Factors Affecting Uptake of Routine Immunization Among Children Age 12-23 Months in District Rahimyar Khan, Punjab, Pakistan

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Abstract

Background: Vaccination prevents significant amount of childhood deaths around the globe. Pakistan is vaccinating children through EPI since 1978 against 10 diseases. Pakistan is facing difficulties in achieving goal of vaccine coverage due to multiple factors. Researches reveal that human resource, poor equipment and training of health care personnel are important for successful immunization programme. Current study was conducted to assess the routine immunization coverage among children of age 12-23 months in Rahimyar Khan district, Punjab, Pakistan and to identify factors that affect uptake of routine immunization in Rahimyar Khan district, Punjab, Pakistan

Materials and Methods: It was a cross sectional study which was conducted in Rahimyar Khan from Oct 2016-Jan 2017. A total of 378 mothers having children of age 12-23 months were interviewed through structured questionnaire. Total 12 (six rural and six urban) Union Councils of district Rahimyar Khan were selected through random sampling. For household selection, random area of union council was selected, and bottle was rotated to select first house, then every Nth (5th) house were approached for sample until required sample size was obtained. Data was analysed by SPSS 22.0. Chi Square test was used to explore association between independent variables and outcome variable.

Results: A total of 378 mothers of children age 12-23 months were interviewed. About 66.10% children were found fully immunized. Measles- II vaccine coverage was 60.8% while 78% were immunized against BCG vaccines. Mother's educational status, occupation and father's educational status, occupations were observed to the significantly affect the immunization coverage of children. The monthly household income, age of children and area of residence also significantly affected the immunization coverage of children. Other factors such as the child gender, ethnicity, religion, type of family and number of children did not significantly affect the immunization coverage. Majority of respondents' perception were place of delivery and community health workers play role to enhance the vaccination coverage.

Conclusion: The study concluded that the majority (66.10%) of children were completely immunized within recommended time. The reasons of vaccine refusal and lower immunization coverage areas can be countered by overcoming the factors such as place of delivery, theory of knowledge, general public motivation and well-planned infrastructure at National and local level.

Keywords: Vaccination, Vaccination coverage, mortality under 5, Immunization, Immunization

coverage, Barriers to immunization, Factors affecting re-uptake of immunization coverage

Introduction:

"Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease*"* (1). Worldwide, an estimated 3 million children under 5 years die per annum from infectious diseases, and these deaths can be prevented by vaccines (2). Immunization is one of the most effective way of preventing childhood illnesses and deaths and forestalls an estimated 2–3 million deaths annually from vaccine preventable diseases (WHO) (3). Globally, since the foundation of the Expanded Program on Immunization (EPI), vaccination coverage has generally increased (WHO), yet in Africa about 20% of children still do not receive immunizations (4). Pakistan's insufficient child health indices are apparently related with low immunization coverage, which is among the lowest global (5). Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. It is one of the most gainful health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. It has clearly defined target groups, it can be delivered effectively through outreach activities; and vaccination does not require any major lifestyle change. However, in spite of the availability of low cost vaccines, it is extremely tragic that almost two million children still die each year from vaccine preventable diseases; and more than 90, 000 children suffer from paralytic Polio that could have been prevented by administration of two drops of oral Polio vaccine. The Expanded Programme on Immunization was initiated by the World Health Organization (WHO) in 1974 when less than 5% of the world's children were immunized during their first year of life against six diseases (Diphtheria, Tetanus, Pertussis, Polio, Measles, and Tuberculosis). Though international agencies such as the WHO and UNICEF promote global immunization drives and policies, the success of an immunization programme in any country depends more upon local realities and national policies. The vaccination coverage in district Rahimyar Khan is 62%, below than WHO guidelines (6). This research was conducted to address the factors responsible for low routine immunization coverage, the associated morbidity and mortality trends among children, the contextual influences, individual and social group influences and vaccine and vaccination related specific Factors that impede strengthening of immunizations to achieve and maintain a high coverage of above 80% in Rahimyar Khan.

Objectives: To assess the routine immunization coverage among children of age 12-23 months in Rahimyar Khan district, Punjab, Pakistan and to identify factors that affect uptake of routine immunization in Rahimyar Khan district, Punjab, Pakistan

Materials and Methods:

It was a cross sectional study which was

conducted in Rahimyar Khan from Oct 2016-Jan 2017. A total of 378 mothers having children of age 12-23 months were interviewed through structured questionnaire. Total 12 (six rural and six urban) Union Councils of district Rahimyar Khan were selected through random sampling. For household selection, random area of union council was selected, and bottle was rotated to select first house, then every Nth (5th) house were approached for sample until required sample size was obtained. Data were analysed by SPSS 22.0. Chi Square test was used to explore association between independent variables and outcome variable

Results:

Socio demographic characteristics of respondents: (Mothers of children age 12-23 months of age)

