

## STATUS OF IMMUNIZATION OF CHILDREN AND FACTORS RELATED TO PARTIAL AND NON-IMMUNIZATION

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### Abstract

*Objectives:* The objectives of the study were to determine: 1) the immunization status of children admitted to pediatric ward of POF Hospital, Wah Cantt. 2) the probable reasons for partial and non-immunization. 3) The sociodemographic factors associated with the immunization status.

*Methodology:* A cross – sectional study of 6 months duration was done in the Pediatric and Gynecology wards of POF Hospital Wah Cantt. The mothers were selected by using convenient sampling technique. A pretested structured questionnaire was used for collection of information. For analysis frequencies and percentages were calculated using SPSS version 19 and Chi square test was applied to find out the association between different sociodemographic factors and immunization status but because of lack of assumption of the test, Fisher's Exact Test was used to analyze the association.

*Results:* The children who were completely immunized were 87.5% (175), 9.5% (19) were partially immunized while 3% (6) were not immunized. Regarding gender, 94.8% male children while 80.3% female children were completely immunized. The parents who did not vaccinate their children because of fear of side effects were 33%, who thought that only oral polio vaccine was required were 44.5% and 17% considered it bothersome. Health facility was inaccessible for 19% individuals and 23% experienced non availability of vaccines. Fisher's Exact test showed a significant association between educational status of father, mother, as well as place of delivery and immunization status and Chi square test showed significant association between gender of children and immunization status.

*Conclusion:* The immunization status of the children was fairly satisfactory and the rates of immunization are strongly influenced by educational status of parents. Vaccination rate was high in male children and linked with the place of delivery. The reasons of non and partial immunization were inaccessibility, non availability of vaccine, fear of side effects, inadequate awareness and inconvenience for the parents.

*Keywords:* Immunization, vaccination, Immunization program, educational status, health, mother.

### INTRODUCTION

Immunization is a process which raises resistance to combat serious illnesses. It is one of the components of health prevention and a very cost effective method to decrease morbidity and mortality leading to poverty alleviation and socio-economic progress of any country. Morbidity and mortality in children can be much reduced only by implementation and stringent monitoring to enhance utilization rate of the immunization program. The World Health Organization (WHO) launched the Expanded Programme on Immunization (EPI) in 1974 with a focus on the prevention of six diseases of the childhood but now this program focuses upon nine infections. In Pakistan, it was launched in 1978.<sup>1</sup> To strengthen the national immunization programs Global Immunization Vision Strategy (GIVS) was developed by WHO and UNICEF. The objectives of this strategy was to increase the accessibility of every eligible person and also introduction of new vac-

nes.<sup>2</sup> In Pakistan the child death rate is 87/1000 live births which is way off MDG target 2015 of 52/1000 live births. WHO gives the target of 90% immunization coverage by 2010 but Africa and South East Asia didn't achieve the target and their estimated coverage's were 74% and 69% respectively. In Pakistan the most of the regions have less coverage than desired and it is estimated that in Pakistan it ranges between 56 – 88% at various places. <sup>3</sup>According to the World Bank report only 47.3% children were fully immunized and because of this poor immunization coverage we have not been able to eradicate polio from Pakistan. In 2013, 83 cases of polio were reported. Measles is another life threatening problem of Pakistan because of its high case fatality rate that rises ceaselessly; in 2011, 64 children lost their lives and the number increased to 306 in 2012.<sup>4</sup> There are number of reasons of low immunization status in Pakistan like lack of knowledge, motivation and faith. Furthermore, lack of antenatal checkups,

fear of side effects, religious concerns are amongst other important reasons of non immunization.<sup>4-10</sup> Various indomitable factors still haunt us to achieve the desirable rate of immunization. The most important is lack of education in general and awareness regarding immunization in particular.

The purpose of this study was to determine the immunization status of children reporting to POF Hospital, Wah Cantt, and also to find out the probable reasons of partial and non-immunization and the sociodemographic factors associated with the immunization status.

