

Extended Abstract Submission

Title: Effect of Early Wedlock and Young Motherhood on Nutritional Status of Children in Selected States of India

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Effect of Early Wedlock and Young Motherhood on Nutritional Status of Children in Selected States of India

Abstract: This study is an effort to find out the effect of early marriage and early childbearing on nutritional status of children, with a focus on Bihar and Andhra Pradesh using the data from the third round of National Family Health Survey (2005-06). Results revealed that the proportion of underweight children were significantly higher in mothers married before 18 years in Andhra Pradesh (32.9%, p<0.000), Bihar (57.1%, p<0.000) and India (44.1%, p<0.000) than those who married at higher ages. Similarly, underweight children were significantly higher among the women who gave first birth before 18 years in Andhra Pradesh (37.6 percent, p<0.000), Bihar (58.6 percent, p<0.000) and India (46.3 percent, p<0.000) than women married in higher age groups. Multivariate regression models also suggest a significant adverse effect of early marriages and early childbearing on the nutritional status of their children in India and the selected states.

Introduction

Early marriage followed by early pregnancy is a serious public health concern due to its potential implications on health and nutritional risk on mothers and children [1-7]. Children delivered to young mothers accounted for roughly 11% of all births worldwide, with 95% taking place in developing countries [1, 2]. Pregnancy during adolescence also increases the likelihood of nutritional risk among the mother and their children. A study conducted by WHO [8] found that adolescent mothers have a 35%–55% higher risk than older women for delivering infants who are preterm, undernourished and of low birth weight. Hervish and Charlotte [9] concluded that infants born to mothers under the age of 18 are 60% more likely to die in their first year than to mothers over the age of 19. If the children survive, they are more likely to suffer from low birth weight, malnutrition, and late physical and cognitive development. However, despite its importance, the consequences of early marriage and premature childbearing on the growth and nutritional status of children in India has not been quantified. Therefore, the study aims to fill the knowledge gap by analyzing the association between early marriage and early childbearing on nutritional status of Indian women, with a focus on Bihar and Andhra Pradesh, the two states accounting for the highest proportion of women marrying and giving first birth before 18 years in the country.

Methods and Materials

Data

Our study used the data from the third round of National Family Health Survey (NFHS 3) to assess the association between early marriage and early childbearing on nutritional status of Indian women, with special focus on Bihar and Andhra Pradesh.

Variables

The nutritional status of children, our dependent variable was measured using three standard indices of physical growth namely, Height-for-age (stunting), Weight-for-height (wasting), Weight-for-age (underweight). Each index provides different information about growth and body composition, which is used to assess nutritional status. Early age at marriage (before 18 years of age) and early childbearing (giving birth to a child before age 18 years) were the key independent variables used in this study. The study used a number of other socioeconomic factors as controlled independent variables viz. place of residence, Caste, Religion, Household economic status, Mother's educational status, Father's educational status, Mother's occupational status, Father's number of other with preceding birth interval were also the predictors in the model.

Statistical Analysis

The analyses were carried in two steps: in the first step, bivariate analysis was carried out to estimate differential in nutritional status of women by age at marriage and age at first birth; and Pearson Chi-square test was used to test the significance of differentials. In the second step, multivariate analysis in terms of logistic regression has been used to find out the associated factors for child nutritional status and determinants of malnutrition among young children. Nutritional status of children is studied by using three sets of logistic regression models for three dichotomous dependent variables (stunting, underweight and wasting).

Results

The association between early marriage and early childbearing on nutritional status of children in India and selected states revealed intriguing findings: Firstly, early marriage among currently married women of age group 15-19 was considerably high in the selected states of Andhra Pradesh (83.5 percent) and Bihar (90.3 percent), and for overall India (84.5 percent). Similar trends were also observed in the case of women who gave birth before 18 years of their current age. In addition, the study revealed that the incidence of early marriages and early pregnancies were higher in the rural areas and among SCs, STs and OBCs compared to their opposite social groups and poor and middle income households. This indicates that early marriage and early age at childbirth could be characteristics of low social and economic status. Further, this study adds to knowledge that percentage of children whose mother married before 18 years among the 'underweight' category in Andhra Pradesh (32.9 percent, p<0.000), Bihar (57.1 percent, p<0.000) and overall India (44.1 percent,

p<0.000), were significantly higher compared to women married at higher ages. Similarly, compared to others, women who gave first birth before 18 years were significantly higher in the 'underweight' category in Andhra Pradesh (37.6 percent, p<0.000), Bihar (58.6 percent, p<0.000) and India (46.3 percent, p<0.000). However, multivariate analysis shows the same pattern.

