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Study on Immunization Status among Children's between 2 To 6 Years of Age Group in Rural Field Practices Area of Ormanjhi of Rims, Ranchi

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Abstract
Background*: Immunization is one of the most important public health intervention and cost effective strategy to reduce both morbidity and mortality associated infectious diseases.**Aims and objectives 2**. To estimate the coverage of immunization among children 2-6 years of age in rural area of Ormanjhi. 2. To identify the socio-demographic profile influencing the immunization status of the children. **Methodology :** The study was community based cross sectional descriptive study. The study involved interviewing the mothers having a child in the age group 2 to 6 years to obtain maternal characterstics and immunization history. It was carried out from January 2014 to September 2015.**Statistical Analysis :** Template generated in MS Excel Sheet and analysis was done in SPSS software **Results:** Total number of 370 study subjects are included in our study in which majority of mothers belonged to 15 to 25 age groups, it prevalence is 270(72.9%). And majority of children's are 4 to 6 years age group and its prevalence is 236(64.6%). Majority of childrens are Male 197(53.2%). **Conclusion :** In present study its showed that majority of study population were immunized but it is not up to mark. We have to make it 100%,so that we can reduce mortality due to vaccine preventable disease.The study showed that there is strong association between the place of delivery and immunization coverage .immunization coverage is more in those children who delivered in Govt.institutes as compared to those children's who delivered in private institutes.*
Keywords : immunization, child immunization

I. Introduction

In Developing Countries Like India Where The Diseases Prevalence Among Infants, Children And Women Of Child Bearing Age Is Common Due To Poor Nutritional And Environmental Sanitation, Immunization Is An Important Means Of Protecting The Infants And Children Against The Most Injurious Diseases Like Diphtheria, Whooping Cough (Pertusis), Tetanus, Poliomyelitis, Measles And Tuberculosis And The Women Of Child Bearing Age Against Tetanus . Immunization Is One Of The Most Important Public Health Intervention And Cost Effective Strategy To Reduce Both Morbidity And Mortality Associated Infectious Diseases .Over Two Millions Death Are Delayed Through Immunization Every Year Worldwide. Approximately Three Million Children Die Each Year Of Vaccine-Preventable Diseases. Recent Estimates Suggest That Approximately 34 Million Children Are Not Completely Immunized, With Almost 98% Of Them Residing In Developing Countries [1]. The World Health Organization (Who) Launched The Expanded Programme On Immunization (Epi) In 1974 With Focus On The Prevention Of Six Vaccine-Preventable Diseases Of The Childhood By 2000. This Was Implemented By The Government Of India In 1978 [2].On 19 November 1985, The Universal Immunization Programme Was Introduced In India, Aiming At Covering At Least 85% Of All Infants By 1990. Further, A National Sociodemographic Goal Was Set Up In The National Population Policy 2000 To Achieve Universal Immunization Of Children Against All Vaccine- Preventable Diseases Of The Childhood By 2010 [3].

II. Material And Methods

The Study Was Community Based Cross Sectional Descriptive Study. The Study Involved Interviewing The Mothers Having A Child In The Age Group 2 To 6 Years To Obtain Maternal Characterstics And Immunization History. It Was Carried Out From January 2014 To September 2015 . The Research Area Is Located In The Rural Field Practices Area Of Ormanjhi .The Study Was Carried Out In Anandi, Chakla And Irba Subcentre Under Rural Health Training Centre Of Rajendra Institute Of Medical Science, Ranchi
Thus 210 Children Were Covered In 30 Slum Areas. The Data Was Collected From The Care-Taker Or Guardian Of The Child Using A Pre-Designed And Pre-Tested Questionnaire Regarding The Immunization Status Of The Child And Other Factors Associated With It. Immunization With Bcg Was Confirmed By

Checking For The Scar On The Left Upper Arm While For Other Vaccines, The Immunization Card Was Checked.

