

Study on coverage of optional vaccines in 3 – 6 year old children in an urban setting in Vellore, India

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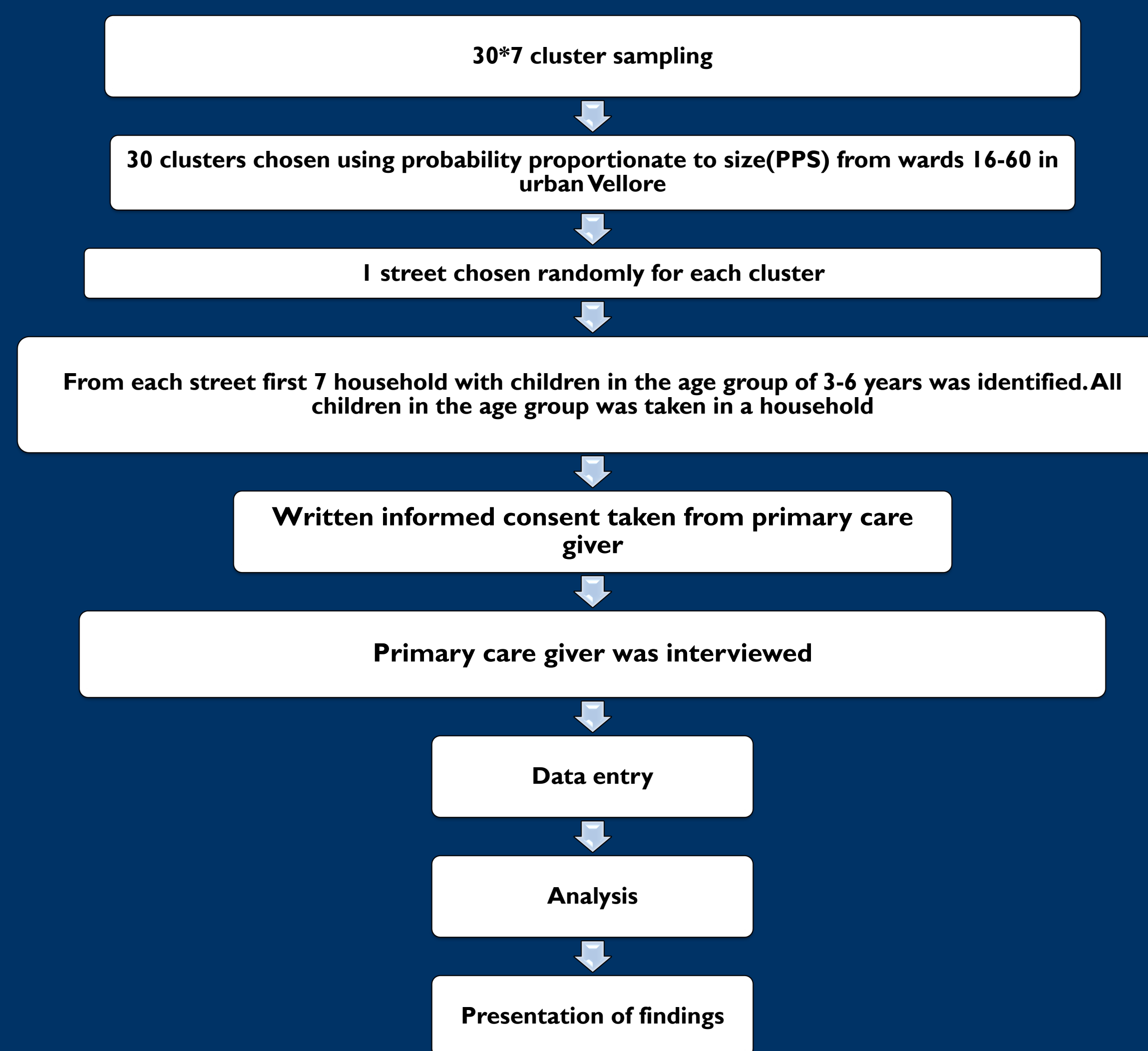