Overall response rate was 97%. A total of 378 participants were interviewed during the study. Mother's age range was from 18-42 years. Age was grouped into five groups and most of the respondents were from 21- to 35 years age group, but many relatively younger. Almost half of the mothers were 174 (46.0%) were uneducated, uppermost percentage 69 (18.3%) had primary. Majority of mothers 243 (65.0%) were house wives and only 72 (19.7%) were laboured. Most of the mothers 227 (60.1%) had number of children 1-3 and the percentage of children age group of 16-18 months was 93 (24.6%). Most of fathers of children age 12-23 months were having matric 128 (33.9%). Majority of respondents 242 (64.1%) monthly household income was 7000-20000

Demographic Characteristics of Children: Out of 378 children 173 (45.8%) were male (90 rural and 83 urban) and 205 (54.2%) were female (101 rural and 104 urban). Child age was grouped in 4 groups. About144(38.1%)wereofaged13-15 months (84 females and 60 males), 93 (24.6%) were of age 16-18 months (46 females and 47 males), 63 (16.7%) of age 19-21 months (38 females and 25 males), and 78 (20.6%) were of age 22-23 months (37 females and 41 males) and results are presented in figure 2.

Vaccination Status of Children: Overall 66.1% children were found fully immunized with vaccines recommended in their age group. The results of the association were statistically significant (χ^2=22.360, df=9, p=0.008). Immunization coverage in male children was observed (30.40%) less than female children (35.70%). The results were statistically non-significant, showing no association between the immunization status of children and gender of the children (χ^2= 0.897, df=3, p=0.826). Rural areas had higher coverage (39.70%) than urban areas (26.50%). The results showed the difference between immunization status of children and area of residence are statistically significant. (χ^2=35.124, df=3, p=000). (Figure-3).

Antigen specific coverage on basis of Mothers recall and vaccination card: Vaccination status of children was reviewed with two methods, from mother recall about children immunization status. Immunization card were present of 302 (79.9%) children. About 60.8% of children had completed vaccination of Measles II while the percentage for BCG was 78.0 % according to vaccination card (Figure-4).

Vaccine administration site and its side effects: About 155 (41.0%) children got

Intramuscular vaccine on Intra gluteus (IG) site and 191 (50.5%) of children were given their IM vaccine on thigh. Most mothers 282 (74.6%) reported fever after IM vaccines on, and only 125 (33.1%) mothers said that there were rashes on children body after IM vaccine. The highest percentage of mothers of children reported fever after IM vaccination on Thigh site was 144 (38.1%) while percentage of fever reported after IM vaccination on IG site 116 (30.7%). (Table2)

Respondents Perceptions about Factors affecting Immunization Coverage:

Perceptions of individual on immunization coverage vary. During the study respondents were asked to indicate their perceptions to a list factors affecting on immunization coverage in Rahimyar Khan District. The Sr.#14, Sr.#8, Sr.#3, Sr.#1 and Sr.#10 indicates majority of respondents agreed with age of the mothers, place of delivery, availability of health infrastructure, role of community health workers, Knowledge about vaccines and vaccination activities and use of mobile vaccination teams are the reasons to enhance the immunization coverage. The findings on respondent's perceptions are presented in Table3.

Association between independent variables and dependent variable (ImmunizationStatus)

Cross tabulation was carried out to find out the association between the independent variables and dependent variable (Immunization status). Table 5 shows the association between background information and the level of immunization coverage.

When the age of the mothers was cross-tabulated with the immunization status of the respondents, the results showed that 24.1% of the respondents from age group 21-25 years practiced fully immunization, 19.8% respondents from age group 26- 30 years were fully immunized. While 15.6% respondents from age group 31-35 years practiced fully immunization their children. Results of the association were statistically non-significant showing no association between immunization statusand age of the respondents (χ^2= 4.005, df=8, p=0.850).

Marital status of respondents played a significant role in determining the immunization practices of the mothers. Married showed fully immunization practices as 61.4% while widow/divorced showed percentage of fully immunized as 4.7%. The results were statistically significant, showing association between the immunization status of children and marital status of the respondents (χ^2= 9.677, df=4,p=0.046).When the ethnicity of the respondents was cross-tabulated with the level of immunization coverage the results showed that the immunization coverage level of Saraiki was as good as 21.9% while Punjabi showed 17.7% fully immunized. The results of the association were statistically non-significant (χ^2=17.323, df= 12,p=0.138).

When education level of mothers was cross tabulated with level of immunization coverage resulted in fully immunized children presented surprisingly in highest percentage by uneducated respondents (36.8%) after this primary respondent ranked second in showing right perceptions (13.2%). Over all result was found statistically significant with chi square value 86.695 and p value 0.000 (χ^2= 92.282, df= 12, p=0.000).