Data Analysis

Data Is Entered In Ms Excel Sheet. Statistical Analysis Was Carried Out Using The Spss Software (Version 20.00). The P Value Of <0.05 Was Considered Significant. Chi-Square Test And Logistic Regression Analysis Were Done To Determine The Statistical Significance Of The Association Between The Immunization Status And The Recorded Demographic Details. Data Cleaning Was Carried Out To Ensure Accuracy And Completeness Of The Data.

Ethical Consideration

The Study Was Approved By The Ethical Committee Of The Rajendra Institute Of Medical Sciences, Ranchi. Written Informed Consent Was Taken From The Parents Of The Study Subjects.

III. Results

Table 1:Socio-Demographic Profile Of Study Population(N=370)

Variable		Number	Frequency
Age	1. 2-4 Years	131	35.4%
	2. 4-6 Years	239	64.6%
Sex	1.Male	197	53.2%
	2.Female	173	46.8%
Religion	1.Hindu	239	64.6%
	2.Muslim	61	16.5%
	3.Christian	49	13.2%
	4.Others	21	5.7%
Ethnicity	1.Tribal	112	30.3%
	2. Non-Tribal	258	69.7%
Literacy Status Of Parents	1.Illetarate	122	33.0%
	2.Primary	151	40.8%
	3. Secondary	63	17.0%
	3. Above Secondary	34	9.2%
Occupation Of Parents	1.Farming	166	44.9%
	2.Selfemployed	31	8.4%
	3.Govt Job	35	9.5%
	4. Labour/Daily Wages	97	26.2%
	5. Private Job	41	11.1%
Type Of Family	1.Nuclear Family	101	27.3%
	2.Joint Family	269	72.7%
Socioeconomic Status Of Parents	1.Class-I	8	2.2%
	2.Class-Ii	13	3.5%
	3.Class-Iii	37	10.0%
	4.Class-Iv	114	30.8%
	5.Class-V	198	53.5%
Place Of Delivery Of Mothers	1.Home	2	0.5%
	2.Govt. Institutes	307	83.00%
	3.Private Institutes	61	16.5%
	Total	370	100%

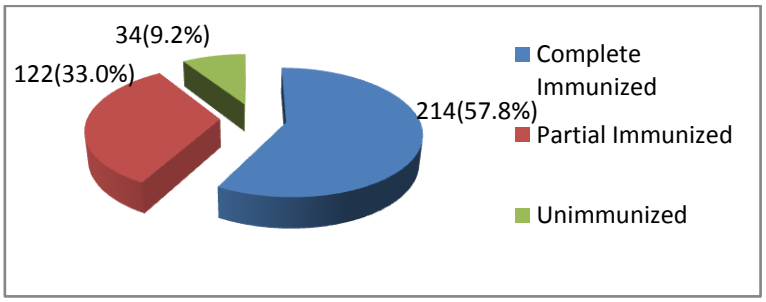
Table 2: Vaccine Coverage of Individual Vaccine In Children (N=370)

Individual Vaccine	**Vaccine Taken**	**Vaccine Not Taken**	**Total**
Bcg	336(90.81%)	34(9.189%)	370(100%)
Opv_1	370(100%)	0(0%)	370(100%)
Opv_2	327(88.37%)	43(11.62%)	370(100%)
Opv_3	323(87.297%)	47(12.70%)	370(100%)
Dpt_1	370(100%)	0(0%)	370(100%)
Dpt_2	325(87.83%)	45(12.16%)	370(100%)
Dpt_3	321(86.75%)	49(13.24%)	370(100%)
$Measles_{1\ T\ Dose}$	311(84.05%)	59(15.9%)	370(100%)
Vitamin $A_{1st\ Dose}$	311(84.05%)	59(15.9%)	370(100%)
Dpt Booster	301((81.35%)	69(18.64%)	370(100%)
$Measles_{\ 2nd\ Dose}$	297(80.27%)	73(19.72%)	370(100%)
Vitamin $A_{2nd\ Dose}$	101(27.29%)	269(72.70%)	370(100%)
Vitamin $A_{9th\ Dose}$	61(16.48%)	309(83.51%)	370(100%)

