

## Knowledge, attitude and practices of mothers regarding immunization

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### Abstract

**Introduction:** Immunization strengthens the defense mechanism of the body and offers protection against potential diseases. The rate of immunization is one of the best measures of public health management and quality. To increase the rate of immunization, parental decisions about vaccinations are very necessary. Parents' knowledge and attitude towards immunization influence the prevalence of infectious diseases. Moreover, vaccination is considered one of the most cost-effective public health tools to prevent infectious diseases.

**Objective:** The objective of this study is to assess the frequency of adequate knowledge, positive attitude and good practices of mothers regarding immunization.

**Materials and Methods:** It was a cross-sectional study which was conducted in The Children's Hospital & Child Health Institute, Lahore. A total of 125 children who met the selection criteria were enrolled. Parents were then questioned and validated by vaccination card status regarding various Expanded Immunization Policy (EPI) vaccinations and complete previous records. The awareness and attitude of mothers regarding vaccination was also considered that either they were aware of the vaccination status or not. All the data was collected and reported in the form of a questionnaire.

**Results:** In this study 93 mothers had a good understanding, 77 mothers had a good practice, and 66 mothers had a positive attitude towards immunization. Child's gender, mothers' educational status, socio-economic status, good practice, and positive attitude had no significant impact on adequate knowledge about vaccination.

**Conclusion:** It was concluded from this study that mothers' knowledge about immunization was adequate, however good practice and positive attitude were not up to the mark.

**Keywords:** Mothers; Immunization; Knowledge; Attitude; Good Practices.

## 1. Introduction

Infectious diseases were among the most common causes of mortality in children worldwide until the advent of routine vaccination. (1) Vaccination is the procedure by which an individual develops immunity to different infectious/communicable diseases. (2) Vaccination is administered in the form of oral doses or injection of killed formulations or live-attenuated organisms which develop diseases. Following this, a vaccine produces or creates antibodies for the prevention and production of active immunity. Immunization is the procedure that strengthens the defense mechanism of the body and offers protection against subsequent diseases. Among the medical strategies for the prevention of infectious diseases, one of the most cost-effective and successful approaches is immunization. Vaccines have played a key role in preventing several lethal diseases including measles, mumps, meningitis, diphtheria, hepatitis B, polio, pertussis, rubella, pneumonia, rotavirus and tetanus. (1)

The Expanded Immunization Policy (EPI) is a program of the World Health Organization (WHO) intending to make vaccines accessible to all children in the world. A standardized vaccination scheduled for the initial EPI vaccines was developed by the WHO in 1984 such as Bacillus Calmette-Guerin (BCG), diphtheria-tetanus-pertussis, oral polio and measles vaccines. Increased awareness of immunological causes of disease has contributed to the introduction and establishment of new vaccines in the EPI list of recommended vaccines such as hepatitis B, pentavalent Haemophilus influenzae type B vaccine and pneumococcal vaccine in countries with a high disease burden. (3)

Based on immunization campaigns, immunization can be supplemental or routine. Routine immunization refers to the routine administration of vaccine dosages to children at defined ages, scheduled nationwide. Children are usually brought by their parents or guardians to hospitals and clinics to obtain age-appropriate doses of vaccines. To minimize vaccine wastage in most developed nations, immunization

is carried out on specific days of the week as the vaccines are administered in multi-dose vials to keep them cost-effective. The primary goal of routine immunization is to provide both children and women with a maximum scheduled number of doses of powerful vaccines in a timely, safe, effective, and reliable manner inducing immunity to the intended vaccine. (4)

The rate of immunization is one of the best assessments of public health performance and service indicators in the past 100 years. To increase the rate of immunization, parental decisions about immunization are very important. (5) The prevalence of infectious diseases can be minimized by good parental belief in immunization. Parental practice about vaccination is linked to acceptable sources of information, the number of sources, and the way vaccine information is obtained by parents. Advantages and disadvantages of vaccination against vaccine-preventable diseases are the sources of information given by maternity clinics, media, newspapers, the internet, and literature. (6)

The rationale of this study is to find out about the knowledge, attitude and behaviors of mothers of one-year-old admitted patients about immunization. For policy makers and health managers this would be very helpful in establishing effective steps to improve the country's immunization status.

## 2. Material and methods

### 2.1. Study design, setting and duration

Our study was a cross-sectional study. The data was collected from the Children's Hospital and the Institute of Child Health, Lahore, Pakistan. The study was conducted for six-months from 29-12-2018 to 29-06-2019 after the synopsis was accepted.