When the profession of the respondents was cross-tabulated with the level of immunization coverage the results showed that 42.1% of the respondents from the housewives observed fully immunized children, 16.4% of the respondents from labour observed fully immunized children. The results showed that there was significant difference between the level of immunization and type of profession of mothers (χ^2=58.210, df=12, p=0.000). Having type of family was not significantly associated with fully immunized children. Those who were from joint families showed fully immunized level as 54.8% while those were from nuclear families showed fully immunized practices as 11.4%. The results of the association were not statistically significant (χ^2=1.325, df=2, p=0.516).

When number of children of respondents were cross tabulated with level of immunization coverage,1-3 number of children category showed fully immunized as 39.9% while those from 4-6 number of children category showed fully immunized as 22.2%. The results of the association were statistically not significant, showing no association between the number of children and level of immunization coverage (χ^2=10.936, df=6, p=0.090).

Age of fathers also influenced the level of immunization coverage. For five categories of age, respondent husbands of age 26-30 years were showing highest percentage for fully immunized children 24.9% followed by age group ranging from 21-25 years 19.0%. The results were statistically not significant showing no association between level of immunization and the age of fathers (χ^2= 6.249, df=8, p=0.619). Education status of fathers influenced the immunization status of children. Results explain that children showed fully immunized as 20.6% when their fathers were matric. While where there were uneducated fathers the percentage of fully immunized children dropped to 15.9%. The results of the association were statistically significant (χ^2=41.143, df=12, p=0.000).

When father's occupation status was cross tabulated with level of immunization coverage; significant association was found among the two variables. Highest proportion (29.6%) of laboured was found showing fully immunized children. The results were statistically significant (χ^2=37.907, df=12, p=0.000).

When the variable of monthly household income was cross-tabulated with level of immunization coverage of children highly significant association was found between two variables. Highest proportion (18.3%) of 10001-15,000 monthly income ranging was found statistically significant association between monthly household income and level of immunization coverage. When age of children was cross tabulated with level of immunization coverage resulted for four categories of age, children of age 13-15 months were showing highest level of immunization coverage (22.5%) followed by age group ranging from 16-18 months (17.7%). (χ^2= 17.690, df=6, p=0.007). When the gender of the children was cross-tabulated with the level of immunization coverage the results showed that 35.7% of the respondent's children were female observed fully immunized, 30.4% of the respondent's children were male observed fully

immunized. The results showed that there was no significant difference between the level of immunization and gender of children (χ^2=0.072, df=2, p=0965).

When the residence area of the children was cross-tabulated with the immunization status of the respondents, the results showed that 39.7% of the respondent's children from rural area practiced fully immunization, 26.5% respondent's children from urban area were fully immunized. Results of the association were statistically non-significant showing no association between immunization status and age of the respondents (χ^2= 33.120, df=2, p=0.000).

Relationship of socio-demographic variables of mothers of children aged 12-23 months and perceptions about factors affecting uptake of immunization: When personal characteristics of respondents were cross tabulated with dependent variable i.e. Perceptions about Factors affecting uptake of routine immunization, mostly findings were found significant. For each single characteristic of respondents 174 respondents were in wrong perceptions level and 204 fell in correct perceptions level and this distribution remained constant throughout the cross tabulation of characteristics and Perceptions about Factors affecting uptake of routine immunization.

For four categories of age, respondents of age 21-25 years were showing highest percentage for right perceptions about immunization coverage factors followed by age group ranging from 26-30 years. Overall the result for association of perceptions about vaccination coverage and age of respondents was statistically significant. Chi squared value resulted 12.6 at p value of 0.014 which made results significant. Ethnicity of respondents played a significant role in determining perceptions about vaccination coverage. Among listed ethnicities of respondent's perceptions about vaccination was depicted mainly from Saraiki ethnicity followed by Punjabi ethnic group. P value 0.000 making result significant for this cross tabulation. Chi squared value resulted25. Cross tabulation of education level of mothers with perceptions about vaccination uptake factors resulted in right perceptions presented surprisingly in highest percentage by uneducated respondents (28.4%) after this primary respondent ranked second in showing right perceptions (12.7%). Over all result was found statistically significant with chi square value 33.6 and p value 0.000. For marital status and perceptions about immunization, married respondents were showing right perceptions and were with high percentage (50.5%) remaining percentage was found reserved for widow respondents. P value was found greater than 0.05 rendering the results statistically non-significant with chi square value 2.9 and p value 0.299.

Respondents were asked about employment status and when these results were cross tabulated with perceptions about vaccination uptake reasons; significant association was found among the two variables. Highest proportion (31.2%) of housewives was found showing right perceptions level. Chi square value reported 32.53 while p value worked at 0.00. Respondents were asked about family type and were cross tabulated with perceptions about reasons for not immunizing children according to participants and highest percentage of perceptions was found in joint families

(44.2%).

