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Assessment of Immunisation Status of under Five Children Attending OPD of Balakati CHC, Bhubaneswar from August 2018 To December 2018

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ABSTRACT

Background – A cross sectional study was undertaken to assess immunisation status of under five children attending OPD of Balakati CHC, Bhubaneswar from August 2018 to December 2018. Though there is steady rise in immunization coverage due to increased accessibility of health care facilities, the average level remains far less than the desired. Methodology – A total number of 206 children aged 0-5 years were included in the study after implementing the exclusion criterias. Data was analysed by SPSS version 17, Microsoft excel 2010. Result- Immunisation coverage for BCG, DPT1 were maximum (100%), and least for measles (94%). There is no gender discrimination in the immunization coverage for children. Conclusion – Primary reasons behind partial immunization were inter current illness and fear of adverse effect following immunization. State routine immunization monitoring system needs to be gear up (i.e. regular health education sessions, regular reminders, and removal of misconceptions prevailing among people) for effective 100% immunization coverage.

Keywords: Immunisation, adverse effects following immunization (AEFI), VPD (vaccine preventable diseases)

INTRODUCTION

Immunization is often cited as being one of the most cost effective public health interventions. A vaccine is an immuno-biological substance designed to generate specific protection against a given disease.[1] globally, each year 130 million children are born, of which 91 million are in the developing countries. However, around 10 million children under the age of five years die every year and over 27 million infants in the world do not get full routine immunization.[2] The Universal Immunization Programme (UIP) was launched in Nov. 19th 1985. Post - National Immunization Programme era has witnessed a dramatic decrease in the incidence of the VPD's. Of the several VPD's as of now, only small pox has been eradicated: which was confirmed in May 1980 [3]. Another major milestone in the field of preventive medicine is the elimination of polio in India. The National Population Policy (NPP) 2000, aims at complete protection of all children against vaccine preventable disease by 2010 and aim to immunize all children against six common childhood diseases (tuberculosis, tetanus, pertusis, diptheria, measles and polio).[4] Immunization programs in rural areas can exert significant effects on vaccine preventable disease associated mortality by limiting the number of cases, decreasing clustering of cases

within households and increasing time lapse between outbreaks.

Immunization against common childhood diseases has been an integral component of mother and child health services in India since the adoption of the primary health care approach in 1978. Anganwadi centre is a part of ICDS (Integrated Child Development Services) Scheme initiated in 1975 is India's most ambitious multi dimensional welfare programme to reach millions of children and mothers who are caught in the grip of malnutrition diseases, illiteracy, ignorance and poverty.[5,6]

The study was needed as the current scenario depicts that immunization coverage has been steadily increasing but the average level remains far less than the desired. Still only 44 percent of the infants in India are fully immunized (NFHS-III) which is much less than the desired 85 percent coverage.[7] Though there is increased accessibility of health care services in rural areas, still the utilization of health care services is low by the different segments of the society.[8] Several previous studies concluded with large disparities in district wise analysis of child immunization status in Odisha. Only a few studies have been done to study the immunization status of Anganwadi children, especially in rural areas. Hence the present study is undertaken in an attempt to assess immunization status of under five children attending OPD of Balakati CHC, Bhubaneswar from August 2018 to December 2018.

According to Odunsya et. al. (2007)

A qualitative study was conducted to assess the relationship between mother education and child immunization.

Data was collected randomly from Nigeria. A sample of 5218 mothers was selected and data was collected by questionnaire method.

In this result he concluded that educated mothers had three times more chances of immunizing their child than the uneducated mothers.

According to Diddy Antai (2009)

A multilevel multivaribale regression analysis was conducted to assess the inequitable childhood immunizationn uptake in Nigeria.

The data were collected as a part of the Nigeria demographic and health survey. The data was collected by using a cluster sampling method.

The initial sampling selecting 365 clusters, (7864 house hold) from face interviews from which data was collected by face to face interviews from 3725 women aged 15-49 yrs. These women contributed a total of 6029 live born children to the survey.

As a result he concluded children of birth order 5+ with short interval (<24 month) head a 49% lower likelihood of receiving full immunization.

According to Qutaiba B Al-lela et. al. (2010)

A retrospective cohort study was used to evaluate immunization completeness: a prospective cross sectional study was conducted to evaluate the correlation between parental knowledge practice and child immunization completeness children (born between 1 January 2003 and 31 June 2008) were selected from five public health clinics in MOSUI.

In his result he concluded about half of studied children (n = 286, 56.3%) were immunized with all vaccination doses. These children were considered as having had complete immunization 66.1% of the parents was found to have adequate knowledge practice score.

According to Abdul Raheem I.S. (2011)

A cross sectional survey was conducted in 85 villages Awe LGA in between January and June 2008 to assess reason for incomplete vaccination. The LGA is divided into 10 administrative wards. The data was collected by standardized questionnaire method.