INTRODUCTION

- Essential vaccines: Includes BCG, polio, DPT, measles, tetanus, hepatitis B, H influenza B, and in a few states, Japanese encephalitis. These are included in the Universal Immunization Program (UIP) and under this program no child can be denied immunization.
- Optional Vaccines: Vaccines that are not included in the Indian National Immunization Programme and given on an optional paid basis. They prevent common causes of morbidity and mortality in the Indian population.
- Optional vaccines included for the study are Hepatitis A vaccine, Pneumococcal vaccine, MMR vaccine, Rabies vaccine, Seasonal Influenza vaccine, Typhoid Vaccine, Varicella vaccine.
- Even though there are effective optional vaccines which prevent them, these diseases are highly prevalent in the study area and form a major bulk of diseases affecting children.
- Despite their proven efficacy and safety, the uptake of optional vaccine has been low since their introduction^(10,11,12)
- No study has been done before to analyse the coverage of optional vaccines in the study area.
- NFSH studies have shown drop in routine immunization rates in the state of Tamil Nadu over the years.
- Factors affecting vaccine uptake has to be studied

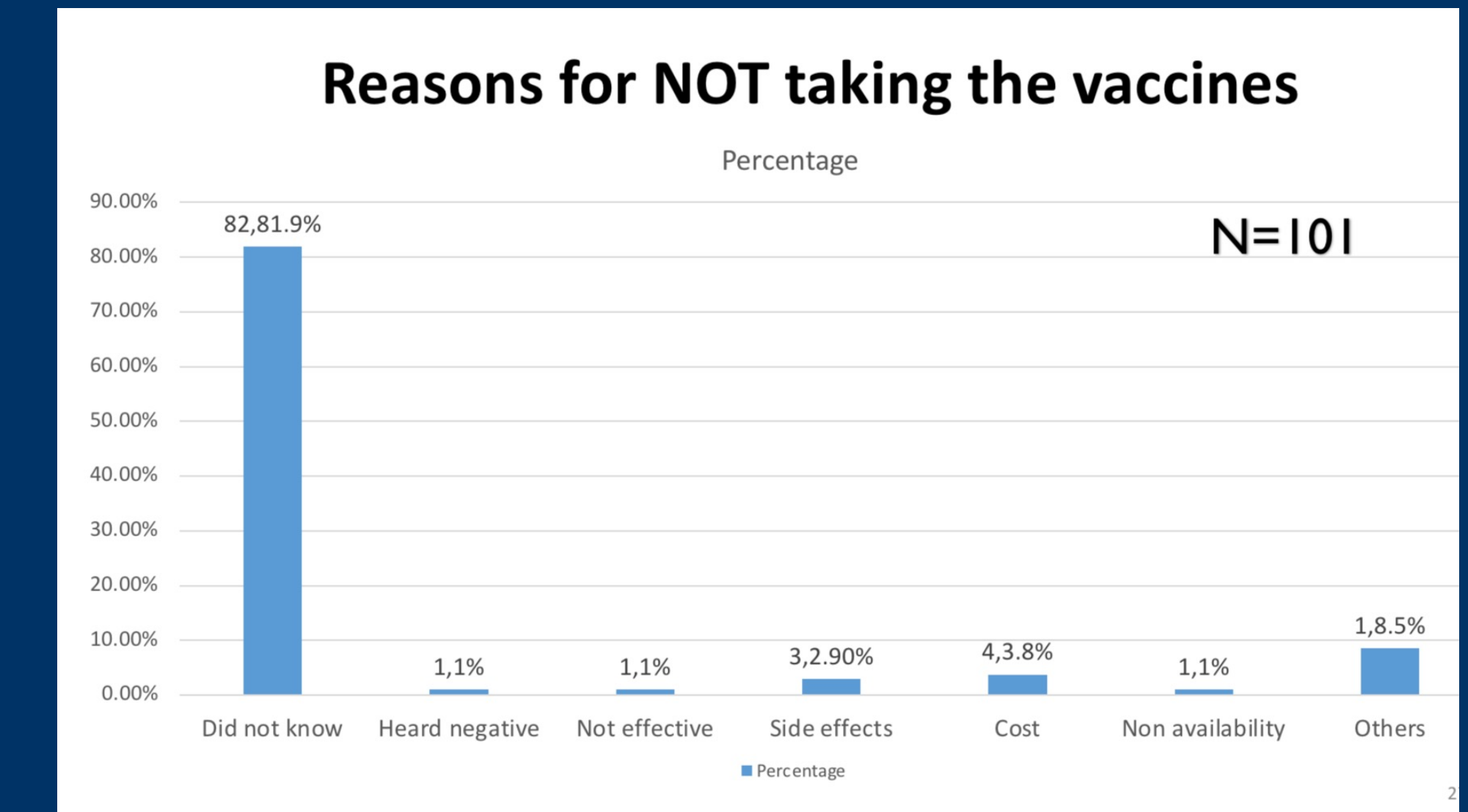
METHODOLOGY

- Study Design : A community based Cross Sectional Study
- Setting Of The Study: The study was conducted in the urban population of the Vellore town (Wards 16-60, situated south of the Palar River).
- Study Population : Children in the age group of 3-6 years
- Inclusion criteria : Children in the age group of 3-6 years residing in (Wards 16-60) Vellore Town, all children in a household
- No exclusion criteria
- Period of the study: 2 weeks (14TH March – 24th March '18).
