ORIGINAL ARTICLE

Immunization Status of Children: A Study at Shaikh Khalifa Bin Zayed Al-Nahyan Hospital Rawalakot Azad Kashmir

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ABSTRACT

Objective: To know the status of vaccination among children via Expanded Program of Immunization and its relation with maternal education and awareness of mothers about vaccination.

Study Design: Observational descriptive study.

Place and Duration of Study: This study was conducted at Shaikh KhalifaBin Zahed Al-Nahyan Hospital Rawalakot from 1st January 2019 to 30th June 2019.

Materials and Methods: Children less than age 05 years, brought to the pediatric outpatient department were included in the study by consecutive sampling. The vaccination status of these subjects was noted and confirmed by vaccination card issued to them by the local health authority. A self-designed Performa was filled by interviewing the mothers; which included detail about mother's and child age, address, socioeconomic status, education of mother, awareness of mothers regarding preventive role of vaccination and status of vaccination of child. Data was entered on SPSS version 20 and statistical analysis was done.

Results: A total of 397 mothers responded. Out of these 82.9% mothers were educated and 17.1% were uneducated, 67.2% were aware about the preventive role of vaccination and 32.8% were unaware. Study showed that 79.3 % children were fully and 1.5% were partially vaccinated, whereas 19.1 % were unvaccinated. Vaccination rate was 85% among children where mothers were aware about the preventive role of vaccination, as compared to 67.7% children of unaware mothers ($p<0.0001$). Statistically no significant association was found between maternal education and status of vaccination ($p=0.072$).

Conclusion: Vaccination status of children is not satisfactory in Azad Kashmir. The status of vaccination among the children is directly related to the awareness of mothers about the preventive role of vaccination.

Key Words*: Awareness, Education, Immunization, Mothers.*

Introduction

In Pakistan the infant mortality rate is about 60/1000 live births and neonatal mortality is 40/1000 live births.[1] However, as compared to Pakistan the infant mortality rate in Azad Kashmir is 58/1000 live births.[2] Many deaths under 05 years of age can be prevented by effective vaccination.[3] There is significant reduction in mortality worldwide among children less than 5 year of age, from 69·4 per 1000 live births to 38·4 per 1000 live births between 2000 and 2016. One of the factors causing this reduction in child mortality is vaccination of children.[4] About 3.6% reduction per year was found in child mortality globally since 2005 and vaccination was one reason.[5] A complete course of vaccination leads to prevention of diphtheria, pertussis and tetanus not only in children but also in adults.[6] Some vaccines used during pregnancy result in prevention of neonatal diseases. Tdap is used during pregnancy, which includes tetanus, diphtheria and pertussis vaccine.[7] To vaccinate the children, the vaccines are provided by the government free of cost via expanded program of immunization (EPI) in Pakistan. Expanded program of immunization was started in 1978 against six common diseases; tuberculosis, poliomyelitis, measles, tetanus, pertussis and diphtheria. Later on Hepatitis B vaccine, Hib and pneumococcal vaccine were included in EPI in 2002 and 2009 respectively. Inactivated polio vaccine was added in 2015[8] Rota virus vaccine also has been added to in 2017.[9]

Pakistan is among those countries where progress of vaccination is not according to the international standards, although vaccination has increased from 54% in 2012-2013 to 66% in 2017-2018.[10] Coverage is

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not uniform throughout the country and for all diseases. Studies have shown that coverage is better in some areas as compared to others, same is true for different diseases.[11,12,13,14] Many children are still either unvaccinated or under vaccinated in Pakistan.[11] The vaccine coverage in Azad Jammu and Kashmir is claimed 94 % by Government of Azad Kashmir[2] but no studies are available to confirm these statistics. Many factors affect vaccination, including maternal education and information about preventive role of vaccination.[14,15] In many countries formal maternal education has shown a positive correlation in promoting immunization in children.[15]

We do not have enough data from Azad Kashmir about the exact status of vaccination in children and role of maternal education and information in vaccination. Therefore we conducted this study to know the status of vaccination among children visiting the Sheikh Khalifa Bin Zayed Hospital Rawalakot Azad Kashmir and its association with maternal education and awareness of mothers regarding role of vaccination in prevention of diseases.

Materials and Methods

This observational descriptive study was conducted at Department of pediatrics, Shaikh Khalifa Bin Zayed Al-Nahyan Hospital Rawalakot from 1st January 2019 to 30th June 2019. In this study 397 subjects were included by consecutive sampling. Informed verbal consent was taken from the mothers before enrollment. Ethical approval was taken from the hospital ethics committee before the start of study. Vaccination status of children less than age 05 years, brought to the pediatric outpatient department of Shaikh Khalifa Bin Zayad Al-Nahyan Teaching Hospital with different complaints was noted. The vaccination status of these subjects was confirmed by vaccination card issued to them by the local health authority. Mothers who were not sure about the status of vaccination of child were excluded from the study. A performa was designed which included mother's and child age, address, socioeconomic status, education of mother, awareness of mother about preventive role of vaccination and status of vaccination of child. The performa was filled by interviewing the mothers by the authors from pediatric department.

