

Routine Immunization Status among Children under 5 Years of Age living in Rural District of Pakistan

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Abstract

Immunization remains always a big challenge for Pakistan and the coverage has been reported significant low that results high morbidity, mortality reported due to vaccine preventable diseases. This study was part of quasi-experimental with control and intervention design and was conducted in primary Health care governmental Basic Health unit's catchment population of Panjgur by interviewing house head who were selected randomly after the sample size calculation. Self-administered valid and reliable questionnaire were adapted after taking the written consent. Ethical consideration was taken from ethical committee of Bridge Consultant foundation of Pakistan. Total 243 household head including fathers were interviewed during this baseline survey. The mean age of the fathers were 30 ± 5 years. Routine immunization Services utilization with in both Basic Health unit were not found statistically significant ($p=0.33$). However, the socio demographic information like income, level of education , Household members , Number of children , Under-five children and Sex of Children when compared with the practices were found statistically significant ($p<0.05$). Study observed partial status towards routine immunization as will low immunization status in under five children was found statistically significant ($p<0.05$).

Keywords: Immunization status, Knowledge of parents, immunization, Basic Health Unit, Practices, assessment and vaccination.

1 Introduction

Routine immunization is considered as a biggest challenge in the Developing countries like Pakistan where is significant low coverage of immunizations has been reported resulting in high morbidity and mortality documented. Different studies proved that the

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health care services consumption under control of public sectors always remained low in Pakistan [1].

The Human Development Report 2006 has mentioned that the literacy people in the nation are more the 50 percent. In this situation only the Health Education is a vital element of all the health programs by the Government through educating the communities and the public. Pakistan has a widespread health care–deliverance structure consisting of a mix of both community and public sectors. The public sectors also provide preventive services in the course of vertical programs. The health summary of Pakistan is characterized by elevated population growth rate, elevated infant and child mortality rate, high maternal mortality ratio, and a double load of infectious and non-communicable diseases. The expected total coverage for a completely immunized child in Pakistan varies amid 56% to 88%, with considerable inequality among provinces. Balochistan is the largest province of Pakistan in terms of land area, comprising 44 percent of the national territory. It's in contrast, the smallest by far in terms of population. Only 35 percent of children age 12-23 received BCG at birth before their first birthday.

Studies that assessed causes of low immunization specifically in Pakistan it was found that socio economic characteristic, awareness, access, and managerial issues have connection to low immunization coverage in the country. Health policies in Pakistan are aimed to address the basic problems in health sector by strengthening the health care system. According to MICS Balochistan 2010 nearly 64 percent children had received at least one vaccination; the overall complete vaccination rate was only 4 percent for those who were vaccinated at any time before the survey and in the age group 12-23 months[2]. The percentage of children, who were fully vaccinated before their first birth day, was only 2 percent. With regard to polio and DPT vaccines, the rate for subsequent doses, showed a declining trend [3] Overall, complete immunization was slightly higher for female children. Highest rate of complete immunization was noted in Makran region (7 percent) and lowest in Zhob region (0.5 percent). Children in urban areas were more likely to receive complete immunization compared to rural areas (10.4 versus 2.4percent) [3]. Barriers to universal immunization coverage include poor performance at primary health care level of the EPI, socioeconomic inequity in access to services, decreased demand from population, reduced security, and resistance to vaccines among population sub-groups. Recent conflicts and large-scale natural disasters have severely stressed the already constrained resources of the national EPI. Immunization programs remain least priority for provincial and many district governments in the country [3]. However this study will explore the level of status towards immunization at rural district of Balochistan before to start the community intervention in the particular areas.

2 Methods

The data presented here is the part of an ongoing study that is conducted to determine the level of KAP about routine immunization coverage among under five children living in at primary care settings healthcare facilities of Pakistan. This baseline has been conducted within the month of June 2014 before to start of the intervention. Quasi-experimental with control and intervention design was conducted in the basic health unit and in the community of panjgur Pakistan. Total 234 from a population of household father who were head of the family were involved were selected randomly; after proper sample size calculation based on the effect size of World Health Organization (WHO) self-

administered questionnaire, checklist and direct observations were adapted after piloted, pretested, translated and used after taking the written consent. House hold head including father were selected from both intervention and control areas of both BHUs for guided interview on developed questionnaires which was validated by taking the content validity from the expert advice in the field from professors at Chulalongkorn Thailand and institute of public health Baluchistan. However, the reliability of the questionnaire was obtained through pre-test and piloting on 24 house hold head in the District located adjacent district with similar characteristics. Cronbachs's alpha coefficient was used to calculate the reliability of the questionnaire used for knowledge of respondents. Institutional ethical approval was taken from the Board of Ethical Committee of Bridge consultant foundation Pakistan. Descriptive statistics including numbers, percentages, mean and CI were calculated from the baseline data. Paired simple t test was used to analyze the difference between assessments of practices of infectious waste management within both groups.

