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# Socio demographic characteristics of infants who had received primary immunization

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**Abstract**
The goal of immunization is to protect the individual and the public from vaccine preventable diseases (VPDs). Vaccines are usually safe and effective. However, like any other pharmaceutical products, adverse events may occur occasionally following vaccination. The adverse events following immunization (AEFI) surveillance in India was started with the launch of Universal Immunization Program (UIP) in 1985 and intends to ensure the quality and safety of vaccines. A descriptive study was conducted at maternal and child health hospital involving infants and their mothers who delivered at the centre. The sample size was arrived by using the formula $n=4pq/d^2$ where prevalence "p" was taken as 55% (Measles vaccination at MCH hospital which is the least among all the vaccinations). With precision of 5%, using the above mentioned statistical formula which considers 95% confidence limits; the sample size was estimated to be 110. Most of the study subjects 60 (54.5 %) belonged to the nuclear family followed by 25 (22.7%) to three-generation family and 25 (22.8%) to joint family. Majority of subjects 47 (42.7%) belonged to lower middle class followed by 30 (27.3%) upper middle class, 22 (20%) upper lower class and 11 (10%) were upper class according to Modified Kuppuswamy socio-economic status classification 2016.

**Keywords:** Socio demographic characteristics, infants, primary immunization

## Introduction
Immunization is one of the most cost effective public health interventions and largely responsible for reduction of under-5 mortality rate. However, vaccine preventable diseases (VPDs) are still responsible for over 5 lakh deaths annually in India. Today, India is a leading producer and exporter of vaccines, still the country is home to one-third of the world's unimmunized children [2].

There are wide variations in the proportion of unvaccinated and partially vaccinated children within states and districts in India. Recent evaluations have indicated that the major reasons for inability to reach with all vaccines to children in the entire country are lack of awareness among parents about the benefits of vaccination, fear of adverse events following immunization (AEFI) and operational reasons such as non-availability of vaccines or vaccinators during vaccination sessions. It is critical to identify the unvaccinated or partially vaccinated children and address programmatic issues with focused micro planning, provision of additional financial resources and systematic immunization drives to reach these children with all available lifesaving vaccines [3].

The goal of immunization is to protect the individual and the public from vaccine preventable diseases (VPDs) [4]. Vaccines are usually safe and effective. However, like any other pharmaceutical products, adverse events may occur occasionally following vaccination. The adverse events following immunization (AEFI) surveillance in India was started with the launch of Universal Immunization Program (UIP) in 1985 and intends to ensure the quality and safety of vaccines [5, 6]. However, the AEFI reporting remained suboptimal in the country. Therefore, national guidelines was further revised and updated in 2010 & 2015 [1]. An adverse event following immunization (AEFI) is defined as "any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine". The adverse event may be any unfavourable or unintended sign, abnormal laboratory finding, symptom or disease (2015). "Immunization" as used in the definition means the usage of a vaccine for the purpose of immunizing individuals. "Usage" includes all processes that occur after a vaccine product

has left the manufacturing/ packaging site, i.e. handling, prescribing and administration of the vaccine [4].

## Methodology

### Study design

It was a descriptive study.

### Sample size

$p$ = 55% (measles vaccination at MCH hospital which is the least among all the vaccinations); q = 1-p (1-55%) = 45%; d = 10%; α = 5%

$$n = Z^2_{\alpha/2}pq/d^2$$

$$n=1.96^2 \times 0.55 \times 0.45 / (0.1)^2 = 95$$

10% additional size: 95+10=105® 110
110 infants and their mothers.

### Study subjects

Infants and their mothers

### Inclusion criteria

- Infants receiving primary immunization as per National immunization schedule.
- Parents willing to give consent to participate in the study.
- Residents of Banashankari area for minimum of 6 months.
- Infants receiving newer vaccines introduced by the Government.

### Exclusion criteria

- Infants contraindicated for immunization after birth.
- Infants not available for 1 year follow up.
- Infants receiving vaccines in private sector.

### Sampling method

Purposive sampling

## Results

A total of 110 infants were enrolled in the study and were followed for 1 year.

**Table 1:** Distribution of infants according to gender

| Gender | Number |
|---|---|
| Male | 55 (50.0) |
| Female | 55 (50.0) |
| Total | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Among 110 infants, 55 (50%) were males and 55 (50%) were females (Table 1).

**Table 2:** Distribution of infants according to birth order

| Birth order | Number |
|---|---|
| 1 | 46 (42.0) |
| 2 | 49 (44.0) |
| 3 | 13 (12.0) |
| 4 | 02 (02.0) |
| Total | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Majority 49 (44%) of the infants were of the birth order two, followed by 46 (42%) birth order one, 13 (12%) birth order three and 2 (2%) birth order four (Table 2).

**Table 3:** Distribution of infants according to religion

| Religion | Number |
|---|---|
| Hindu | 89 (81.0) |
| Muslim | 19 (17.0) |
| Christian | 02 (02.0) |
| Total | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Majority 89 (81%) of subjects were Hindus, followed by 19 (17%) Muslims and 2 (2%) Christian by religion (Table 3).

**Table 4:** Distribution of infants according to birth weight

| Birth weight | Number |
|---|---|
| <2.5 Kg | 38 (34.5) |
| ≥2.5 Kg | 72 (65.5) |
| Total | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Majority 72 (65.5%) of infants had normal birth weight and 38 (34.5%) had low birth weight (Table 4).