The selected variables were 23.979 including mothers with children between 0-11 months of age. Residing in the area 18 months prior to the study, and also having child routine immunization card.

As a result the reasons include long waiting time at health facility (15.2%), lack of vaccine on the appointment day (3.5%), absence of personnel at

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health facility (5.4%), lack of information about the day for vaccination (2.5%), forgetting the day of immunization (1.5%), long distance walking (17.5%), social engagements (0.4%), lack of money (10.6%), schooling mother (0.5%), parents disagreement (38.8%).

According to Simon Karanja (2012)

A cross sectional community based survey was under taken in a pre-urban area of Kenya, cluster sampling method was employed. Data was structured questionnaire through house to house visit to assess immunization coverage and it's determinate among children aged 12 to 23 months.

As a result he concluded that, complete immunization coverage was 76.6% Coverage for specific antigen was BCG (99.5%), OPV -0 (47.6%), OPV -1 (98.7%), OPV-2, (96.6%), OPV -3 (90.5%), Penta -1 (98.9%), Penta -2 (96.6%), Penta -3 ((90.5%), Penta -1(98.9%), Penta -2(96.6%), Penta -3(90.0%), Measles (77.4%) the drop - out rate between the 1st and 3rd prevalent vaccine coverage was 8.9%.

According to Juliet Kigulu (2013)

A qualitative study was conducted in Kampala from June to September 2013. The sample was collected by area based collection procedure. To assess factor affecting immunization behavior.

He selected about 1.6million people including children between 5 year constitute 20% of total population. He conducted 9 focus group discussions with mother and father.

As a result the concluded that, immunization behavour ranged from the non - supportive role of male parents. Some time resulting in to intimate partner violence, non involvement of parent in childhood immunization.

According to Beckie Naenna Tagbo (2014)

This study is aimed at determining the level of awareness and acceptance of polio vaccine by parents.

A cross sectional study involving 408 parents that broad their children for immunization. Structured questionnaire was used to collect data on the parent demographic characteristics awareness and acceptance of polio vaccine.

About 53% of parents had no knowledge of vaccine and 84% had not heard of polio vaccine and 40.2% were willing to accept polio. With post interview health education the level of acceptance of polio vaccine increase to 95.6% and the difference was statistically significant (p=0.001).

According to Darul Sehat Hosptial, Karochi (2015)

They conducted the study to assess knowledge attitude and practice of mothers on routine immunization. The study was conducted in dept. of paediatric from 1st March 2015 to 31st May 2015.

Sampling type was non probability convenience and sample size was 210 mothers who brought their children for routine immunization and accompanying women with children below the age 5 years were included in the study.

According to WHO & UNICEF (2016)

The latest WHO & UNICEF data on global immunization coverage show that 86% of the world's children receive the required dose of DPT in 2015.

As a result, the no of children who did not receive routine vaccination has dropped to an estimated 19.4 million down from 33.8 million in 2000.

The global vaccination action plan for the decade of vaccines of achieving 90% or more DPT vaccination coverage at the national level and 80% or more in districts in all country by 2015.

METHODS & MATERIALS

It is a cross sectional study and was conducted among fewer than five year children attending OPD of Balakati CHC, Bhubaneswar from August 2018 to December 2018.

Written informed consent was taken from the Parents / guardians. The permission to conduct study was taken from Department of SPM, SCB Medical College, and Cuttack before the commencement of the study. Permission to carry

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out the study was sought from the concerned ICDS officer. Data was collected using a structured questionnaire.

Inclusion Criteria

Children in the age group of 0-60 month (both male and female) attending OPD of Balakati CHC Bhubaneswar.

Exclusion Criteria

- Children more than 5 years
- Children suffering from Congenital heart disease, Enzymatic disease, Congenital deformity, Congenital defects, Malignancy
- Whose mothers not willing to participate in the study.

Method of collection of data

Immunization status was assessed with the dates in the immunization cards, a reliable history from the mother (or informant) or BCG scar were taken as an evidence of vaccination. A child receiving I dose of BCG, 3 doses of OPV. 3 doses of DPT and one dose of measles was considered as fully immunized and missing any one of the above vaccination was considered as partially immunized. A child who has not received any of the above vaccination was considered as unimmunized. Mothers / Guardians of partially immunized/ unimmunized children were asked the reasons for partial immunization. The confidence limit for significance was fixed at 95% level with p-value <0.05.

