

# Exploring Mother's Perspectives about Routine Immunization in District Peshawar: A Cross Sectional Survey.

Running Title: Mother's perspective about routine immunization

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## ABSTRACT

**Objective:** of this study was to investigate mothers' opinions and knowledge regarding regular immunization of their children.

**Methodology:** Between July 2019 to January 2020, this descriptive cross-sectional study was conducted at pediatrics outpatient department, Khyber teaching Hospital Peshawar. Women aged between 19-44 years, having at least one child less than 5 years of age were asked to complete standardized questionnaire. After stratification of the collected data, regression analysis performed.

**Results:** Mean age of participants was  $27.72 \pm 4.07$  years, 41.98% received elementary education, while 61.32% were housewives. We observed enough knowledge in 162(88.04%) patients aged 19-29 years as compared to 55 (93.22%) aged 30-44 years ( $p=0.002$ ). Additionally, knowledge was noticeably greater in situations involving several children.

**Conclusion:** Women having secondary school or higher education and several children has sufficient knowledge of immunization.

**Key words:** KAP, Immunization, Mothers, Infectious Diseases, Vaccination

## Introduction:

Each year, vaccine-preventable illnesses (VPDs) claim the lives of many children under the age of five.<sup>1</sup> A demographic study done in Pakistan found that the death rate for children under the age of five is 63 per 1000 live births.<sup>2</sup> It shows that every 11th kid born in Pakistan dies before reaching their fifth birthday as a result of illnesses that can be prevented by vaccination. Immunization is a proven, low-cost strategy for preventing and managing infectious illnesses that can be fatal in people of all ages, including diphtheria, tetanus, pertussis, and measles.<sup>3</sup> Additionally, it is critical that there be a high degree of immunization coverage on both a local and global scale since no community exists in isolation from others.<sup>4</sup> The prevention, control, elimination, and eradication of infectious and frequently deadly illnesses are direct advantages of immunization. Reducing child mortality (which is significant both personally and socially: some scientists estimate that vaccination prevents the death of over 6 million children under the age of five each year around the world)<sup>5</sup>; and cost savings in

health funds due to reduced morbidity and disease outbreaks. Immunization not only protects those who have been immunized, but it can also protect those who have not been vaccinated - this, so-called "herd immunity" occurs when vaccination coverage is high enough. It is also possible to perform selective immunization in case of outbreaks, with an aim of eliminating the source of disease ("source drying").<sup>6</sup>

Social benefits of immunization are: extending the life span of population, reducing absenteeism from work due to illness, facilitating safe travel and human mobility, economic growth, promotion of equality, and women empowerment.<sup>7</sup> The barriers and the promoters of immunization can be grouped in various ways such as: Parents' sources of information and knowledge about immunization; Experience with immunization and vaccine-preventable diseases; behavior and responsiveness of medical workers, confidence in health system, immunization policy (monitoring immunization, access to schools, immunization calendar, and mandatory nature of the program); social norms such as the impact of family and religious leaders.<sup>8</sup> The study of Horne Z et al., suggest that intimidating people with consequences of diseases is more efficient than debunking myths about vaccination.<sup>9</sup>

Beside all, the atmosphere created by the media has an influence on the opinion about vaccination.<sup>10</sup> For example, one study conducted in Catalan-Matamoros D shows that immunization coverage was significantly smaller in the area distributing newspapers that actively supported a campaign against MMR vaccines, compared with the rest of the country.<sup>11</sup> The results of previous study show that immunization coverage is smaller, and incidence of pertussis bigger in the countries whose media had anti-vaccination campaigns, compared with other countries.<sup>12</sup>

The government of Pakistan has introduced Expanded Program of Immunization (EPI) to reduce the burden of infectious diseases. The EPI program covers for tuberculo-

