

Knowledge of caretakers about routine immunization and reasons for partial immunization in rural areas of Jamnagar District

Abstract

Background: Routine immunization (RI) is one of the most cost-effective public health interventions, first introduced in India in 1978. Yet, despite the concerted efforts of the government and other health agencies, a large proportion of vulnerable infants and children in India remain unimmunized. **Objectives:** Objective of this study was to know about perception of caretakers of beneficiaries about RI in terms of knowledge about vaccines and vaccine preventable diseases and reasons for missed opportunity of immunization. **Materials and Methods:** Community based cross-sectional study was conducted during January-June 2012 in a rural area of Jamnagar district. A total of 200 children aged 12-24 months were selected using stratified random sampling method. **Results:** Nearly 52% children were fully immunized. Most common reasons for partially immunization were sick child (68.9%) followed by vaccine not available (32.3%) and being outside on the day of session (31.11%). Nearly 61% Guardians knew about Polio vaccine, main source of information about RI was health worker (83.5%). There was statistical significant association between education of mother and immunization status of children. **Conclusion:** There is a need to strengthen Information Education Communication activities to improve knowledge regarding immunization among people, motivation of health workers to disseminate information regarding immunization. Hence, that immunization coverage should be improved.

Key words: Immunization, knowledge, vaccine, vaccine preventable diseases

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INTRODUCTION

The Expanded Program on Immunization (EPI) was initiated by Government of India in 1978 with the objective of reducing morbidity, mortality and disabilities from these six diseases by making free vaccination services easily available to all eligible children. The Universal Immunization Program (UIP) was introduced in 1985-86.^[1] Routine immunization (RI) services are provided on village health and nutrition day (VHND), which is also known as Mamta Diwas in Gujarat. The VHND is to be organized every Monday at Primary Health Center (PHC) and once in every month (mostly on Wednesday) at the Anganwadi center/sub-center (SC) in the village.

All vaccines under RI are provided free of charge. However, figures for RI coverage are lagging. Hence, what could be possible reasons that hamper progress?^[2] Keeping the above fact in mind present study was conducted with the objective to know about perception of caretakers of beneficiaries about RI in terms of knowledge about vaccines and vaccine preventable diseases and to explore reasons for missed opportunity of immunization.

MATERIALS AND METHODS

The ethical clearance from the Institutional Ethical Committee was obtained before conducting the study.

A community based cross-sectional study was carried out in a rural area of the study district, from January to June 2012. Study units were taken according to multistage sampling method.^[3] The study district has 10 Talukas. For the purpose of study, one PHC from each taluka and two SCs (one good

performing and one poor performing) from the selected PHC were taken. Thus, total 30 centers (10 PHCs and 20 SCs) were identified for the study.

For the perception of beneficiaries regarding Immunization, ten care-takers from PHC and five care-takers, from each SC, of children aged 12-23 months attending Mamta day were interviewed by using purposive random sampling method, using pre-tested, pre-designed Performa. Thus, making a total of 200 were respondents and all the study individuals were clearly explained the purpose of study and their verbal consent was taken before filling up the performa. All the individuals who participated in the study gave their consent to be part of the study and the response rate was 100%.

Statistical study

Data entry and analysis were performed in Microsoft Office 2007-excel. Appropriate statistical test, such as Chi-square test, was applied, wherever required.

Definitions used in the study

1. Fully immunized: The child was considered fully immunized if he/she received one dose each of bacillie-calmette-guerin (BCG) and measles and three doses of diphtheria-pertussis-Tetanus (DPT), hepatitis-B and oral polio (apart from zero dose of oral polio at birth) by his/her 1st birthday.
2. Partially immunized: Those who had missed even one vaccine out of the primary vaccines.^[4,5]

RESULTS

Out of total 200 children studied 52% children were fully immunized and 48% children were partially immunized as shown in Figure 1.

Findings in Table 1 shows 56.5% children were male, 80.5% children were Hindu, 87% deliveries were institutional, 64% children were of $\leq 2^{\text{nd}}$ birth order and 28% mothers were illiterate. There was statistically significant association between immunization status of children and religion, birth order and education of mother.

