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A Study of Knowledge, Attitude and Practices on Immunization of Children Age 0-2 Years in Slums of Amritsar City, Punjab

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ABSTRACT

Background: One of the most significant contributions of the medical fraternity to mankind is the introduction of vaccines. Vaccines are a lifelong defense against illness. Vaccines not only protect one individual, they protect the society from the deadly diseases. Although, India manufactures and exports vaccine at a large scale but unfortunately it has one of the lowest vaccination coverage rates. India still accounts for the largest number of children which are not immunized i.e. 7.4 million. [10] The full immunization coverage in slums was reported as 2.7% to 18.3% less as compared to non-slums. [6]

Method: It was a community based cross-sectional study conducted in slums of Amritsar city. Amritsar city has acknowledged 64 slum areas according to the draft master plan 2011-2013 by PUDA Mohali in 2010. The eight slum areas were chosen by convenience sampling method and house to house survey was done. A total of 800 houses were surveyed with a total of 243 children age 0-2 years.

Results: Out of 243 children aged 0-2 years, 44.85% children were fully immunized, 34.15% were partially immunized and 20.98% were unimmunized. The most common source of information regarding immunization status was provided by health care workers i.e. 42.38%, followed by family/relatives 34.15% and then 17.28% was given by doctors. A large proportion of the children 189(77.77%) had received their immunization from government sectors followed by private sector 46(18.93%). In the present study, although the vaccination coverage was almost near by the National level data in terms of fully immunized status i.e. around 44.85% were fully immunized but in terms of vaccine specific coverage, it was less than national as well as state level data. The main reason for partial and non-immunization was lack of knowledge regarding immunization schedule with many respondents citing a combination of two factors i.e. lack of knowledge and lack of motivation. Regarding immunization schedule with many respondents citing a combination of two factors i.e. lack of knowledge and lack of motivation.

Conclusion: Consistent and sincere efforts are needed especially in the slum population in order to uplift the immunization coverage to a targeted level. There is a need of comprehensive strategy by the health personnel so as to bring out effective changes in the attitudes and practices of individuals regarding immunization of children. Providing only the resources for immunization is not enough rather health education plays an essential role which can go a long way in improving the prevailing scenario of immunization in the country.

Key words: Immunization, slums, 0-2 year children, Knowledge, Attitude, Practices.

INTRODUCTION

Economic history of many countries defines that a close relationship exists between industrialization and urbanization. As there is rapid increase in the number of industries so the people migrate to these

areas in search of better employment. Thus, urbanization created both opportunities as well as problems to the habitants.

Slums are such areas which are formed due to unplanned urbanization. In general, slums are perceived as "jhuggi-jhompri" or "kaccha-pakka" houses but they are the vast informal settlements which are quickly becoming the most visible manifestation of the urban poverty. Under section-3 of the slum area improvement and clearance act, 1956 slums are mainly defined as those residential areas where dwellings in any respect unfit for human habitation by means of dilapidation, overcrowding, faulty arrangements and designs of the buildings, narrowness or faulty arrangement of streets, lack of ventilation, light, sanitation facilities or many other factors which proves to be detrimental to safety, health and morals. [1]

In India, the slum population is 65 million which is 17.36% of the urban population. As in case of Punjab, the urban population is 37.49% which is above the national percentage of 31.16. In Amritsar, there are 66 thousand slum households which constitute a population of about 3 lakhs 29 thousand i.e. 24.68% of the people resides in slums in Amritsar. [2,3]

There is a direct impact of living conditions on public health. Children are the most vulnerable age group due to their immature immune system. As the data reveals Under-5 mortality rate (U-5MR) and Infant mortality rate (IMR) are still very high in our country. Recent data (2016) by NITI Aayog reveals IMR as 34. [4] Under-5 mortality rate is 45 according to the data of NITI Aayog (2015). [5]

Surveys done on health and living conditions in eight Indian cities reported, difference in Infant and child mortality rates between slum and non-slum settings. Infant mortality rate was almost 18 points more and the child mortality rate was almost 32 points more in case of slum settings. [6]

One of the most significant contributions of the medical fraternity to mankind is the introduction of vaccines. Vaccines are a lifelong defense against illness. Vaccines not only protect one individual, they protect the society from the deadly diseases. Thus, they are the most powerful and cost-effective measures for prevention and control of a number of childhood diseases.

Globally, there are 2-3 million deaths each year due to childhood diseases. World health organization (WHO) in 2008 estimates about 5.2 million deaths among children of 1-59 months of age globally, out of which 29% of all deaths in children were due to vaccine preventable diseases. [7]

Thus, Vaccination proves to be the most effective methods of preventing childhood diseases and to prevent the sufferings which come from avoidable sickness, disability and death. Under coverage of the vaccination plays an essential role in increasing the morbidity and mortality in children. Thus, the benefits of the immunization are not only limited to improvements in health and life expectancy but also have social and economic impact at community as well as national levels.