### 2.2. Sample size

A Sample size of 125 cases has been calculated with a 95% confidence level, 9% margin of error and the expected percentage of complete immunization coverage has been taken as 66.1% in children of the local population as per adequate knowledge. (5)

## 3. Sample selection

### 3.1. Inclusion criteria

Mothers of children of one year or less of either gender who presented in the medical OPD of the hospital for any illness.

### 3.2. Exclusion criteria

Children whose parents did not agree to be part of the study. Moreover, mothers of children who misplaced their vaccination cards, and were unable to recall the vaccination status.

### 3.3. Data collection

In this study a total of 125 children who met the selection criteria were registered from the Department of Pediatric Medicine, Children's Hospital, Lahore. The parents gave informed consent. Demographic data was collected (name, age, gender, anthropometric measurements). Parents were then questioned and validated by vaccination card status regarding various EPI vaccinations and a detailed history was taken. The awareness and attitude of mothers regarding vaccination were also included. The number of vaccine shots was confirmed by the child's vaccination card.

## 4. Data analysis

Data analysis was done in SPSS version 20. Quantitative variables such as age, weight, and height were presented as means and standard deviations. Qualitative variables such as gender and all the questions were presented as frequency and percentage. Data for gender, maternal education, and socioeconomic status were stratified. P-value <0.05 was considered as significant, and was calculated by using the post stratification chi-square test.

## 5. Results

In our study, the mean age of the children was  $6.20 \pm 3.46$  years. Out of all the children, 67(53.6%) were male and 58(46.4%) were female. Moreover, 55(44.8%) participants belonged to rural areas and 69(55.2%) belonged to urban areas. Among mothers, 33(26.4%) had no formal education, 34(27.2%) passed primary, 27(21.6%) passed secondary (up to 10<sup>th</sup> grade), and 31(24.8%) mothers passed the intermediate level of education. Our study also highlighted the socioeconomic status of 35(28%) participants who belonged to the lower class, 39(31.2%) belonged to the middle class. It also showed that 93(74.4%) mothers had adequate immunization awareness, good practice behavior was found in 77(61.6%) mothers, and positive immunization attitude was seen in 67(53.6%) mothers. (Table-1) Characteristics such as the child's gender, mother's educational status, and socioeconomic status had no major effect on adequate knowledge, good practice, and a positive attitude regarding immunization. (Table- 2-4)

## 6. Discussion

The knowledge of parents about the immunization of children and their attitudes towards it is likely to affect implementation of a vaccine schedule. (7) Previous studies have reported misconceptions regarding the knowledge of parents and their negative attitudes towards childhood immunization. The awareness of mothers regarding vaccination was found to be very low, and their educational status was

significantly related to the immunization coverage of children. (8) Negative attitudes, such as mothers having fear of vaccination have been found to have a significant impact on their children's immunization status. (9) Our study in comparison showed sufficient awareness in 74.4% of mothers. Good practice and a positive attitude were seen in 61.6% and 53.6% of mothers respectively. Nevertheless, the Gender of the child, mother's educational status and socio-economic status had no significant effect on adequate knowledge of immunization, good practice and mother's positive attitude towards immunization.

According to the findings of an Egyptian survey, less than one-third (31.2%) of the surveyed mothers had a good awareness score linked to obligatory vaccination of children and more than one-third (35.5%) of mothers had a good practice score, although more than two-thirds (70%) of the participants had a positive attitude score. (10) In comparison with the results of the Egyptian study, the results of this study showed greater awareness and practice of mothers towards immunization of children, but the documented positive attitude score of mothers towards immunization in this study was lower than that stated in the Egyptian study.

Al-Lela et al and members of his team announced that 66.1% of parents were found to have sufficient Knowledge-Practices (KP) scores. A strong correlation of completeness of immunization with total KP groups was found i.e. P-value < 0.05. (5) Studies conducted in Peshawar in 2011 showed that full EPI coverage was found in 64.2 to 67.1% concerning the EPI coverage in the pediatric population of Peshawar. Most parents did not know about the complete vaccination due to illiteracy, and the remaining were helpless due to some other personal problems such as travelling or financially weak etc. However, a recent study showed that 83.7% of children were vaccinated during all National Immunization Days (NIDs). (11)