Discussion and Conclusion

The study is a comprehensive analytical assessment of role of early marriage and early childbirth on nutritional status of their children in India, with a particular focus on the two states Andhra Pradesh and Bihar, which account for the greater proportion of lowest age at marriage and age at first birth women in India. The findings of this study suggest a large adverse effect of early marriages and early child bearing on the nutritional status of their children in India and the selected states. A large proportion of women who were married before the legal at age at marriage and consequently exposed to early pregnancy, resulted in undernourished children compared to women who are married at age 18 years and above. In conclusion, this study argues that despite the rapid fertility decline that has occurred in India, there has been no major transition in age at marriage and age at first birth which has adverse consequences for nutritional status of children. Major steps need to be taken both at the national level and in specific states such as Andhra Pradesh and Bihar to stop early marriages and the consequent high adolescent pregnancies, to improve nutritional status of mother and child, thereby, prevent child mortality and thus, achieved MDG 4.

References

- 1. Blum R. W., & Mmari-Nelson, K. (2004). The health of young people in a global context. *Journal of Adolesent Health*, 35(5), 402-18.
- 2. Temin, M., & Levine, R. (2009). Start with a girl: A new agenda for global health. Center for Global Development.
- Hobcraft, J. N., Mc Donald, J. W. & Rustein, O. S. (1985). Demographic determinants of infant and early child mortality: A comparative analysis. *Population Studies*, 39(3), 363-385.
- 4. National Research Council. (1989). Contraception and reproduction: Health consequences for women and children in the developing world. Washington DC: National Academy Press.
- 5. Steer, P. J. (2000). Maternal hemoglobin concentration and birth weight. *American Journal of Clinical Nutrition*, 71, 1285S–7S.
- 6. Stoltzfus, R. J., Mullany, L., & Black, R. E. (2004). Iron deficiency anemia. In M. Ezzati, A. D. Lopez, A. Rodgers, C. J. L. Murray (Eds.), *Comparative quantification of*

health risks: global and regional burden of disease attributable to selected major risk factors (pp. 163–210). Geneva: World Health Organisation.

- 7. Kozuki, N., Lee, A. C., & Katz, J. (2012). Moderate to severe, but not mild, maternal anemia is associated with increased risk of small-for-gestational-age outcomes. *Journal of Nutrition*, *142*, 358–62.
- 8. World Health Organization. (2003). Early marriage and childbearing: Risks and consequences. Towards adulthood: Exploring the sexual and reproductive health of adolescents in South Asia. Geneva: World Health Organisation.
- 9. Hervish, A., & Charlotte Feldman-J. (2011). Who Speaks for Me? Ending Child Marriage. Population Reference Bureau, 2.