Data was entered on SPSS and statistical analysis was done in SPSS for Windows, version 20. Means and standard deviations were calculated for quantitative variables like age of children. Frequencies were calculated for qualitative variables like gender, education, awareness of mothers, socio economic status and vaccination status. Chi square test was applied to see the relation between different factors and status of immunization. *P* value ≤ 0.05 was considered as significant.

Results

Total 397 mothers responded to our questionnaire. Out of these 83% (n=329) were educated and 17% (n=68) were uneducated, 67.2% (n=267) were aware about the preventive role of vaccination and 32.8% (n=130) were unaware, 56.4% (n=224) were from rural background and 43.6% (n=173) belonged to urban areas. As for as socioeconomic status was concerned, 62.7% (n=249) were from lower class, 36.8% (n=146) from middle class and only 0.5% (n=2) from upper class. Out of 397 children, 56.2% (n=223) were male and 43.8% (n=178) were female. Average age of children was 26 ± 6.17 months.

Vaccination status of children is shown in Table I. Association of maternal education and awareness of mothers about the preventive role of vaccination with the status of vaccination is shown in Table II.

Table I: Vaccination Status of Children (n=397)

Fully Vaccinated	Partially Vaccinated	Unvaccinated	Total
79.3% (n=315)	1.5% (n=6)	19.2 % (n=76)	397

Table II: Association of Maternal Education and Awareness of Mothers with the Vaccination Status of Children (n=397)

		Un Vaccinated	Partially Vaccinated	Fully Vaccinated	p value
Maternal Education	Uneducated	28% (n=19)	4.4% (n=3)	67.6% (n=46)	0.072
	Primary to matric	19% (n=17)	0	81% (n=73)	
	Matric and above	16.7% (n=40)	1.3% (n=3)	82% (n=196)	
Maternal Information Regarding Preventive Role of Vaccination	Yes	12.7% (n=34)	2.3% (n=6)	85% (n=227)	<0.0001
	No	32.3% (n=42)	0	67.7% (n=88)	

Discussion

Our study showed that only 79.3 % children were fully vaccinated. Vaccination coverage is less than

international standards. WHO recommends at least 90% national vaccination coverage and 80% in every district.[13] We also concluded that awareness of mothers regarding the preventive role of vaccination is significantly associated with status of vaccination. No association was found between maternal education and vaccination status. Our study showed that 79.3% (n=315) children were completely vaccinated, whereas 19.1% (n=76) were unvaccinated. Our result does not match the results of 2017 census; it is shown that coverage is 94% in Azad Kashmir.[2] However it is close to immunization coverage in Pakistan which is 80 %.[10] This vaccination coverage is less than the global targets of vaccination which should be > 90%.[13] Many studies from Pakistan has shown much lower vaccination coverage as compared to our results.[11,12,13,14] Vaccination coverage in Azad Kashmir is lower than other countries of South Asia.[16] Comparing with developed world we are far behind, a study from china shows full immunization in 93% children.[17]

There are many factors which affect vaccination in children. These factors are maternal education and awareness of mothers about vaccination, political commitments of governments, socioeconomic setup, availability of vaccines, outreach population, low salaries of health workers, health workers home visits, lack of information about vaccines benefits and side effects of vaccine.[15,18] Among these factors, maternal education is considered an important factor in promoting vaccination in children. The impact of education is highlighted in various studies in different parts of the world. In these studies education has shown a positive correlation in promoting vaccination.[19] Education also increases vaccination indirectly by improving socioeconomic status.[20] Although 28% children of uneducated mothers were found unvaccinated as compared to 19% and 16.7% children of mothers having education below matric and above matric respectively in our study but statistical difference was not significant (*p* value= .072). This is in contrast with the above mentioned studies. This contrast may be due to difference in education standards, different geographical distribution and sampling technique.

However, information received through different sources leading to awareness of mothers about the preventive role of vaccination from infections has shown a positive correlation in increasing vaccination in our study. These results are comparable with studies done earlier.[21] This study shows that mere education is not the only tool that will increase vaccination in children; it is the information regarding the preventive role of vaccination that helps. Mothers have leading role in increasing vaccination of their children. It will be more rewarding if mothers are educated about the disease preventing role of vaccines and consequences of not vaccinating their children.[22]All available means of educating the mothers about the life saving and health promoting role of vaccines should be utilized. These include community, political and religious leader's involvement. Print, electronic and social media also should be used to achieve the target. These community and media campaigns should mobilize the society so that the vaccination of children becomes the mouth word of the society.[23,24]

Our study had few limitations. It was single center study including children less than 5 year of age only. It was a hospital based study not community based. We also studied only two factors associated with vaccination status. Community based studies considering more factors are required in future.

Conclusion

Vaccination status of children is not satisfactory in Azad Kashmir. The status of vaccination among the children is directly related to the awareness of mothers about the preventive role of vaccination.

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