Original Article

CHILDHOOD IMMUNIZATION COVERAGE IN URBAN SLUMS OF BAHAWALPUR CITY

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ABSTRACT:

OBJECTIVE: The main objective of the study was to assess the immunization coverage in children 12-23 months of age in urban slums of Bahawalpur City.

METHODOLOGY: A cross sectional descriptive study was conducted in slum areas of Bahawalpur City from July 2014 to December 2014 to assess the vaccination coverage of children less than 12-23 months of age after ethical approval of Institutional review board. Sample size calculated for the survey at 95% level of confidence, 5% margin of error and anticipated population proportion of 71.9%[6] was 306. A multistage sampling technique was used for the survey. At first stage one slum area out of total 11 was selected by simple random method was Tibba Badar Sher and in second stage the households within area were selected by systematic random sampling technique. A preformed questionnaire (translated in local language) used to collect the data comprised of two parts. First part consists of socio-demographic variables of parents and second part was about the status of vaccination. The data was collected from mother/father of child present at home at the time of survey. Immunization status of child was assessed on the basis of immunization card. For those without immunization card information from mother/father were collected. The definitions for vaccination status were based on reception of injectable vaccines (BCG, pentavalent, pneumococcal and measles) because oral polio vaccine is provided on special polio days. No vaccination was defined as reception of no injectable vaccine included in the EPI schedule. Incomplete vaccination was defined as reception of at least one injectable vaccine but having not received all vaccines included in the EPI. Complete vaccination was defined as reception of all the injectable vaccines included in EPI in the first year of life. Data was entered and analyzed by using SPSS version 17. Chi square test was applied to see any statistical difference between the groups. P value ≤0.05 was taken as significant.

RESULTS: Out of total 306 children surveyed, immunization card was available for only 26% children. Only 48% children completed their immunization while half were partially immunized. Among the individual vaccines the highest coverage was of BCG vaccine 86% followed by first dose of petavalent and pneumococcal vaccine (84%), second dose of petavalent and pneumococcal vaccine (78%). First dose of measles vaccine was received by 84% children while second dose coverage against measles was only 42%. Among children which had completed their immunization schedule 59.2% mothers had intermediate and above education and only 6.8% were illiterate while 50% mothers of non-immunized children were illiterate. Monthly family income of 74.1% children which received complete immunization was more than 20,000 and 83.3% children which were not immunized had monthly family income of less than 10,000.

CONCLUSION: Our study results concluded that most of the children in 12-23 months of age are partially immunized.

KEY WORDS: Immunization, Coverage, Urban slums

INTRODUCTION:

Rapid urbanization is also accompanied by proportionate growth of urban slums.[1] Majority of the population in the world is living in urban areas and one in three city dwellers reside in an urban slum. The living conditions in slums are characterized as extreme population density, poor sanitation, inadequate access to safe water, poor housing conditions, have less education and lack of access to basic health services. Such environment is highly favorable for the development and spread of communicable diseases especially among children. An opportunity to mitigate childhood morbidity and mortality is provided through the childhood immunization.[2,3]

The most cost effective strategy for control and prevention of vaccine preventable diseases is providing immunization. Although about 2.1 million deaths and countless episodes of illness and disability has been averted by immunization but still 20% children worldwide remain unvaccinated. The Expanded Program on Immunization in Pakistan aims to immunize all children between 0 and 23 months against nine vaccine preventable diseases that include infant tuberculosis, poliomyelitis, diphtheria, pertussis, neonatal tetanus, hepatitis B, Haemophilus influenza type b (Hib), Pneumococcal pneumonia and measles.[4,5,6]

Vaccine coverage variations persist in developed and developing regions of the world. In Europe average coverage of child immunization for all vaccines is more than 90% while it ranges from 50-80% in developing world.[7] This is need of the time to collect information on status of immunization coverage. This study aimed to estimate the proportion of children 12-23 months of age vaccinated against nine infectious diseases in urban slums of Bahawalpur City.

OBJECTIVE:

The main objective of the study was to assess the immunization coverage in children 12-23 months of age in urban slums of Bahawalpur City.