Knowledge of caretakers of beneficiaries about RI is shown in Table 2. Nearly 45% parents/guardian correctly knew day for RI i.e., on Mamta day in their village (Monday at PHC and Wednesday at SC). About 67.2% parents/guardian did not correctly know up to which age vaccines of RI can be given. Furthermore, only 23.55% of parents/guardians can give the name of at least 3 vaccine preventable diseases covered under RI.

Figure 2 shows main source of information about RI. 83.5% respondents told that health workers (female health worker (FHW), Anganwadi worker (AWW) were the main source of information. Doctors and family members were another source of information, but in limited numbers.

As shown in Table 3, majority parents/guardians i.e., 61.5% knew about polio, followed by 40% about measles and 30.5% about BCG.

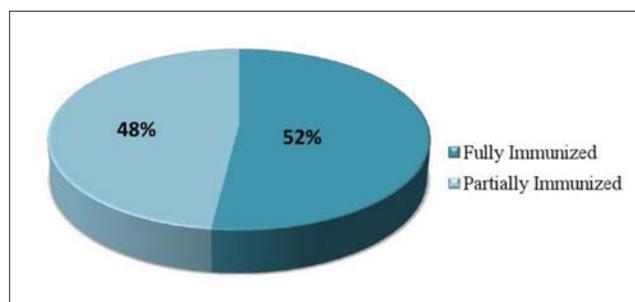


Figure 1: Immunization status of children ($n = 200$)

Table 1: Demographic characteristics and immunization status ($n = 200$)

Demographic characteristics	Immunization status		Total (%)	χ^2 value	P value
	Fully immunized (%)	Partially immunized (%)			
Sex					
Male	64 (56.6)	49 (43.4)	113 (56.5)	2.238	0.13
Female	40 (46.6)	47 (54)	87 (43.5)		
Religion				6.763	0.009
Hindu	91 (56.5)	70 (43.5)	161 (80.5)		
Muslim	13 (33.3)	26 (66.75)	39 (19.5)		
Place of delivery				1.232	0.54
Institutional delivery	93 (53.4)	81 (46.6)	174 (87)		
By trained personnel	8 (44.4)	10 (55.65)	18 (9)		
By un trained personnel	3 (37.5)	5 (62.5)	8 (4)		
Birth order				0.0006	0.001
≤ 2	78 (60.93)	50 (39.06)	128 (64)		
3 rd and above	26 (36.11)	46 (63.9)	72 (36)		
Mother's education				19.398	0.001
Illiterate	16 (28.6)	40 (71.4)	56 (28)		
Primary	58 (58)	42 (42)	100 (50)		
Secondary	24 (64.9)	13 (35.1)	37 (18.5)		
Higher secondary	6 (85.7)	1 (14.35)	7 (3.5)		

Other findings of the table were that 15% respondents knew about hepatitis-B, only 4% about DPT.

Figure 3 indicates 68.95 respondents told that child was sick on the day of immunization. Almost one-third (32.3%) went for the immunization on the day of RI, but the vaccine was not available and 31.11% went outside on the day of the session.

DISCUSSION

In a present study, 52% children were fully immunized, which is similar with a study conducted by Joshi *et al.*^[6] where 50% children were fully immunized. Findings of the current study is in between data of NFHS-III, which shows 40.1% children in rural area and coverage evaluation survey 2009^[7] shows 56.6% children were fully immunized.

Out of the 200 children, 56.5% were males and 43.5% were females, which have similar findings with study of Manjunath and Pareek^[8] (59% were male children). There was no statistically significant association between sex of children and immunization status of children, but fully immunized children were predominantly male. The female children were less likely to receive complete immunization and more likely to remain partially immunized. This shows neglect

Table 2: Knowledge about RI

Knowledge about RI	Frequency (n = 200) (%)
Having correct knowledge of day of RI	90 (45)
Having correct knowledge about age up-to which RI is given	65 (32.5)
Can give name of at least 3 VPDs	47 (23.5)

RI = Routine immunization, VPD = Vaccine preventable diseases

Table 3: Knowledge about name of vaccines to be given on the day of RI

Name of vaccines	Frequency (%)
BCG	61 (30.5)
Polio	123 (61.5)
DPT	8 (4)
Hep B	30 (15)
Measles	80 (40)