Table 3:-Distribution of Study Subjects According To Immunization Coverage In Study Area (N=370)

Immunization Coverage	Number	Percentage (%)
Complete Immunization	214	57.8%
Partial Immunization	122	33.0%
Unimmunized	34	9.2%
Total	370	100.0%

Figure 1:- Showing Distribution of Study Subjects According To Immunization Coverage In Study Area



In The Present Study ,Out Of The Total 370 Study Subjects, 131(35.4%) Were Belonged To 2-4 Years, And Rest 239(64.6%) Were Belonged To 4-6 Years. Among Them 197(53.2%) Were Male, And Rest 173(46.8%) Were Female. Out Of Total 370 Study Subjects, 239(64.6%) Were Hindu, And 61(16.5%%) Were Muslim , Christian Were 49(13.2%) And Others Were 21(5.7%). 112(30.3%) Were Tribal, And Rest 258(69.7%) Were Non-Tribal.

As Far As Literacy Status Of The Study Population Is Concerned , Maximum Number Of Participants 151 (40.8%) Were Primary Educated, Followed By 122(33.0%) Were Illerate. 63 (17.0%) Had Got The Secondary Level Of Education , Followed By 34(9.2%) Had Above Secondary Level Of Education.

In The Present Study , Out Of Total 370 Study Subjects,116(44.9%) Were Farmers, 97(26.2%) Subjects Were Labours And Daily Wagers, Followed By 41(11.1%) Were In Private Job, 35(9.5%) Were Self Employed And Rest 31(8.4%) Were Belonged To Govt Job. 101(27.3%) Were Nuclear, And Rest 269(72.7%) Were Joint Family. Occupation Of Study Subject Is Classified On The Basis Of Modified B.G Prasad Classification July 2014 .Out Of Total 370 Study Subjects, Approximately More Than Half 198(53.5%) Of The Subjects Belonged To Class –V Followed By Class-Iv 114(30.8%).And 37(10.%) Were Belonged To Class-Iii Followed By 13(3.5%) Belonged To Class-Ii .Rest 8(2.2%) Were Class-I.

IV. Discussion

Table: 1 Illustrates The Demographic Characteristics Of The Study Population. The Mean Age Of Mothers Interviewed Was Approximates 26 Years. The Mean Age Of Mother At The Time Of Marriage Was 20 Years. At The National Level, The Mean Age At Marriage For Female In The Year 2011 Was 21.2 Years And Varies With 20.7 Years In Rural Areas And 22.7 Years In Urban Areas [4]. The National Family Health Survey 3 [4] Carried Out In Twenty-Nine States Highlights That 47 Percent Of Women Currently Aged 20-24 Years Were Married Before The Age Of Eighteen Years, With 56.2 Percent In Rural Areas And 29.3 Percent In Urban Areas. Increase In Age At Marriage Among Women In South Asia Especially In Bangladesh, India And Nepal Has Been Recognized As A Vital Issue [5].

Education Plays A Very Important Role In The Context Of Women's Health. In The Current Study The Highest Educational Attainment Of The Mother Was Primary School (40.8 Percent) Though Considerable Proportions Of Mothers Were Having Basic Education, 33 Percent Of Them Were Illiterate. Various Studies Have Shown That The Literacy Rate Among The Mothers In Rural Slums Varies From 34.7 Percent To 60 Percent[6-9] .Generally Women With Proper Educational Status Have Better Health, Live In Healthier Environments And Have Healthier Children Compared To Women With Little Or No Education [10]

The Employment Status Is A Basic Measure Of The Economic Soundness Of The Households. In Current Study It Reveals That Majority Of Parents Participates In The Study Were Farmer 166(44.9%), Followed By Daily Wage Earner 97(26.2%) .And Govt Job Holders Were 31 (8.4%), Private Job Holder 41(11.1%) And Self Employed Were 35(9.5%).

