THE IMPACT OF PARENTAL EDUCATION AND SOCIOECONOMIC STATUS ON ROUTINE CHILDHOOD VACCINATION: AN OBSEVATIONAL STUDY

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ABSTRACT

Objective: *To assess the vaccination status of children less than 5 years and to determine the factors associated with low coverage vaccination status.*

Methodology: *This was a prospective study conducted at the department of pediatrics, Rehman Medical Institute Peshawar from 1st January to 31st July 2012. A total of 300 cases were selected attending outpatient department. The parents and guardians were interviewed with a proforma regarding the vaccination status of all children from 1 month to 5 year of age. World Health Organization, Expanded Programme of Immunization, vaccine schedule was followed. The parents/guardians were asked for vaccination cards as confirmation of vaccination and failing to do so, the parents/guardians were thoroughly interviewed including direct and indirect questioning.*

Results: *A total of 240 out of 300 (80%) attending outpatient department were vaccinated while 43 (14.3%) were unvaccinated and remaining 17 (5.7%) were partially vaccinated. Ninety children belonged to high socio economic status (SES), 25 to low and 185 belonged to middle SES. Seventy six out of 240 (31.6%) vaccinated children were from families of high socio economic status. The study revealed that 15 out of 27(55.5%) of the illiterate parent's children were either partially vaccinated or unvaccinated.*

Conclusion: *The overall rate of routine childhood vaccination remains below international benchmark. The rate of vaccination was significantly better in children of parents from educated and higher socioeconomic class.*

Key Words: *Vaccination, Expanded Programme of Immunization (EPI), Parents education.*

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INTRODUCTION

Vaccination is a process whereby a person is made immune or resistant to an infectious disease, typically by administering vaccine. Vaccine stimulates body immune system to protect the person against certain infection or disease. Prevention of disease is the need of the community because treatment not only increase the cost of living by money spent on easily preventable diseases but increases mental and financial burden of average citizen by causing serious disability, so in addition to treating these diseases we need to focus on their prevention because prevention is better than cure. By vaccination, every year million of children's are saved globally from serious illness and death, resulting in, significant reduction in cost of treating diseases, poverty reduction, social and economic development of country[1].

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Currently 15% deaths of children younger than 5 years of age contribute to overall 50% mortality in children in Pakistan as compared to 8-10% in the developed world[2]. Even though mortality rates in this group has shown some reduction in the last 15 years but it is still alarmingly high for Pakistan and stands at 94/1000 live births[2].

Children under five year of age constitute about

15% of population of most developing countries. By proper timely immunization we can easily prevent serious morbidity and mortality, caused by vaccine preventable diseases especially in the developing countries across the world[3]. An estimated 12.2 million of deaths occur in less than 5 years age group and most of the deaths are from vaccine preventable diseases[4]. Immunization is one of the most important and cost effective intervention that health system can provide and is essential to save children lives. It is an affordable means of protection against communicable disease for the whole community and also reduces poverty and so far proper immunization has saved over millions lives in the last decade and has improved the standard of lives. It is also the most effective measures of public health in helping children attain better lives without any disability5. In May 1974, the World Health Organization (WHO) initiated a global immunization program, known as Expanded Program on Immunization (EPI)[5], as one of the major public health interventions to prevent childhood morbidity and mortality[6]. The Expanded Program on Immunization (EPI), the World Health Organization (WHO), United Nations Children's Fund (UNICEF), other United Nations agencies, bilateral development agencies, and non-government organizations intended to immunize children of the world to prevent suffering5, disability and death due to six vaccine preventable diseases, namely diphtheria, whooping cough, tetanus, tuberculosis, poliomyelitis and measles by year 2000[7].

Immunization is the most cost effective and highest impact health intervention, reducing hospitalization and treatment cost through prevention[3, 8]. The proportion of the world's children immunized against the major vaccine preventable disease has increased significantly from 20% in 1980 to over 80% in 1996, preventing more than 2.8 million child deaths annually[9]. Despite the success of the expanded program of immunization in eradication of vaccine preventable disease such as smallpox, many vaccine preventable diseases still remain prevalent in the developing countries as a major cause of mortality (20%-35% of all deaths in children under the age of five), morbidity and serious disability[10]. Children's living in the urban area of the country are more likely to be vaccinated as compared to those living in the rural area, it might be due to unavailability, ignorance, social problems or due to parent's education (illiterate parents), also utilization is high when vaccination centers are easily accessible and provide good quality care[11]. The mobile vaccine teams that keep on moving from door to door are found good in providing the better result and has helped a lot in the preventing much disease by proper vaccination as compared to fixed immunization clinics which often fail to reach children's who are at high risk.

METHODOLOGY

A prospective study was preformed; Performa was filled by asking question from the parents/ guardians of the children under five years of age belonging to different socioeconomic group with different level of education of the parents. Children from Pakistan and Afghanistan both were included in the study.