- Sample size 210 households



RESULTS

- A total of 220 children from 210 households were included in the study, of which 46% (101) had not received any optional vaccine.
- The individual vaccine coverage were ranged from 0.9% for Anti Rabies vaccine to 46.8% for MMR Vaccine.
- High socioeconomic status ($p < 0.001$), high maternal educational level ($p < 0.001$), health professional's advice ($p < 0.001$), access of caregiver to smart phones ($p < 0.001$), and birth in a private hospital ($p < 0.001$) were found to be predictors of good vaccine uptake.
- The barriers to vaccine coverage observed were lack of knowledge, cost of the vaccine, non-availability and false knowledge of apparent insufficiency.



CONCLUSION

The coverage and awareness of select optional vaccines among children aged 3-6 yrs in urban setting:

Vaccine	coverage	awareness
1.Hepatitis A	38.6%	40%
2.Anti-rabies vaccine	0.9%	16.8%
3.MMR vaccine	46.8%	48.2%
4.Typhoid vaccine	38.6%	55.9%
5.Seasonal influenza	30%	39.1%
6.Pneumococcal vaccine	24.1%	35%
7.Varicella vaccine	40%	56.4%

Factors associated with vaccine uptake:

Promotes Uptake	Barriers for Uptake
Socioeconomic Status	Lack of Awareness
Caregivers education	Heard it was inefficient
Health Professional Advice	Relatively expensive
Smart phone use	Lack of availability

Recommendations:

- To encourage medical practitioners and other health care providers to give counselling regarding the uptake of optional vaccines.
- Since mobile phone is an important source for dissemination of health education, it must be utilised to create more awareness among the public.
- To educate of the primary care giver regarding optional vaccines
- Anti-rabies vaccine uptake should be encouraged as rabies is the most lethal disease.