Formula used to calculate dropouts:

Dropout rate = DPTI coverage - DPT3 coverage/ DPT1 coverage X 100

Institute Ethical Committee Clearance Taken From Department of Social and Preventive Medicine, S.C.B. Medical College, Cuttack, Odisha, India

OBSERVATION & RESULTS

This study included 206 children between the age group 0-60 months. Majority of the children (42%) belong to 3 to 4 year age group followed by 0-1years 28% and 4-5 years 26% (Table-1)

In this study 49% of children were males and 51% were female. The results showed that 94% of children were fully immunized with BCG, DPT3, OPV3 and measles: 6% were partially immunized. There are no unimmunized children (Table 2). The percentages of completely immunized children were almost equal in both groups (94%).

In this study group 87.3% of children were Hindus, 8% Muslims and 4.7% Christians (Table -3). Fully immunized children are more in Hindus followed by Muslims and Christians. Majority (58%) of parents of the children under the study had education above HSC level (Table 4) and 42% had middle to high school education and no illiterate parents. With regard to type of vaccinations coverage was the highest for BCG, DPT-1 and OPV-1 (100%) and the lowest for measles vaccine (94%) (Table -5). The coverage rate for all the vaccines was slightly higher among male as compared to female though it was found to be statistically insignificant (p>0.05).

Table 1: Village wise distribution of study subject under Balakati CHC from August 2018 to December 2018

Sl.No.	Name of the Village	No. of Children
01.	Sarakana	12
02.	Brahmanasuanlo	25
03.	Bilipada	18
04.	Satyabhamapur	12

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05.	Gotalgrama	14
06.	Gotalbindha	21
07.	Jhintisasan	8
08.	Bhingarpur	25
09.	Satakanya	9
10.	Ranapur	33
11.	Dandilo	9
12.	Baligundi	19
Total :		**206**

Table 2: Distribution according to age and gender

Age group (Years)	Male		Female		Total	
	Number	%	Number	%	Number	%
0-01	34	17	22	11	56	28
2-3	3	1	05	o3	08	04
3-4	45	22	42	20	87	42
4-5	19	9	36	17	55	26
Total	**101**	**49**	**105**	**51**	**206**	**100**

Table - 2 Shows among 206 children between the group -0-60 months, Majority of the children (42%) belong to 3 to 4 years age group followed by 0-1 years 28% and 4-5 years 26% .

Table-3: Distributions according to immunization status

Age group in year	Completely Immunized			Partially Immunized			Un-Immunized			Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
0-1	24	25	49	3	4	7	0	0	0	56
2-3	3	4	7(87.5)	0	1	1(12.5)	0	0	0	8
3-4	42	40	82(94.2)	3	2	5(5.7)	0	0	0	87
4-5	18	34	52(94.5)	1	2	3 (5.45)	0	0	0	55
Total	**87**	**103**	**190**	**7**	**9**	**16**	**0**	**0**	**0**	**206**

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Table -3 showed that 94% of children were fully immunized with BCG. DPT3, OPV3 and measles: 6% were partially immunized. There are no unnimmunized children. The percentages of completely immunized children were almost equal in both groups (94%).

Table -4: Distributions based on religion and immunization status

Religion	Fully immunized	Partial	Unimmunized	Total
Hindu	170 (94.6)	10 (5.3)	0	180 (87.3%)
Christian	9 (85.7)	1 (14.28)	0	10 (4.7%)
Muslim	15 (91.6)	1 (8.3)	0	16 (8%)
Total	**194 (94)**	**12 (6)**	**0**	**206**

Table -4 showed 87.3% of children were Hindus. 8% Muslims and 4.7% Christians. Fully immunized children are more in Hindus followed by Muslims and Christians.

Table -5: Distributions based on education of parents and immunization status

Immunization status	Illiterate	Primary and middle	Metric HSC and above	Total
Complete	0	83(95.2)	110 (93.1)	194(94)
Partial	0	4(4.7)	9(6.89)	12(6)
Un-immunized	0	0	0	0
Total	**0**	**87 (42)**	**119 (58)**	**206**

Table -5 Showed Majority (58%) of parents of the children under the study had education above HSC level and 42% had middle to high school education and no illiterate parents.

Table 6: Immunization statuses of children

Vaccine	Male	Female	Total	India (NFHS 3)
BCG	92	114	206 (100%)	78%
DPT 1/ OPV 1	92	114	206 (100%)	
DPT 2/ OPV 2	92	111	203 (100%)	
DPT 3/ OPV 2	91	111	202 (100%)	55%
MEASLES	**88**	**106**	**194 (94%)**	**59%**

Table 6: Showed With regard to type of vaccinations. coverage was the highest for BCG, DPT -1 and OPV-1 (100%) and the lowest for measles vaccine (94%).

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Table -7: Immunization card status

Immunization Card	Present	Absent	Total
Number	191 (92.66)	15 (7.3)	206
Fully immunized	193 (96.45)	7 (3.54)	200
Partially immunized	2(33.33)	4 (66.7)	6

Table7: Showed immunization cards were available with 92.66% of the mothers of children. Immunization coverage was better in case of children who had their immunization cards available.