3 Results

Total 243 household head including fathers were interviewed during this baseline survey. The mean age of the fathers were 35 ± 5 years. KAP among the parents of children under 5 years regarding Routine immunization Services utilization with in both Basic Health unit were not found statistically significant ($p=0.58$). However, the socio demographic information level of education, Household members, Number of children, Under-five children and Sex of Children were not significant except income which was significant in both groups (Table -1).

When compared with the KAP among the fathers of child below 5 years of age about immunization were found almost same in both groups and there were no any statistical difference has been found at the bassline level before to start the intervention. However the percentage of KAP were reported low in both groups towards routine immunization that might results low immunization status in under five children in these areas. Table-2 shows that the participants were not aware about the importance of immunization in child health. Though, they were mostly (70%) in intervention and (72%) in control group were well known about the different health diseases in their child.

4 Tables

Table 1: Socio-demographic characteristics of Household Head (n=234)

Variable name	Intervention (n=117)		Control (n=117)		Total		p-Value
	n	(%)	n	(%)	n	(%)	
Income in PKR:							<0.001
≤ 10000	21	17.9%	10	8.5%	31	13.2%	
10001 to 20000	80	68.4%	47	40.2%	127	54.3%	
≥ 20001	16	13.7%	60	51.3%	76	32.5%	
Mean ± SD =	15894 ± 7475		23205±9583				
Min and Max =	10,000	44,000	5,000	60,000			
Education							.016
No education	39	33.3%	18	15.4%	57	24.4%	
High School	57	48.7%	70	59.8%	127	54.3%	
Graduation	18	15.4%	25	21.4%	43	18.4%	
Above Graduation	3	2.6%	4	3.4%	7	3.0%	
Mean ± SD =	2.9573±1.58872		3.4274±1.36657				
Min and Max =	1.00	6.00	1.00	6.00			
Household members							.890
≤ 5	78	66.7%	77	65.8%	155	66.2%	
> 5	39	33.3%	40	34.2%	79	33.8%	
Mean ± SD =	5.0769±1.90351		4.8547±1.75315				
Min and Max =	2.00	11.00	2.00	9.00			
Number of children							.896
≤ 3	78	66.7%	77	65.8%	155	66.2%	
> 4	39	33.3%	40	34.2%	79	33.8%	
Mean ± SD =	3.0769±1.88987		2.8291±1.71851				
Min and Max =	1.00± 9.00		1.00± 7.00				
Under-five children							.038
	113	96.6%	105	89.7%	218	93.2%	
	4	3.4%	12	10.3%	16	6.8%	
Mean ± SD =	1.0342±.18249		1.1026±.30469				
Min and Max =	1.00± 2.00		1.00± 2.00				
Sex of Children							.793
Male	55	47.0%	53	45.3%	108	46.2%	
Female	62	53.0%	64	54.7%	126	53.8%	

Table 2: KAP about routine immunization among Fathers (n=234)

