

Effectiveness of Educational Intervention on Knowledge Toward Obligatory Vaccination among Mothers of Under Five Children

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ABSTRACT

Introduction: Since parents' knowledge toward immunization are likely to impact uptake, vaccination is one of the most cost-effective public health interventions for preventing infectious illnesses, and VPD are among the leading causes of illness and death among children worldwide.

Material and methods: An experimental one-group pretest-posttest design was adopted to assess the effectiveness of the educational intervention on knowledge toward obligatory vaccination among mothers of under five children. The study was carried out at a tertiary hospital, Amritsar. A total of 60 samples were involved using convenience sampling technique. Data were collected through demographic proforma and pre-designed knowledge questionnaire on vaccinations. Pretest was conducted than educational intervention was implemented, after two weeks posttest was conducted using by same questionnaire. The data were analyzed using IBM SPSS version 26.

Results: The study revealed that pretest mean score of knowledge was 14.67 ± 2.18 . The posttest mean score of knowledge was 19.82 ± 4.43 . The mean difference was 5.15. Here dependent 't' test was applied to find statistically difference between pre and posttest knowledge score. As result show that $t_{59} = 9.61$, $p = 0.001$ which indicate highly significant.

Conclusion: This study has demonstrated the educational intervention is much effective to improve the knowledge of mothers regarding vaccination of under five year children. The mean knowledge score increased significantly after the intervention.

Keywords: Educational intervention, knowledge, vaccination, mothers.

INTRODUCTION

Protection from diseases is one of the uttermost benefits that any country can offer to its people. Mothers have a significant impact on their children's health by vaccinating them. One of the most cost-effective ways to improve public health is via immunization programmers. ^[1]

The Expanded Programme on Immunization (EPI) was launched by the Globe Health Organization (WHO) in 1974 with the goal of vaccinating children all across the world. Outreach services are only one example of how the programme uses tried and tested

ways to ensure immunization distribution even in the most underserved and out-of-the-way areas. More than 100 million newborns worldwide have been vaccinated as a direct consequence of this program's widespread implementation, saving an estimated 2.3 million deaths annually. ^[2,3]

Vaccines are an essential part of any healthcare system since they increase protection against particular viruses and bacteria while also being the most cost-effective technique for decreasing morbidity and mortality. ^[4,5,6] Vaccinating a child with the appropriate vaccinations would

dramatically reduce illness treatment costs and disease rates, hence improving the child's quality of life [7]

The level of knowledge mothers has about childhood vaccinations may affect their immunization practices. Lack of knowledge or information on vaccination, low levels of awareness or unfavorable attitudes about vaccination, and misconceptions or myths regarding the safety of vaccination are major challenges to achieving high vaccination coverage among children. [8,9]

Objectives

1. To evaluate the pretest level of knowledge toward obligatory vaccination among mothers.
2. To evaluate the posttest level of knowledge toward obligatory vaccination among mothers.
3. To effectiveness of educational intervention on knowledge toward obligatory vaccination among mothers.
4. To determine the association between pre- test knowledge scores toward obligatory vaccination among mothers.

MATERIAL AND METHODS

An experimental one-group pretest-posttest design was adopted to assess the effectiveness of the educational intervention on knowledge toward obligatory vaccination among mothers of under five children. The study was carried out at a tertiary hospital, Amritsar. A total of 60 mothers were involved through convenience sampling with inclusion criteria who attended paediatric OPD. The data were collected from mothers using by demographic proforma and a pre-designed knowledge questionnaire on vaccinations. Pretest was conducted than educational intervention was implemented, after two weeks posttest was conducted using by same questionnaire. The data were analyzed using IBM SPSS version 26. The criterion measure used in the study was the extent of the percentage of the level of knowledge. The maximum obtainable

percentage was 100 and divided into three categories, i.e. excellent: >75, Good:50-75 and average:<50. After gaining approval, permission was taken from the head of the pediatric medicine department to conduct the research study. Confidentiality and anonymity were maintained during and after data collection.

