Determinants of incomplete measles vaccination of children in Bangladesh

Presented by
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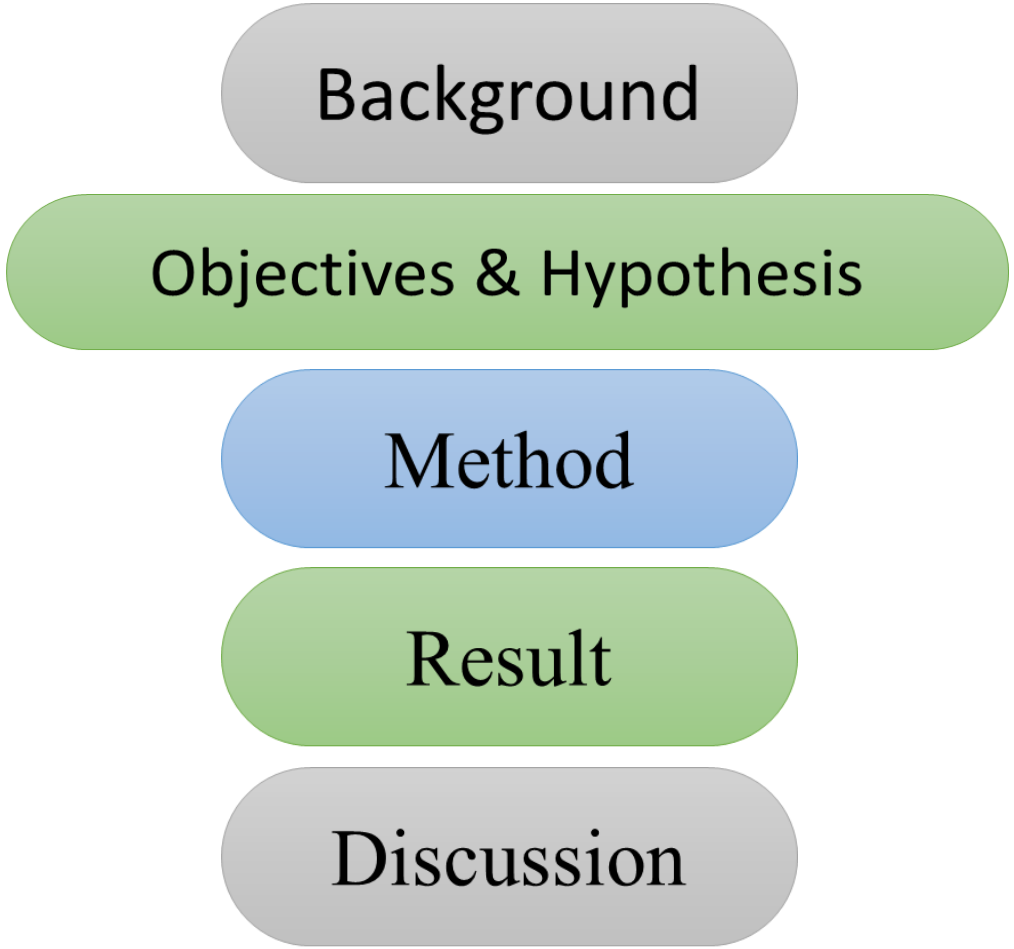
Presentation Outline



Background

Genus *Morbillivirus* causes measles, human host,
Measles causes pneumonia, diarrhea & malnutrition

1979	• Government of Bangladesh started EPI
1989	• MCV1 in Bangladesh (aged 9 months)
2012	• MCV2 in Bangladesh(aged 15 months) • MR introduced (aged 9 & 15 months)
2014 (Jan-Feb)	• MR campaign in Bangladesh (aged from 9 months up to 15 years)