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MATERIALS AND METHODS:

A cross sectional descriptive study was conducted in slum areas of Bahawalpur City from July 2014 to December 2014 to assess the vaccination coverage of children less than 12-23 months of age after ethical approval of Institutional review committee. Sample size calculated for the survey at 95% level of confidence, 5% margin of error and anticipated population proportion of 71.9%[6] was 306. A multistage sampling technique was used for the survey. At first stage one slum area out of total 11 was selected by simple random sampling method was Tibba Badar Sher and in second stage the households within area were selected by systematic random sampling technique. There were total 2250 households in the locality. All the households in the locality were numbered with the help of person from union council and first household was selected by simple random method then every 7th household was surveyed. If any house was found to be locked researcher visited that house two times more with gap of one week if it found locked then the next house on the right side was taken, similarly if, eligible respondent was not found in any selected house then next house on right side was taken.

A preformed questionnaire (translated in local language) used to collect the data comprised of two parts. First part consisted of socio-demographic variables of parents and second part was about the status of vaccination. The data was collected from mother/father of child present at home at the time of survey after taking the consent.

Immunization status of child was assessed on the basis of immunization card. For those without immunization card information from mother/father were collected. The definitions for vaccination status were based on reception of injectable vaccines (BCG, pentavalent, pneumococcal and measles). No vaccination was defined as reception of no injectable vaccine included in the EPI schedule. Incomplete vaccination was defined as

reception of at least one injectable vaccine but having not received all vaccines included in the EPI. Complete vaccination was defined as reception of all the injectable vaccines included in EPI in the first year of life. The complete schedule of vaccines under the EPI program Pakistan include BCG vaccine for childhood tuberculosis at birth, three doses of pentavalent and pneumococcal vaccines and Polio drops at 6, 10 and 14 weeks and a dose of measles at 9 and 15 months. Data was entered and analyzed by using SPSS version 17. Chi square test was applied to see any statistical difference between the groups. P value ≤0.05 was taken as significant.

RESULTS:

Out of total 306 children surveyed, immunization card was available for 26% children and for the remaining 74% children immunization status was assessed by mother's/father's recall as shown in figure I.

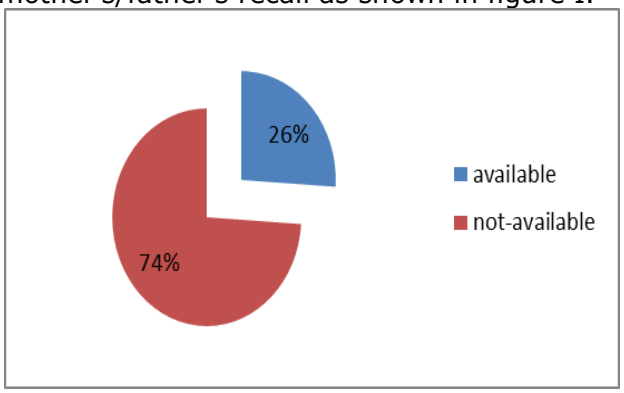

Fig I: Availability of immunization cards

Only 48% children completed their immunization according to EPI schedule, 2% didn't received any of the recommended vaccine and 50% children were partially vaccinated (Table I).

Among the individual vaccines 86% received BCG vaccine, first dose of petavalent and pneumococcal vaccine was received by 84% children, second dose of petavalent and pneumococcal vaccine received by 78% children whereas third dose was received by 68% children. First dose of measles vaccine was received by 84% children while second dose coverage against measles was only 42% (Table II).

Table I: Immunization Status of Children

Immunization status	Frequency	Percentage
Complete Immunization	147	48%
Partial Immunization	153	50%
No Immunization	06	02%
Total	306	100%

TABLE II: VACCINATION STATUS OF CHILDREN AGED 12-23 MONTHS

Vaccine	Frequency of received	Percentage
BCG	263	86%
Pentavalent 1 + Pnemococcal 1	257	84%
Pentavalent 2 + Pnemococcal 2	239	78%
Pentavalent 3 + Pnemococcal 3	208	68%
Measles 1	257	84%
Measles 2	128	42%

Among children which had completed their immunization schedule 59.2% mothers had intermediate and above education and only 6.8% were illiterate while 50% mothers of non-immunized children were illiterate (Table III).