**Table 5:** Distribution of parents according to their age

| Age (in years) | Mother | Father |
|---|---|---|
| 18-25 | 75 (68.2) | 15 (13.6) |
| 26-30 | 26 (23.6) | 51 (46.4) |
| 31-40 | 09 (8.2) | 44 (40.0) |
| Total | 110 (100.0) | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Among the parents of study subjects, majority of the mothers 75 (68.2%) were in the age group 18-25 years, followed by 26 (23.6%) in 26-30 years and 09 (8.2%) in 31-40 years. Among the fathers, majority of them 51(46.4%) were in 26-30 years age group, followed by 44 (40%) in 31-40 years and 15 (13.6%) in 18-25 years (Table 4). Mean age of mothers was 24.18±3.85 years, while that of fathers was 30.19±4.32 years (Table 5).

**Table 6:** Distribution of parents according to their education

| Education status | Mother | Father |
|---|---|---|
| Illiterate | 06 (5.4) | 07 (6.4) |
| Primary School | 06 (5.4) | 08 (7.3) |
| Middle School | 19 (17.2) | 17 (15.4) |
| High School | 44 (40.0) | 44 (40.0) |
| PUC | 23 (21.0) | 26 (23.5) |
| Graduate | 11 (10.0) | 07 (6.4) |
| Postgraduate | 01(1.0) | 01 (1.0) |
| Total | 110 (100.0) | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Among the mothers, majority 44 (40%) were educated till high school, followed by 23 (21%) pre university, 19 (17.2%) middle school, 11(10%) graduate, 06 (5.4%) each were primary school and illiterates and 01 (1%) was a postgraduate. Similarly, majority 44 (40%) of the fathers of study subjects were educated till high school, followed by 26 (23.5) pre university, 17 (15.4%) middle school, 08 (7.3%) primary school, 7 (6.4%) each were illiterates and graduates and 1 (1%) was a post graduate (Table 6).

**Table 7:** Distribution of parents according to their occupation

| Occupation | Mother | Father |
|---|---|---|
| Unemployed* | 86 (78.2) | 02 (2.0) |
| Unskilled | 06 (5.4) | 18 (16.3) |
| Semi-skilled | 03 (2.7) | 25 (22.7) |
| Skilled | 12 (11.0) | 41 (37.2) |
| Clerical/shopkeeper | 03 (2.7) | 20 (18.1) |
| Semi professional | -- | 03 (2.7) |
| Professional | -- | 01 (1.0) |
| Total | 110 (100.0) | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage, *Majority of mothers were housewives.

Majority of mothers of the subjects 86 (78.2%) were homemakers, followed by 12 (11%) skilled worker, 6 (5.4%) unskilled workers, 03 (2.7%) each were semi-skilled and clerical/shopkeepers. Similarly, the occupation of fathers of study subjects, majority 41(37.2%) were skilled workers, followed by 25 (22.7%) were semi-skilled workers, 20 (18.1%) were clerical / shopkeeper, 18 (16.3%) were unskilled, 3 (2.7%) semi-professional, 2 (2%) were unemployed and 1 (1%) was a professional (Table 7).
Most of the study subjects 60 (54.5 %) belonged to the nuclear family followed by 25 (22.7%) to three-generation family and 25 (22.8%) to joint family.

**Table 8:** Distribution of families according to modified Kuppuswamy SES classification (2016)

| Socio economic status | Number |
|---|---|
| Upper | 11 (10.0) |
| Upper middle | 30 (27.3) |
| Lower middle | 47 (42.7) |
| Upper lower | 22 (20.0) |
| Total | 110 (100.0) |

***Note:*** Figures in parenthesis indicate percentage

Majority of subjects 47 (42.7%) belonged to lower middle class followed by 30 (27.3%) upper middle class, 22 (20%) upper lower class and 11(10%) were upper class according to Modified Kuppuswamy socio-economic status classification 2016 (Table 8).

## Discussion

In the present study conducted 50% of them were males and 50% were females. The findings were similar to study done by Nisarg D Joshi *et al*. where a total of 4320 children were involved amongst them 2234 were male (51.7%) and 2086 (48.3%) were female [7].
In the present study, 68.2% mothers were in the age group 18- 25 years and 81% were Hindu by religion. 40% were educated up to high school. 54.5% of them; lived in the nuclear family. Majority of mothers (78%) were house wife by occupation. They belonged to lower middle class according to Modified Kuppuswamy socio economic classification (2016). However, in a study by conducted by Ahmad Nadeem *et al*., showed that majority of the mothers (45%) were less than or equal to 25 years of age and Muslims (53%) by religion. Nearly 48% of mothers were having education more than or equal to 12$^{th}$ Standard and were 53% of mothers belonged to nuclear families. Nearly 63% of the mothers were housewives. According to modified BG Prasad classification for socio-economic status, nearly 55% were of High class I [8]. Another study at Kashmir was conducted among the mothers; 80% were illiterate or had only primary education and 93% were house wives [9].

## Conclusion

- The present study included 110 infants of which 55 (50%) were males and 55 (50%) were females.
- Majority of 75 (68.2%) mothers of the subjects were in the age group 18-25 years 86 (78.2%) were homemakers and 47 (42.7%) belonged to lower middle class according to Modified Kuppuswamy SES.

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