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EPI COVERAGE UNDER FIVE YEARS OF AGE IN PERIURBAN AREA

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Abstract:

Background: *Immunization is the most simple and effective way of protecting our children from serious illnesses. The aim of this study was to determine the proportion of children under 5 years of age getting immunized according to the EPI schedule and to assess the knowledge and attitude of parents regarding immunization.*

Methodology: *This was a cross sectional descriptive study conducted in BHU Palosi which is a peri urban of Peshawar, Pakistan in 2021.A non-probability convenient sampling technique was used. Children under 5 years of age both male and female were included. Data was collected from the parents of about 200 children by interviews using a self-structured questionnaire. The data was analyzed using SPSS. Descriptive statistics were displayed and chi square test used to assess association.*

Results: *In our results 184(92%) children out of 200 were vaccinated and 16(8%) were unvaccinated. Literacy rate of the parents was assessed and it was found that 159 fathers were literate and 41 were illiterate. 93% of the total literate fathers vaccinated their children while 39% of the total illiterate fathers vaccinated their children. Moreover 139 parents believed that vaccination is safe for their children while 61 were not sure regarding its safety still vaccination rate was 89 % and 93 % respectively among both categories. Vaccination centre was accessible to 87% of the participants while 13 % of the parents said that its tough for them to reach to the vaccination centre. Total 192 parents were aware at the time of birth of their children that vaccination is important for their children, among them 178 vaccinated their children (92%). While 8% weren't aware that vaccination is important, still 6 of them vaccinated their children.*

Recommendations: *In order to increase the vaccination rate in the peri urban areas, the number of BHUs should be increased and made accessible according to the population size and area. Regular awareness campaigns should be held and differences should be shown to the residents in the form of pictures, between vaccinated and unvaccinated children in case of potential future diseases. Accountability of vaccination centers is also necessary in order to ensure that all vaccines reach the targeted audience effectively.*

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INTRODUCTION:

The Expanded Programme on Immunization (EPI) was launched in Pakistan in 1978 to protect children by immunizing them against childhood tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus and measles. Later, with the support of development partners, a number of new vaccines e.g. hepatitis B, haemophilus influenzae type b (Hib) and pneumococcal vaccine (PCV10) were introduced in 2002, 2009 and 2012, and inactivated polio vaccine in 2015, respectively.

As a result of this global immunization campaign, by 2013, the coverage of diphtheria-tetanuspertussis vaccine worldwide had increased to around 83%. Currently, as a result of immunization, around 2–3 million children deaths due to measles, tetanus, diphtheria, and pertussis are avoided worldwide .[1] The number of children not vaccinated is highest in developing countries. More than one-fifth of children worldwide, particularly those living in poor countries, are not fully vaccinated.[2] As found in the literature, factors such as demography, socioeconomic factors, and infrastructure contribute to the immunization status of a child. Parental poverty, literacy and educational level of parents, the mother's lack of access to information, the absence of antenatal care, large family size, type of father's work and location of residence are found to be factors related to low immunization in Pakistan.[3] In a study conducted at a hospital in Khyber Pakhtunkhwa (KP) province of Pakistan, the main reasons stated by parents for not having the children immunized were the lack of awareness of the benefits of immunization, perception that immunization was unimportant, lack of immunization services in their area, peer pressure not to immunize their child, and conflicts in residents' localities resulting in internal displacement of population, which blocked their access to a vaccination center.[4] Due to anti vaccine campaigns, public confidence in vaccination is diminishing globally and, as a result, vaccine hesitancy is receiving a great deal of attention on the public health agenda.[5]

The evidence also suggests that vaccination coverage has a positive correlation with improved and increased services offered at health centers.[6] A national survey from 2014 to 2015 captured a significant gap in the percentage of fully immunized children between rural (56%) and urban (70%) areas. The provincial differences demonstrate similar disparity. The data for urban/rural differences by province were in Sindh (62/33%), Balochistan (48/20%), Khyber Pakhtunkhwa (74/54%), and Punjab (75/65%). Punjab had the highest immunization rate (70%) followed by Khyber Pakhtunkhwa (58%) and Sindh (45%). Balochistan, which is the most deprived area, had the lowest coverage with only 27% of children fully immunized.[7]