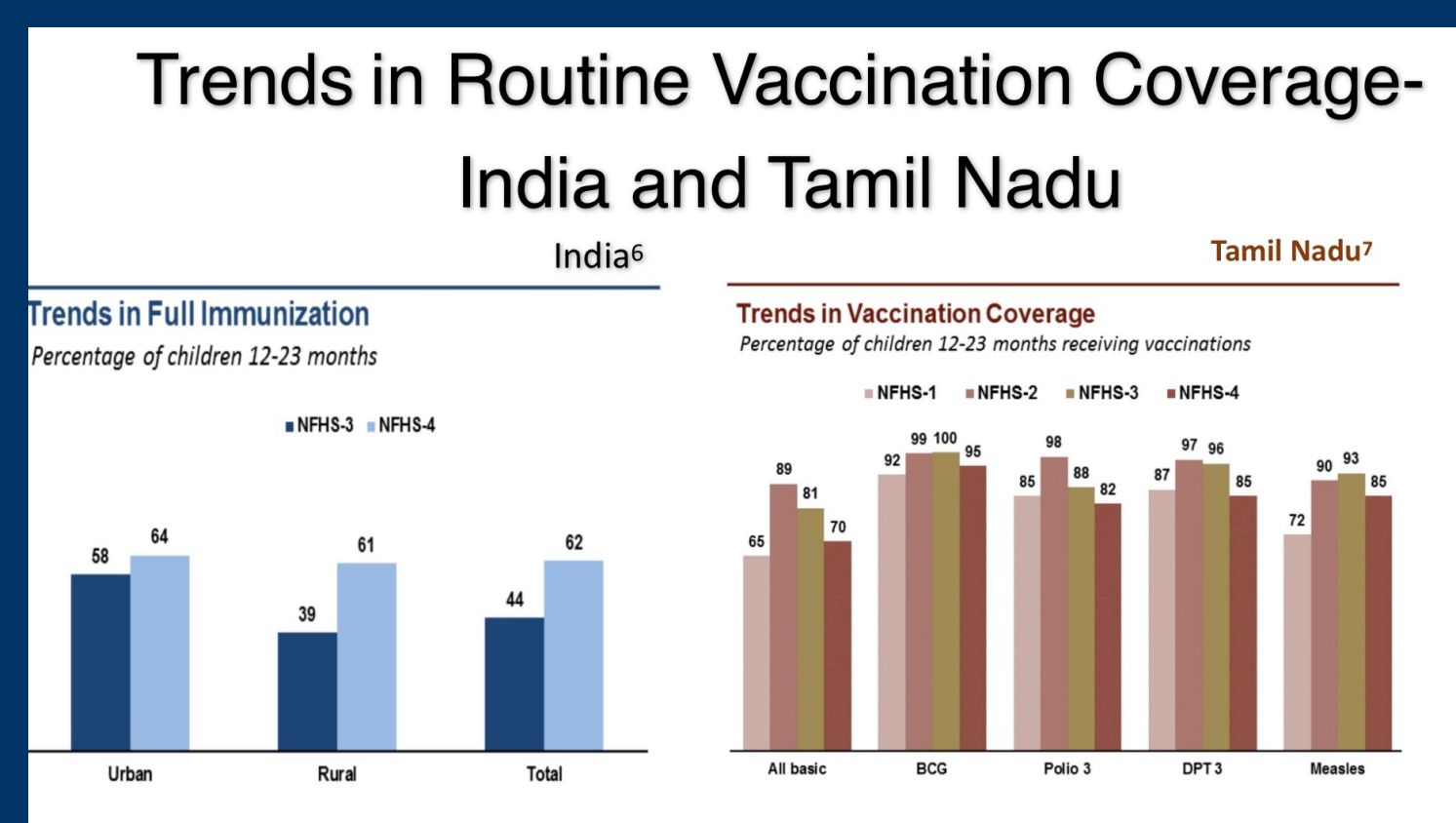
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