

ORIGINAL RESEARCH

A study on assessment of knowledge, attitude and practices of immunization among mothers of under five children at a tertiary care hospital

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Abstract

Background and Objective: Vaccination is a cost-effective intervention to prevent major illness that leads to reducing morbidity and mortality in children. Increasing parental knowledge about regular and complete vaccination will lead to increase immunization rates. The main objective of this study is to assess the knowledge, attitude and practices regarding immunization among mothers of under five years of children.

Materials and Methodology: A tertiary care hospital based cross sectional observational study was conducted over period of 2 years. Mothers of 0-60 months of children were included in study and mothers of children who were severely immunocompromised were excluded. After obtaining oral and written consent, socio demographic details were filled up and information regarding knowledge, attitude and practices was collected by using preformed structured questionnaire and child's immunization status and perceived barriers for vaccination was also noted.

Results: A total 294 mothers were included in study. In this study 68% of children were immunized age appropriately; about 30% children were partially vaccinated and nearly 2% children were completely unvaccinated. With regards to KAP score categorization in knowledge, approx. 23%, 67% and 10% mothers were having good, average, and poor knowledge respectively. Similarly, in attitude, approx. 61%, 24% and 15% were having good, average (acceptable) and poor (unacceptable) attitude respectively. However, in practice 15%, 60.5% and 24.5% mothers were having good, average and poor practice respectively. There was statistically significant association between mother's education and socioeconomic status and practices.

Conclusion: We found that majority of mothers know the importance of vaccination and has knowledge of benefits but not many of knowing details of completing schedule and many of have fear of side effects, this leads to large proportion of the children being partially immunized.

Keywords: immunization, mothers, knowledge, attitude

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Introduction

Prevention of disease is always better than cure. Immunization is one of the cost-effective interventions to prevent a series of major illness. It prevents 2 million deaths per year worldwide and is widely considered to be "overwhelmingly good" by the scientific community [1]. Vaccination coverage has now reached a plateau in many developing countries and even where good coverage has been

achieved, reaching the children who were yet to be vaccinated has proved difficult [2].

Roughly 3 million children die each year of vaccine preventable disease [3]. The situation of under immunization is not only in the rural areas of the country, but also is in urban areas [4]. Main reasons identified for poor coverage includes inadequacy of community participation in routine immunization and Information Education and Communication activities [5].

The level of knowledge parents have regarding child vaccination and their attitudes towards vaccination may influence their practice [6]. Major obstacles towards the high coverage of children include a lack of knowledge or information on vaccination, low levels of awareness or negative attitudes regarding vaccination, and misperceptions or rumors regarding the safety of vaccination [7,8,9].

The mother plays a major role in promoting the health of children [10]. It is important to understand the variables that influence parental decisions to vaccinate their children and plan measures to overcome these barriers. With this outlook, this study was planned to assess the knowledge, attitude and practice of mothers with children under five years of age about immunization and hence mothers can be motivated by updating their level of knowledge regarding the importance of immunization.

Aims and Objectives

- To assess knowledge regarding immunization among mothers.
- To study attitude of mothers towards immunization.
- To observe practices of immunization.

Materials and Methodology

Study design and site: The study was a cross sectional observational study conducted in Department of Paediatrics of tertiary care teaching hospital of Ahmedabad, India.

Study period: September 2020 to November 2022.

Inclusion criteria: Mothers of all children from 0-60 months of age, coming to OPD or admitted in a

tertiary care hospital.

Exclusion criteria: Severely immunocompromised children were excluded from study.

Study procedure: All the mothers of children from 0-60 months who were qualified under inclusion criteria were enrolled in study after Written informed consents a preformed structured questionnaire including socio demographic profile of mother was used to elicit information regarding child's immunization status, mother's knowledge of vaccine preventable disease and perceived barriers for vaccination was noted. Information regarding knowledge, attitude and practices was collected by these proformas. Some questions were considered as core questions and each correct answers given 2 marks and on this basis total score for knowledge attitude and practices were counted and divided into good average and poor knowledge and practices and acceptable and non-acceptable attitude.

Data analysis and statistical test: Data were entered in Microsoft excel 2016 and analysis were carried out using SPSS version 21. Appropriate statistical test was applied to analyze various domain and comparison.