Association between two variables was insignificant with chi square value 0.280 while p value worked at 0.728. For five categories of age, children father of age 26-30 years were showing highest percentage for right perceptions about immunization coverage factors followed by age group ranging from 21-25years. Cross tabulation of education level of fathers with perceptions about vaccination uptake factors resulted in right perceptions presented in highest percentage by matric father (15.9%) after this middle respondent ranked second in showing right perceptions (10%). Over all result was found statistically significant with chi square value 28.91 and p value0.000.

Respondents were asked about employment status and when these results were cross tabulated with perceptions about vaccination uptake reasons; significant association was found among the two variables. Highest proportion (23.8%) of laboured was found showing right perceptions level. Chi square value reported while p value worked at0.02. Respondents were asked about monthly household income and these results were cross tabulated with perceptions about reasons for not immunizing children according to participants, highly significant association was found between two variables. Highest proportion (14.6%) of 10001-15,000 monthly income ranging was found showing right perceptions level. Chi square value reported 15.91 while p value worked at 0.05.

Discussion:

This study tried to assess the immunization coverage and factors associated with it among children aged between 12-23 months old residing in 12 UCs of Tehsil Sadiq Abad found in District Rahimyar Khan, Punjab Province of Pakistan. This study identified district Rahimyar Khan factors to immunization. These factors related to both the demand and the supply side of routine immunization. We found that overall immunization coverage was 66.10% in district Rahimyar Khan which was greater than MICS, Punjab, Pakistan, 2014 reported for Punjab province (62%) (6). In our study, it was noted that 60.6% by reviewing card and 63.4% by mother recall got Measles II vaccine. The percentage for BCG vaccine was 90.3% by mother recall, and 78.1% by vaccination card. Our study results revealed that coverage of BCG vaccine was maximum (78%) followed by first dose of pentavalent, OPV and pneumococcal vaccine (75.4%), second dose of pentavalent, OPV and pneumococcal vaccine (73.3%) and third dose of pentavalent, OPV and pneumococcal vaccine was received by 68% children. First dose of measles vaccine was received by 73% children while second dose coverage against measles was only 60.8%. These findings are reliable with study conducted by Amin et al (2013) conducted in district of city in which coverage was highest for BCG (78%) followed by DPT 1 (75%) while first dose of measles vaccine was received by 74% children. Children from rural areas were more likely (41.7%) to have complete immunization than urban areas (26.2%). This statistically significant difference (0.000) was also seen in different studies (7). Oditt et al (2003) also reported similar findings. They said that perception of communication problems between parents and health workers were significantly associated with complete

immunization coverage. Site of child birth were not associated with immunization coverage at all (8).

Low socioeconomic status and lack of education were also major barriers found in our study. The findings are similar to a study from Peshawar Pakistan. Samreen et al (2013) found that lack of parent's education and low socioeconomic status were reason of non-immunizing for 20% of respondents (9). The analysis showed that there was no association between religion, child gender, number of children, family type, ethnicity and age of parents with children routine immunization coverage. However, marital status and monthly household income, parent's education status, parent's occupation and place of residency had a significant relationship with routine immunization coverage. Ughasoro et al (2015) report similar findings. They said that parent's education, profession and monthly income associated with immunization status of children (10).

Perceptions of barriers to immunization coverage of respondents were diverse. Virtually all respondents felt that the way of thinking of mother was fundamental to increase the utilization of immunization services in Rahimyar Khan District due to the fact that in an Asian setting woman participate essential role in wellbeing of children. 81.2% of the respondents indicated that anti-vaccine rumours do not affected the use of immunization services. As 92.3% of the respondents believed that the use of mobile vaccination teams might enhance utilization of immunization services in Rahimyar Khan District.

The respondents of this study considered place of delivery of vaccination as an important factor that affects immunization coverage in our society that is leading to the unwillingness of population to vaccinate their children. According to Anne, the main focus of research on vaccination has been on the geographic area of immunization centres and bellies (11). In this study the place of delivery was found as having a strong influence on the willingness of the parents to vaccinate their children. In this study, the need of awareness was established as another reason that is contributing to the low vaccination coverage rate in our country. Awareness is the capability of individuals to recognize some observable fact related to them or other individuals in a society. In the current study, the awareness means a thoughtful along with common people that the diseases are preventable through different vaccines at early stages of life. The lack of awareness and perception is also associated with vaccination coverage and it has an interesting link with ancient beliefs of people (12). The lack of awareness in broad population is endorsed to the factors that our Government, social media and immunization centres are playing a deprived role towards providing knowledge to the population. The role of community health workers was found another major barrier to lower the vaccination coverage rate. It was revealed that the parents of poor faith on western type medicines are reluctant to vaccinate to their children because of the fear of side effects like fever, rashes needle fear. The studies on decision of vaccination suggest that the side effects of vaccines are big reason that affects the immunization coverage (13,14).