TABLE III: MOTHER'S EDUCATION AND IMMUNIZATION STATUS OF CHILDREN

Mother,s education	Immunization status					
	Complete immunization		Partial immunization		No immunization	
	Freq.	%age	Freq.	%age		
Illiterate	10	06.8%	20	13.1%	03	50%
Primary	11	07.5%	13	08.5%	02	33.3%
Middle	17	11.6%	18	11.8%	01	16.7%
Matriculation	22	14.9%	29	18.9%	00	0
Intermediate and above	87	59.2%	73	47.7%	00	0
Total	147	100%	153	100	06	100

X^2=27.23 p=0.0006

Among children which had completed their immunization schedule 63.3% fathers had intermediate and above education and only 4.8% were illiterate while 66.6% fathers of non-immunized children were illiterate (Table IV).

TABLE IV: FATHER'S EDUCATION AND IMMUNIZATION STATUS OF CHILDREN

Father's education	Immunization status					
	Complete immunization		Partial immunization		No immunization	
	Freq.	%age	Freq.	%age		
Illiterate	07	4.8%	09	5.9%	04	66.6%
Primary	10	6.7%	14	9.1%	01	16.7%
Middle	17	11.6%	23	15.0%	01	16.7%
Matriculation	20	13.6%	31	20.3%	00	0
Intermediate and above	93	63.3%	77	50.3%	00	0
Total	147		153		00	100

X^2=44.56 p=0.0000

Monthly family income of 74.1% children which received complete immunization was more than 20,000 and 83.3% children which were not immunized had monthly family income of less than 10,000 (Table V).

TABLE V: MONTHLY FAMILY INCOME AND IMMUNIZATION STATUS OF CHILDREN

Monthly income	Immunization status					
	Complete immunization		Partial immunization		No immunization	
	Freq.	%age	Freq.	%age		
<10,000	07	4.8%	32	20.9%	05	83.3%
10,000-20,000	31	21.1%	57	37.2%	01	16.7%
>20,000	109	74.1%	64	41.9%	00	0
Total	147	100	153	100	06	100

X^2=58.21 p=0.000

DISCUSSION:

In Pakistan Immunization against common childhood diseases has been an integral component of mother and child health services since the adoption of the primary health care approach in 1978. It was hoped that in 21st century, the coverage of children for vaccination against the 9 vaccine preventable diseases (VPDs) would reach 100 per cent. In the present study immunization card was available for only 26% of children (Fig. 1) and vaccination coverage among children aged 12-23 months reflects that only 48% of the children were fully immunized, 50% of the children has received some of the recommended vaccines whereas 02% children were not immunized at all (table I). In study conducted by Painkra SK et al. in urban slums of Raipur city partially immunized children were 22.38% which is in contrast with our findings whereas children not getting even single vaccination (not vaccinated) were 2.38% which is nearly similar to the our study findings.[8] Similarly In Study by Yadav et al. conducted in urban slums of Jamnagar city fully immunized were 73.3% which is better from our results.[9] Although Pakistan has made significant improvement in EPI coverage but the findings of our study suggest that still it has to adopt a more aggressive implementation strategy to improve immunization coverage especially in rural areas and urban slums.

Our study results revealed that coverage of BCG vaccine was maximum (86%) followed by first dose of petavalent and pneumococcal vaccine (84% children), second dose of petavalent and pneumococcal vaccine (78%) and third dose of petavalent and pneumococcal vaccine was received by 68% children. First dose of measles vaccine was received by 84% children while second dose coverage against measles was only 42% (Table II). These findings are consistent with study conducted by Kadri AM et al. conducted in urban slums of Ahmedabad city in which coverage was highest for BCG (84%) followed by DPT 1 (83.3%) while first dose of measles vaccine was received by 71.7% children.[10]

In our study partial immunization or non-immunization rate was high in children whose parents were either illiterate (p=0.00) or had low monthly family income (p=0.00). These findings are comparable with the study of Manjunath et al. conducted in semi urban areas of Rajasthan which also showed that either being vaccinated or unvaccinated is related to socioeconomic conditions and parents education.[11] These findings are also comparable with many other studies. [12,13]

CONCLUSION:

Our study results concluded that most of the children in 12-23 months of age are partially immunized and situation can be improved by focusing on female education.

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3	Dr. Muhammad Saleem Shaikh	Research Methdology
4	Dr. Wajahat Hussain	Data Collection & Report writing