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ORIGINAL ARTICLE

Relation of Parents Economical, Educational and Awareness on Immunization Status of Children Visiting Tertiary Care Centre

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ABSTRACT

Aim: To determine the immunization status of children 0 to 2 years and factors leading to low vaccination status in children visiting tertiary care center.
Study design: Cross-sectional study
Place and duration of study: Department of Paediatrics Shaikh Zayed Hospital Lahore from 1st November 2019 to 31st April 2020.
Methodology: Five hundred children age between 0-2 years were enrolled after fulfilling inclusion and exclusion criteria.
Results: The mean age was 9.9±6.1 months, with mean weight of 7.4±3.4 kg and 200 (40%) were male and 300 (60%) were female patients. Sixty (12%) were not vaccinated, 145 (29%) partially vaccinated and 295 (59%) fully vaccinated. In the distribution by income level 255 (51%),180 (36%) and 65 (13%) parents were having low, middle and high income respectively; By education level,155 (31%) with no education, 140 (28%) some education and 205 (41%) with high education, regarding knowledge of immunization, 50 (10%) had no knowledge, 215 (43%)had wrong perception of immunization and 235 (47%) were fully aware.295 (59%) had up-to-date immunization
Conclusion: More than half of the study populations were upto date about immunization status. It is also concluded that majority of parents of low-income level and uneducated were unknown about immunization status and majority of middle and high-income level and educated people were partial known or up-to-date about immunization status
Keywords: Economical level, Educational level, Awareness level, Immunization status

INTRODUCTION

Immunization is a process in which inoculation of an antigen into the body results in activation of immune system, which protects the body from disease. This process is called vaccination. World Health Organization (WHO) launched Expanded Program of immunization (EPI) in 1974 to improve coverage of vaccine preventable diseases worldwide. According to the WHO report published in 2018, 13.5 million infants were not vaccinated. Third dose of the vaccine was never given to19.4 million infants.[1] In Pakistan 1-2 years of children who are vaccinated varies from 59% to 73%.[2] According to WHO, major factors for incomplete vaccination include lack of parental practical knowledge, Religious/cultural/social beliefs/norms, rumors, lost/unavailable heath card, lack of interest/level of motivation, previous experience at health services and Income/socioeconomic status[3].

A study in Sindh, revealed that prevalence of complete vaccination in Pakistan is 51.3% only.[4] Another study at Muzaffarabad, by Rehman et al[5] showed that vaccination completion rate in population was 74%. Furthermore, 59.7% 88.8% and 74.0% of children between 12-23 months of age in Punjab were given three or more pentavalent doses, three or more OPV doses and at least one measles vaccine dose respectively[2].

Multiple studies conducted to investigate factors responsible for incomplete vaccination of children. A study conducted in India showed that mother's literacy was not significantly related with vaccination completion (p=0.889). This also revealed that family's socio-economic status was not associated with vaccination completion (p=0.212).[6] A study conducted in Pakistan by Murtaza and his colleagues[7] using Pakistan Integrated Household Survey/Household Integrated Economic Survey (PIHS/HES) 2001-2002 data collected by the Pakistan Bureau of Statistics (PBS), showed that major determinants for incomplete vaccination were large family size, low literacy rate of head of family or spouse of head of family, distance from the nearest health care facility and low socio-economic status (p<0.05).

Increased coverage of vaccination is one part of Millennium Development Goals (MDG) set by WHO.[8] Rationale of this study is that vaccination status of Pakistani population is still low. The previous studies were mostly conducted in rural areas of Pakistan. The population included in our study is from those areas of Lahore which comprise of well-educated people and those having better perception/knowledge regarding vaccination. The study aims to identify obstacles which are contributing to incomplete vaccination in these areas, Furthermore, once reasons for incomplete vaccination have been found, policy makers can focus on children who are at increased risk of incomplete vaccination to improve in MDG indicators which can save children from preventable diseases.

MATERIALS AND METHODS

This cross-sectional study was conducted at Department of Paediatrics Shaikh Zayed Hospital Lahore from 1st November 2019 to 31st April 2020. Children (male, female)

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between ages of 0-24 months presenting to the vaccination Centre, ward/emergency department/outdoor of Sheikh Zayed Hospital Lahore were included. Incomplete record or unclear histories from parents, no clear vaccination record, allergic to vaccines as per history and medical record, born and brought up abroad in their early life assessed by history and not accompanied by any of their biological parents were excluded. SPSS version 21 was used for entry and analysis of data. Three groups will be compared by using square test to see significance of any variable according to complete vaccination versus incomplete vaccination to address effect modifier by keeping p<0.05 as significant.

RESULTS

The mean age was 9.9±6.1 years and mean weight was 7.4±3.4 kg and other demographic information was shown in Table 1. There is significant difference (P<0.05) between immunization status with parent's income, education and knowledge about child immunization programme (Table 2).