Conclusion:

This study showed that 66.1% of children were fully immunized within the time recommended by EPI Pakistan as per vaccination card. This study identified eight key factors to full coverage with routine immunization. The study concludes that there are distinct reasons relating to the routine immunization in Rahimyar Khan. The factors identified to lacking parental education, awareness of immunization and vaccine preventable diseases, fear of side effects, religious misconceptions, marital status lack of human resources. Taking step ahead and conquer on these factors to improve routine immunization coverage.

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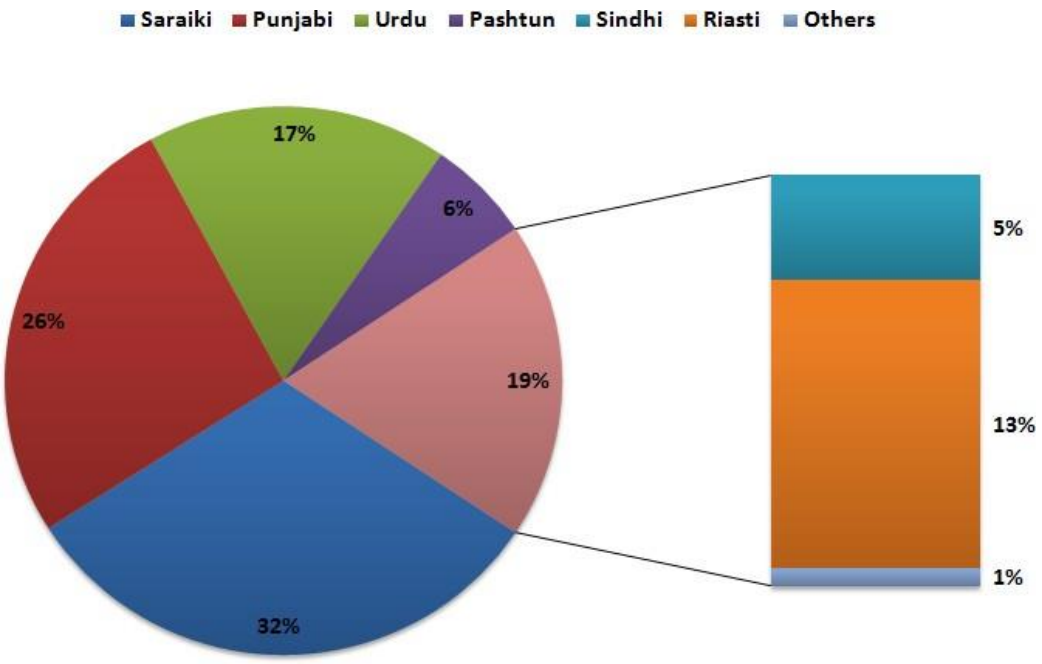