**MATERIALS AND METHODS**

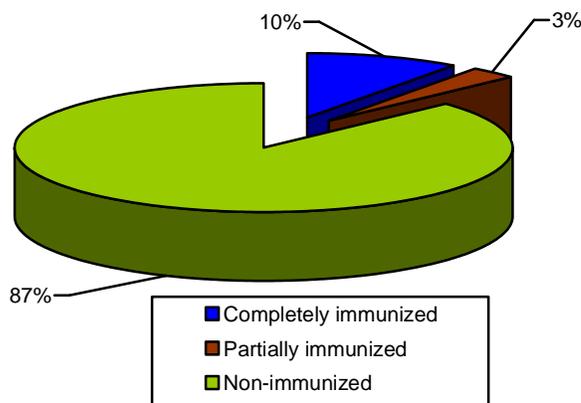
A cross sectional study was conducted on 200 mothers of 18–24 months old children admitted to the Pediatric and Gynecology wards of POF Hospital Wah Cantt. The sample size was calculated using World Health Organization formula with confidence level of 95%, Anticipated population proportion of 17.8%<sup>7</sup> and precision of 5%. The mothers were selected by convenient sampling technique and the study was completed in 6 months duration. A close ended structured questionnaire was used to collect data by single data collector. The research objectives and methods were explained to the participants and verbal consent was obtained from them ensuring confidentiality before data collection. The first section of questionnaire was concerned with demographic data i.e age, gender, education of parents, birth order, religion, place of delivery, family system i.e nuclear or joint and immunization status; second part dealt with reasons of partial and non immunization. The data was analyzed by using SPSS version 19 and Microsoft excel. Frequencies and percentages of the categorical variables were calculated. Cross tabulations were done between gender of children, place of delivery, birth order, education of

parents and immunization status. Chi square test was applied on different sociodemographic factors and immunization status to determine any significant association (p 0.05).

**RESULTS**

A total of 200 women were taken in a sample and they were asked about the immunization status of their children. Among them 97% were Muslims while the remaining 2.5% belonged to other religions. Mothers belonged to joint family system were 66%. Regarding history of delivery 88.5% (177) delivered in hospital and 11.5% (23) at home. The illiterate fathers were 7%, 18% had primary education, 43% had secondary education, 29% had bachelor's degree while only 3% had masters degree where as 15.5% of the mothers were illiterate, 21.5%, 38.5%, 14% and 10.5% had primary, secondary, bachelor and masters level of education respectively.

Regarding the immunization status of children

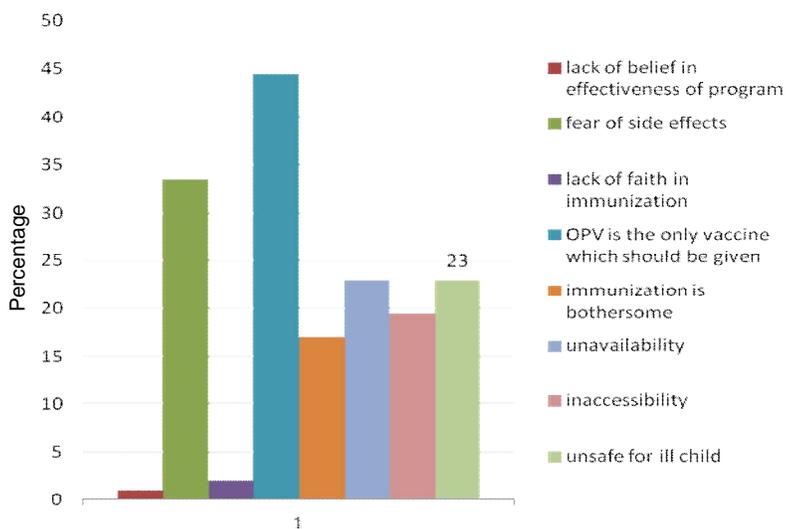


**Figure 1:** Status of immunization.

87% (175) were completely immunized, 10% (19) partially immunized and 3% (6) non-immunized (Figure 1).

The male children were 98 in number while female children were 102. Among completely immunized children 94.8% (93) were males while 80.3% (82) were females. The mothers who thought that immunization was unsafe for their children were 23%, 44.5% thought OPV is the only vaccine which is necessary for their children while 33% were reluctant to give immunization due to fear of side effects. Inaccessibility and non availability were reported by 23% and 19% mothers respectively. The parents who considered it as bothersome were 17% (Figure 2).

