

Supplementary table 1. Characteristics of variables (n = 16,722)

VARIABLE	n	n*	%*	Prevalence (%)		
				2004	2007	2011
COMMUNITY LEVEL FACTORS						
Cluster type						
Urban	5436	3739	22.4	20.6	21.1	24.7
Rural	11063	12983	77.6	79.4	78.9	75.3
Region						
Barisal	2109	1067	6.4	6.2	6.4	6.6
Chittago	3445	3697	22.1	20.6	20.9	24.3
Dhaka	3440	5497	32.9	30.9	31.8	35.4
Khulna	2207	1804	10.8	11.2	10.2	10.9
Rajshahi	2842	3377	20.2	23.8	22.9	15.2
Sylhet	2456	1278	7.6	7.4	7.8	7.7
SOCIOECONOMIC DETERMINANTS						
Maternal marital status						
Married	16138	16367	97.9	97.5	97.7	98.3
Formerly Married	361	354	2.1	2.5	2.3	1.7
Religion						
Islam	15020	15382	92.0	91.8	91.4	92.6
Others	1478	1339	8.0	8.2	8.6	7.4
Mother's Age						
15-24	7977	8273	49.5	49.6	49.9	49.0
25-34	6793	6772	40.5	40.0	39.5	41.7
35-49	1712	1670	10.0	10.3	10.6	9.3
Mothers age at child's birth						
less than 20 years	4775	5019	30.0	30.6	30.0	28.9
20 - 29 years	8871	8921	53.4	51.7	53.4	56.0
30 - 39 years	2631	2560	15.3	16.0	15.3	14.0
40+ years	222	221	1.3	1.7	1.3	1.1
Mother working status						
Not working	13453	13509	80.8	81.6	69.7	88.4
Working	3044	3210	19.2	18.4	30.3	11.5
Mother BMI						
<=18,5	3843	3929	23.5	28.3	23.3	19.7
18-25	10696	11019	65.9	65.0	67.4	65.6
25+	1889	1708	10.2	5.7	9.3	14.7
Maternal highest level of education						
No education	7473	7818	46.8	57.8	47.6	37.0
Primary	6912	7010	41.9	34.7	38.9	50.2
Secondary or more	2099	1882	11.3	7.5	13.3	12.8
Paternal highest level of education						
No education	8044	8512	50.9	56.7	53.1	44.5
Primary	5326	5331	31.9	29.7	28.7	36.1
Secondary or more	3115	2861	17.1	13.6	18.0	19.3

Wealth Index

Rich	3399	2921	17.5	12.2	15.7	23.2
Middle	5845	5991	35.8	31.6	34.7	40.1
Poor	7255	7810	46.7	56.2	49.6	36.7

Watches TV every week

Yes	9516	9484	56.7	53.8	56.7	61.4
No	6980	7234	43.3	46.2	43.3	38.6

Listens to radio every week

Yes	4100	4259	25.5	44.8	25.5	10.0
No	12394	12458	74.5	55.1	74.5	90.0

Read newspaper

Yes	2873	2620	15.7	16.1	15.7	16.2
No	13622	14099	84.3	83.9	84.3	83.8

PROXIMATE DETERMINANTS**Sex**

Male	8460	8549	51.1	51.0	51.1	51.7
Female	8039	8173	48.9	49.0	48.9	48.3

Previous Death of Sibling

No	16073	16279	97.4	96.1	97.4	98.4
Yes	426	443	2.6	3.9	2.6	1.6

Children under five

1-2	11209	11471	68.6	63.9	69.5	71.8
3+	5290	5251	31.4	36.1	30.5	28.2

Birth rank and birth interval

2nd/3rd birth rank, more than 2 years interval	6283	6438	38.5	36.4	38.5	41.3
1st birth rank"	5190	5241	31.4	27.8	31.4	33.7
2nd/3rd birth rank, less than or equal to 2 yrs interval	1120	1110	6.6	7.4	6.6	6.1
4th birth rank, more than 2 yrs interval	3221	3267	19.5	23.1	19.5	16.0
4th birth rank, less than or equal to 2 years interval	685	665	4.0	5.3	4.0	2.9