Ethical consideration: Study was approved by Institutional Review Board

Results

Total 294 mothers of children under age of five years were included in study. Majority of children i.e., 50% were from age group 2-5 years. 52% were males and 48% were females.

Table1: Sociodemographic detail of mothers

Socio demographic factors	Frequency mothers (=294)	Percentage
Education		
Illiterate	29	10
Primary	53	18
Secondary	63	21
Higher secondary	78	27
Graduate	50	17
Post graduate	21	07
Occupation		
Homemaker	193	66
Laborer	39	13
Professional	60	20
Others	2	0.7
Socioeconomic status		
Lower	55	18.7
Lower middle	77	26.2
Middle	77	26.2
Upper	55	18.7
Upper middle	30	10.2
Place of residence		
Urban	247	84

Rural	47	16
No of children		
1	87	29.6
2	168	57.1
3	35	11.9
4	4	1.4

In present study Majority of mothers (66%) were homemakers. Only 21% and 27% mother were studied up to secondary and higher secondary level. About half (52%) of the mothers belonged to either

lower middle or middle socio-economic class. 84% participants were urban as compared to only 16% participants coming from rural areas.

Table2: Immunization of details of children

Immunization details	No. of children
Fully immunized	199 (67.7%)
Partially immunized	88(29.9%)
Unimmunized	7(2.4%)
Place of vaccination	
Government healthcare facility	255 (88.8%)
Private hospital/clinic	32 (11.2%)

In this study 68% of children were immunized age appropriately and among vaccinated children, about

89% mothers reported that they got their child vaccinated at the government health facility.

Table3: Source of information

Source of information	Frequency	Percentage %
UHC/PHC	93	31.6
Doctor	96	32.6
Mass media (radio/tv/newspaper)	70	23.8
Friends and relatives	28	9.5
Community leaders/NGO/ health volunteers	24	8.2

Table4: Evaluation of knowledge of mothers

Questions	Frequency	Percentage
Why should vaccination to be given		
Prevent illness	166	56.5
Boost up immunity	128	43.5
Used as treatment	7	2.4
Does healthy child requires vaccination		
Yes	265	90.1
No	29	9.9
When should first vaccination to be given		
From birth	266	90.5
1 month	14	4.8
6 month	3	1.0
1 year	11	3.7
Do you know about optional vaccines?		
Yes	139	47.3
No	155	52.7
Do you know about side effects?		
Yes	235	79.9
No	59	21.1

In our study we found that approx. only 23% mothers had good knowledge, 67% mothers had average and 10% mothers were having poor knowledge regarding immunization. 56.5% mothers believed that vaccination helps prevent illness. Almost 90%

mothers believed that a healthy child needs vaccination. About 90% mothers knew that vaccine administration begins with birth itself. 23% and 52% mothers were aware about correct age and frequency at which OPV and Measles vaccines are given. 47%

mothers were aware about optional vaccines. 80% vaccination.
mothers were aware about side effects following

Table5: Evaluation of attitude of mothers

Attitude questions	Frequency	Percentage
Vaccination should be done or not		
Agree	242	82.3
Disagree	52	17.7
We should follow national immunization program		
Agree	246	83.7
Disagree	48	16.3
What do you feel while your child is being vaccinated?		
Fear	108	36.7
Safety	186	63.3
Do you recommend vaccination of children to other people?		
Strongly recommend	140	47.6
Only if they ask	108	36.7
Discourage taking vaccine	46	15.6

Table6: Evaluation of practices

Questions	Frequency	Percentage
Was national immunization program followed?		
Yes	199	67.7
No	95	32.3
Optional vaccines given?		
Yes	47	16
No	247	84
Any dose missed?		
Yes	133	45.2
No	161	54.8
Any problem after immunization		
Yes	118	40.1
No	176	59.2
Did you inform doctor about problem?		
Yes	103	87.3
No	15	12.7