Background Cont…

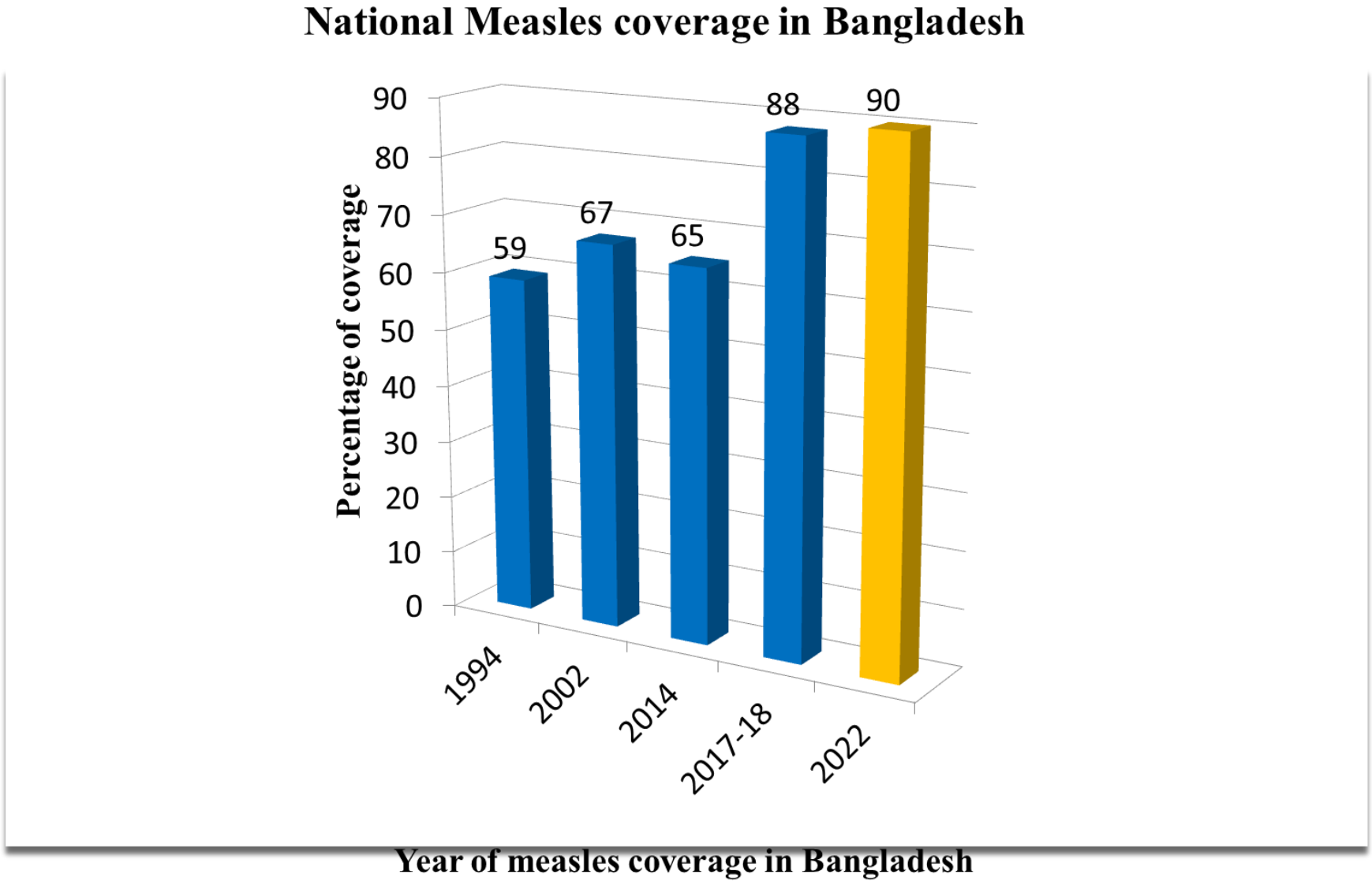


Figure 1: National Measles Coverage in Bangladesh (1994-2022)

Background Cont…

- **5th** child mortality cause(WHO,2005)
- In South-East Asia & West Pacific Region(2019)
- **SDGs achievement target**
- Additional **Vit A supplementation**
- **Cost** of measles case & routine immunization: **$12.40** & **$1.46**

Objectives

General Objectives

- Identifying determinants of incomplete measles vaccination of children in Bangladesh.