Desire for previous pregnancies

Then	11423	11625	69.5	68.6	69.5	70.6
Later	2650	2598	15.5	15.9	15.5	15.4
Not at all	2425	2497	14.9	15.5	14.9	14.1

Delivery complications

None	10906	11287	67.5	58.2	67.5	69.7
Any complications	5592	5432	32.5	41.8	32.5	30.3

Use of Antenatal care

Not used	6293	6679	39.9	44.2	40.0	36.5
Use ANC	10200	10035	60.0	55.8	60.0	63.5

Birth attendance

TBA/other untrained/none	12444	13106	78.4	86.4	78.4	69.6
Health professional	4055	3616	21.6	13.7	21.6	30.4

Number ANC

None	6294	6679	40.0	44.2	39.8	36.5
1-3. times	6530	6702	40.1	39.8	39.5	40.7
4+ times	3662	3327	19.9	15.9	20.6	22.7

TT Pregnancy times

Never	3581	3573	21.4	14.9	17.5	29.7
One TT	3660	3731	22.3	21.3	22.7	22.9
2+ TT	9230	9385	56.1	63.7	59.7	47.2

Combined place and mode of delivery

Health facilities without Caesarean	1377	1191	7.1	6.9	7.7	6.9
Health facilities with Caesarean	1636	1482	8.9	3.9	8.5	13.3
Home	13065	13625	81.5	89.2	83.7	73.4

*Weighted for the sampling probability

n* weighted 'n'

Supplementary table 2. Risk factor for Post- neonatal and infant mortality: unadjusted odds ratio

Characteristic	Neonatal mortality (0-30 days)				Post-neonatal mortality (1-11 months)				Infant mortality (0-11 months)			
	Unadjusted odd ratio				Unadjusted odd ratio				Unadjusted odd ratio			
	OR	(95% CI)		<i>p</i>	OR	(95% CI)		<i>p</i>	OR	(95% CI)		<i>p</i>
COMMUNITY LEVEL FACTORS												
Year of survey												
2004	1.00				1.00				1.00			
2007	0.80	0.60	1.06	0.122	0.67	0.46	0.98	0.037	0.74	0.59	0.94	0.012
2011	0.82	0.63	1.07	0.136	0.46	0.31	0.68	0.000	0.67	0.54	0.84	0.000
Cluster type												
Urban	1.00				1.00				1.00			
Rural	1.11	0.87	1.43	0.399	1.13	0.79	1.60	0.504	1.12	0.91	1.38	0.277
Region												
Barisal	1.00				1.00				1.00			
Chittago	0.90	0.58	1.40	0.632	0.79	0.44	1.40	0.415	0.85	0.59	1.21	0.368
Dhaka	1.27	0.84	1.93	0.260	0.96	0.55	1.69	0.896	1.15	0.82	1.61	0.425
Khulna	0.84	0.51	1.38	0.488	0.34	0.15	0.79	0.011	0.64	0.42	0.98	0.040
Rajshahi	1.12	0.72	1.74	0.613	0.74	0.40	1.37	0.334	0.97	0.68	1.39	0.869
Sylhet	1.54	1.00	2.36	0.050	1.66	0.96	2.87	0.070	1.60	1.13	2.25	0.008
SOCIOECONOMIC DETERMINANTS												
Maternal marital status												
Married	1.00				1.00				1.00			
Formerly Married	1.70	0.92	3.13	0.091	3.42	1.83	6.41	0.000	2.32	1.49	3.62	0.000
Religion												
Islam	1.00				1.00				1.00			
Others	0.94	0.62	1.41	0.758	0.99	0.56	1.72	0.959	0.95	0.68	1.33	0.768
Mother's Age												
15-24	1.00				1.00				1.00			