A total of 300 patients under 5 year of age visiting Pediatric OPD of Rehman Medical Institute Peshawar from 1st January 2012 to 31st July 2012 were included in the study. Information was collected about the Immunization status, demographics, education of the parents, occupation and income of the family earner, accessibility of EPI centre in terms of distance, behavior of immunization staff, frequency of their visits by household workers, parents' views on immunization whether it was useful or not, and reason for non-immunization. Immunization record was collected by cards or parents recall. Parents were also asked to choose the best time and place for immunization. Fully vaccinated children were considered who received the necessary vaccines according to the EPI that includes one dose of BCG, one dose of measles, and three doses of DPT/OPV. Unvaccinated were those who had received either one dose of OPV or no vaccine has been given. Those children who has received at least 2 or more than two vaccine doses but has not complete the vaccination according to EPI schedule were taken as Partially vaccinated. A questionnaire was made for this purpose.

RESULTS

Of 300 children included in our study, 240 (80%) were vaccinated and remaining 43 (14.3%) were unvaccinated. The study revealed that the children of 15 out of 27 (55.5%) of the illiterate parent's were either partially vaccinated or unvaccinated (Table 1). The later declined significantly (p value = 0.001) to 14.8% and 18.1% respectively when parents education was raised to school or college level. It is observed that from the figure that the vaccination status of the children whose parents education is up to school or college level are closely matching but quite different from children with parents who were illiterate.

Socio economic status was found to be significant (p value =0.043) as shown in table 2.

On the basis of nationality the sample constitute 192(64%) Pakistani and remaining 108(36%) are Afghani. From the table 3 it is obvious that vaccination status is better in Afghani as compared to Pakistani, i.e. those vaccinated are 89(82.4%) and

151(78.6%) respectively, while the rest are either partially or not vaccinated. However, this difference in the nationality is found to statistically insignificant (p-value=0.688).

Table 4 shows correlation of vaccination status with that of different reasons for being unvaccinated. From the data it is obvious that 21 out of 43 children who were partially vaccinated had no reasons. 4 out of 43 were having non availability problems 7 out of 43 had social reasons and 11 out of 43 parents of children who were partially vaccinated were unaware of the vaccination program. Those for unvaccinated 17 children 7 were ignorant, 7 had social limitations while 3 were complaining of non availability.

Table 1: Vaccination status with regard to parental education

		Vaccination status			Total
		Partial	Vaccinated	Unvaccinated	
Parents education	None	8 (14.5%)	12 (44.4%)	7 (25.9%)	27
	School	15 (11.1%)	115 (85.2%)	5 (3.7%)	135
	College	20 (14.5%)	113 (81.9%)	5 (3.6%)	138
Total		43 (14.3%)	240 (80%)	17 (5.7%)	300 (100%)

Table 2: Relationship of vaccination status with socio-economic status

		Vaccination status			Total
		Partial	Vaccinated	Unvaccinated	
Socioeconomic Status	Low	6 (24%)	15 (60%)	4 (16%)	25
	Middle	25 (13.5%)	149 (80.5%)	11 (5.9%)	185
	High	12 (13.3%)	76 (84.4%)	2 (2.2%)	90
Total		43	240	17	300 (100%)

Table 3: Vaccination status and patients nationality

		Vaccination status			Total
		Partial	Vaccinated	Unvaccinated	
Nationality	Pakistani	30(15.6%)	151 (78.6%)	11 (5.7%)	192
	Afghani	13 (12%)	89 (82.4%)	6 (5.6%)	108
Total		43(14.3%)	240 (80%)	17 (5.7%)	300 (100%)

Table 4: Reasons for non vaccination

		Partial	Unvaccinated	Total
Reason for unvaccinated	None	21(100%)	0(0.0%)	21(100%)
	Unavailability	4(57%)	3(43%)	7(100%)
	Social	7(50%)	7(50%)	14(100%)
	Unawareness	11(61%)	7(39%)	18(100%)
Total		43(71.6%)	17(23.3%)	60(100%)

DISCUSSION

The present study reveals that incomplete immunization was 43 (14.3%) while complete immunization was 240 (80%). The reason for being unvaccinated was either because of low socioeconomic condition or lack of education. Our study is comparable with the study of Manjunath et al which also shows that either being vaccinated or unvaccinated is related to the socioeconomic condition and parents education[12, 13].

Our study is also comparable with the study done in Sudan by Ibnouf et al, which shows that low immunization status in children was high in children whose parents were either illiterate or of low socioeconomic group[14].

In our study 21% of the children who were either partially vaccinated or not vaccinated had no reason while other had either ignorance or unavailability or some social problems. Our study in this regard is comparable with the study done by Ahmad et al[15].

Low socioeconomic status is also one of the leading cause in our study for children being unvaccinated or partially vaccinated. This is comparable with the study done by Ahmad et al[15].

Our study goes against the study done by Siddiqi et al, which shows irrelevance of maternal knowledge to that of vaccination[16].

There are certain limitations in cross sectional studies like ours. Number of factors in population depends upon each other like low socioeconomic status, lack of education, social norms and ignorance. Also this study was hospital based study so the results may not be comparable with other studies done on general population, plus our study included children from both Afghanistan and Pakistan which could have affected the outcome of our study.

CONCLUSION

The large difference found in the vaccination status in this study was mainly of poor socioeconomic status and low level of education of parents / guardians. We suggest for much greater efforts from governmental and private level if better rates of vaccination are to be achieved.

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CONTRIBUTORS

SA conceived the idea, designed the study and wrote the manuscript of the study. SBZ & AZJ assisted in designing the study and write-up of the manuscript. All the authors contributed significantly to the research that resulted in the submitted manuscript.