A KSA study reported a significant correlation between the educational level of parents and childhood immunization awareness and attitudes. (12) However, no significant association was seen in this study between maternal education with knowledge, attitude and practice towards child immunization, which is not compatible with KSA study findings. Higher education level certainly, encouraged parents to grasp the educational messages. In addition, such parents had significant media awareness about immunization; this finding was closely related to the findings of other studies. (13, 14)

A study also confirmed that there was no substantial correlation of mothers' education with immunization to support the results of this research. It also stated that the child's gender did not have a significant effect on immunization, and that the place of residence was not correlated with the mothers' attitude and awareness of full immunization. (15) These findings confirmed the results of the same aspect of this research. There are many obstacles to immunization, including vaccine misconceptions, vaccine adverse effects, vaccine-preventable diseases and the advent of diseases following vaccine administration. (16, 17)

Deficiencies in the awareness of parents regarding adverse effects and potential side effects of vaccines also contribute to many failures in immunization. Many parents assume that mild diseases are associated with vaccine contraindication, so mild diseases are seen as a reason not to give up-to-date vaccines to their children. (18, 19)

## 7. Conclusion

The findings of this study showed that mothers had sufficient immunization awareness, but good practice and positive attitude were not up to the mark. Good vaccination knowledge is needed to improve the awareness of parents. The health education initiative should be proposed with particular focus on the less educated and rural residents to target mothers to boost the health status of children and to meet the goals of infants' immunization.

**Table 1:** Frequency of Different Variables on Immunization of Children

Variables	Characteristics	Frequency	Percent
Gender of child	Male	67	53.6%
	Female	58	46.4%
	Total	125	100
Area of living	Rural	55	44.8%
	Urban	69	55.2%
	Total	125	100
Educational Status of mothers	Illiterate	33	26.4%
	Primary	34	27.2%
	Matric	27	21.6%
	Intermediate & above	31	24.8%
Socio economic status of parents	Total	125	100
	Low	35	28%
	Middle	39	31.2%
	High	51	40.8%
Adequate knowledge of mothers	Total	125	100%
	Yes	93	74.4%
	No	32	25.6%
Good practice of mothers	Total	125	100
	Yes	77	61.6%
	No	48	38.4%
Positive attitude of mothers	Total	125	100
	Yes	67	53.6%
	No	58	46.4%

**Table 2:** Effect of Gender of Child, Education of Mother and Socioeconomic Status on Adequate Knowledge Regarding Immunization

Variables	Characteristics	Adequate knowledge		P-Value
		Yes	No	
Gender of child	Male	48(51.6%)	19(59.4%)	0.448
	Female	45(48.4%)	13(40.6%)	
	Illiterate	26 (28%)	7(21.9%)	
Education of mother	Primary	26 (28%)	8 (25%)	0.769
	Matric	20(21.5%)	7(21.9%)	
	Intermediate & above	21(22.6%)	10(31.3%)	

Socioeconomic status	Low	24(25.8%)	11(34.4%)	0.561
	Middle	31(33.3%)	8 (25%)	
	High	38(40.9%)	13(40.6%)	

**Table 3:** Effect of Gender of Child, Education of Mother and Socioeconomic Status on Good Practice Regarding Immunization

Variables	Characteristics	Good practice		P-Value
		Yes	No	
Gender of child	Male	46(59.7%)	21(43.8%)	0.081
	Female	31(40.3%)	27(56.3%)	
	Illiterate	19(24.7%)	14(29.2%)	
Education of mother	Primary	19(24.7%)	15(31.3%)	0.480
	Matric	20(26%)	7(14.6%)	
	Intermediate & above	19(24.7%)	12(25%)	
Socioeconomic status	Low	22(28.6%)	13(27.1%)	0.864
	Middle	25(32.5%)	14(29.2%)	
	High	30(39%)	21(43.8%)	

**Table 4:** Effect of Gender of Child, Education of Mother and Socioeconomic Status on Positive Attitude Regarding Immunization

Variables	Characteristics	Positive Attitude		P-Value
		Yes	No	
Gender of child	Male	32(47.8%)	35(60.3%)	0.159
	Female	35(52.2%)	23(39.7%)	
	Illiterate	21(31.3%)	12(20.7%)	
Education of mother	Primary	17(25.4%)	17(29.3%)	0.596
	Matric	13(19.4%)	14(24.1%)	
	Intermediate & above	16(23.9%)	15(25.9%)	
Socioeconomic status	Low	21(31.3%)	14(24.1%)	0.604
	Middle	21(31.3%)	18(31%)	
	High	25(37.3%)	26(44.8%)	

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