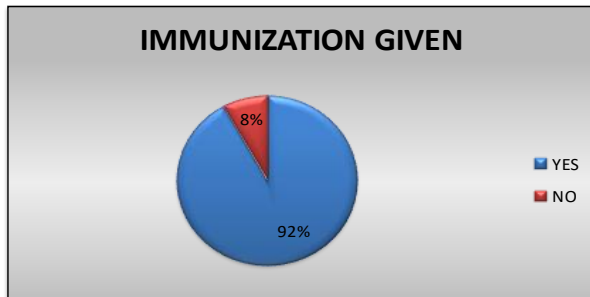


Figure 10: The maximum number of mothers immunized their child 46 (92%). The minimum number of mothers immunized their child 4 (8%).

Section - II

Knowledge of mothers of under five children regarding immunization

Table No 2: Distribution of overall knowledge score in frequency and percentage obtained by the study group.

Grade	Pre-test		Post-test	
	Frequency	%	Frequency	%
Inadequate(0-8)	0	0	0	0
Moderate (9-16)	38	76	10	20
Adequate (17-25)	12	24	40	80
Total	50	100	50	100

Above the table shows that majority 76% of the mothers of under five children in pre-test were having a moderate knowledge score (9-16), 12% of mothers of under five children in pre-test of study group were having adequate knowledge score (17-25) and only 0% mothers of under five children in the study group had inadequate knowledge score (0-8), whereas in the post-test majority 80% of the mothers of under five children had adequate knowledge score (17-25) and 20% of them in the post-test had moderate knowledge score (9-16).

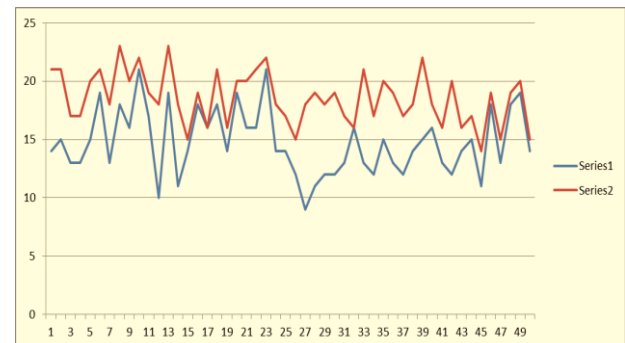
Section-III

Effectiveness of planned health teaching programme on the knowledge score by comparison of pre-test and post-test

In the present study there were 50 mothers of under five children. Each of them had answered 25 questions. Their pre and post-test correct answers were recorded and

mean and standard deviation of the test scores are obtained as below:

Fig No 11: Comparison of pre-test and post-test knowledge scores



Key words:

--- Pre-test

--- Post-test

Fig 11 The above graph shows that the mean pre-test score was 56.76, whereas the mean of post-test score was 74.24. The investigator has applied paired t-test to compare the difference between average scoring of before and after administration of planned health teaching programme. Since p value is less than 0.05 (p value =0.0001) difference between is average score is statistically significant. Investigator concluded, at 0.05 level of significance and 49 degrees of freedom ,the above data shows that the mother of under five children who have received planned health teaching programme regarding immunization had higher mean knowledge scores in post-test than in pre-test. Hence, we accept research hypothesis at 0.05 level of significance. Thus it can be concluded that, the planned health teaching programme regarding immunization is effective in delivering the knowledge and awareness.

Section IV

Figure No 12: Find the relationship of the selected sample of the knowledge score of pre-test and post-test

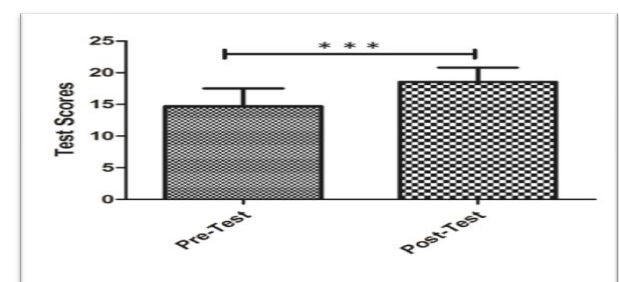


Figure 12 : Graph analysis data column A VS column B (Pre-test VS Post-test). Range of post-test is 11.9 -17.54 is more rather than pre- test16.3-20.82. The mean is high in a post-test (18.56) rather than pre-test (14.72),the

mean of difference is -3.840. 95% of confidence interval is -4.531 to -3.149. R squared=0.7186. The correlation coefficient 'r'=0.5 P value < 0.0001 since the average means significant difference is present. Hence, pairing between pre-test and post-test significantly effective.