Although, India manufactures and exports vaccine at a large scale but unfortunately it has one of the lowest vaccination coverage rates. India contributes to more than one third of the unimmunized children around the world with a figure of almost 9.6 million unimmunized children. [8]

According to the data reported in NFHS-3, only 43.5% of the children receive a full schedule of vaccination coverage in India. [9] There is almost nine million immunization sessions organized every year in order to target these infants and 30 million pregnant women for routine immunization in India. [10]

Despite of the continuous efforts, the full immunization coverage in India increased from 43.5% to 63.9% from 2006 to 2016 respectively, but still this improvement is not up to acceptable levels. [11,12] India still accounts for the largest number of children which are not immunized i.e. 7.4 million. [10] The full immunization coverage in slums was

reported as 2.7% to 18.3% less as compared to non-slums. [6] In this prevailing scenario, complete immunization becomes the need of the hour especially in the rural and slum areas. Moreover, it is essential to find factors which influence routine immunization, which will help the planners to implement the immunization programme in an effective way so as to achieve targeted coverage in rural and slum areas.

OBJECTIVES

1. To assess the immunization status of children aged 0-2 years in slums of Amritsar city.
2. To determine the knowledge, attitude and perception of respondents (mother/father/guardians) regarding immunization of children aged 0-2 years.

MATERIALS AND METHODS

Subject Selection

A community based cross-sectional study was conducted in the slums of Amritsar city, Punjab. There are 64 slum areas in Amritsar city according to draft master plan 2011-2031 by PUDA Mohali 2010. [13] The eight slum areas were chosen by convenience sampling and house to house survey was done. The data was collected over a period of six months. All mother/father/guardians of children aged 0-2 years were included in the study. Oral consents were taken from the respondents after explaining the purpose of the study. Mother/father/guardians who did not give consent or not willing to participate are excluded from the study. A semi-structured questionnaire was used to get information regarding the knowledge and perception of respondents with respect to immunization.

Vaccine specific data i.e. data on getting one dose each of BCG, Measles and three doses of DPT/OPV/Hepatitis B were collected. Accuracy and reliability of immunization data was improved by checking the immunization cards of children. In absence of the immunization cards mother's reports on children been given or not been given a vaccine was recorded. "Card and History" survey technique recommended by WHO was used during the data gathering process. The essential data regarding immunization and reasons for partial and non-immunization was collected.

In order to assess the primary vaccination coverage, following schedule available in "National Immunization Schedule" is used.

Birth- BCG, OPV_0, $Hep.B_0$
6 Weeks- OPV_1, $Hep.B_1$, DPT_1
10 Weeks- OPV_2, $Hep.B_2$, DPT_2
14 Weeks- OPV_3, $Hep.B_3$, DPT_3
9 Months- Measles, Vitamin A_1
Vitamin A repeated every six months till 5 years of age

OPERATIONAL DEFINITIONS

Fully-immunized: A child was fully immunized if he/she had received BCG- 1st dose, 3 doses of OPV/DPT/Hep.B and one dose of Measles before one year of age.

Partially-immunized: A child was partially immunized if he/she had received all vaccines but the interval between the doses being more than 4 weeks or had missed any one or more doses of recommended vaccine.

Un-immunized: A child who had not given the recommended vaccine even after the grace period for BCG i.e. 2 months, 2 months for DPT/OPV/Hep.B and one month for Measles.

Statistical analysis

Data collected was then statistically analyzed using Microsoft Excel and SPSS for calculating the frequency and percentage in order to know about the immunization status and major reasons for partial and no immunization.

RESULT

A total of 800 houses were surveyed. Total number of people in 800 houses was 3420. There were 243 children aged 0-2 years, out of which 112(46.09%) were male and 131 were female (53.90%). (Table-1)

Table-1: Demographic Data Profile

Parameter	Number
Total number of houses studied	800
Total number of people in house	3420
Total number of children 0-2 years of age	243
Total number of male and female children 0-2 years of age	Male: 112 (46.09%) Female: 131(53.9%)

Out of 243 children aged 0-2 years, 109(44.85%) children were fully immunized, 83(34.15%) were partially immunized and 51(20.98%) were unimmunized. (Table-2)

Table-2: Immunization status of children aged 0-2 years

Immunization status (0-2 years)	Frequency (n)	Percentage (%)
Unimmunized	51	20.98%
Partially immunized	83	34.15%
Fully immunized	109	44.85%
Total	243	100%

The most common source of information regarding immunization status was provided by health care workers i.e. 42.38% (103), followed by family/relatives 34.15% (83) and then 17.28% (42) was given by doctors. Neighbors contributed only 3.29% (08) and there were cases i.e. 2.8% where no one is there to provide the required information regarding immunization status of children. Out of all majority of the children i.e. 167(68.72%) have immunization cards and 76(31.27%) does not have. A large proportion of the children 189(77.77%) had received their immunization from government sectors followed by private sector 46(18.93%). (Table-3)

