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Original Research Article

Cross sectional study to assess immunization knowledge and practice among families of children between 0-5 years in rural areas of Punjab, India

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ABSTRACT

Background: Immunization is the single most cost effective and efficient intervention to reduce the burden of childhood mortality and morbidity worldwide. Vaccines under universal immunization programme (UIP) are provided free of cost but still the current coverage of fully immunized children is quite low. Main reason identified for poor coverage included illiteracy, lack of knowledge and poverty.
Methods: It is a cross sectional study carried out in rural area of Punjab from March 2014-March 2015. Total 500 families with 500 children between age 0-5 years were selected randomly. Study involved one to one, interview according to a pretested structured questionnaire prepared in a vernacular language Punjabi and English too.
Results: Total 500 children were included in the study out of which 230 (46%) were female and 270 (54%) were male. Maximum coverage to BCG vaccination (77.2%) and minimum for measles vaccine (56.2%) was observed. 55% of children were completely immunized, 28.8% were partially immunized and 16.2% were not immunized. Most common reason given by families for non\partial immunization was lack of knowledge, family issues and sickness of child.
Conclusions: It is concluded from present study that the main reason for partial\non-immunization was lack of knowledge of families about vaccination. Considering incomplete knowledge and inappropriate practices the policy makers and medical profession require to put in much more efforts to sensitise families about importance regarding immunization in preventing diseases and their consequent morbidity and mortality.

Keywords: Children, Knowledge, Practices, Universal immunization programme, Vaccination

INTRODUCTION

Immunization is the single most cost effective, safest and efficient intervention to reduce the burden of childhood morbidity and mortality worldwide. Infectious diseases cause more than 13 million death per year in developing nations.[1]Around 2 million children die before they reach 5th birthday in developing nations.[2] Over last 3 decades, a lot of progress has been made globally against prevention of 6 important vaccine preventable diseases (VPD) that is BCG , OPV , DPTand Measles under UIP which was launched by WHO in 1974. Recent evaluation of vaccination coverage in India found that around 18 million children did not receive any immunization coverage in 2001-2002.[3] Immunization is one of the best indicator to evaluate health outcomes and services distributed across various social and economic groups.[4]

There is evidence of inequalities in immunization in India, despite the fact that childhood immunization has

been an important part of maternal and child health services and all vaccines under universal immunization programme are provided free of cost. The current coverage of fully immunized children under UIP are still quite low.[5-9] The main reason identified for poor coverage in developing nations like India remains illiteracy, lack of knowledge and the poverty.[10] This vaccination survey study among families of children between age 0-5 years helped in overview of vaccination coverage, knowledge and practices of immunization in rural area of Punjab.

METHODS

Cross sectional study carried out in village Vallah district Amritsar Punjab from March2014 – March 2015

Total 500 families with 500 children between age 0-5years were selected in randomized manner. If a household had more than one eligible child only one was randomly selected. Study was conducted by door to door survey over a period of 12 months

Study involved face to face interview according to a pre tested structure questionnaire prepared in vernacular (Punjabi) and English too. Mothers were taken as primary respondent in most cases and in her absence father or grandparents in household, who remained with child were interviewed. Questionnaire consisted of written informed consent.

General family information perfoma (including family no; name, age, sex of child, parents age, education, occupation, income of family).

Socio-economic status of family was evaluated in present study on basis of modified kuppuswamy classification which is based on education, occupation and per capita income of head of family.

Immunization knowledge of family was assessed using immunization card and verbal conversation.

Knowledge score and practice score questionnaire were prepared, consisting of pre-structured questionnaire. To assess the knowledge of respondent in relation to vaccination of their children .14 questions were prepared with maximum score of 24 and minimum 0. There was 1 question having maximum score of 12in which respondents were asked to name six VPD's, for each disease answered two score was awarded. The rest 12 questions had one mark each and were related to place of vaccination, alternative source of vaccination, day of the week when vaccination is done, whether vaccines are available for free, number of visits required to health centres during first year of life, need to go to health centre apart from PPI's, disease prevented by BCG, correct age for measles vaccination, diseases for which hepatitis B is given, time duration to feed child after giving polio drops, contraindications for vaccination and beneficial effects of vaccination.

Practice questionnaire consisted of 8 objective questions with answers in form of yes or no. Maximum score 8 and minimum 0. Questionnaire tool included 2 area of immunization that is vaccinations(6 questions) and treatment(2 questions).Practice questionnaire included questions regarding whether parents get their child vaccinated at regular interval, do they apply anything over BCG pustule, do they take their child to health centre for routine checkup, whether child was taken for PPI's regularly, whether vaccination card is carried along during each visit, do parents enquire about next vaccination time and whether parents take child for vaccination despite if he suffers from fever or any other illness.