25-34	0.82	0.64	1.05	0.115	1.36	0.96	1.95	0.085	0.97	0.79	1.18	0.747
35-49	1.16	0.82	1.66	0.402	2.70	1.75	4.17	0.000	1.59	1.21	2.09	0.001
Mothers age at child's birth												
less than 20 years	1.00				1.00				1.00			
20 - 29 years	0.82	0.63	1.07	0.144	1.20	0.80	1.81	0.371	0.92	0.74	1.15	0.481
30 - 39 years	1.20	0.87	1.67	0.264	2.16	1.36	3.43	0.001	1.47	1.13	1.92	0.005
40+ years	1.40	0.61	3.25	0.430	5.28	2.39	11.63	0.000	2.49	1.40	4.42	0.002
Mother working status												
Not working	1.00				1.00				1.00			
Working	1.32	1.01	1.73	0.046	2.03	1.44	2.86	0.000	1.55	1.25	1.92	0.000
Mother BMI												
<=18.5	1.00				1.00				1.00			
18-25	0.91	0.70	1.20	0.518	1.10	0.75	1.60	0.632	0.98	0.78	1.22	0.826
25+	1.23	0.84	1.79	0.290	0.68	0.35	1.31	0.251	1.05	0.76	1.46	0.772
Maternal highest level of education												
No education	1.00				1.00				1.00			
Primary	0.76	0.60	0.97	0.029	0.45	0.32	0.64	0.000	0.64	0.52	0.78	0.000
Secondary or more	0.59	0.39	0.88	0.011	0.13	0.05	0.35	0.000	0.40	0.27	0.58	0.000
Paternal highest level of education												
No education	1.00				1.00				1.00			
Primary	0.82	0.63	1.05	0.120	0.63	0.44	0.90	0.012	0.74	0.60	0.92	0.005
Secondary or more	0.67	0.48	0.93	0.017	0.24	0.13	0.47	0.000	0.50	0.37	0.67	0.000
Wealth Index												
Rich	1.00				1.00				1.00			
Middle	0.88	0.64	1.22	0.439	1.48	0.87	2.53	0.151	1.02	0.77	1.34	0.895
Poor	1.09	0.81	1.47	0.563	2.28	1.38	3.77	0.001	1.37	1.06	1.78	0.015
Watches TV every week												
Yes	1.00				1.00				1.00			
No	0.99	0.79	1.25	0.954	2.07	1.50	2.86	0.000	1.28	1.06	1.54	0.009
Listens to radio every week												

Yes	1.00				1.00				1.00			
No	0.78	0.60	0.99	0.045	3.54	1.80	6.95	0.000	0.87	0.71	1.07	0.197
Read newspaper												
Yes	1.00				1.00				1.00			
No	1.19	0.87	1.64	0.277	1.12	0.77	1.63	0.548	1.58	1.19	2.11	0.002
PROXIMATE DETERMINANTS												
Sex												
Male	1.00				1.00				1.00			
Female	0.23	0.00	0.46	0.049	0.81	0.59	1.12	0.201	1.08	0.90	1.31	0.391
Previous Death of Sibling												
No	1.00				1.00				1.00			
Yes	6.66	4.71	9.41	0.000	8.79	5.72	13.50	0.000	8.03	6.06	10.64	0.000
Children under five												
1-2	1.00				1.00				1.00			
3+	0.15	0.10	0.24	0.000	0.25	0.15	0.41	0.000	0.18	0.13	0.25	0.000
Birth rank and birth interval												
2nd/3rd birth rank, more than 2 years interval	1.00				1.00				1.00			
1st birth rank"	1.65	1.24	2.19	0.001	1.01	0.65	1.58	0.951	1.43	1.13	1.83	0.003
2nd/3rd birth rank, less than or equal to 2 yrs interval	2.13	1.40	3.24	0.000	0.92	0.41	2.04	0.828	1.72	1.19	2.50	0.004
4th birth rank, more than 2 yrs interval	1.42	1.01	1.98	0.042	2.25	1.49	3.41	0.000	1.71	1.32	2.22	0.000
4th birth rank, less than or equal to 2 years interval	2.27	1.38	3.73	0.001	5.06	3.01	8.48	0.000	3.31	2.31	4.74	0.000
Desire for previous pregnancies												
Then	1.00				1.00				1.00			
Later	0.84	0.61	1.18	0.317	0.81	0.50	1.30	0.377	0.83	0.63	1.09	0.183
Not at all	0.95	0.68	1.31	0.736	1.34	0.89	2.01	0.164	1.07	0.83	1.39	0.584
Delivery complications												
None	1.00				1.00				1.00			
Any complications	0.82	0.64	1.05	0.116	0.37	0.24	0.56	0.000	0.33	0.27	0.41	0.000
Use of Antenatal care												
Not used	1.00				1.00				1.00			