The Above Scenario Re-Affirms That There Is A Concentration Of The Poor In The Rural Area, As Majority 198(53.5%) Of The Belong To Lower Socio-Economic Class (Class-V), Are Illiterate Or Poorly

Educated And Engaged In Lowly Paid Jobs. And 114(30.5%) Participants Belonged To Class –IV Socioeconomic Class (According To Modified Prasad Classification 2013) Followed By 37(10.0%) Belonged To Class-III. 13(3.5%) Participants Belonged To Class-II , Followed By 8(2.2%) Participants Were From Class-I Socioeconomic Classes In Current Study.

One Of The Important Thrusts Of The Reproductive And Child Health Programme Is To Encourage Institutional Deliveries With Proper Hygienic Conditions Under The Supervision Of Trained Health Professionals. The Provision Of Delivery Services In The Government Health Institutions As Well As Private Facilities Is One Of The Components Of The Rch Programme.

The Current Study Shows That Out Of 370 Deliveries, 307(83%) Deliveries Took Place In Government Institutions And 61(16.5%) At Private Institution And 2(0.5%%) Deliveries Were Conducted At Home. As Shows In Table (1.)

In The Present Study , Out Of 370 Children's , 100% Children Received 1st Doses Of Opv, 327(88.37%) Received The 2nd Dose And 323(87.29%) Children's Received The 3rd Dose Of Opv Which Is Shown In(Table 2.) .This May Imply That Uniform Immunization Coverage Is Not Maintained And May Result Into Pockets Of Non Immunized Children Building Up That Can Favor The Spread Of The Virus.

Tuberculosis (Tb) Continues To Be A Major Public Health Problem Around The World. According To World Health Organization (Who) Estimates The Incidences Of Tb Will Continue To Increase Due To Varied Reasons Such As Low Compliance With Tb Treatment, Multidrug Resistant Strains, Migration Etc [11] . A Preventive Measure To Combat This Disease Is Administration Of Bacillus Calmette Guerin Vaccine (Bcg) To The Newborns At The Time Of Birth.

The Present Study Shows That Out Of 370 Study Subjects, 336(90.81%) Childrens Were Given Bcg But 34(9.18%) Are Still Deprived Of The Dosage Which Is Showed In(Table 2) And Not Prevented Against Tuberculosis. The Coverage Is Comparatively Higher Than Nfhs -3 .

Diphtheria And Pertussis Are Bacterial Infections And Their Transmission Is Influenced Overcrowding And Poor Socioeconomic Conditions. The Best Preventive Measure Against These Infections Is Immunization.The Vaccine Is Administered In Three Doses In Childhood As Part Of The Trivalent Dpt Vaccine In National Immunization Programmes. [12]

The Current Study Shows That Out Of 370 Children's, 100% Of Children Received Dpt $_1$, 325(87.83%) Children's Received Dpt $_2$, And 321(86.75%) Children's 3rd Doses Of Dpt Vaccine While Approx 8.46% Of The Children Did Not Receive Complete Protection Against The 3 Dreadful Diseases (Diphtheria, Pertussis And Tetanus) ,Which Is Shown In Table 2.

In The Current Study ,Out Of 370, 311(84.05%) Children Had Received 1st Dose Measles Vaccine And 59(15.9%) Children's Did Not Receive 1st Dose Of Measles Vaccine , 297(80.27%) Children's Received The 2nd Dose Of Measles Vaccine But About 73(19.72%) Are Still Left To Receive The 2nd Dose Of Measles Vaccine, Which Is Shown In Table(2).

Although Vitamin A Dosage Is Not Included In Routine Immunization Schedule In India, It Still Has Most Importance In Child Immunization. Vitamin A Deficiency Is One Of The Most Common Nutritional Deficiency Disorders In The World That Affects More Than 250 Children Worldwide,[13].