Table-3: Immunization details of children

Parameters	Frequency (%)
Source of information	
None	07(2.8%)
Health worker	103(42.38%)
Doctor	42(17.28%)
Family/relatives	83(34.15%)
Neighbor	08(3.29%)
Immunization card	
Has card	167(68.72%)
Does not have	76(31.27%)
Site of immunization	
Government	189(77.77%)
Private	46(18.93%)
Not given	08(3.29%)

Regarding the vaccine specific data of children aged 0-2 years, Out of 243 children, maximum coverage was seen in BCG vaccine i.e. 75.72% followed by DPT1 i.e. 69.69%, OPV1 64.93%, Hepatitis B1 61.90%. Vaccination coverage of DPT, OPV and Hepatitis B in 2nd and 3rd doses was decreased in further doses. Measles 1st dose coverage was 47.10% and only 34.71% children received Vitamin A 1st dose. DPT Booster 1 was received by only 18.34% of children. (Table-4)

Table-4: Vaccine Specific Data of Children 0-2 years

Vaccine	Total number of children 'n'	Frequency 'f'	Percentage '%'
BCG	243	184	75.72
DPT1	231	161	69.69
DPT2	215	133	61.86
DPT3	182	98	53.84
OPV1	231	150	64.93
OPV2	215	124	57.67
OPV3	182	91	50.00
HEP. B1	231	143	61.90
HEP. B2	215	116	53.95
HEP. B3	182	83	45.60
Measles1	121	57	47.10
Vitamin A1	121	42	34.71
DPT Booster1	109	20	18.34

Parent's attitude and knowledge regarding immunization

Majority of the respondents 68.15% said that immunization prevents the occurrence of the diseases, while only 24.61% could name one or two diseases that can be prevented by immunization. Out of them no respondent could name three or more diseases.

Majority of the respondents 56.12% opined that it was important to give all the prescribed doses of the immunization schedule. Out of them, only 6.82% knew when the doses had to be given.

Reasons for Non-compliance with immunization schedule

As shown in the Figure-1 below, the main reason for partial and non-immunization was lack of knowledge regarding immunization schedule with many respondents citing a combination of two

factors i.e. lack of knowledge and lack of motivation. Out of all, 108 respondents said that the reason is lack of knowledge regarding the schedule while only 12 respondents cited that they did not know the place and time of immunization. Almost 28 respondents were unaware about the significance of immunization. 10 respondents said that they have busy working conditions and 13 respondents declined for any immunization for the fear of side effects. Almost 36 respondents got feasibility problems like non-accessible immunization centers, while 12 respondents cited inconvenient immunization time as the reason of partial or non-immunization. Some eight of the respondents said that sometimes health workers were not present there at specified time. 22 of the respondents blamed child illness as one of the reason for partial or non-immunization. Almost 12 of the respondents said that child was taken to the immunization clinic but not given any due dose due to sickness.

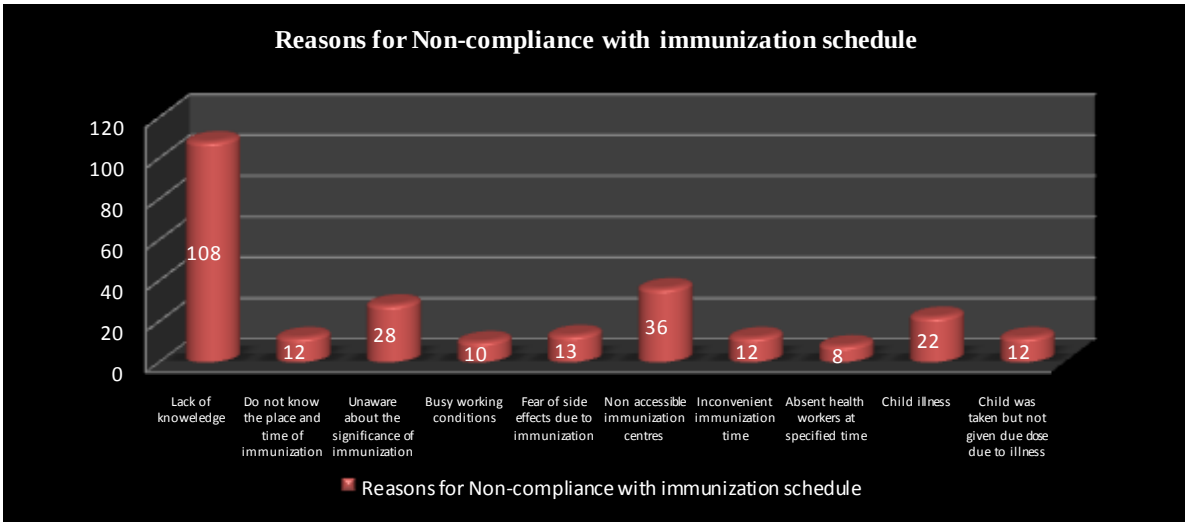

Figure-1: Reasons for Non-compliance with immunization schedule

DISCUSSION

The National Family Health Survey (NFHS) reports showed consistent improvements for fully vaccinated children between 0-2 years of age. But it varies widely across region, states, districts and strata's of the society. [6]