The objective of this study is to determine the reasons for immunization and non-immunization of children under 5 years of age in Pakistan . This study would assess our knowledge about the proportion of children getting immunized and parents perspective regarding EPI.Immunization is one of the most successful public health initiatives in recent times. It is, therefore, worrying to learn the level of undervaccination in Pakistan. Diseases that have been successfully eliminated through the aid of vaccination in other countries have not been eliminated in Pakistan. The reasons for this vary and show the uniqueness of the economic, healthcare and environmental landscape of Pakistan, through which public health programs need to be implemented. The "Expanded Program of Immunization" (EPI) is the main program through which routine immunization is provided to the public. Within Pakistan, it has encountered many problems since its inception. This includes logistics obstacles, not efficient health worker attitudes, parental and female awareness, and education, the influence of religious community leaders and the complications that accompany conflict. When compared to globally standardised targets for immunization, Pakistan is Laging behind. Not achieving these targets is worrying from both a global perspective and within the national healthcare landscape of Pakistan. Research is necessary to bring together findings on the failings of routine immunization and polio campaigns there are many crisscrossing factors that global health bodies and the Department of Health in Pakistan must address in order to relieve the burden of vaccine preventable diseases.[8] The Expanded Programme on Immunization (EPI) was established in 1974 to develop and expand immunization programs throughout the world. In 1977, the goal was set to make immunization against diphtheria, pertussis, tetanus, poliomyelitis, measles and tuberculosis available to every child in the world by 1990. Problems encountered by the Program have included: lack of public and governmental awareness of the scope and seriousness of the target diseases; ineffective program management; inadequate equipment and skills for vaccine storage and handling; and insufficient means for monitoring program impact as reflected by increasing immunization coverage levels and decreasing incidence of the target diseases. When the EPI was started in 1974, less than 5% of children in developing countries were receiving a 3rd dose of

DPT and poliomyelitis vaccines in their 1st year of life. These coverage levels have now surpassed 50% in developing countries, and millions of cases of the target disease have been prevented. Over 700,000 measles deaths were prevented by immunization in developing countries in 1987, and an increasing number of neonatal tetanus deaths is now being prevented by maternal immunization and improved childbirth conditions. Poliomyelitis immunization efforts have been so successful that the Pan American Health Organization is leading a drive to eradicate poliomyelitis from the Americas by 1990. The successes of the Program represent a major public health achievement, but much remains to be done. Measles still kills nearly 2 million children each year, neonatal tetanus kills some 800,000 newborns, and pertussis nearly 600,000 children. 250,000 cases of paralytic poliomyelitis still occur annually. The major challenges now facing the EPI are accelerating and sustaining national immunization efforts.[9]The Expanded Program on Immunization was officially started in 1974, with the support of the World Health Organization , keeping in mind as an important goal of immunizing every child counter to four vaccine preventable diseases (that is diphtheria, pertussis, tetanus (DPT) and tuberculosis, poliomyelitis, measles) by 1990 [10]. However, the Expanded Program on Immunisation set the priority for the developing countries since the higher prevalence and inadequate delivery for immunization are seen and observed in those countries [11]. The immunization programme for children against VPD has been considered one of the best cost effective programmes to decrease childhood morbidities and mortalities throughout the world [12, 13].

METHODOLOGY:

This segment deals with the description of the method that was followed during our research process .The most appropriate study design according to available facilities and resources was found to be 'Descriptive cross sectional study'. So this method was adopted during our research process in order to collect details regarding the concerned topic.
The targeted audience of our study included the children under 5 years of age belonging to Peri urban areas (outskirts) of Peshawar. The duration of study was about 4 months and the instrument used to collect data was through 'questionnaires''.

Study Population
Our study was conducted among the children under 5 years of age.

Study Setting
BHU PALOSAI is in a Peri-urban area PALOSAI present on the outskirts of Peshawar. Questionnaires were distributed among the mothers of children that visited the BHU along with their children less than 5 years of age. All the children that aged less than 5 years were part of our study. Our study included both genders, male and female.