In The Current Study Out Of 370 , 311(84.05%) Children's Have Received 1st Dose Of Vitamin A Dosage, 101(27.29%) Had Received The 2nd Dose Of Vitamin A And 61 (16 .48%) Had Received The 3rd Dose Of Vitamin A. In India Vitamin A Coverage Is 41 % (Among 2 To 6 Years Of Child According To Nfhs 2005-2006).

As Mentioned, Vitamin A Coverage Is Low At 25–37% (2005) 19, 21 For One Dose In The Past Six Months. A Study By Semba Using Nfhs Iii 2005–2006 Data Showed That Vas Coverage Decreased With Age – Where Coverage With One Dose In The Past Six Months Was 45.4% Among Children Aged 12–23 Months, This Decreased To 16.4% Among Children Aged 36–47 Months And Then Further To 9.4% Among Children Aged 48–59 Months. Over- All Coverage Achieved Was 20.2%.

Table 3 Shows That Out Of 370 Childrens About 214(57.8%) Percent Of The Children Were Fully Immunized, 21 Percent Were Partially Immunized 122(33.0%) And 34(9.2%)Percent Were Not Immunized Which Is Less Than The Desired Goal Of Achieving 85% Coverage[4]. Nfhs-3 Reports That Only 54.7 Percent Of The Urban Children Are Fully Vaccinated.

Similar Findings Were Seen In The Study By Yadav Et Al [14] Where The Percentage Of Fully Immunized Children Was 73.3 Percent ,23.8 Percent Were Partially Immunized And 2.8 Percent Were Unimmunized.

Similar Level Of Immunization Coverage Have Been Documented In Various Studies Such As Kadri Et Al. [15] Khokhar Et Al. [16] And Kar Et Al. [17] In Urban Slums Of Ahmadabad And Delhi City, Respectively.

V. Conclusion

Immunization Is One Of The Most Cost Effective Public Health Interventions As Vaccines Avert Both Morbidity And Mortality It Was Also Revealed From The Study That Demographic And Socioeconomic Factors Such As Literacy, Place Of Delivery, Occupation Of Parents Do Affect Immunization Of The Child. There Was Lack Of Information Existing On The Subject Of Immunization Amongst The Population, As Majority Mothers Cited Reasons Like Unaware For Need Of Immunization, No Faith In Immunization And

Fear Of Side Effects For Failure In Providing Full Immunization. So To Combat This, There Is A Need To Do More Focus And Proper Information, Education And Communication (Iec) Activities To Improve The Demand And Utilization Of Services. Therefore, There Must Be Regular Follow Up Of The Cases And Strengthen Monitoring Through The District Officials. It Is True That There Is A Gap Between The Desirable And Actual Situation. Thus These Findings May Be Used For Further Planning And Implementation Of Health Services By Exploring The Detailed Reasons Of Non Immunization And Creating Awareness Regarding The Benefits Of Immunization.

Recommendation

Indian Government Should Improve On Supplemental Immunization Activities Such As National Immunization Programme And Catch-Up Campaigns That Are Already In Place. These Programmes Should Be Planned And Regularly Carried Out Based On How To Improve Routine Immunization Coverage And Control Out-Breaks Situations Like Measles And Polio.

- Education Programmes That Can Target Poor And Uneducated People Should Be Put In Place So That They Are Able To Make Informed Decisions Regarding Immunization Of Their Children.
- Free Health Facilities Should Be Made Available To Every Mother So That Poor Mothers Can Easily Access Them.
- Many Mothers Don't Come Regularly For Vaccination Of Their Children. As A Result They

Miss The Due Date Of Vaccination. Low Literacy Level Of Mothers Is A Matter Of Worry. Some Of Them Don't Know About The Diseases For Which Their Child Is Being Immunized..Although Many Mothers Don't Know The Timing Of Vaccination But Some Of Them Follow The Immunization Card And Come Accordingly. So There Is Need To Arrange Health Education Programmes Session For Mother With Main Emphasis On Importance Of Vaccination And Vaccine Preventable Disease.

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