Statistical analysis

The data was later analysed using SPSS-17 (statistical package for social science software). Analysis of association between immunization, socio demographic variables, knowledge score and practice score was done using chi square test and analysis of variance (ANOVA). P value of >0.005 were considered insignificant and P value <0.005 were considered significant in present study

RESULTS

The present study was conducted over a period of 12 months from March 2014 – March 2015. Study included 500 families with 500 children between age of 0-5 years, residing in and around rural areas of Vallah, Amritsar.

Table 1: Reasons of non or partial immunization in relation to the immunization status.

Reason of non\partial immunization	Partially immunized	%	Unimmunized	%
Lack of knowledge	38	26.39	55	67.9
Family problems	42	29.16	0	0
Side effects	22	15.27	0	0
Sick child	16	11.11	3	3.70
Lazy attitude	10	6.95	9	11.1
Lack of vaccines	15	10.42	0	0
Customs and belief	1	0.7	14	17.3

Total subjects were divided into 4 groups as per age as group 1- 0-2 years, group 2 – 3-4 years and group 4-4-5 years. Among 500 children, 230 (46%) were female and 270 (54%) were male. Number of children in group 1, 2, 3 and 4 were 150, 123, 119, 108 respectively.

Table 2: Immunization status of children in relation to their birth place.

Place of delivery	Completely immunized	Partially immunized	Unimmunized	Total
Home	146 (41.83)	125 (35.82)	78 (22.35)	349
Hospital	129 (85.43)	19 (12.58)	3 (1.99)	151

For eliciting information on immunization status, direct questioning to parents was done and in addition, any written document on immunization card was sought from the parents. It was observed, that among 500 subject's maximum 387 (77.2%) children had BCG vaccination, followed by OPV1 376 (75.2%), DPT1 372 (74.4%), OPV2 361 (72.2%), DPT2 353 (70.6%), OPV3 333 (66.6%). Only 281 (56.2%) of children were immunized against measles vaccine as per UIP schedule. Among 500, more than half (55%) of children were fully immunized 28.8% were partially immunized and 16.2% were not immunized at all. Highest percentage of immunized children belonged to group 2 (2-3years) that is 62.6% followed by group 4 (57.40%).

Most common reason given by families for non\partial immunization was lack of knowledge. Other significant reasons attributed in partially immunized children were side effects during previous vaccinations 22 (15.72%), family problems 42 (29.16%), sickness of child 16 (11.11%). Relatively less significant factors were complascent attitude, non-availability of vaccine and customs and beliefs.

Among 500 children in present study 349(69.8%) were home delivered while 151 (30.2%) were hospital delivered. Among 151 hospitals delivered 85.43% were completely immunized. Vaccination coverage was better in hospital delivered children as compared to home delivered which was statistically significant (p value<0.001).

Table 3: Immunization status in relation to socio economic status of the family.

Immunization status	Upper SES	Middle SES	Lower SES
Completely immunized	83 (97.65%)	145 (59.19%)	47 (27.64)
Partially immunized	2 (2.35)	77 (31.43)	65 (38.24)
Unimmunized	0 (0)	23 (9.38)	58 (34.12)

P value <0.001; highly significant

Families in present study were classified into 3 socio-economic classes that is upper, middle and lower according to modified kuppuswamy SES. Out of 500 families 49% belongs to middle class, 17% to upper class and rest 34% belonged to lower class.

83 (97.65%) children belonging to upper SES were completely immunized in comparison to 47 (27.64%) children belonging to lower SES. Knowledge of families regarding vaccination was assessed in present study by recording semi open ended structured questionnaire consisting of 14 questions.

Maximum score for knowledge was 24 and minimum 0. As per data obtained on questionnaire basis, maximum number of families (91.6%) believed that vaccines were beneficial for their children as they prevent paralysis and death.

86.6% were aware of fact that apart from pulse polio immunization camps there is need to go health centres for other vaccines too 84.2% were aware of fact that UIP vaccines were available free of cost. Most common disease known to females was polio followed by measles.

Table 4: Average number of diseases (UIP) known to families in relation to immunization.

Immunization status	Families	Average no of disease (UIP)
Unimmunized	81	1.02±0.156
Partially immunized	144	1.34±0.504
Completely immunized	275	2.46±1.184

Total knowledge score was categorized under 4 groups – below average, average, good, and excellent as per questionnaire prepared. 227 (45.4%) families had average knowledge, 133 (26.6%) had below average, 42 (8.4%) had excellent knowledge score.