Statements	Intervention		Control		Total		P-Value
	n	(%)	n	(%)	n	(%)	
Knowledge on health and immunization							
Opinion concerning child health	16	13.7%	15	12.8%	31	13.2%	.847
Understanding of main health problems for under-five children	82	70.1%	85	72.6%	167	71.4%	.664
Choice of treatment	33	28.2%	33	28.2%	66	28.2%	1.000
Reason child becomes unwell	5	4.3%	11	9.4%	16	6.8%	.120
Heard of immunization	89	76.1%	80	68.4%	169	72.2%	.189
Know any disease eradicated from Pakistan	30	25.6%	30	25.6%	60	25.6%	1.000
Knowledge on Immunization							
Prevention of vaccine preventable diseases	37	31.6%	36	30.8%	73	31.2%	.888
Vaccine schedule for disease in Pakistan	106	90.6%	117	100.0%	223	95.3%	.001
Role of vaccination for health	46	39.3%	45	38.5%	91	38.9%	.893
Children with preventive diseases	22	18.8%	23	19.7%	45	19.2%	.868
Gender difference in Vaccination	21	17.9%	15	12.8%	36	15.4%	.277
Available Nearest center	99	84.6%	101	86.3%	200	85.5%	.711
Consideration if immunization as a Health problem		50.4%	56	47.9%	115	49.1%	.695
Preference of Immunization	28	23.9%	29	24.4%	57	24.4%	.879
Advise for Vaccination	29	24.8%	29	24.8%	58	24.8%	1.000
Promotion of immunization	23	19.7%	15	12.8%	38	16.2%	.156
Usefulness if EPI program	47	40.2%	41	35.0%	88	37.6%	.418
Consideration if immunization as a Health problem	95	50.4%	56	47.9%	115	49.1%	.695
Practice on Immunization							
Last Dose Source	37	31.6%	28	23.9%	65	27.8%	.189
Know Vaccination place Missed children	92	78.6%	92	78.6%	184	78.6%	1.000
Choice of Health care Facility	74	63.2%	65	55.6%	139	59.4%	.231
Option on Non availability of vaccine	2	1.7%	2	1.7%	4	1.7%	1.000
Help of Vaccination team	100	8.55%	96	82.1%	196	83.8%	.478

Table-3 shows that the most of the children were partially immunized and very few numbers were fully immunized in both areas.

Table 3: Immunization Status of under-five children

Variable name	Intervention		Control		Total		p-Value
	(n=117)	(%)	(n=117)	(%)	(n=234)	(%)	
Fully Immunized							.552
Yes	13	11.1%	16	13.7%	29	12.4%	
No	104	88.9%	101	86.3%	205	87.6%	
Partially Immunized							.165
Yes	101	86.3%	93	79.5%	194	82.9%	
No	16	13.7%	24	20.5%	40	17.1%	

5 Discussion

This study observed the status of routine immunization among under five children was partial in both setting. There are some important gaps need to be strengthened especially in rural setting. The results of study indicate that there is lack of understanding about routine immunization among study participants. Thus there is need of critical level of public awareness in district Panjgur, especially among Father of child under 5 years to decrease burden of preventable diseases. Similar studies shows that the knowledge of households of child under 5 years of age was very poor and needs education intervention for to rapid improve the coverage [4]. Other studies were also in the opinion that low literacy was found as big constraints for the poor immunization status in rural community. However, household education is more important for betterment of good health of their child and to understand the importance of vaccination for their kids [5]. Extensive health education campaigns about routine immunization are beneficial for fathers House hold Head, particularly to residents of urban and rural areas. The overall immunization coverage was found to be low. Hence, to increase the immunization coverage and reduce the incidences of missed opportunity, utilization of health services in the primer Health care level should be promoted, the outreach activities of the Basic Health unit should be strengthened and greater utilization of health services by community should be encouraged. A prospective community-based intervention study from Karachi Pakistan had also proved that health education for mothers of child would positively improve the health of their child by building their knowledge about health [6]. The current study sought to evaluate knowledge of population and Immunization Status of under-five children. Result of this study observed partial knowledge and practice towards routine immunization. Study with similar findings shows that without improving education level of females in rural communities, it would be difficult to educate and empower the first care provider of child. However, as an interim strategy, educational messages regarding a limited number of key practices should be disseminated [7]. Disease could not be controlled without education of house hold and mothers and their practices would never be changed without proper knowledge on the child vaccination [8]. Improving the mother's education level is very important, to empower the first care provider of child in the community. However, in the meantime, health educational messages related to the limited number of key family practices should be disseminated [9]. Research suggests that an immunization of children under 5 years among different regional and socio-economic population groups in Pakistan gives insights on the health facilities used for immunization and the reasons for not vaccinating the children like non availability and accessibility of

vaccines [10]. A simple educational intervention designed for low-literate populations, improved vaccine completion rates by 39% and these findings have an important implications for improving routine immunization rates in Pakistan [11]. The EPI coverage in rural village of Pakistan is quite well established, but still left room for improvement. Factors that encouraged higher immunization rates were more educated mothers, better awareness and availability of door-to-door services [12]. The health education messages was significantly increased the vaccination status of children under 5 in the rural areas of Pakistan during an interventional study [4].

6 Conclusion

Knowledge and Practices among house holds about immunization in under five children were not found up to the required standard in these rural areas of Pakistan due to illiteracy and poverty. However, There was no significant differences found regarding the routine immunization practices of under five children in both catchment area of Basic health units in both areas before to start the intervention.

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