RESULTS

Out of 60 mothers; 40% were lies between 25-30 years followed by 35% were below 25 years and 25% were lies between 31-35 years. As per their marital status; majority 86.7% were married and 13.3% were divorce/separated. According to their religion; maximum of 45% were Sikh. 40% were Hindu and 15% were Christen. As per their Family pattern; 65% belonged to the nuclear family and 35% belonged to the joint family. As per their habitat; 60% belonged to rural followed by 35% belonged to urban and only 5% belonged to semi-urban. According to their educational status; 30% were up to Graduation and above followed by 25% up to senior secondary, similarly 25% up to matric, 15% had informal education and only 5% up to the middle. As per their occupation; half of them 50% were homemakers followed by 25% in Govt. job, 20% in Pvt. job and 5% in others job. As per their monthly family income; 30% had between 20001-30000 Rs/month similarly 30% had between 10000-20000 Rs. /Month followed by 15% had between 30001-40000 Rs. /Month similarly 15% had above 40000 Rs. /Month, and only 10% had below 10000 Rs. /Month.

Table 1: Pretest Level of Knowledge toward Obligatory Vaccination among Mothers. N=60

S. No.	Level of Knowledge	f	%	Mean ± SD
1	Average	34	56.7	14.67±2.18
2	Good	26	43.3	

Table 2: Posttest Level of Knowledge toward Obligatory Vaccination among Mothers. N=60

S. No.	Level of Knowledge	f	%	Mean ± SD
1	Average	6	10.0	19.82±4.43
2	Good	36	60.0	
3	Excellent	18	30.0	

Table 3: Effectiveness of Educational Intervention on Knowledge toward Obligatory Vaccination among Mothers of Under Five Children. N=60

S. No.	Knowledge score	Mean	SD	MD	t value	df	p value
	Pretest	14.67	2.18	5.15	9.615	59	0.001*
	Posttest	19.82	4.43				

NB: SD= Standard deviation, MD=Mean difference, df= degree of freedom, *=significant at 0.01 level

Table 4: Association between pre- test knowledge scores toward Obligatory Vaccination among Mothers. N=60

S. No.	Variables	N	Mean	SD	F/t value	df	p value
1.	Age (years)						
	<25	21	14.62	2.636	.009	2	.991 ^{NS}
	25-30	24	14.71	2.053			
	31-35	15	14.67	1.799			
2.	Marital status						
	Married	52	14.75	2.213	.751	58	.456 ^{NS}
	Divorce	8	14.13	2.031			
3.	Religion						
	Hindu	24	15.29	2.255	1.855	2	.166 ^{NS}
	Sikh	27	14.37	2.078			
	Christen	9	13.89	2.088			
4.	Type of Family						
	Nuclear	39	14.87	2.130	.991	58	.326 ^{NS}
	Joint	21	14.29	2.283			
5.	Habitat						
	Rural	36	14.50	2.236	.456	2	.636 ^{NS}
	Urban	21	14.81	1.861			
	Semi-urban	3	15.67	4.041			
6.	Educational status						
	Informal	9	14.56	2.698	.152	4	.962 ^{NS}
	Middle	3	15.00	2.000			
	Matric	15	14.73	2.154			
	Senior secondary	15	14.33	2.498			
	Graduation and above	18	14.89	1.875			
7.	Occupation						
	Homemaker	30	14.53	2.097	.379	3	.768 ^{NS}
	Govt. Job	15	15.07	2.604			
	Pvt. Job	12	14.33	1.497			
	others	3	15.33	3.786			
8.	Family income (Rs/month)						
	<10000	6	15.00	3.098	.215	4	.929 ^{NS}
	10000-20000	18	14.61	2.304			
	20001-30000	18	14.94	1.589			
	30001-40000	9	14.44	2.007			
	>40000	9	14.22	2.819			

NB: SD=Standard deviation, df=degree of freedom, NS=non-significant, Significant level at 0.05

