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Original Research Article

Immunization status of children visiting a health centre in Uri, Jammu and Kashmir: reasons for drop-outs from immunization

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ABSTRACT

Background: Immunization is one of the most powerful and cost effective tools available to improve public and global health and is essential for every child's life. This study aims to estimate the immunization status and factors effecting drop-outs from immunization in children residing in Uri, Jammu & Kashmir.
Methods: It is a cross-sectional descriptive study, with sample-size of 480 children between 12 to 23 months of age. Immunization status was assessed depending upon coverage of four important vaccines given during primary immunization.
Results: The study showed that total primary immunization status of Uri was 58.12% with 91.2% OPV, 88.1% BCG, 72.5% DPT and 58.8% measles immunization (CI= 95%, $p<0.05$). Factors effecting drop-outs were distantly located health centre (27.9%), poor motivation (33.12%), lack of awareness (9.77%), and parental refusal (in case of OPV was 5.35%) (CI= 95%, $p<0.05$). Literate mothers were more likely to get their children completely immunized. Gender Bias wasn't observed.
Conclusions: Findings suggest that immunization status needs to be improved by focussing on vaccines having low coverage (DPT and measles) by creating awareness and better out-reach facilities with the involvement of community workers.

Keywords: Immunization, Vaccination, India, World health

INTRODUCTION

Immunization is a critical component of primary health care, and ensures comprehensive national community health care. It is one of the most cost effective means of sound health of the community against many vaccine preventable diseases. This study focuses on the coverage of four important vaccines against six pathogenic organisms- BCG (Bacille Calmette-Guerin), DPT (Diptheria, Pertussis, and Tetanus), OPV (oral polio vaccine), and measles vaccine in Uri, Jammu and Kashmir. Studying the status of immunization against these six dreadful, yet preventable diseases can help understand the level of knowledge, awareness of the public, availability and acceptance of these vaccines in the community. International agencies like World Health Organization (WHO), United Nations Children's Fund (UNICEF), and the Global Alliance for vaccines and immunization (GAVI), have been providing extensive support for immunization activities, but the success of an immunization program in a country depends on local

factors, community acceptance and national policies. The reason for low coverage of immunization ranges from poor logistic support to those dependent on human social and psychological behaviour.[1] A study done on the children admitted to the paediatric ward of a hospital in Delhi showed that lack of knowledge regarding complete immunization is the main cause of drop-outs from immunization.[2] India is according high priority to immunization, however results remain far from satisfactory and regional imbalances are quite sharp.[3] Jammu and Kashmir state as a whole, and especially its backward areas are considered poor performers. This study was carried out for a period of one year from October 2015 to October 2016 on a population residing in Uri (district Baramula), Jammu & Kashmir, which is one of the most insurgency affected and militancy prone districts of the country. Uri-sector is a place in Kashmir Valley that comes under Baramula district (one of the most terror struck district in the state). It has an altitude of 4471 feet with a population of more than 60,000 (census 2001) and lies approximately 30 km from line of control between India and Pakistan. In India immunization status needs to be improved by increasing awareness, educating and counselling of parents and care-givers regarding immunization and its associated misconceptions, as reported by a study done in tertiary care centre in Delhi. It's a well-known fact that likelihood of immunization increases with urban residence, mother's education level, mother's age, mother's exposure to mass media, awareness regarding immunization, antenatal care during pregnancy, wealth index, household electrification, mother's empowerment index, and caste/ tribe hierarchy.[4] Coverage of immunization is reported to be higher for boys than girls but it decreases for higher birth- order children irrespective of sex of the child, as reported by a study done in the rural sector of India.[5] In Kashmir, the government hospitals, private clinics and the Military hospitals provide immunization facilities for children.

The main objective of this study was to find out the immunization coverage of the children visiting a community health centre in Uri-sector and to assess the factors causing drop-outs from immunization, to evaluate and contribute to the above mentioned studies and reveal any other existing factors in the region regarding immunization.