Figure 1: Ethnicity Percentage of respondents

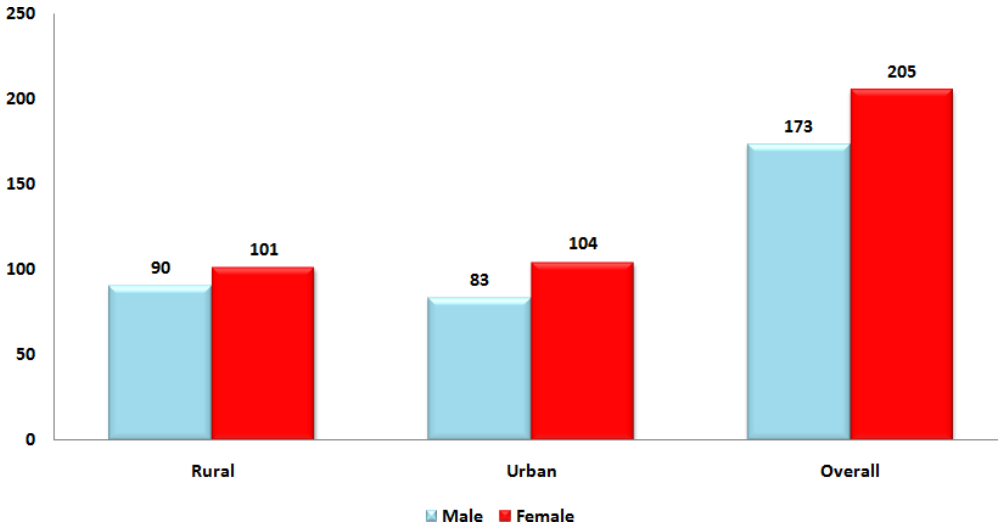

Figure-2: Characteristics of Children

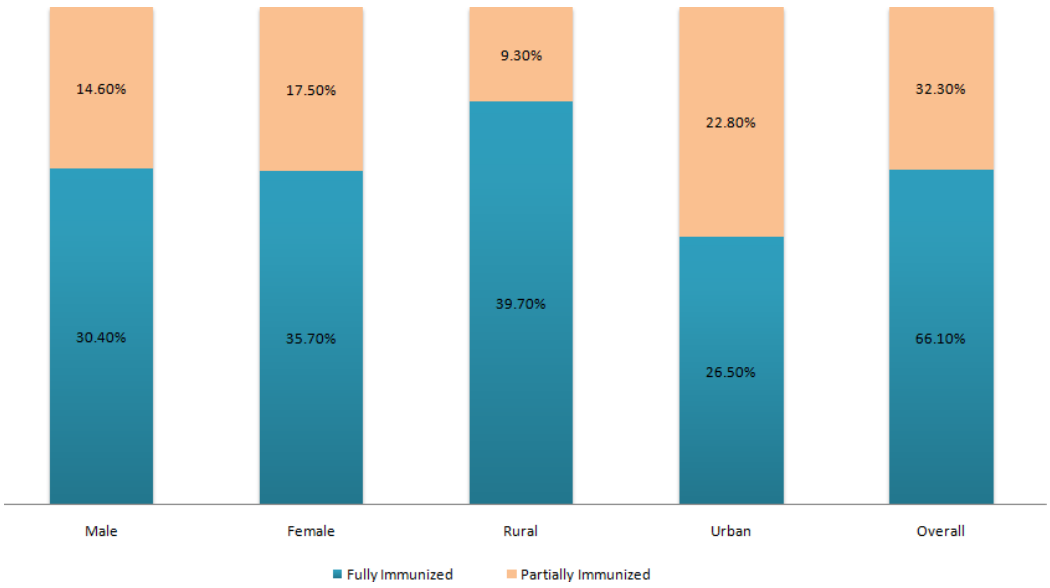

Figure-3: Vaccination Status of Children

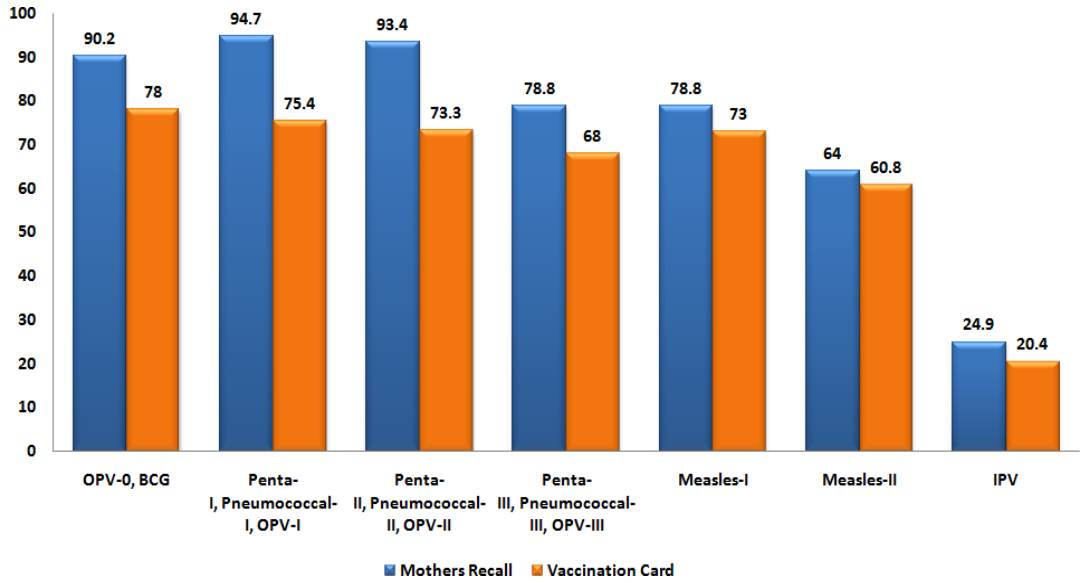

Figure-4: Antigen Specific coverage based on Mothers recall and vaccination card

Table-1: Socio demographic Characteristics of respondents for study factors affecting uptake of immunization in district Rahimyar Khan, Punjab Pakistan

Sr.	Characteristics	Frequency N(%age)
Place of residency		
1	Rural	191 (50.5%)
	Urban	187 (49.5%)
Mother's age (Years)		
2	17-20	3 (0.8%)
	21-25	146 (38.6%)
	26-30	108 (28.6%)
	31-35	89 (23.5%)
	36-42	32 (8.9%)
Mothers educationstatus		
3	Uneducated	174 (46.0%)
	Primary	69 (18.3%)
	Middle	43 (11.4%)
	Matric	48 (12.7%)
	Intermediate	30 (7.9%)
	Graduation	11 (2.9%)
	Post-graduation	3 (0.8%)
	Uneducated	174 (46.0%)
Mothersoccupation		
4	Housewife	243 (65.0%)
	Unemployed	13 (2.5%)
	Labour	72 (19.7%)
	Government Job	21 (5.2%)
	Private Job	24 (6.1%)
	Cultivation	3 (0.8%)
	Others	(0.5%)