DISCUSSION

The study was conducted to assess the to assess the effectiveness of the educational intervention on knowledge toward obligatory vaccination among mothers of under five children. The current study revealed that out of 60 mothers; more than half 56.7% had average knowledge and 43.3% had good knowledge. The pretest mean score of knowledge was 14.67±2.18. Similarly, Dhobale RV et al. (2022) has shown that 51.23% of subjects had good knowledge. [10] A supported study by Jain B (2020) showed that pretest most of the sample had 55% poor level of knowledge scores regarding vaccination. [11] Ravi R et al. (2020) indicated that in pretest

knowledge,13.33% of mothers of under five children have good knowledge, 80% of mothers of under five children have average knowledge and 6.67% of mothers of under five children have poor knowledge about immunization. [12] Ingale AS et al. (2019) reported that out of 30 mothers in pretest 60% had average knowledge, and 40% had poor knowledge. [13] Qundeel A. et al. (2019) showed that the pretest knowledge score was 10.74± 2.54. [14] Udaykar S et al. (2016) indicated that 17.50% had poor knowledge and 72.50% had average knowledge. [15] Mereena SR et al. (2014) also showed that more than half of the mothers 61.3% had good knowledge regarding vaccines. [16]

The present study showed that in posttest 60% had good knowledge followed by 30% had excellent knowledge and only 10% had average knowledge. The posttest mean score of knowledge was 19.82 ± 4.43 . A similar study by **Jain B (2020)** showed that posttest majority 36.67 % gained good knowledge scores and 31.67 of the sample had poor knowledge scores regarding vaccination.^[11] **Ravi R et al. (2020)** showed that in post- test, 96.9% of mothers of under five children have good knowledge, 3.33% of mothers of under-five children have average knowledge.^[12] **Ingale AS et al. (2019)** reported that in the posttest 83% had good and 17% of mothers had an average level of knowledge.^[13] **Qundeel A et al. (2019)** showed that posttest knowledge score was 23.02 ± 2.41 .^[14]

This study indicated that effectiveness of educational intervention on knowledge toward obligatory vaccination among mothers of under five children. The pretest mean score of knowledge was 14.67 ± 2.18 . The posttest mean score of knowledge was 19.82 ± 4.43 . The mean difference was 5.15. Here dependent 't' test was applied to find statistically difference between pre and posttest knowledge score. As result show that $t_{59} = 9.61$, $p = 0.001$ which indicate highly significant. Hence, the educational intervention was effective to increase the knowledge of mothers towards obligatory Vaccination. A similar study by **Jain B (2020)** showed that mean posttest knowledge score was 14.40, which was significantly higher than mean pretest knowledge score of 11.85. Standard deviation of pre -test score and posttest scores 4.97 and 3.48, respectively. The calculated t value 5.04 at df 59, at the 0.001 level of significance which was greater than table value.^[11] **Ravi R et al. (2020)** showed that calculated 't' test value 13.84 is more than the critical value 2.00 at 0.05 level of significance. The mean difference between the pre and posttest is significant and not by chance. This reveals that the structured teaching program was effective in increasing the knowledge of the mother of

under five children regarding immunization.^[12] The supported study by **Ingale AS et al. (2019)** showed that pretest mean knowledge score and standard deviation was 17.4 ± 3.54 which increased in posttest to 29.5 ± 2.77 and paired 't' test value was 26.404 and p-value is < 0.01 .^[13] **Qundeel A et al. (2019)** showed that mean difference was 12.28. paired 't' test value was 27.75 and p-value is < 0.01 .^[14]

This study revealed that association between pre- test knowledge scores toward obligatory Vaccination among mothers. As result showed that all demographic variables like age, marital status, religion, type of family, habitat, educational status, occupation and family income found non-significant at 0.05 level. On the other hand, **Ingale AS et al. (2019)** showed that was a significant association between knowledge of mothers and age.^[13] This finding was also reported by **Udaykar S et al. (2016)** indicated that there is no significant association of age, education qualification, occupation, religion, number of children with pretest knowledge regarding immunization among mothers of under five children.^[15]

CONCLUSION

The current study investigated the effects of an educational intervention on mothers' knowledge of mandatory vaccination requirements for children under five years old. Mothers of young children have seen a significant increase in knowledge after receiving the educational intervention. Results showed that mothers with children under five years benefited from the educational intervention. Healthcare providers have an obligation to provide health education to their patients, particularly mothers bringing their children to the paediatric outpatient department (OPD), so that they may better care for their children and contribute to the future health of the community.

Declaration by Authors

Ethical Approval: Approved

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