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sis, diphtheria, pertussis, tetanus, polio, hepatitis B, Rota, measles and meningitis. A fully immunized child is one who has received one dose of BCG, three doses each of OPV and DPT, and one dose of measles vaccine before reaching one year of age.<sup>8</sup> An analysis of the secondary data from several national and international statistical surveys reveals that the infant and under-5 mortality in Pakistan remains high on account of neonatal sepsis (20 per cent)<sup>13</sup> respiratory infections (30 per cent),<sup>14</sup> diarrheal diseases (19.5 per cent),<sup>15</sup> vaccine preventable diseases (50 per cent)<sup>16</sup> and malaria (12 per cent).<sup>17</sup> According to the latest Pakistan Demographic and Health Survey, only 46% of children younger were fully immunized.<sup>18</sup> Owais et al<sup>19</sup> and Hasan et al<sup>20</sup> highlighted the key barriers in their studies which include lack of parents' awareness hence low population demand for immunization, limited access to immunization services and weak management, social resistance to vaccines by certain population groups, civil conflicts and natural disasters, the devolution of national health ministry, and the inability of the district and provincial governments to tackle it as a national emergency. World Health Organization (WHO, 2016) reported that 115 million infants worldwide received Diphtheria-Tetanus and Pertussis vaccine, there is about 85% of the world's children received one dose of measles vaccine and polio vaccine, however, polio remain the endemic in two countries (Afghanistan & Pakistan).<sup>21</sup> Potential causes include lack of community awareness and participation, inaccessibility of health facilities, maternal knowledge and social problems.<sup>22</sup> Mothers' knowledge plays an important role in achieving complete immunization before first birthday of the child. Mothers who have poor knowledge about childhood immunization are four times more likely to default from completion of child immunization than those of mothers with satisfactory knowledge.<sup>23</sup> A study conducted in Karachi showed that 81.5% mothers had good knowledge about immunization who had their children vaccinated.<sup>24</sup> According to a study conducted in Peshawar 34.4 % of the mothers are unaware to immunize their children effectively.<sup>25</sup> Owais et al<sup>19</sup> using randomized control trials investigate if improving maternal knowledge of vaccines impacts infant immunization rates in Karachi. Results indicate that an educational intervention led by trained health sector workers from the same community and providing targeted pictorials related to vaccination for low-literate population, improved DPT-3 and Hepatitis-B vaccine completion rates by 39 per cent .

**Objective:**

To investigate mothers' opinions and knowledge regarding regular immunization of their children.

**Methodology:**

From 27 July 2019 to 27 January 2020, a descriptive cross-sectional study was carried out in the paediatric outdoor unit of Khyber Teaching Hospital, Peshawar. The study's non-probability consecutive sampling method was used to enlist mothers (ages 19 to 44) who were willing to participate and who were visiting paediatric outdoor clinics with at least one kid under the age of five. Due to recollection bias, mothers older than 45 years were not included in the research. Sample size for proportion calculated to be 243 taking proportion of mothers having adequate 81.5% of respondents had immunization knowledge, with a 95% confidence range and a 5% error margin.

After getting ethical permission from the ethical review committee and verbal consent from the respondent, data on the socio demographic characteristics of participants

were collected using a standardized questionnaire. The page included information on the reader's age, education level, work status, number of children, family income, and vaccination knowledge source. Children's mandated vaccination knowledge levels covered their sources of information, the different types, benefits, and schedule of immunizations. The respondents' knowledge was tested using twelve questions regarding diseases that require vaccination as well as its importance, risks, and schedules. For every correct response, a "1" was awarded, whereas for every untrue response, a "0" was given. Knowledge was tested using a scale with a maximum score of 12 and a minimum value of 0. When the result was 9 or If the score was less than 9, it was regarded as insufficient knowledge. SPSS (version 21) was used to analyse the data. The quantitative variables, such as age and weight, were presented as mean and standard deviations, while all the qualitative variables, such as occupation, mother's educational background, monthly income, immunization status, and level of immunization awareness, were presented as frequency and percentage tables. Age, weight, educational attainment, family income, employment position, and the number of children were effect modifiers that were under the control of stratification. To determine their impact on the results, the post-stratification chi-square test was used. P-values of 0.05 or less were considered significant.

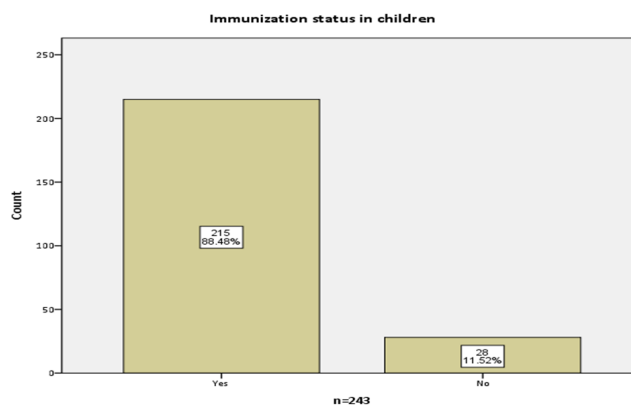
**Results:**

The mean age of 243 study subjects was 27.72±4.07 years. There were 149 (61.32%) cases that were house wives, and 102 (41.98%) cases with primary education. The level of education and number of children were significantly associated (p=0.002 and p=0.01 respectively) with the mother's knowledge about routine immunization as shown in table 01.