Table-2: Intra Muscular vaccines administration site and its side effects

Sr.#	Variables	Agreement Level = N (%)
Intra-muscular Vaccine Site		
1	Intra gluteus	155 (41.0%)
	Thigh	191 (50.5%)
Fever after vaccination		
2	Yes	282 (74.6%)
	No	85(22.5%)
Rashes after vaccination		
3	Yes	125 (33.1%)
	No	2454 (7%)
Fever after IM vaccination on site		
4	Thigh	144 (38.1%)
	Intragluteal	116 (30.7%)
Rashes after IM vaccination on site		
5	Thigh	56 (14.8%)
	Intragluteal	60 (15.9%)

Table-3: Intra Muscular vaccines administration site and its side effects.

Sr.#	Variables	Agreement Level = N (%)
1. Intra-muscular Vaccine Site		
	Intra gluteus	187 (49.5%)
	Thigh	191 (50.5%)
2. Fever after vaccination		
	Yes	282 (74.6%)
	No	85 22.5%)
3. Rashes after vaccination		
	Yes	133 (35.1%)
	No	245 (64.8%)
4. Fever after IM vaccination on site		
	Thigh	144 (38.1%)
	Intragluteus	116 (30.7%)
5. Rashes after IM vaccination on site		
	Thigh	56 (14.8%)
	Intragluteus	60 (15.9%)

Table-4: Respondents Perceptions about Factors affecting Immunization Coverage

Sr. #	Statements	Respondent agreement level to statements		
		Agree%	Neutral %	Disagree %
1.	The role of community healthcare workers in the	346 (91.5)	7 (1.9)	25 (6.6)

	area enhances delivery of immunization services.			
2.	Short distance from my home to immunization centre not encourages me to take my child to receive immunization services	84 (22.2)	84 (22.2)	210 (55.6)
3.	The knowledge on immunization activities enhances the use of immunization services.	334 (88.4)	23 (6.1)	21 (5.5)
4.	Availability of health infrastructures enhances utilization of immunization services	340 (90.0)	16 (4.2)	22 (5.8)
5.	Availability of immunization equipment does not have any impact on utilization of immunization services.	30 (8.0)	19 (5.0)	329 (87.0)
6.	Anti-vaccine rumors affect use of immunization services.	61 (16.6)	10 (2.6)	307 (81.2)
7.	Weather conditions does not have any impact on the utilization of immunization services	331 (87.7)	15 (4.0)	32 (8.5)
8.	Place of delivery enhances the utilization of immunization services.	349 (92.4)	10 (2.6)	19 (5.0)
9.	Migrations of families do not crashing utilization of immunization services.	28 (7.4)	10 (2.6)	340 (90.0)
10.	The use of mobile vaccinations teams	346 (90.5)	16 (4.2)	20 (5.3)

	enhances utilization of immunization services.			
11.	Mass media plays negative role in promotion of utilization of immunization services.	43 (11.3)	9 (2.4)	326 (86.2)
12.	Community awareness is important in promoting utilization of immunization services.	327 (86.5)	17 (4.5)	34 (9.0)
13.	The level of education of mother has negative impact on utilization of immunization services.	62 (16.4)	11 (2.9)	325 (80.7)
14.	The age of the mother plays an important role in the use of immunization services.	362 (93.1)	8 (2.1)	18 (4.8)
15.	The attitude of the parents has negative impact the use of immunization services.	294 (77.8)	14 (3.7)	70 (16.5)
16.	Marital status of the mother plays an important role in the use of immunization services.	249 (65.9)	61 (16.4)	65 (17.8)
17.	Political good will of the community leaders has negative impact on delivery of immunization	324 (85.7)	16 (4.2)	38 (10.1)

Table-5: Results of cross tabulation of respondent's socio-demographic variables and immunization coverage

Sr #	Variables	Level of Immunization Coverage		Chi-square (p-value)
		Partially Immunized (128)	Fully Immunized (250)	
1	**Mother's Age**			4.07 (0 .850)
	18-20	0 (0%)	3 (0.8%)	
	21-25	55(14.6%)	91 (24.1%)	
	26-30	33 (8.6%)	75 (19.8%)	
	31-35	30 (8.0%)	59 (15.6%)	
	More than 35	10 (2.7%)	22 (5.8%)	
2	**Ethnicity**			17.33 (0.138)
	Saraiki	41 (10.8%)	79 (21.9%)	
	Punjabi	32 (8.5%)	67 (17.7%)	
	Urdu	29 (7.7%)	37 (9.8%)	
	Pashtu	6 (1.6%)	17 (4.5%)	
	Sindhi	0 (0%)	18 (5.0%)	
	Riasti	20 (5.3%)	29 (7.7%)	
	Others	0 (0%)	3 (0.8%)	
3	**Mothers educational status**			92.28 (0.000*)
	Illiterate	35 (9.3%)	139 (36.8%)	
	Primary	19 (5.2%)	50 (13.2%)	
	Middle	12 (3.2%)	31 (8.2%)	