BCG = Bacillie calmette guerin, DPT = Diphtheria-pertusis-tetanus, RI = Routine immunization

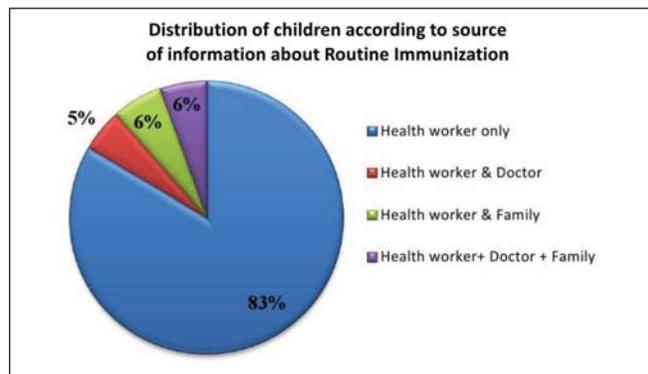


Figure 2: Source of information about routine immunization

of caretakers about immunization of female children. These findings were also supported by the findings of the study conducted by Yadav and Singh.^[9] In a study 87% deliveries were Institutional, whereas 13% were Home deliveries. Study of Nath^[5] shows that 50% deliveries were institutional which is quite lower than the present study. Present study shows that out of total deliveries 9% home deliveries were conducted by trained personnel and 4% by untrained personnel, in contrast Nath^[5] found that 23.9% were home delivery by trained personnel and 26.1% were home deliveries by un-trained personnel. In the present study, institutional deliveries were high, also home deliveries by trained personnel were high. This might due to awareness and motivation of people regarding institutional deliveries in a study district. There was no association between place of delivery and immunization status of children. However, more numbers of children who delivered institutionally were fully immunized. Whereas in a study conducted by Kumar^[4] shows that deliveries in the hospital, including those born by cesarean section, were more likely to be fully immunized ($P < 0.001$). This may be because vaccination was started at birth and parents were educated regarding subsequent vaccinations. Therefore, institutional deliveries should be promoted to increase the coverage of immunization. As shown in Table 1, 64% children were $\leq 2^{\text{nd}}$ order birth, which was quite higher than studies conducted by Kumar^[4] where 54.15% children were $\leq 2^{\text{nd}}$ birth order and Nath^[5] where 56.9% children were $\leq 2^{\text{nd}}$ order birth. There was a significant association between birth order and immunization status of children. More number of children of birth order ≤ 2 were fully immunized, whereas children of birth order 3^{rd} and above were more likely to remain partially immunized. In a present study, 80.5% children were Hindus while 19.5% were Muslims. Similar findings were found in studies of Yadav and Singh,^[9] Rachna and Vyas,^[10] Nath.^[5] Statistical significant association was observed between religion and immunization status of children. Low coverage of complete immunization among Muslim children has been observed by other authors Kumar,^[4] Nath *et al.*,^[11] Yadav and Singh.^[9] As shown in Table 1, 28% mothers were illiterate which is little more than study of Rachna and Vyas^[10] where 22% mothers were illiterate. There was statistical significant association between education of mother and immunization status of children. As literacy status increases, more number of children was fully immunized. This might due to increase awareness about RI.

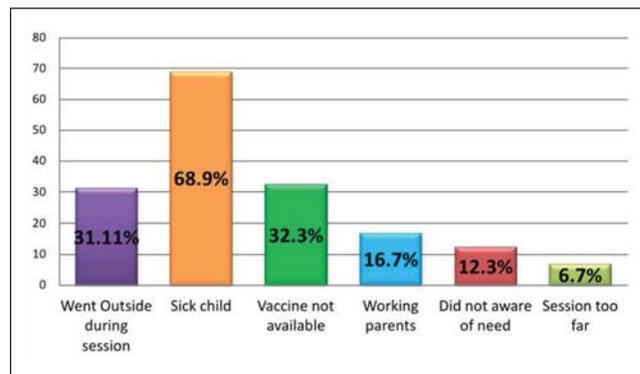


Figure 3: Reasons for partial immunization

Literacy status of mothers is a key determinant of access to health services as well as utilization of child health services.