Table 1: Distribution of patients with age, sex, weight, income level, education, knowledge, immunization status and card availability

Variable	No.	%
Age (months)		
0-6	195	39.0
7-12	160	32.0
13-18	65	13.0
19-24	80	16.0
Gender		
Male	200	40.0
Female	300	60.0
Weight (Kg)		
2.5-5.0	185	37.0
5.1-7.5	70	14.0
7.6-10.0	150	30.0
10.1-12.5	70	14.0
12.5-15.0	25	5.0
Income level		
Low	255	51.0
Middle	180	36.0
High	65	13.0
Education level		
No education	155	31.0
Some education	140	28.0
High education	205	41.0
Knowledge		
No knowledge	50	10.0
Wrong perception	215	43.0
Fully aware	235	47.0
Immunization status		
Unknown	60	12.0
Partial	145	29.0
UpToDate	295	59.0%
Availability of vaccination card		
Yes	155	31.0
No	345	69.0

Table 2: Correlation of immunization status with parent's income, education and knowledge about child immunization programme

Immunization status	Parents Income Level			P value
	Low	Middle	High	
Unknown	35	19	6	0.008
Partial	89	38	18	
UpToDate	131	123	41	
Parents education level				
	No	**Some**	**High**	
Unknown	29	18	13	0.007
Partial	55	45	45	
UpToDate	71	77	147	
Knowledge about immunization programme				
	No	**Wrong/Partial**	**Fully aware**	
Unknown	19	25	16	0.001
Partial	17	76	52	
UpToDate	14	114	167	

DISCUSSION

Annually approximately 1 billion children are immunized. It plays vital role in public health which has largest impact on childhood mortality and morbidity rate. However, these rates are not favorable in Pakistan. According to recent data EPI coverage is 80% for Bacillus Calmette-Guerin (BCG), 85% for diphtheria pertussis and tetanus (DPT) and Polio and 61% for measles.[9] The immunization profile of Pakistan has not achieved expected results.[3] The EPI programme is facing lots of challenges and implementation. There are multiple factors creating obstacles in delivering this service. Number of studies done at multiple centers which showed number of factors are connected to these unexpected results like mother literacy rate, household income, supply of vaccine, distance of vaccine centers and number of vaccination.[7] In that context the ultimate decision maker in the question, regarding child's health care is usually the child's biological parent. This shows that parents have significant impact on the goals of childhood immunization programs.

Recognizing the parent's key role in the childhood immunization, the association between immunization status of children and the three parental factors i.e. their education, income and knowledge regarding vaccination have impact on immunization.[10] This is the underlying rationale for inclusion of these factors.

In our study the mean age was 9.9±6.1 months that is comparable to Ramzan et al[11] reported that mean age was 7.8±3.3 months. While mean weight was 7.4±3.4 kg as compared with Ramzan et al[11] study was 7.2±7.3 kg. Regarding income level it was 51%, 36%, 13% for low income, middle income and high income respectively. A study conducted by Noah et al[4] showed high wealth group having more knowledge of immunization as compared to low wealth group i.e. 59% of richest and 35.1% of poor while middle class ranges from 49.7% to 52.2%.

While considering education level we had 31%, 28% and 41% parents with no, some and high education respectively. While Nour et al[9] showed no education for

43%, primary education 48.5%, secondary or higher education 56.6% for full vaccination coverage. In another study by Adil et al[12] there were 41.5% parents who had no education and 58.5% had some education. Regarding knowledge of immunization programme 10% had no knowledge, 43% wrong perception and 41% were fully aware. Adil et al[12] showed 30% parents had no knowledge, 55% partial and 14% were fully aware. These results are comparable to our study.

In our society full immunization coverage was reported as 59% which was quite low as compared to China which is 97.1% to 99.4% under 4 years[13] and in New Zealand it is 92% at 2 years of age[14] but comparable to the study of Noah et al which is 59.1% from 12-24 months.

In our society 12% parents have unknown immunization status, 29% partially known and 59% were UpToDate, that is comparable to Adil et al[12] showing 58% parents were UpToDate about vaccination. Inspite of many EPI centers there is low vaccination coverage which indicates need of policy making which overcome these obstacles like implementation of education in parents, improve knowledge regarding immunization programme, offer them free services, and mass immunization campaigns.

The compromised immunization service are mainly due to decreased motivation and doubts (religious and cultural) about the importance of immunizations about the importance of immunization at the recipient level. The service providers thought that the problem of incomplete vaccination. In rural and remote areas because of improper vehicles, unavailability of local vaccinators particularly for females and misplacement of cards are the causes of the low vaccination. To improve the immunization coverage in Pakistan service providers combined with media campaigns propagate awareness and modify rigid behavior of recipients. Vaccine coverage can be enhanced by community-based health education, providing immunization and follow up of families, resulting in decrease in disease burden. Appropriate health education messages should be given regarding vaccination of children to counter this problem.

CONCLUSION

More than half of the study population were UpToDate about immunization status. It is also concluded that majority of parents of low-income level and uneducated were unknown about immunization status and majority of middle and high-income level and educated people were partial known or UpToDate about immunization status.

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