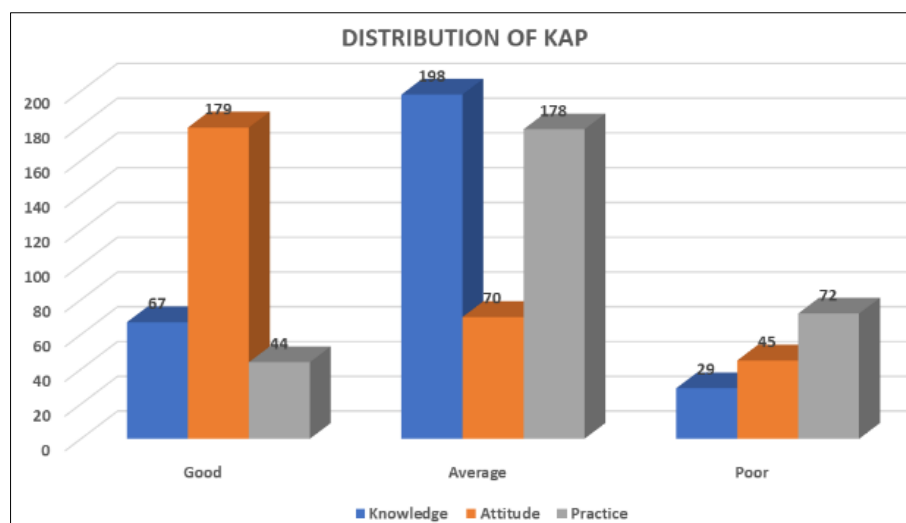
In evaluation of attitude, approx. 61%, 24% and 15% were having good, average (acceptable) and poor (unacceptable) attitude respectively. However, in practice 15%, 60.5% and 24.5% mothers were having good, average, and poor practice respectively. In 68% children national immunization program was

followed. 16% mothers had given optional vaccines to their children. 45% mothers missed a dose of vaccination. 40% mothers reported that their child suffered a problem following an immunization and out of which fever was the most common.

Table7: Correlation of mother's education and socioeconomic status with immunization practice

Mother's education	Practice		Total	p-value
	Yes	No		
Illiterate	7	22	29	<0.001
Up to primary	26	27	53	
Up to secondary	48	15	63	
Up to higher secondary	51	27	78	
Graduate	46	4	50	
Post graduate	21	-	21	
Mother's SE status				
Lower	26	29	55	<0.001
Lower middle	40	37	77	
Middle	52	25	77	
Upper	53	2	55	
Upper middle	28	2	30	

Cross-tabulation of immunization practice (Practice Q-1) with Mothers' and socioeconomic status found statistically significant association ($p < 0.001$).



Graph 1: Knowledge, Attitude and Practice score categorization:

In our study, a moderate positive correlation ($r = 0.471$) was observed between knowledge and attitude ($p < 0.001$) and a moderate positive correlation ($r = 0.365$) was established between knowledge and practice ($p < 0.001$).

Discussion

Vaccines are an essential part of a health system. Immunization is a proven tool for controlling and even eradicating disease [11]. There is no doubt that substantial progress has been achieved in India regards to vaccination; despite all efforts done by government as well as NGOs for 100% immunization coverage, there are many areas, which are high risk and unimmunized.

The immunization coverage status in present study is 67.7% children were completely immunized, 29.9% were partially immunized and 2.4% were unimmunized. In study done in Bhopal, Tiwari *et al.*; they found 51.1% children were fully immunized, 22.33% were partially immunized and 26.33% were unimmunized [12]. In study of Nath *et al.* [11] 44.1% of children were fully immunized 32% and 23.9% were partially and unimmunized respectively. The vaccination coverage at present with EPI vaccines is far from complete despite the long-standing commitment to universal coverage [13].

National family health survey-5 reports full immunization drive among children aged 12-23 months has recorded substantial improvement across States/UTs/districts. In almost three-fourths of districts, 70% or more children aged 12-23 months are fully immunized against childhood diseases [14]. This can be attributed to initiative of Mission Indradhanush program [14].

About source of knowledge, we found that 65% of mothers get knowledge about immunization from doctors and UHC/PHC i.e., health care sector. Though

there is increase in use of mass media platform like radio, TV, newspapers and mobile, only 24% mothers got information through it. Health care facility is still a primary source of information to community about immunization. Similar results shown in Tiwari *et al.* study [13] where major source of information was health care worker (45.65%).

In present study 56.5% mothers knew the correct indication of vaccination. Sankar *et al.* study reported 91% mothers believed that vaccination would prevent illness [15]. About 90% mothers knew that vaccine administration begins with birth itself. This is comparable to findings from Sankar *et al.* and Paudyal *et al.* studies, where 94% and 86% mothers, respectively, were familiar about administration of first vaccine at birth [15,16].