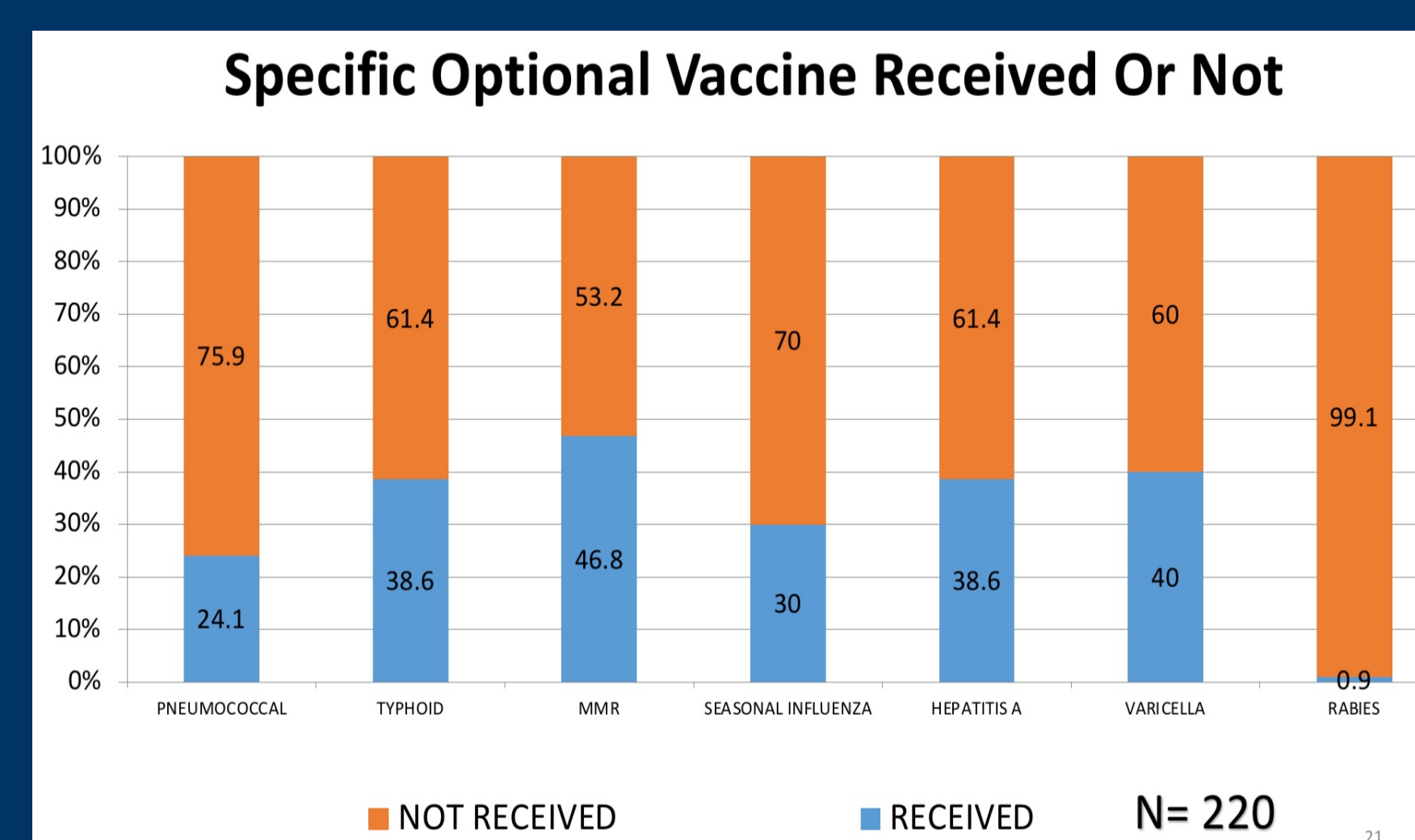