Specific Objectives

- Finding factors for improving measles vaccination status in Bangladesh.
- Finding factors associated with Measles related mortality in Bangladesh.

Research Hypothesis

Maternal education & employed mothers have positive role in increasing Measles vaccination in Bangladesh.

Method

BDHS Dataset
2017-18

Cross Sectional Study

2651 Children

aged 15-59 months of child in Bangladesh

1 Dependent &
15 independent Variables

Statistical analysis

- Frequency
- Chi-square test
- Logistic Regression analysis

Table 1:Frequency distribution of selected independent & dependent variables

Variables	Category	Frequency	Percentage(%)
Measles Vaccination (Dependent Variable)	Not vaccinated(ref)	531	20
	Vaccinated	2120	80
Mother's education level	No education(ref)	**164**	6.2
	Primary	730	27.5
	Secondary	**1285**	48.5
	Higher	472	17.8
Father's education level	No education(ref)	**414**	15.6
	Primary	**863**	32.6
	Secondary	858	32.3
	Higher	516	19.5
Place of residence	Rural(ref)	**1737**	65.5
	Urban	914	34.5

Continued…

Table 1:Frequency distribution of selected independent & dependent variables

Variables	Category	Frequency	Percentage (%)
Mother's access to electronic exposure	No(ref)	**1390**	52.4
	Yes	1261	47.6
Wealth index	Poor(ref)	1093	41.2
	Middle	462	17.4
	Rich	**1096**	41.3
Place of delivery	Non institutional(ref)	**1327**	50.1
	Institutional	1324	49.9
Age of mother at 1st birth	18 and above 18 years(ref)	**1567**	59.1
	Below 18 years	1084	40.9
Birth order of index child	1(ref)	1033	39.0
	2-4	**1477**	55.7
	≥5	141	5.3
Sex of index child	Female(ref)	1260	47.5
	Male	**1391**	52.5

Continued…

Table 1:Frequency distribution of selected independent & dependent variables

Variables	Category	Frequency	Percentage (%)
Mother's empowerment	Not employed(ref)	**1550**	58.5
	Employed	1101	41.5
Mother's awareness of the community clinic	No(ref)	1143	43.1
	Yes	**1508**	56.9
Division	Dhaka(ref)	395	14.9
	Barisal	**259**	9.8
	Chittagong	**453**	17.1
	Khulna	265	10.0
	Mymensing	320	12.1
	Rajshahi	295	11.1
	Rangpur	296	11.2
	Sylhet	368	13.9
Religion	Muslim(ref)	**2410**	90.9
	Non-muslim	241	9.1
ANC visit during pregnancy	No(ref)	196	7.4
	Yes	**2455**	92.6
PNC check within 02 months	No(ref)	907	34.2
	Yes	**1744**	65.8