Table -8: Reasons for Partial / un immunization

Reasons for partial / un immunization	Number	Percentage
Inter current illness	5	55.5%
Non availability of vaccine	0	0
AEFI	2	22.2%
Lack of faith	0	0
Time Constrains	2	22.2%

Table -8: Showed the major cause of incomplete immunization was postponement of immunization due to inter current illness of the child and other reasons were parent's fear of AEFI and time constrains.

DISCUSSION

This study was done to assess the primary immunization status of under 5 year children attending OPD of Balakati CHC, Bhubaneswar from August 2018 to December 2018. In this study 49% of children were males and 51% of were females. Majority (42%) of the children belong to 3 to 4 year age group.

In the present study, majority (87.3%) of children was Hindu, followed by Muslim 8% and 4.7% belong to Christian. 94 percent of the children were fully immunized and immunization coverage was found to be more among males as compared to females though the difference was found to be statistically insignificant ($Z=1.3$, $p>0.05$). The rest of the children were partially immunized (6%). However, partially immunized female children were more as compared to male children though the difference was not significant ($p>0.05$). As observed, gender of the child did not significantly affect immunization status of the child. Similar result was found in another study at Delhi by Kar M, et. al. which reported that the sex of the child did not affect significantly the immunization of the child. This might be due to better knowledge and higher literacy rate of population residing in our area.9 as the age increases frequency of individual vaccination decreased.

In the present study, immunization cards were available with 92.66% of children. Immunization coverage was better in case of children who had their immunization cards available. This shows that mothers were well motivated and have understood the importance of maintaining such records with them for follow - up. Similar results were shows in the studies conducted by Tapare VS et. al. and Kadri AM et. al. in which 81.25% and 88.4% of the mothers possessed the immunization card with them, respectively.10,11 It was also evident from National Family Health Survey III (NFHS-III) that only 12.22% of the mothers did not have immunization cards with them.

There was gradual increase in the dropouts from BCG to measles vaccination and DPT to measles

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vaccination. A dropout rate of 2% for DPT was observed in the present study. The dropout rate indicates the systems inability to hold on the child once registered. Study by Yadav S et. al also found that the main reasons for dropout or un immunization of children were visit to native place / village in about 80% and 20% inconvenience.12 Punith K et. al. Also revealed that unaware of the need of immunization followed by fear of side reactions was the major reasons for discontinuation of immunization.13 Time constraints prove to be a major factor resulting in partial immunization. Fear of AEFI, prevails among most of the mothers. The need for public health education regarding the importance of primary immunization is to be emphasized. Awareness has to be created regarding the management of post vaccination sequelae. The availability of medical and emergency facilities in the local health care centers to attend AEFI has to be enlightened upon.

CONCLUSION

The results in the present study prove that even after 33 years of implementation of the UIP, routine immunization has not reached all. There was only marginal difference in immunization coverage with all three doses according to gender, religion or education of parents. In case of female children, coverage was slightly higher among Hindus. The accurate measurement of vaccination coverage is an essential step in determining expected reductions in morbidity and mortality from VPDs. In the present study, vaccination coverage for all the vaccines was better than NFHS -III data. In this study coverage for BCG, DPT 1 was maximum, 100% and least for measles, about 94%. There was no gender discrimination in the immunization coverage for children. The prime reason behind partial immunization as per our study is inter current illness and fear of AEFI. Steps for improvement should focus on reducing the dropout rate from BCG to measles and DPT-I to measles. State routine immunization monitoring system needs to be geared up for effective 100 per cent immunization coverage.

RECOMMEDNATIONS

From the observations made during the course of the study and considering the results and discussion of the present study, the following recommendations are advised. Vigilant surveys should be conducted so that pockets of partial / un-immunization are identified and proper actions can be taken.

Regular health education sessions and motivation through an encouraging and persuasive interpersonal approach, regular reminders and removal of misconceptions prevailing among people will solve the problems of non - immunization. Routine motivation of the mothers by the grass root level health workers and the anganwadi staff is bound to manifest with between attendances at the immunization clinics.

A compulsory possession of Immunizations cards for school admission can be taken as a positive approach towards increasing the level of awareness for immunization. Last but not the least emphasis on social mobilization especially with help of media should be encouraged.

DECLARATION –

- Funding – (1) Department of Social and Preventive Medicine, Srirama Chandra Bhanj Medical College(S.C.B.M.C.), Cuttack, Odisha, India, (2) Office of the Medical Officer , Balakati CHC, Dist – Khordha, Odisha, India

- Conflict of interest – No

- Ethical approval – Taken from (1) Department of Social and Preventive Medicine, Sriram Chandra Bhanj Medical College, Cuttack, Odisha, India, and (2) Office of Medical Officer , Balakati CHC, Dist – Khordha, Odisha, India

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