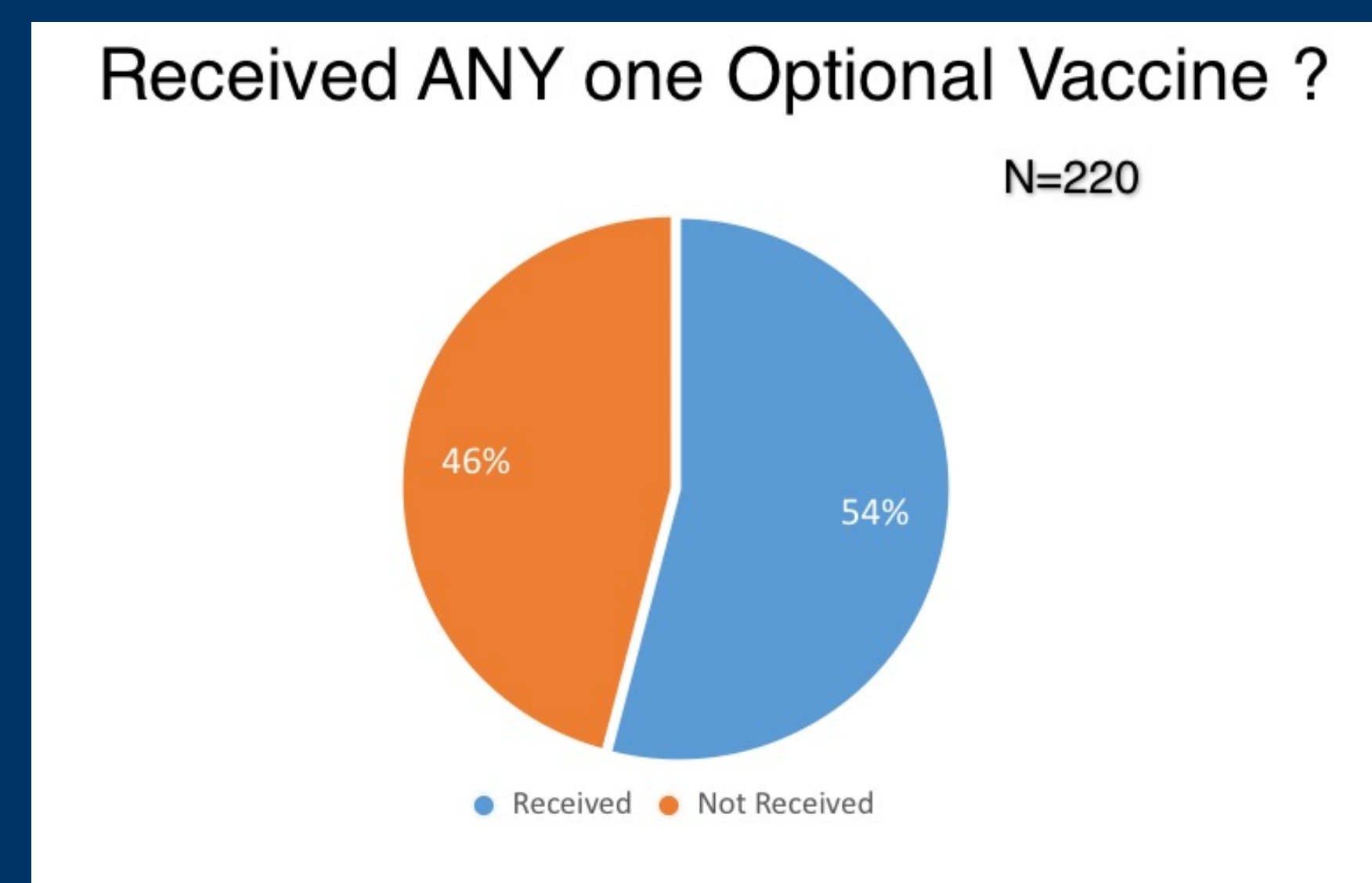
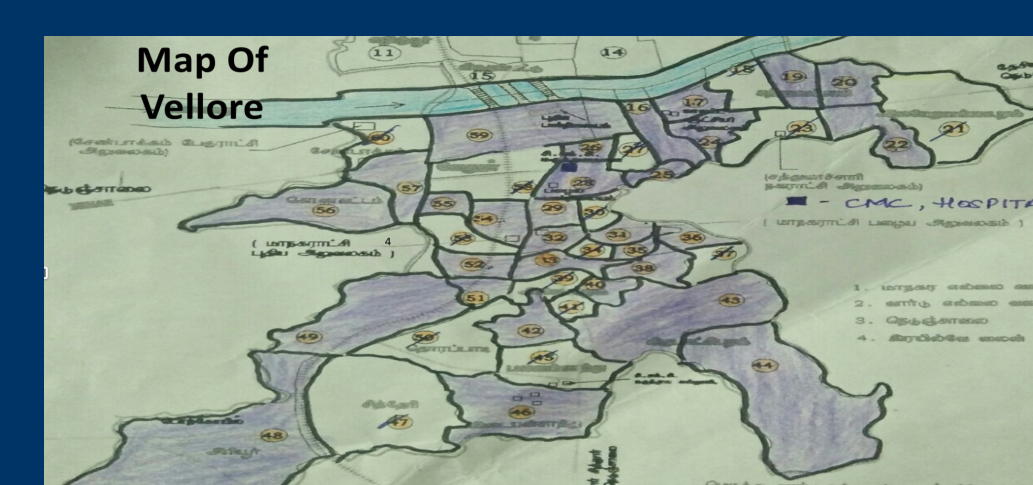