Frequency distribution of dependent & independent variables

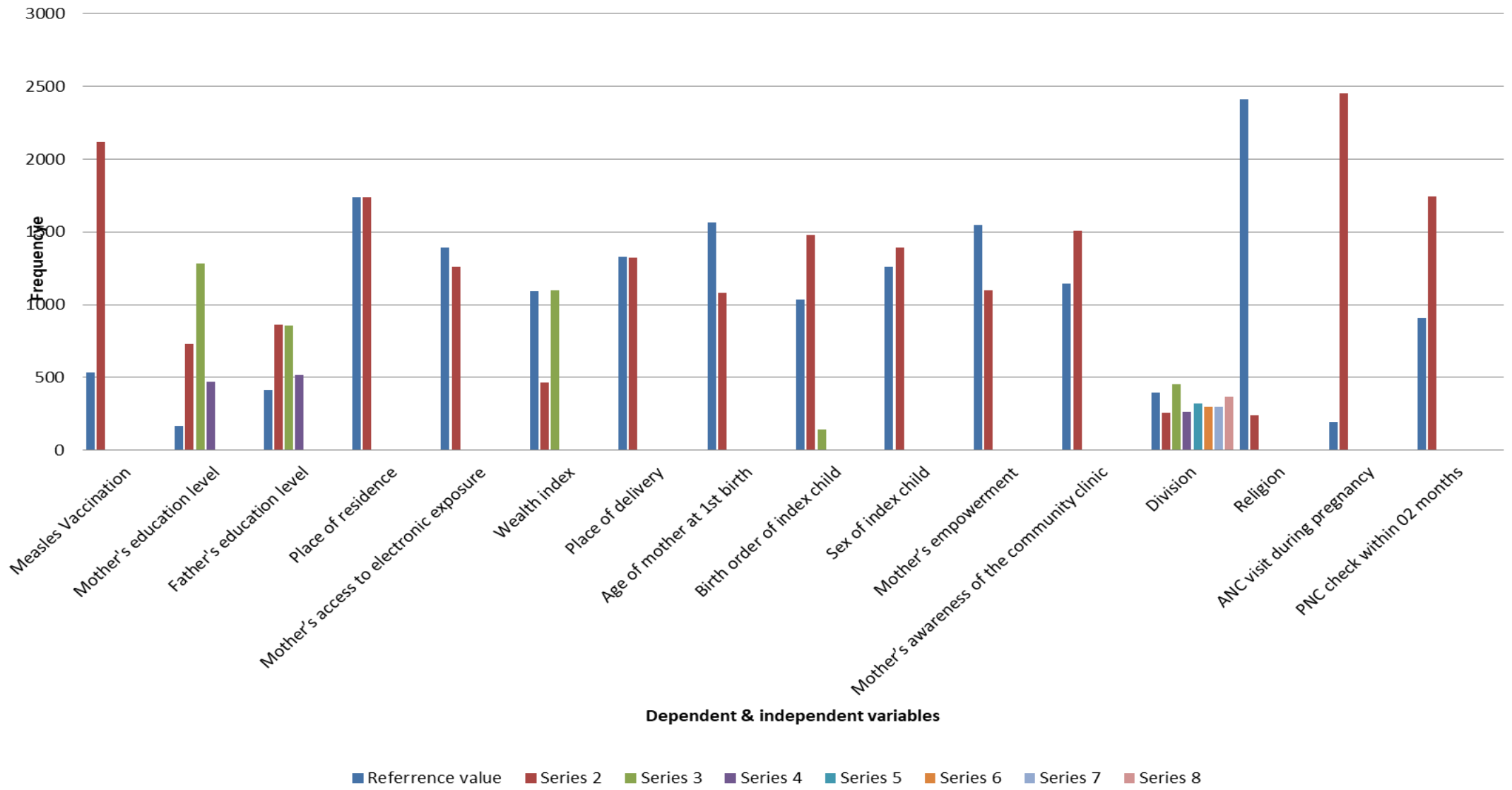


Figure 2: Frequency distribution of dependent and independent variables

Table 2: Examining the association between measles vaccination and selected independent variables: A bivariate analysis

Variables		Measles Vaccination		P-value
		Not vaccinated (%)	Vaccinated (%)	
Mother's education level	No education	36.59	63.41	**<0.001**
	Primary	28.22	71.78	
	Secondary	16.03	83.97	
	Higher	12.5	87.5	
Father's education level	No education	26.81	73.19	**<0.001**
	Primary	25.49	74.51	
	Secondary	15.62	84.38	
	Higher	12.79	87.21	
Place of residence	Rural	19.29	80.71	0.187
	Urban	21.44	78.56	

Continued…

Table 2: Examining the association between measles vaccination and selected independent variables: A bivariate analysis