Use ANC	0.84	0.67	1.06	0.148	0.41	0.29	0.56	0.000	0.65	0.54	0.79	0.000
Birth attendance												
TBA/other untrained/none	1.00				1.00				1.00			
Health professional	1.27	0.98	1.63	0.066	0.49	0.31	0.78	0.002	0.96	0.78	1.20	0.743
Number ANC												
None	1.00				1.00				1.00			
1-3. times	0.89	0.69	1.14	0.354	0.46	0.32	0.65	0.000	0.70	0.57	0.86	0.001
4+ times	0.77	0.56	1.05	0.099	0.32	0.19	0.53	0.000	0.57	0.44	0.75	0.000
TT Pregnancy times												
Never	1.00				1.00				1.00			
One TT	0.79	0.57	1.08	0.136	0.57	0.37	0.87	0.010	0.70	0.54	0.90	0.005
2+ TT	0.63	0.48	0.82	0.001	0.40	0.28	0.58	0.000	0.53	0.43	0.66	0.000
Contraceptive Use												
No	1.00				1.00				1.00			
Yes	0.30	0.24	0.39	0.000	0.41	0.30	0.57	0.000	0.64	0.52	0.79	0.000
Combined place and mode of delivery												
Health facilities without Caesarean	1.00				1.00				1.00			
Health facilities with Caesarean	1.13	0.70	1.84	0.620	1.02	0.40	2.60	0.965	1.11	0.72	1.71	0.649
Home	0.79	0.53	1.17	0.243	1.78	0.87	3.65	0.114	1.01	0.71	1.42	0.975

Supplementary table 3. Risk factor for Child and under-five mortality: unadjusted odds ratio

Characteristic	Child mortality (12-59 months)				Under-five mortality (0-59 months)			
	Unadjusted odd ratio				Unadjusted odd ratio			
	OR	(95% CI)	<i>p</i>		OR	(95% CI)	<i>p</i>	
COMMUNITY LEVEL FACTORS								
Year of survey								
2004	1.00				1.00			
2007	0.83	0.43	1.60	0.585	0.75	0.60	0.93	0.010
2011	0.73	0.39	1.37	0.324	0.68	0.55	0.83	0.000
Cluster type								
Urban	1.00				1.00			
Rural	1.20	0.67	2.16	0.547	1.13	0.93	1.37	0.231
Region								
Barisal	1.00				1.00			
Chittago	1.76	0.68	4.55	0.245	0.94	0.68	1.31	0.714
Dhaka	1.03	0.37	2.90	0.953	1.14	0.83	1.58	0.412
Khulna	0.48	0.12	1.93	0.299	0.63	0.42	0.94	0.023
Rajshahi	1.50	0.55	4.09	0.424	1.02	0.73	1.44	0.892
Sylhet	1.02	0.33	3.09	0.979	1.54	1.11	2.14	0.009
SOCIOECONOMIC DETERMINANTS								
Maternal marital status								
Married	1.00				1.00			
Formerly Married	6.64	2.97	14.87	0.000	2.80	1.89	4.15	0.000
Religion								
Islam	1.00				1.00			
Others	0.59	0.18	1.90	0.377	0.91	0.66	1.26	0.577

Mother's Age

15-24	1.00				1.00			
25-34	1.54	0.86	2.76	0.151	1.02	0.84	1.23	0.867
35-49	2.12	0.96	4.68	0.062	1.64	1.27	2.13	0.000

Mothers age at child's birth

Less than 20 years	1.00				1.00			
20 - 29 years	1.21	0.63	2.32	0.577	0.95	0.77	1.17	0.631
30 - 39 years	1.69	0.77	3.71	0.192	1.49	1.16	1.92	0.002
40+ years	1.66	0.22	12.79	0.627	2.41	1.39	4.19	0.002