Table 2 shows that 45% parents/guardian correctly knew day for RI i.e., on Mamta day in their village (Monday at PHC and Wednesday at SC), which is little higher than a study conducted by Sharma and Bhasin^[2] where 37% respondents knew correctly day of RI in the week. About 67.2% parents/guardian did not correctly know up to which age vaccines of RI can be given, which is quite higher than study of Sharma and Bhasin^[2] where 50.9 % respondents did not correctly know the age group for RI. Furthermore, only 23.55% parents/guardians can give the name of at least 3 vaccine preventable diseases covered under RI, whereas in a study of Nisar *et al.*^[12] about 54% of women reported exact number of diseases against, which EPI is scheduled. This shows poor knowledge of caretakers of beneficiaries regarding RI.

Main source of information was health worker (FHW, AWW) alone in 83.5% cases as indicated in Figure 2. This was because the majority of the respondents had availed the services at PHCs and SCs and these health functionaries seem to be most readily available and accessible to people. These findings were similar with the findings of Rachna and Vyas,^[10] Nath,^[5] Abdulraheem *et al.*,^[13] Nisar *et al.*^[12] Family and Doctors were considerably lower as the source of information about RI. Furthermore, present study shows that people did not get information from television, radio or media. Hence, to increase awareness media i.e., television, radio and newspapers should be more utilized.

Table 3 suggests that 61.5% respondents knew about Polio, followed by 40% about Measles and 30.5% about BCG. In a study of Nisar *et al.*^[12] 75.6% mentioned polio vaccine, 40.4% tuberculosis, 33.5% measles In a study of Rachna and Vyas,^[10] 85% knew about Poliomyelitis while measles and Tuberculosis was known to 40-35% of respondents, while in the study conducted by Sharma and Bhasin^[2] maximum number of respondents i.e., 61% knew about measles followed by tuberculosis 52.5%. These findings show that a majority of respondents knew about Polio followed by measles and BCG. It may be due to intensive Information Education Communication (IEC) activities done for intensified pulse polio immunization and oral polio vaccine is given as drops. Hence, people can easily identify this vaccine and disease. This could be attributed to the fact that the parents are more concerned about the health of the newborn child and since BCG is the first vaccine to be administered, most of them get their child immunized with the vaccine and if not, they at least acquire knowledge about immunization. Only 15% respondents knew about hepatitis-B and 4% about DPT. This could be attributed to the triple dose schedule of DPT, which makes it difficult for people to remember the schedule. The confusion is also compounded by the administration of hepatitis-B, which is given on the same day but on a different site.

As shown in Figure 3, most common reasons for partial immunization were sick child (68.9%) followed by Vaccine not available (32.3%) and caretakers went outside on the day of session

(31.1%). These findings were similar to study of Manjunath and Pareek.^[8] These findings suggest that there was misconception regarding immunization during minor illness, which requires education of people regarding RI.

LIMITATIONS

The respondents comprised of caretakers who brought their children to the centers for immunization and the result would not be generalizable to the whole population. It may be presumed that the knowledge and motivation levels regarding RI would be low among those who did not turn up and thus the actual figures for the community as a whole can be expected to be lower than the study's findings.

CONCLUSION

Based on these limitations, it can conclude that there was unsatisfactory knowledge about the UIP. Respondents' inability to name or identify diseases other than poliomyelitis and tuberculosis indicate that health education activities should be emphasized to enhance respondents' knowledge about the immunization program. The fact that minor illnesses, such as cough and diarrhea, are not a contra-indication to vaccination needs to be told to the parents.

Also gaps regarding the knowledge about correct age of vaccine administration, doses and place of vaccination should be filled along with the improvement in the literacy status of the mothers/guardian. This would require appropriate information dissemination, aggressive campaigning and family involvement as crucial to the success of the program. At the grass root level, mass media and other means of IEC activities should be harnessed to the maximum extent so as to increase the knowledge and change the attitude regarding immunization among people.

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