Variables		Measles Vaccination		P-value
		Not vaccinated (%)	Vaccinated(%)	
Mother's access to electronic exposure	No	23.74	76.26	**<0.001**
	Yes	15.94	84.06	
Wealth index	Poor	24.34	75.66	**<0.001**
	Middle	17.97	82.03	
	Rich	16.61	83.39	
Place of delivery	Non institutional	24.19	75.81	**<0.001**
	Institutional	15.86	84.14	
Age of mother at 1st birth	18 and above 18 years	17.42	82.58	**<0.001**
	Below 18 years	23.8	76.2	
Birth order of index child	1	16.26	83.74	**<0.001**
	2-4	21.73	78.27	
	≥5	29.79	70.21	
Sex of index child	Female	20.32	79.68	0.725
	Male	19.77	80.23	

Continued…

Table 2: Examining the association between measles vaccination and selected independent variables: A bivariate analysis

Variables		Measles Vaccination		P-value
		Not vaccinated (%)	Vaccinated(%)	
Mother's empowerment	Not employed	20.77	79.23	0.256
	Employed	18.98	81.02	
Mother's awareness of the community clinic	No	21.08	78.92	0.237
	Yes	19.23	78.92	
Division	Dhaka	20.25	79.75	**0.030**
	Barisal	22.78	77.22	
	Chittagong	19.87	80.13	
	Khulna	14.72	85.28	
	Mymensing	20.94	79.06	
	Rajshahi	20.34	79.66	
	Rangpur	15.20	84.80	
	Sylhet	24.73	75.27	
Religion	Muslim	20.58	79.42	**0.025**
	Non-muslim	14.52	85.48	
ANC visit during pregnancy	No	36.74	63.26	**<0.001**
	Yes	18.70	81.30	
PNC check within 02 months	No	19.45	80.55	0.580
	Yes	20.36	79.64	

Table 3: Logistic Regression models for measles vaccination: A multiple regression analysis

Variables	Category	OR	p-value
Mother's education level	No education(ref)		
	Primary	1.331	0.153
	Secondary	**2.120**	**<0.001**
	Higher	**2.021**	**0.012**
Father's education level	No education(ref)		
	Primary	0.873	0.369
	Secondary	1.239	0.218
	Higher	1.303	0.255
Place of residence	Rural(ref)		
	Urban	**0.718**	**0.008**
Mother's access to electronic exposure	No(ref)		
	Yes	1.270	0.061
Wealth index	Poor(ref)		
	Middle	1.107	0.517
	Rich	1.055	0.744
Place of delivery	Non institutional(ref)		
	Institutional	1.257	0.085

Continued…

Table 3: Logistic Regression models for measles vaccination: A multiple regression analysis

Variables	Category	OR	p-value
Age of mother at 1st birth	Above 18 years(ref)		
	Below 18 years	0.825	0.075
Birth order of index child	1(ref)		
	2-4	0.849	0.150
	≥5	0.870	0.543
Sex of index child	Female(ref)		
	Male	1.018	0.862
Mother's empowerment	Not employed(ref)		
	Employed	**1.247**	**0.048**
Mother's awareness of the community clinic	No(ref)		
	Yes	0.998	0.989
Division	Dhaka(ref)		
	Barisal	0.929	0.728
	Chittagong	0.965	0.846
	Khulna	1.147	0.546
	Mymensing	0.924	0.693
	Rajshahi	0.899	0.606
	Rangpur	1.279	0.270
	Sylhet	0.849	0.382

Continued…

Table 3: Logistic Regression models for measles vaccination: A multiple regression analysis

Variables	Category	OR	p-value
Religion	Muslim(ref)		
	Non-muslim	1.318	0.172
ANC visit during pregnancy	No(ref)		
	Yes	**1.620**	**0.005**
PNC check within 02 months	No(ref)		
	Yes	1.253	0.073
Constant		1.175	0.611

Findings

1
Educated mother

2
Employed mother

3
Lived in urban area

4
ANC visit taking mother

Discussion

Key Findings

Limitation

Recommendation

THANK YOU