METHODS

This study was done in the community hospital at Uri, district Baramulla, J&K for a period of one year from October 2015 to October 2016. The hospital provides medical cover for the health of all the residents of Uri which comprises of nearly 60,000 populations and includes around 50 villages. The study had a cross-sectional descriptive design. A systematic sampling technique was used. Around 100-120 patients visited the community hospital's OPD for various ailments each day, out of which 20-30% were mothers having children between 12-23 months. Every 5th paediatric patient was included in the study to achieve randomisation. This procedure was carried out till a sample comprising of 480 children is achieved. The mothers who were resident of villages in Uri and had children between the defined age limit, were included in the study, rest were excluded. Demographic, literacy, and social factors were recorded using a questionnaire which had been pretested at SRM paediatric ward, Chennai. Questionnaire was used to assess the immunization level in the region. The immunization status of enrolled patients was assessed according to national immunization programme and the primary respondents to the questionnaire were mothers. Mothers were asked about the vaccines and the number of times the vaccines were received by the child, and the history was verified by cross checking vaccination cards of children and whether or not their child was immunised as per the details given by mothers. Those children who were not having vaccination record in vaccination cards were not included in the study to avoid unreliability of data. Children who received single dose of BCG, three doses of DPT, four doses of OPV and single dose of measles vaccines as per their immunisation record were classified under the category of "fully immunized". Those children who had missed any of the above doses were labelled as "partially immunized" and those who received no vaccines at all were labelled "non-immunized". In cases where children were partially/ non-immunized, reasons were noted by free listing and IPC (inter personal communication). Maximum number of children in the sample frame was between 21-23 months of age as shown in Table 1. The exclusion criteria were mothers having children below 12 and above 23 months of age, mothers having immune-compromised child and non-availability of vaccination record cards. (The details are shown in Table 1).

Table 1: Age related percentage distribution of sampled children (n=640).

Age (in months)	Number of children	Percentage (%)
12-14	124	19.2
15-17	76	11.8
18-20	196	30.5
21-23	244	38.1

The data was compiled in Excel sheet and statistically analysed using SPSS software Version 17.

RESULTS

Immunization coverage

The total immunization in the sampled population was 58.12%, with OPV being the highest (91.2%), BCG being (88.1%), DPT was nearly (72.5%) and measles being the lowest (58.8%). As per NFHS-4 BCG has the best coverage in Jammu and Kashmir with coverage of 95.60% and lowest coverage is for OPV vaccine of 83%.

Factors effecting immunization drop out

The main factors effecting drop-outs from immunization were poor motivation (33.12%), distantly located health centre (27.9%), lack of awareness (9.77%), fear of militancy and some combined reasons were- poor motivation and distantly located health centre (22.25%), lack of awareness and distantly located health centre (3.4%), and parent refusal (in case of OPV was (5.35%). (These details are shown in Table 2). All these factors are statistically significant (with $p<0.05$).

Table 2: Most frequent reasons for partial immunization/non-immunization among dropouts.

Reasons	Number of Non/Partially Immunized children (n=268)	Percentage of Non/Partially Immunized children (%) (n=268)	P value
Poor motivation	180	67.16	0.002
Distantly located health centres	156	58.20	0.03
Lack of awareness	72	26.86	0.003
Terrorism	132	49.25	0.001

Table 3: Relation of gender with immunization coverage (n=372).

Sex	Total number of children under full primary immunization coverage	Percentage of total number of children under primary immunization coverage (%)
Male	188	50.53
Female	184	49.46

Gender

The study interestingly revealed that there was no gender discrimination in immunization of children in Uri and male and female children had nearly the same immunization level. (The details are shown in Table 3).

Distance

The study population from villages near the hospital comprising of villages like Aishampura, Lajri, Silikot had better immunisation coverage as compared to distantly located villages like Nambla, Sumwal and Sukhdar. However majority of study population in our study resided in locations near to the health centre, hence ruling out distance as a factor, and making poor motivation to seek immunization as the major factor effecting the population in Uri- sector.

Family size

A direct relation between number of children in a family and immunization status has been found. Around 49% of the respondents had 4-5 children in a family. It has been observed in the study that higher the number of children lower is the immunization status of the family.