	Matric	22 (5.9%)	26 (6.9%)	
	Intermediate	26 (6.9%)	4 (1.1%)	
	Graduation	11 (2.9%)	0 (0%)	
	Master	3 (0.8%)	0 (0%)	
4	**Marital status**			9.68 (0.046*)
	Married	128 (33.9%)	232 (61.4%)	
	Divorced	0 (0%)	5 (1.3%)	
	Widow	0 (0%)	13 (3.4%)	
5	**Mothers occupation**			58.21 (0.000*)
	Unemployed	1 (0.3%)	12 (3.2%)	
	Housewife	84 (22.3%)	159 (42.1%)	
	Labor	10 (2.7%)	62 (16.4%)	
	Govt. Job	13 (3.4%)	8 (2.1%)	
	Private Job	17 (4.5%)	7 (1.9%)	
	Cultivation	1 (0.3%)	2 (0.5%)	
	Other	2 (0.5%)	0 (0%)	
6	**Family type**			1.33 (0.516)
	Nuclear	28 (7.4%)	43 (11.4%)	
	Joint	100 (26.4%)	207 (54.8%)	
7	**Number of children**			10.94 (0.090)
	1-3	76 (20.1%)	151 (39.9%)	
	4-6	36 (9.5%)	84 (22.2%)	
	7-9	10 (2.7%)	13 (3.4%)	
	>9	6 (1.6%)	2 (0.5%)	
8	**Father age**			6.25 (0.691)

	18-20	0 (0%)	6 (1.6%)	
	21-25	33 (8.8%)	72 (19.0%)	
	26-30	47 (12.4%)	94 (24.9%)	
	31-35	36 (9.5%)	53 (14.0%)	
	> 35	12 (3.2%)	25 (6.6%)	
9	**Father education status**			41.14 (0.000*)
	Illiterate	11 (2.9%)	60 (15.9%)	
	Primary	7 (1.9%)	36 (9.5%)	
	Middle	21 (5.6%)	42 (11.1%)	
	Matric	50 (13.2%)	78 (20.6%)	
	Intermediate	17 (4.5%)	20 (5.3%)	
	Graduation	14 (3.7%)	10 (2.6%)	
	Master	8 (2.1%)	4 (1.1%)	
10	**Father occupation**			37.90 (0.000*)
	Unemployed	0 (0%)	9 (2.4%)	
	Labor	35 (9.3%)	112 (29.6%)	
	Govt. Job	6 (1.6%)	19 (5.0%)	
	Private Job	22 (5.8%)	19 (5.0%)	
	Cultivation	24 (6.3%)	55 (14.6%)	
	Private Business	33 (8.3%)	26 (6.9%)	
	Other	8 (2.1%)	10 (2.6%)	
11	**Monthly Household Income (Rs.)**			39.23 (0.001*)
	<7000	4 (1.1%)	16 (4.2%)	
	7001-10000	28 (7.4%)	55 (14.6%)	
	10001-15000	24 (6.4%)	69 (18.3%)	
	15001-20000	16 (4.3%)	50 (13.2%)	

	20001-25000	3 (0.8%)	11 (2.9%)	
	25001-30000	9 (2.4%)	6 (1.6%)	
	30001-40000	33 (8.7%)	21 (5.6%)	
	>40000	8 (2.2%)	19 (5.0%)	
	Did not Disclose	3 (0.8%)	3 (0.8%)	
12	**Child age (Months)**			17.69 (0.007*)
	13-15	59 (15.6%)	85 (22.5%)	
	16-18	26 (6.9%)	67 (17.7%)	
	19-21	23 (6.2%)	40 (10.6%)	
	22-23	20 (5.3%)	58 (15.3%)	
13	**Place of Residency**			33.12 (0.000*)
	Rural	41 (10.8%)	150 (39.7%)	
	Urban	87 (23.1%)	100 (26.5%)	
14	**Children gender**			0.07 (0.965)
	Male	58 (15.4%)	115 (30.4%)	
	Female	70 (18.5%)	135 (35.7%)	
15	**Religion**			4.73 (0.094)
	Muslim	125 (33.0%)	238 (63.0%)	
	Non Muslim	3 (0.8%)	12 (3.2%)	

* p-value statistically significant at a = 0