In present study 49.42% of families belonging to upper SES had excellent knowledge score, none of the families belonging to middle and lower SES had excellent score. Maximum number of families (55.88%) with below average score, were from lower SES conclusion was highly significant.

Immunization practices regarding vaccination were assessed on basis on practice questionnaire consisting of 8 objective questions.

Maximum score was 8 which was further subdivided into 2 groups as 0-5 (unsatisfactory) and >6-8 (satisfactory) max score was 8 and minimum 0 with mean score of 5.53+2.32.

Table 5: Immunization status in relation to knowledge score of families.

Knowledge group	Completely immunized	%	Partially immunized	%	Unimmunized	%
Below average (score 0-6)	1	0.77	60	45.1	72	54.13
Average (score 7-12)	136	59.92	82	36.12	9	3.96
Good (score13-18)	96	97.95	2	2.05	0	0
Excellent (score 19-24)	42	100	0	0	0	0

P value<0.001; highly significant.

Table 6: Relation of knowledge score with socio economic status.

Knowledge score	Upper SES	Middle SES	lower SES
Below average (0-6)	1 (1.18%)	37 (15.10%)	95 (55.88%)
Average (7-12)	8 (9.40%)	153 (62.45%)	66 (38.82%)
Good (13-18)	34 (40%)	55 (22.45%)	9 (5.3%)
Excellent (19-24)	42 (49.42%)	0	0

P value<0.001; highly significant

Among 500 families, only 49% had satisfactory score. 95.3% of upper SES families, 53.0% of middle SES and 20% of lower SES were having satisfactory score (correlation was statistically significant).

Among total subjects 71.6% were of opinion that minor illness like mild fever, cold, congestion are contraindications to vaccination, 70% of parents agreed that taking immunization card along with them for subsequent health visit.

Table 7: Practice score in relation to socio economic status.

Practice score	Upper SES	%	Middle SES	%	Lower SES	%
Unsatisfactory	4	4.70	115	46.94	136	80
Satisfactory	81	95.30	130	53.06	34	20

DISCUSSION

In present study, total 500 families and 50 children between age of 0-5 years were included to assess the knowledge and practices of immunization

In present study, the maximum coverage was found for BCG vaccine (77.2%) and minimum for measles which was also observed by Chabbra et al, Abrol et al and NFHS 3.[11-13] High coverage of BCG vaccine can be attributed to fact that it is given at time of birth or at first contract with health authorities. Moreover, single dose administration of vaccine like BCG require little family motivation

In both above mentioned studies, Chabbra et al and NFHS -3 lowest coverage for measles vaccine was consistent with findings of present study.[11,13] Main reason given by parents of unimmunized children was lack of knowledge regarding immunization, customs and beliefs contributed to 17.3% of parents for non immunization of their child.

Similar observation were made by Kar et al. They observed lack of information (64%) as main reason for unimmunized followed by lack of motivation (20%).[14] As far as partial immunization is concerned family problems was the main reason (29.16%). Similar observation were made by Manjunath and Prateek.[15]

In present study 69.8% (349) of children were delievred at home while 30.2% were hospital delivered. Among 151 hospital delivered children 85.34% (129) were completely immunized in comparison to 146 (41.38%) children who were born at home

Similar observation was made by Chabbra et al who observed 58.2% children born at hospital as completely immunized.[11] Cuttis et al in a study to evaluate immunization in Guinea showed that delivery at hospital had positive impact on immunization status in later stage of life.[1] 97.65% of children belonging to upper SES were completely immunized in comparison to 27.64% belonging to lower SES. Correlations was found statistically significant. Present findings correlated with

that of Dalal and Silveria and Kar et al.[14,17] The average number of diseases against which vaccines are available in UIP schedules were known to families of completely immunized children were 2.46±1.184 whereas 1.02±0.156 for unimmunized children. Names of all 6 vaccines were completely mentioned by only 6 families. Similar observations were made by Manjunath and Prateek in their study.[15] In present study, all families with "excellent score" (score from 19-24) had their children completely immunized whereas less than 1% of families with below average score (0-6) had their children completely immunized.

CONCLUSION

It is concluded from present study that the main reason for partial\non-immunization was lack of knowledge of families about vaccination and unsatisfactory practices

Considering incomplete knowledge and inappropriate practices, the policy makers and medical professionals are required to put in much more efforts to increase the knowledge regarding immunization. Improving socioeconomic status and literacy level are other areas to be foccussed.

The immunization education and communication (IEC) activities focussed on immunization need to be implemented with more sincere efforts with help of health care providers.

A strong need for incorporating immunization based knowledge in school programme and compulsory possession of immunization for school admissions can be taken as a positive approach toward increasing the level of knowledge and awareness of families regarding vaccination.

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