Find the relationship of the selected demographic variables with the knowledge scores of sample

The association between knowledge score and demographic variables was assessed by using chi-square. Following table gives the summary of chi-square results:

Table 3:

Immunization Knowledge Level						
		Moderate	Inadequate	χ^2	P value	LOS
Age of Mother (years)	18-23	2	8	12.26	0.0065	P<0.0001*
	24-29	17	3			
	30-35	7	4			
	>36	2	2			
Education of Mother	Primary	9	4	3.275	0.3511	NS
	Secondary	14	6			
	Graduate/ Post-graduate	8	0			
	Illiterate	2	1			
Education of Father	Primary	4	5	6.904	0.0317	P<0.05*
	Secondary	11	4			
	Graduate/ Post-graduate	18	2			
	Illiterate	0	0			
Occupation of Mother	Service	10	0	4.587	0.2047	NS
	Business	3	1			
	Housewife	17	8			
	Other	3	2			
Occupation of Father	Service	13	2	3.932	0.2689	NS
	Business	14	5			
	Unemployed	1	2			
	Other	5	2			
Family Income	5000-10,001	0	2	6.751	0.0803	NS
	10,001-15,001	14	5			
	15,001-20,001	15	3			
	>20,001	4	1			

Table No 4: Demographic variables

Have Immunized the Child?					
Knowledge Level	Yes	No	χ^2	P value	LOS
Inadequate	11.00	0.00	18.87	-	P<0.0001*
Moderate	32.00	1.00			
Adequate	5.00	5.00			

Table4 : The above table shows that demographic variables age of mothers, education of mothers and fathers, occupation of mothers and fathers, Family income, Immunized child from immunization and previous knowledge about immunization were found to

have statistically significant association with knowledge score.

Discussion:

Section 1: Findings related to demographic characteristics of the participants.

1. Among the 50 number of samples the highest number of samples belonged to the age group of 24-29 years is 23(46%), and the lowest number of samples belong to the age group 36 and more is 5 (10%). And there are 12 (24%) of the samples belonged to the age group of 30-35 years, and 10 (20%) of samples belonged to the age group of 18-23years.
2. Among the 50 number of samples the highest number of samples belongs to Hindu religion 41 (82%) and the lowest number of samples belongs to Muslim religion 9 (18%).
3. Education: Out of 50 sample, the highest number of sample 21 (42%) belongs to higher secondary education. The lowest number of samples that is 2 (4%) belongs to illiterate category. 30% belongs to primary education category and 24% belongs to graduate education.
4. Education: Among the 50 sample, the highest number of sample 25 (50%) belongs to graduate education. The lowest number of samples that is 0% belongs to illiterate category. 9 (18%) belongs to primary education category and 16 (32%) belongs to graduate education.
5. Occupation: Among the 50 sample, the highest number of samples belongs to a housewife that is 28(56%). The lowest number of samples belongs to 4(8%) to others. 13 (26%) of sample belongs to service and 5 (10%) of sample belongs to business.
6. Occupation: Among the 50 sample, the highest number of samples belongs to a business that is 21 (42%). The lowest number of samples belongs to 8 (4%) to others. 19 (38%) of sample belongs to service and 2 (16%) of sample belongs to unemployment
7. Among the 50 sample, the highest number of samples belongs to vegetarian 27 (54%) and lowest number of samples belongs to ovo-vegetarian 10 (20%). The number of sample belongs to non-vegetarian is 13 (26%).
8. Among the 50 sample, sThe monthly income is higher in Rs.15, 001 – Rs.20, 001 that is 20 (40%) and the monthly income is lower in Rs.5000 – Rs.10, 000 that is 2 (4%). The monthly income rate is 19 (38%) in Rs.10, 001 – Rs.15, 001 and 9 (18%) in Rs.20, 001 and more.
9. Out of 50 samples, the highest birth order of children is 2 (52%). The lowest birth order of children is 0 (8%). And birth order of children is 1 (30%) and birth order of children is 3 and more (10%)
10. Among the 50 sample, the maximum number of mothers immunized their child (92%) The minimum number of mothers immunized their child (8%).