Mother working status

Not working	1.00				1.00			
Working	1.99	1.12	3.55	0.019	1.60	1.31	1.96	0.000

Mother BMI

<=18.5	1.00				1.00			
18-25	1.18	0.60	2.32	0.631	0.99	0.80	1.23	0.947
25+	1.50	0.60	3.75	0.384	1.09	0.80	1.48	0.588

Maternal highest level of education

No education	1.00				1.00			
Primary	0.72	0.42	1.24	0.238	0.64	0.53	0.78	0.000
Secondary or more	-	-	-	-	0.35	0.24	0.51	0.000

Paternal highest level of education

No education	1.00				1.00			
Primary	1.05	0.59	1.85	0.878	0.77	0.63	0.94	0.010
Secondary or more	0.53	0.22	1.29	0.164	0.50	0.38	0.67	0.000

Wealth Index

Rich	1.00				1.00			
Middle	2.04	0.82	5.07	0.125	1.09	0.84	1.42	0.519
Poor	2.20	0.91	5.33	0.081	1.43	1.12	1.83	0.004

Watches TV every week

Yes	1.00				1.00			
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No	1.31	0.77	2.23	0.321	1.29	1.08	1.53	0.005
Listens to radio every week								
Yes	1.00				1.00			
No	0.80	0.45	1.44	0.465	0.86	0.71	1.05	0.145
Read newspaper								
Yes	1.00				1.00			
No	2.68	0.97	7.43	0.058	1.66	1.26	2.19	0.000
PROXIMATE DETERMINANTS								
Sex								
Male	1.00				1.00			
Female	0.63	0.37	1.08	0.094	1.02	0.86	1.22	0.801
Previous Death of Sibling								
No	1.00				1.00			
Yes	14.90	8.08	27.45	0.000	9.16	7.06	11.90	0.000
Children under five								
1-2	1.00				1.00			
3+	0.08	0.02	0.32	0.000	0.17	0.12	0.23	0.000
Birth rank and birth interval								
2nd/3rd birth rank, more than 2 years interval	1.00				1.00			
1st birth rank	0.64	0.31	1.32	0.227	1.32	1.05	1.66	0.017
2nd/3rd birth rank, less than or equal to 2 yrs interval	1.34	0.50	3.57	0.557	1.67	1.18	2.37	0.004
4th birth rank, more than 2 yrs interval	1.12	0.55	2.29	0.752	1.63	1.28	2.09	0.000
4th birth rank, less than or equal to 2 years interval	2.66	1.07	6.65	0.036	3.24	2.32	4.54	0.000
Desire for previous pregnancies								
Then	1.00				1.00			
Later	1.52	0.78	2.94	0.217	0.90	0.69	1.15	0.391
Not at all	1.25	0.60	2.61	0.555	1.09	0.86	1.39	0.482
Delivery complications								
None	1.00				1.00			

Any complications	0.33	0.16	0.70	0.004	0.60	0.49	0.74	0.000
Use of Antenatal care								
Not used	1.00				1.00			
Use ANC	0.64	0.38	1.09	0.099	0.65	0.55	0.78	0.000
Birth attendance								
TBA/other untrained/none	1.00				1.00			
Health professional	0.60	0.29	1.23	0.161	0.92	0.75	1.13	0.437
Number ANC								
None	1.00				1.00			
1-3. times	0.75	0.42	1.33	0.323	0.70	0.58	0.86	0.000
4+ times	0.44	0.19	1.03	0.057	0.56	0.43	0.72	0.000
TT Pregnancy times								
Never	1.00				1.00			
One TT	0.52	0.23	1.17	0.112	0.68	0.53	0.86	0.002
2+ TT	0.66	0.36	1.20	0.176	0.54	0.44	0.67	0.000
Contraceptive Use								
No	1.00				1.00			
Yes	0.20	0.11	0.37	0.000	0.32	0.26	0.38	0.000
Combined place and mode of delivery								
Health facilities without Caesarean	1.00				1.00			
Health facilities with Caesarean	0.66	0.18	2.47	0.536	1.05	0.70	1.59	0.804
Home	0.95	0.37	2.39	0.906	1.00	0.72	1.38	0.996