**Table No 1. Adequate Knowledge with respect to educational status (n= 243)**

Educational status	Adequate knowledge		P value
	Yes	No	
Illiterate	58	16	0.002
Primary	98	4	
Secondary	41	6	
Graduate	12	0	
Post graduate	8	0	
Total	21(89.30%)	26(10.70%)	

**Figure No1. Immunization Status in Children (n= 243)**



Adequate status of vaccination was observed in majority of mothers (89%) as shown in figure 1. Similarly, adequate knowledge was seen in 162 (88.04%) cases with age 19-29 years and 55 (93.22%) cases in age group 30-44 years with  $p=0.34$  as shown in table 01. The difference in terms of adequate knowledge was significantly higher in cases with educational status secondary or more with  $p=0.002$ . There was no significant difference in terms of monthly income ( $p=0.48$ ), however, it was more in working women seen in 93.61% of the cases with  $p=0.09$ . Knowledge was also significantly better in cases where mother has more than 1 child ( $p=0.01$ ).

#### Discussion:

World Health Organization (WHO, 2016) reported that 115 million infants worldwide received Diphtheria-Tetanus and Pertussis vaccine, there is about 85% of the world's children received one dose of measles vaccine and polio vaccine, however, polio remain the endemic in two countries (Afghanistan & Pakistan).<sup>26</sup> Potential causes include lack of community awareness and participation, inaccessibility of health facilities, maternal knowledge and social problems.<sup>23</sup> Mothers' knowledge plays an important role in achieving complete immunization before first birthday of the child. Mothers who have poor knowledge about childhood immunization are four times more likely to default from completion of child immunization than those of mothers with satisfactory knowledge.<sup>24</sup> In the present study adequate knowledge of vaccination was observed in 217 (89.30%) of the participants. These results were comparable to the findings of the published studies where nearly equal percentages were observed. A study conducted in Karachi showed that 81.5% mothers had good knowledge about immunization who had their children vaccinated.<sup>25</sup> According to a study conducted in Peshawar 34.4 % of the mothers are unaware to immunize their children effectively.<sup>27</sup> In another study done by Mukharjee et al they found otherwise an adequate knowledge of the vaccinations in mothers in their previous data analysis, but surprisingly regarding the newer vaccinations added to the previous programs, the awareness was seen in only 18.3% of the cases in Delhi.<sup>28</sup> In a similar study carried out in Hyderabad a similar number of caregivers (80%) were unaware regarding the newer vaccines recommended as per the government immunization schedule in the state Andhra Pradesh.<sup>29</sup> A study carried out in Delhi, specifically about typhoid vaccines for children, revealed that around 60% of the caregivers had not heard of typhoid vaccine and were not aware of it was a part of the immunization schedule in Delhi.<sup>19</sup> In a Pakistani study by Ahmad A et al revealed that majority of the sample population was well aware of polio vaccine. However, the respondents clearly lacked the basic understanding of the routine EPI vaccines for the preventing the given diseases as well as the required booster doses. Most of the mothers could not mention the names of diseases prevented through routine EPI, possibly due to lack of education and resources constraints in the slum area.<sup>30</sup>

In this study adequate knowledge was significantly higher in cases with educational status secondary or more with  $p=0.002$ . Knowledge was also significantly better in cases with children more than 1 with  $p=0.01$ . The data regarding these variables was lacking, but revealed toward a particular point that the mothers that had higher education levels, they were more aware of the outcome and complications of these diseases, and hence they were more aware of the

vaccination names, their schedules and need for vaccination. The second part that the mothers that had more than 1 child also revealed a higher degree of awareness as well because they had prior experience with previous child as well. So that added to their adequate knowledge as well considering the lower literacy rate and majority of the females being house wives as well.

The limitations of this study includes subjective assessment of the knowledge and therefore chances of bias are can be higher, the awareness regarding the newer addition of the vaccinations were not assessed.

However, the current study highlighted a very important aspect of polio re-emergence and the lower rates of vaccination success across all Pakistan.

#### Conclusion:

Adequate knowledge is seen in good number of cases and it is significantly better in cases with educational status secondary or more and children more than one.

#### Conflict of Interest:

None:

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