Section 2: Findings related to level of knowledge on immunization among mothers of under five childrens

Above the 50 samples, shows that majority 76% of the mothers of under five children in pre-test were having a moderate knowledge score (9-16), 12% of mothers of under five children in pre-test of study group were having adequate knowledge score (17-25) and only 0% mothers of under five children in the study group had inadequate knowledge score (0-8), whereas in the post-test majority 80% of the mothers of under five children had adequate knowledge score (17-25) and 20% of them in the post-test had moderate knowledge score (9-16).

Section3: Findings related to effectiveness of planned health teaching programme on knowledge regarding immunization among mothers of under five children

Out of 50 samples, shows that the mean pre-test score was 56.76, whereas the mean of post-test score was 74.24. The investigator has applied paired t-test to compare the difference between average scoring of before and after administration of planned health teaching programme. Since p value is less than 0.05 (p value =0.000 1) difference between is average score is statistically significant. Investigator concluded, at 0.05 level of significance and 49 degrees of freedom, the above data shows that the mother of under five children who have received planned health teaching programme regarding immunization had higher mean knowledge scores in post-test than in pre-test. Hence, we accept research hypothesis at 0.05 level of significance. Thus it can be concluded that, the planned health teaching programme regarding immunization is effective in delivering the knowledge and awareness.

Section 4: Findings the relationship of the selected sample of the knowledge score of pre-test and post-test.

- (1) Out of 50 samples, shows the analysis data column A VS column B (Pre-test VS Post-test). Range of post-test is 11.9 -17.54 is more rather than pre- test 16.3-20.82. The mean is high in a post-test (18.56) rather than pre-test (14.72). the mean of difference is -3.840. 95% of confidence interval is -4.531 to -3.149. $R^2=0.7186$. The correlation coefficient 'r'=0.5. P value < 0.0001 since the average means significant difference is present. Hence, pairing between pre-test and post-test significantly effective.
- (2) Out of 50 samples, shows that demographic variables age of mothers, education of mothers and fathers, occupation of mothers and fathers, Family income, Immunized child from immunization and previous knowledge about immunization were found to have statistically significant association with knowledge score. Gupta (2004) stated that mother is an important primary care provider and therefore her education and access to information will help her children. As children constitute the most important and vulnerable segment of our population. Mothers represent the most important health workers as far as child health is concerned. Health education inputs for mother should be strengthened [17].

Conclusion

The present study assessed the effectiveness of planned health programme in improving the knowledge regarding immunization among the mothers of under five children regarding immunization and found that the mothers of under five children had inadequate knowledge and level of practice related to immunization. After giving the structured teaching programme on immunization there was significant improvement on knowledge in mothers of under five children regarding immunization. In this study investigator found that the planned health teaching programme was found to be effective in increasing the knowledge score of under five children regarding immunization. In the post test the mean knowledge score of the mothers was indicated significant difference which is a net benefit to the mothers due to the effectiveness of health education program. Mothers need education on importance of National Immunization Schedule and adherence to the timings in the given immunization card. Educational campaigns will help to reduce the incidence of Vaccine-Preventable Diseases. Nursing practice optimally enables mothers to explain the importance of Immunization in childhood. Majority of the mothers had good knowledge of immunization and that immunization could prevent childhood diseases, their knowledge of immunization schedule as well as of vaccine preventable diseases is poor. A better understanding of the immunization schedule is important in the design and implementation of immunization programmes. Educating mothers about vaccines and vaccine preventable diseases are recommended. The study concluded that structured teaching was effective in improving knowledge & practice in mothers of under five children regarding immunization.

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