Disease	Supporting facts
Hepatitis A	In India, it was found that there is 93% seroprevalence in children aged 4 years to 8 years.(1)
Rabies	India has about 18000 to 20000 cases a year and accounts for 36% of total world deaths.(2)
Measles	India accounted for 50% of global deaths in 2013.(globally 0.14 million)(3)
Mumps	36,352 cases reported in SE Asia region of WHO in 2013 with an incidence of approximately 1000 cases per 100000.(4)
Rubella	Approximately 130000 cases reported in India since 2012(5)
Seasonal Influenza	Worldwide 3 to 5 million cases with 2.5 to 3 lakh deaths(6)
Typhoid Fever	Prevalence of lab-confirmed hospital cases is approximately 10% in India.(7)
Varicella infection	An overall seropositivity rate of >70% was reached between the ages of 11-15 years which increased to nearly 90% at the age of 30 years. (8)
Pneumococcal infection	13.6% children aged 1 to 59 months die of pneumonia. India accounts for 23% of global pneumonia burden(9)

OBJECTIVES

- To estimate the coverage of select optional vaccine among children in the age group 3-6 years in an urban setting of the Vellore district.
- To explore barriers and facilitators towards uptake of select optional vaccines among caregivers to children of age 3-6 in an urban setting of the Vellore district.

- Study Tool :Semi-structured, pilot tested, interviewer based questionnaire
- Data Entry using Epidata v 3.1
- Analysis using SPSS v 25
- Univariate analysis
 - Vaccine coverage – as Proportion
 - Continuous variable – measures of central tendency
 - Categorical variable – as frequency and percentage
- Bivariate analysis
 - Pearson's Chi Square test
- Multivariate analysis
 - Logistic regression analysis



Factors affecting Optional Vaccine uptake

Sr no	Parameter	Variable	Vaccinated n (in %)	Not vaccinated n (in %)	χ ²	P value
1	Gender of child	Male	53 (49.3%)	54 (50.7%)	1.743	0.187
		Female	66 (58.4%)	47 (41.6%)		
2	Education of primary caregiver	nil, primary, secondary	44 (34.9%)	82 (65.1%)	43.641	<0.001
		higher secondary, ug, pg	75 (57.9%)	53 (42.1%)		
		Upper-Middle SES(BG Prasad 1,2,3)	34 (20.8%)	66 (39.2%)		
3	SES	Lower SES(BG Prasad 4,5)	34 (14%)	66 (28.2%)	29.8	<0.001
		General	7 (2.2%)	18 (5.6%)		
		SC/ST	18 (46.7%)	53 (33.3%)		
4	Religion	Hindu	91 (57.2%)	68 (42.8%)	13.193	<0.001
		Muslim	15 (13.3%)	15 (16.7%)		
		Christian	13 (18.2%)	3 (4.3%)		
		Others	12 (59.9%)	15 (40.1%)		
		Others	12 (44.4%)	15 (55.6%)		
6	Health Professional's advice	yes	95 (90.5%)	10 (9.5%)	107.088	<0.001
		no	24 (20.9%)	91 (79.1%)		
7	Access of Caregiver to smartphone	Yes	78 (70.3%)	33 (29.7%)	23.617	<0.001
		No	41 (37.6%)	68 (62.4%)		