Chi-square test was applied on educational status of mother and fathers both and



**Figure 2:** Reasons of partial and non-immunization.

**Table 1:** Education of father and status of immunization.

Educational status	Immunization status		
	Completely immunized	Partial or non-immunized	Total
Illiterate	5	9	14
Literate	170	16	186
Total	175	25	200

(df = 1, p 0.000)

**Table 2:** Education of mother and status of immunization.

Educational status	Immunization status		
	Completely immunized	Partial or non-immunized	Total
Illiterate	15	16	31
Literate	160	9	169
Total	175	25	200

(df = 1, p 0.000)

**Table 3:** Place of delivery and status of immunization.

Place of delivery	Immunization status		
	Completely immunized	Partial or non-immunized	Total
Hospital	160	17	177
Home	15	8	23
Total	175	25	200

(df=1, p .003)

**Table 4:** Gender of children and status of immunization.

Gender	Immunization status		
	Completely immunized	Partial or non-immunized	Total
Male	93	5	98
Female	82	20	102
Total	175	25	200

(df = 1, p 0.002)

place of delivery with the immunization status but the assumption for that test was not fulfilled. Therefore Fisher's Exact test was applied which showed signifi-

cant results between educational and immunization status (df = 1, p 0.00) (Table 1 and 2) and place of delivery and immunization status, (df = 1, 0.03) (Table 3). It means most of the parents of completely immunized children were literate and their mothers were delivered in the hospitals. Chi square test was also applied to see the association between gender of children and immunization status; the results were found to be significant that is female gender was more deprived of immunization as compared to male children (df = 1, p 0.002) (Table 4). No significant association was established between the birth order and status of immunization.

## DISCUSSION

Immunization, a component of primary prevention plays a pivotal role in the prevention of a number of diseases affecting children, the most vulnerable population. Improvement in the immunization status not only enhances the health of the people but also economic stability of the country. The study was conducted at POF Hospital to determine the immunization status of children which showed that it was fairly satisfactory that was 87.5%. The status was quite higher as compared to the studies conducted by Sheikh A et al (68.3%)<sup>5</sup>, Masand R et al (33.3%)<sup>6</sup>, Kumar D et al (17.84%)<sup>7</sup>, Gedlu E et al (47.4%)<sup>9</sup> and MM Angadi et al (34.84%)<sup>11</sup>. Although the immunization status was close to the target given by WHO<sup>3</sup> but still there is room for improvement and we must strive to find out the reasons that limit immunization. The study also showed that awareness about the EPI program is adequate but few parents thought that OPV was the only vaccine which was obligatory for their children. Some parents did not give vaccine because of fear of side effects. These results were not dissimilar from the studies conducted by Masand R et al, Kumar D et al and MM Angadi et al in the countries with same socio demographic scenario.<sup>6,7,11</sup> These reasons can be minimized by increasing awareness using appropriate technologies. Some other reasons brought out by the parents were inaccessibility, non availability of health service, precariousness for sick child and lack of confidence on immunization which were similar to the results given by Rainey JJ et al, Gedlu E et al, MM Agandi et al, Mathew JL et al. Their researches concluded that far-off immunization centres, non availability of doctor, improper health system were the main reasons of non immunization.<sup>8,9,11,12</sup> It means there is a need of strengthening the services from the health facilities and also to educate people regarding their misconceptions about immunization. There must be accountability of the doctors posted at various health facilities so that the problem of non-availability can be addressed. The government should ensure regular supply of vaccination and increase outreach facilities. To enhance the utilization and lack of awareness level the community should be taken on board and cross-sectoral approach be

adopted in all the phases of planning and implementation of program.

The study also showed significant association between educational status of both the parents and immunization status of children which confirmed education as an important predictor of high immunization status. The results were analogous to the studies conducted by Sheikh S et al and Siddiqi N et al.<sup>13,14</sup> Regarding association between place of delivery and immunization status, similar results were obtained as seen in studies conducted by Kumar D et al and Shaikh S et al.<sup>7,13</sup> According to these researches the children who delivered in the hospital were immunized more perhaps because of being exposed to more opportunities for immunization. It does not mean that deliveries should be done preferably in hospital but the government should improve domiciliary care of women and children. The study also concluded a significant association between gender of children and immunization status as vaccination status was higher among male children as compared to female children. This gender bias could be eliminated by increasing women literacy, empowerment and provision of equitable services.

The research **concluded** that rate of immunization of the children was adequate and there was significant association between literacy status of parents, gender of child, place of delivery and the immunization status of children. The probable reasons of partial and non immunization were inaccessibility, non availability of vaccine, fear of side effects, inadequate awareness and inconvenience for the parents.

The policy makers should stress on the education of the people especially female education. Health awareness campaign should be carried out so that parents can appreciate the risk benefit ratio of vaccination. Furthermore, health system should be strengthened focusing more on far flung areas and good governance.

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