DISCUSSION

It was found that coverage of immunization in Uri was low. The national family health survey (NFHS-4) revealed immunization coverage of 75.1% in Jammu and Kashmir which is much better that the national average of 62%.[6] But regional disparities do exist within the state. Distance played a major role in lowering the motivation for immunizing the child, and poor motivation was the most common reason for incomplete immunization among children in this study done at Uri. Another major factor causing hindrance in immunisation is militancy prevailing in the region. The region is under curfew most of the time which affects delivery of effective health services including immunisation in the region. Distance and motivation have been a major factor influencing the immunization level in the entire state and a study done in Kargil, revealed the same result.[7] The area of study being a hilly terrain causes a lot of constraints such as the absence of proper transportation to the near-by health centres, and hence reduce the motivation among parents to get their children immunized. Terrorism is also one of the reason leading to low motivation among local people in seeking health facilities and immunizing their children. Places secluded and distantly located may be under the continuous threat of terrorism and Uri and places around are located very close to the LoC (Line of control) near PoK (Pakistan Occupied Kashmir) and hence, a lot of militant activities and ambush occur in the region, leading to poor access to health facilities by the locals.

It was interesting and in fact good to know that gender did not play any role in immunization of children in Uri region and was contradictory to the result of the study done on the EAS and North Eastern States, where gender discrimination resulted in lower immunization rate among girls than boys. The finding was similar to the results of the study on immunization status done in Kargil and contradictory to study done in various other parts of India, which clearly indicated no gender discrimination among children while administering vaccination.[5,7] Awareness and knowledge of mothers regarding source of immunization and the right age of immunization for their children was found to be considerably low.[8] This may be due low education amongst mothers and limited availability of outreach programs in the region due to

difficult terrain, militancy and distantly located villages, leading to low awareness among the local population. This factor needs to be assessed by carrying out research on the general population of the region, as lack of awareness and knowledge about vaccines has been another major cause for drop-outs from immunization. In previous studies done in a tertiary care centre as well as in slums of Delhi, where low immunization rate among children was mainly due to poor awareness among mothers regarding the right schedule and age of vaccine administration[9].

Another similar study done in Delhi also highlighted the similar problems leading to under/ incomplete immunisation.[10]

Table 4: Comparison of evaluated coverage of immunization between J&K state and Uri.

Vaccines	Uri-sector (%)	J&K (%) (NFHS-IV)
BCG	88.1	95.6
DPT	72.5	88.1
OPV	91.2	83.8
Measles	58.8	86.2
Total	58.12	75.1

The total primary Immunization level as calculated by this study came quiet low 58.12% as compared to the Jammu and Kashmir State's Immunization level of 75.1% as stated by the NFHS-IV report (Table 4). All the vaccines have a lower record than the NFHS-IV data, except OPV, which is nearly 92% in Uri (as assessed by the study) probably because of better out-reach campaign for polio immunisation programme as compared to other vaccines.

The main suggestion from the study is the need to improve the status of immunization in the region by outreach health camps and by IEC activities to spread awareness regarding the importance of immunizing a child, which invariably will improve the motivation among the public. Outreach camps need to be organized especially in villages located remotely from health centres. The study was conducted in a health facility and therefore it is highly likely that the immunization coverage reported is spuriously higher than the other children who do not access health facilities. A community based survey would probably reflect the true picture of immunization coverage in this area.

Limitations of the study

Immunisation data is available for Jammu and Kashmir but the data gathered is scanty, non-representative and insufficient. It does not include terror struck districts of Jammu and Kashmir, as survey teams are scared to do surveys in those areas and data collection in those areas is often incomplete.

Benefits of the study

1. This study has highlighted the status of immunisation coverage in a remote and militancy prone area of Uri, Jammu and Kashmir and has also outlined a few factors that have affected immunisation coverage in the region.
2. This study has also generated an important database of one of the remotest locations of the country and it may help in planning health programmes for the remote locations where demographic, cultural, social and geographical factors play a major role.

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