NFHS-3 reported full immunization coverage in Punjab i.e. 60.1% while at national level the coverage was 43.5%. [9,11] As noted, there is a huge difference of coverage which indicates comparatively better health services in Punjab. But the immunization coverage in Punjab is still lower than the targeted level in order to attain the herd immunity especially in slum and rural areas. According to the reports of District Level Health Survey (DLHS-4) the full coverage is 68.4% in Punjab which was 79.9% previously as reported in DLHS-3. [14,15] The target set up by the government of India under Universal Immunization Programme (UIP) aiming at least 85% immunization coverage of infants with three doses each of DPT and OPV and one dose each of BCG vaccine and measles vaccines. [13] But the Punjab is still lacking to complete this target.

In the present study it was found that out of 243 children of age 0-2 years, 44.85% were fully immunized, 34.15% were partially immunized and 20.98% were unimmunized. In our study, vaccination coverage was pretty much lower than state data may be due to limited health care facilities in slum areas and also due to some other social factors. The study findings was similar to a study conducted in the resettlement colonies of the urban slums of Amritsar in 2011 who reported 42.9% of children of age 0-1 year were fully immunized, 27.1% were partially

immunized and 30% children were unimmunized (Gill et al 2011). [16]

Another study conducted by (Kulkarni et al 2014) [17] at Hyderabad, South India, reported that 44.1% of children aged 12-23 months were fully immunized, 32% were partially immunized and 23.9% children were unimmunized. Similar findings was also reported by B. Joya in Mumbai slum area i.e. Kerala Bandar which documented that out of 69.8% children only 29% of children were fully vaccinated. [18]

In case of vaccine specific immunization coverage according to NFHS-3 in Punjab, 88% children received BCG, 70% received three doses of DPT and 78% received Measles 1st dose. Also in India, the data reveals that 78% received BCG, 35% received three doses of DPT and 58% received Measles 1st dose. [9,11]

In the present study findings, almost 44.85% of children were fully immunized which was almost approximate to National Level data i.e. 43.5%. But as in case of individual vaccine coverage, it was less than national as well as State level data i.e. 75.2% in case of BCG, 69.68% for DPT1, 61.86% for DPT2 and 53.84% in case of DPT3. For measles it was 47.10% which was a level less than the national and state data due to insufficient or lack of health care facilities in slums like sub-centre, urban primary health care centre etc.

The sources of information in the present study regarding immunization were found to be mainly health care workers. This finding was similar to the findings of a study conducted by Bhole Nath et al, who concluded that Auxiliary Nurse Midwives (ANM's), paramedical workers were found to be the major source of providing information regarding immunization of children. [19]

Similar findings was seen in a study conducted by Abbey M. Jones et al that the most commonly used source of vaccine information was the health care provider i.e. (91.7%), followed by vaccine information statements i.e. 84.0% and then parents and neighbours i.e. 53.8%. [20]

Another finding in the study was the limited knowledge of the mothers regarding the immunization schedule. Although majority of the respondents agreed on the fact that immunization was important to protect their children from diseases but most of them could not be able to name one disease that immunization provided protection against. The main reason for the failure of immunization according to the present study was lack of knowledge about the immunization schedule. This study finding is similar to the findings of the study conducted by Manjunath et al, who concluded that the specific information on the importance of completing the schedule and knowledge on vaccine preventable diseases were limited. [21]

CONCLUSION

Despite all the necessary efforts, the immunization programme has not only failed in fulfilling its target, but is also lagging far behind the 85% coverage mark. Though a vast majority of the population understands the significance of immunization and also having a superficial knowledge about the immunization schedule but the authorities are lacking in inculcating enough motivation in the target population for completing the schedule has led to a large proportion of the children being partially immunized or un-immunized.

Consistent and sincere efforts are needed especially in the slum population in order to uplift the immunization coverage to a desired level. There is a need of comprehensive strategy by the health personnel so as to bring out effective changes in the attitudes and practices regarding immunization of children. The study findings goes out as a wakeup call for all the policy makers and health care providers that providing only the resources for immunization is not enough rather health education plays an essential role which can go a long way in improving the prevailing scenario of immunization in the country.

Conflicts of interest: None declared.

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