Questionnaires were distributed after taking consent from parents of children and with the permission of teachers of COMMUNITY MEDICINE department of KMC and after getting approval from KMC administration.

Study Design
It was a 'cross sectional, descriptive study''.

Sampling Technique
The sampling technique for our study was 'non probability convenient sampling''.

Sample Size
200 questionnaires were printed and then distributed among the mothers of children in BHU PALOSAI after taking consent from them.

Inclusion and Exclusion Criteria
Children under 5 years of age of both genders, male and female were included in our study.
Those Children who had some contraindications for vaccination like immunocompromised were excluded from the study.

Data Collecting Procedure
Our technique for data collecting was through observations and questionnaires . Data collection started with printing of questionnaires. 200 questionnaires were printed.2 members of our batch were assigned this task to get the questionnaires printed. Then on the day of visit, questionnaires were divided among our batch mates to distribute it among the mothers of children that visit BHU Palosai.

As it was a peri-urban area(on the outskirts of Peshawar) , the socio-economic status and the literacy rate wasn't much higher so the parents were briefed regarding the questionnaires after taking consent from them. Most of them couldn't read the questionnaires by themselves so our batch members read, explained and translated it for them and the responses on the questionnaires were recorded accordingly.

Data Analysis
We have analyzed entire data of our project with SPSS. Version 22.

DATA ANALYSIS AND RESULTS

In our performed study about EPI coverage in children under 5 years of age and assessing the knowledge of parents regarding it, we got the following results which will be interpreted in the form of pie charts, cross tables, graphs etc.

Immunization Coverage in Children Under 5 Years of Age

Table 1: Is your child vaccinated upto date

		Frequency	Percent
Valid	Yes	184	92.0
	No	16	8.0
	Total	200	100.0

Table 2: Literacy Rate and Vaccination Status

		child vaccinated ?		Total
		Yes	No	
Father Qualification	Illiterate	35	6	41
	Primary Pass	6	0	6
	Middle Pass	6	0	6
	Matric Pass	63	6	69
	FA/FSc And Above	74	4	78
	Total	184	16	200

Table 3: Literacy Rate and Vaccination Status

		child vaccinated		Total
		Yes	No	
Mother Qualification	Illiterate	82	6	88
	Primary Pass	24	2	26
	Middle Pass	28	5	33
	Matric Pass	36	3	39
	FA/FSc &Above	14	0	14
Total		184	16	200

Table 4: Knowledge of Parents Regarding Safety of Vaccination				
		child vaccinated?		Total
		Yes	No	
Do you think immunization is safe for a child	Yes	125	14	139
	NO	59	2	61
Total		184	16	200

192 parents were told at the time of birth of their child that vaccination is important for the children, out of them 178 vaccinated their children (92%).while 8 parents weren't told regarding importance of vaccination, out of them 6 vaccinated their children(75%) **(Table 5).**

Table 5: Awareness Status of Parents Regarding Importance of Vaccination at the Time of Birth of Children				
		Is your child vaccinated upto date		Total
		Yes	No	
Were you told about the immunization of your child at birth	Yes	178	14	192
	No	6	2	8
Total		184	16	200

Among 200 parents, vaccination centers were easily accessible to 174 (87%) and not easily accessible to 26(13%). Among 200 participants 174 were saying yes the vaccination center easily accessible to the family in which 161 were vaccinated and 26 were saying no the vaccination center easily accessible to the family in which 23 were vaccinated.**(Table 6).**

Table 6: Accessibility of Vaccination Centers to Parents				
		Child vaccinated?		Total
		Yes	No	
Is the vaccination centre easily accessible to the family	Yes	161	13	174
	No	23	3	26
Total		184	16	200

Table 7: Vaccination Cards and Vaccination Status				
		Is your child vaccinated upto date		Total
		Yes	No	
Do you have a vaccination card for your child	Yes	162	11	173
	No	22	5	27
Total		184	16	200

DISCUSSION:

We have conducted a ―cross sectional study‖ in which the sampling technique was ―non probability convenient sampling‖. The sample size of our study were 200 and study was conducted in 4 months. We have visited BHU Palosai 3 times to collect data from mothers of under 5 children including both males and females. In our study out of 200 children 184 have completed immunization while 16 were non/incompletely immunized. A similar study conducted in Australia in 2015, illustrated that immunization coverage was 93%[14].Another study done in 27 Capitals of Brazil in 2005 had declared that 98.8% of children had vaccination card out of which 82.6% completely vaccinated and 18.2% missed one or more vaccinations while 0.7% had not received any vaccination[15].A study conducted in a region of Umraniye, Istanbul, Turkey in 2006 stated that 84.5% children were fully vaccinated while 3.2% were totally non-vaccinated[16].A similar study in the Dongola province of Northern state of Sudan had showed that 48.7% of children were fully immunized while 5.3% were non-immunized[17].

A survey conducted in Ethopia in 2007 declared that 41.8% children had their vaccination card out of which 35.6% were completely vaccinated, 40.7% received one or more vaccines while 0.4% did not receive at all but in that study the age limit was 12-23 months[18][19].A similar study conducted in Kenya in November 2002 showed those children having vaccination card were 75% and raise to 88% after the introduction of pentavalent vaccine[20].In Ghana, a survey conducted which showed that 89.5% chidren had fully immunized, 9.5% partially while 1% were not vaccinated and the age limit in that study was also 12-23 months[21]. T.maki et al conducted a study in Basrah, Iraq in 2007, in which vaccination rate was 80.7% while 19.3% were low/non-vaccinated but in this study age limit was 11-23 months[22].According to a survey conducted in two cities of Indonesia, 75.4% were fully immunized in Gianyar while 25.1% in Jakarta among children age 12-23 months[23].A similar study conducted in India showed that 43% of periurban area children while 60% of urban area children were vaccinated[24].In Bangladesh, a study conducted in 2004, declared that 60% of children belong to rural areas were completely vaccinated[25].A similar study in a village Mulaid, Bangladesh in 2011 showed that 88.76% of children under 2 years of age were fully vaccinated, 10.84% were partially vaccinated while 0.4% were not vaccinated at all[26].A study conducted at a hospital in Rawalpindi Punjab showed that among the children of factory workers, 35.6% were fully vaccinated[27].In a study done in Nurpur Shahan (Islamabad) showed that 77.4% children were vaccinated. A similar study conducted in children under age 5 by Tikmani et al at the paeds OPD of civil hospital Sukkur in 2017, which revealed that 80.4% children were fully vaccinated and 19.6% were incomplete or non-vaccinated[28].

A study conducted in Quetta in 2018, showed that there was ineffective and inaccurate polio coverage although they have proper awareness[29].

RECOMMENDATIONS

1. In Peri-urban areas the number of BHUs should be according to the population size and area.There should be more than 1 BHU in case of big peri urban area like Palosai as it was not accessible to some of the parents.
2. Regular awareness campaigns and door to door information facilities regarding vaccination safety should be arranged in order to inform the residents of peri-urban areas.
3. Differences between healthy vaccinated and unvaccinated diseased individuals should be shown visually in the form of pictures to the residents so that they can appreciate the benefits of vaccination.
4. Accountability of vaccination centres and health care providers should be done,time to time in order to ensure proper delivery of vaccines to the residents of peri urban areas and to make sure that health care workers perform their tasks as per standard rules regarding vaccination process.

CONCLUSION:

Vaccination is an important factor for preventing mortality and morbidity in relation to diseases. Since the success of vaccination through trials in its initial phase. WHO launched a worldwide campaign for vaccination namely EPI. Since its inception in 1978, Pakistan's Expanded Programme on Immunization (EPI) has contributed significantly towards child health and survival in Pakistan.

Our study revealed that the social factors like literacy rate , lack of awareness , myths regarding vaccination , lack of accessibility to vaccination centre and lack of knowledge regarding its role in prevention of diseases are playing vital role in non-vaccination of children. Our study revealed that large percent of parents were not aware regarding role of vaccination at the time of birth of their children and this lack of knowledge or unawareness was the main factor that lowered vaccination rate in peri urban area (BHU PALOSAI)

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