In present study 23% and 52% mothers were aware about correct age and frequency at which OPV and Measles vaccines are given. In Tiwari *et al.* study 82% and 75% mothers knew about measles and polio vaccine [12]. Knowledge and awareness regarding complete immunization schedule was emphasized in many studies [17,18]. Sing *et al.* reported in their study that mothers had fair knowledge regarding the need for immunization but had poor knowledge regarding vaccine preventable disease [19].

In Wedad *et al.* study (Saudi Arabia) found, 72% mothers had good knowledge and 98.8% believed that vaccination is essential [20]. Sohail *et al.* study, they enrolled 200 mothers and found that 26.5% did not know about routine vaccination and schedule. Only 37% knew that names of VPDs [21].

In present study 82% mothers agreed that the vaccination of their child should be done. Among those who disagreed, to avoid side effects (65%) and no trust in vaccine (54%) were the most cited reasons to decline vaccination. Family objection (19%) and ethical / religious disbelief in vaccination (17%) were

the other reasons. About 34% (18) participants cited more than one reason to decline vaccination. In Kumar *et al.* study, side-effects and lack of faith in immunization were among the most common reasons for partial or non-immunization [22]. In Verulava *et al.* study showed 65% did not know reason for vaccination but they knew right age for vaccination. 59% thought that vaccination is not harmful thus attitude was good [23]. In our study, 63% mothers felt sense of safety while getting their child vaccinated. However, 37% mothers expressed fear while their child is being vaccinated. In Sankar *et al.* and Mereena *et al.* studies, perceived fear about vaccination was reported to be 23% and 16%, respectively [15,24]. In our study 85% mothers recommend vaccination of children to other people where as In Sankar *et al.* study, 63% said that they would recommend vaccination to other child [15]. In present study in 68% children, national immunization program was followed. 45% mothers missed a dose of vaccination. Among them mothers cited 'child's sickness' and 'forget to vaccinate' as main reasons. Travel problem and family problem were also reported by around 10-11% mothers. Most of the mothers were knowing that if they miss a dose than they should contact doctor or at PHC/CHC. In a Sankar *et al.* study, almost 90% mother said that they will contact their doctor [15].

Birhanu *et al.* [9] found that 55.0% (626) of the participating mothers had a good level of knowledge, while 53.8% had a positive attitude, and 84% a good practice regarding child vaccinations. Sunny *et al.* reported 50.4% mothers had excellent knowledge, 64.3% had positive attitude and 90.2% had good practices [25].

We found statistical significance between immunization practice and mother's education and socioeconomic status. NFHS 5 data also suggested that vaccination coverage increases with mother's schooling; 80% of children age 12-23 months whose mothers have 12 or more years of schooling have received all basic vaccinations compared with 68% of children whose mothers have no schooling [14]. A Adenike *et al.* study also found the mothers' education to be significantly associated with child's immunization status [26].

It is evident that though majority of population know the importance of vaccination and has knowledge of benefits but not many of knowing details of completing schedule and many of have fear of side effects, this leads to large proportion of the children being partially immunized.

Conclusion

The mother's knowledge about vaccines preventable disease and vaccine schedule was poor and average so good practices rate was also low. It is evident from the present study that lack of appropriate knowledge and information is the main hurdle for the success of primary immunization. National immunization

program is a very old program but we are still struggling to ensure adequate coverage of it. An unfortunate fact was that though a majority of mothers recognized the importance of immunization, a superficial knowledge of schedule has led to a large proportion of partially vaccinated child. Therefore, gaps regarding the knowledge about correct schedule of administration should be filled.

Recommendation

As mother is the core structure for immunization, we need to increase knowledge in mothers about same. There is a need for launching a comprehensive integrated strategy involving health care providers, parents, NGOs and religious leaders with aim of educating and sensitizing the masses on importance of immunization and the need to have children age appropriately immunized. Parental, and especially maternal knowledge, attitude and practices regarding immunization need to be improved to achieve optimal immunization coverage. The study results reinforce recommendations for use of IEC resources and leveraging mass media platforms to improve the immunization related knowledge, attitude and practice.

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