	Age at ma	arriage (le 8 years)	ss than	Age at first	t birth (less years)	Sample (N)			
Background	Andhra			Andhra	jeurs)	Andhra			
Characteristics	Pradesh	Bihar	India	Pradesh	Bihar	India	Pradesh	Bihar	India
Age									
15 thru 19	83.50	90.31	84.46	72.11	71.42	70.96	285	350	4817
20 thru 29	67.22	70.55	57.09	45.02	43.62	34.27	2030	1181	32149
30 thru 39	73.14	76.84	58.91	45.37	39.09	33.13	1673	861	30974
40-49	73.15	77.77	59.36	40.34	38.87	30.31	1165	600	19985
Place of Residence									
Urban	63.09	59.84	45.69	39.54	33.70	25.16	3139	1075	38382
Rural	75.54	79.16	66.54	47.14	44.51	38.14	2014	1917	49543
Caste									
Schedule Caste	75.39	85.25	68.86	49.48	50.04	42.06	786	480	14798
Schedule Tribe	72.87	87.1	67.89	46.22	84.62	41.19	266	11	10811
Other Backward Class	74.30	78.43	62.59	46.26	44.09	34.35	2226	1843	29080
Others	63.22	62.86	49.19	37.9	33.13	26.31	1864	655	29862
Religion									
Hindu	71.81	76.80	60.99	44.17	42.01	33.92	3978	2500	65353
Muslim	67.67	74.58	63.56	46.88	47.98	39.98	920	484	11507
Christian	73.65		33.79	48.91	33.33	22.00	248	1	6565
Sikhs	-	-	31.58	-	-	16.49	2	7	1950
Others	-	-	53.33	-	-	31.95	5	2992	2550
Wealth Quintile									
Poorest	76.17	83.42	76.23	51.71	50.1	46.01	321	681	11138
Poorer	77.75	82.89	72.88	46.18	48.81	43.73	538	781	13417
Middle	77.27	78.93	65.6	50.14	42.27	37.42	1110	508	16800
Richer	71.1	64.26	53.61	45.45	33.02	28.99	1513	524	20607
Richest	52.73	47.98	33.85	28.43	19.66	15.78	1671	498	25963
Education									
Illiterate	80.30	82.83	74.87	51.90	48.37	44.68	2093	1845	34113
Primary	77.56	75.99	66.41	50.2	40.97	38.2	760	284	13551
Secondary	58.60	60.80	43.95	31.16	28.06	20.4	1829	748	32474
Higher and above	9.76	20.25	7.17	3.10	11.49	2.08	471	115	7787
Partner Education									
Illiterate	78.83	83.59	75.05	51.26	49.87	46.07	1474	999	19689
Primary	81.18	83.35	68.79	50.96	51.57	40.74	762	319	13402
Secondary	67.49	74.40	55.49	40.91	39.36	29.44	2068	1228	42015
Higher and above	36.49	46.76	29.25	17.43	19.57	11.98	808	411	12819
Occupation									
Primary Occupation	81.62	84.65	74.38	52.86	48.19	43.39	1059	681	18894
Secondary Occupation	77.45	78.74	63.98	49.02	41.50	39.23	547	107	7427
Tertiary Occupation	50.88	61.05	41.23	36.21	41.57	26.07	419	86	6183
Quaternary Occupation	42.86	60.00	32.93	0.00	-	19.48	11	3	394
Not Working	64.80	73.03	54.68	38.29	40.42	29.60	3117	2115	55027
Partner Occupation									
Primary Occupation	78.35	79.62	69.32	50.05	43.91	40.42	1323	756	22744
Secondary Occupation	71.39	77.26	60.05	44.86	43.75	34.06	2385	1606	41349
Tertiary Occupation	54.77	66.94	43.23	30.33	35.91	21.78	979	397	16628
Quaternary Occupation	36.65	39.33	32.93	13.04	19.18	18.04	229	51	2623
Not Working	64.98	75.86	58.92	40.66	48.27	34.05	237	182	4581
Average	74.25	78.87	64.96	50.71	48.25	42.17	5153	2992	87925

Table 1. Socio-economic and demographic profile of women who married and gave birth before age18 years of selected states and India; 2005-06

	A	ndhra Pradesh	1		Bihar		India				
Age at marriage	Stunting	Underweight	Wasting	Stunting	Underweight	Wasting	Stunting	Underweight	Wasting		
less than 18 years	43.95	32.91	12.21	56.69	57.17	28.07	50.61	44.10	19.98		
18-24 years	33.12	24.2	10.83	47.36	47.36	23.77	38.53	31.84	16.82		
25 years and above	21.43	17.14	8.57	38.46	38.46	23.08	25.10	19.71	12.84		
Total	38.34	28.49	11.46	54.10	54.45	26.90	43.67	37.15	18.14		
Chi Square value	30.04***	20.53***	2.13	14.92***	16.44***	4.62	957.91***	980.57***	117.19***		
Age at first birth											
less than 18 years	50.19	37.64	11.79	58.01	58.61	29.31	53.38	46.33	20.14		
18-24 years	34.91	25.43	11.58	52.36	52.54	25.68	42.66	35.98	17.97		
25 years and above	24.13	20.11	9.77	35.09	32.26	16.13	27.75	23.24	14.66		
Total	38.34	28.49	11.46	54.10	54.45	26.90	43.67	37.15	18.14		
Chi Square value	51.53***	32.64***	0.56	18.41***	19.77***	6.95**	935.60***	815.86***	69.90***		

Table 2. Unadjusted Percentages of nutritional status of children by age at first marriage and age at first birth in selected states and India, 2005-06

Note: Significance levels: ***p < 0.01, **p < 0.05, *** p < 0.01; (-) Not estimated because of insufficient sample

		Stunting		U	Inderweig		Wasting			
Background Characteristics	95.0% C.I.for				95.0%	6 C.I.for	95.0% C.I.fo			
	Exp(B)	EXP(B)		Exp(B)	EXP(B)		Exp(B)	EXP(B)		
Age at marriage		Lower	Upper	-	Lower	Upper	_	Lower	Upper	
Upto 17 years										
18-24 years	1.24	0.95	1.61	1.44**	1.09	1.90	1.10	0.76	1.61	
25 years and above	3.11**	1.26	7.67	2.44*	0.99	6.03	1.13	0.37	3.50	
Age at first birth										
Upto 17 years										
18-24 years	0.67***	0.52	0.86	0.74**	0.57	0.97	1.13	0.78	1.64	
25 years and above	0.31***	0.16	0.59	0.65	0.35	1.21	1.66	0.75	3.69	
Place of Residence	0.01	0110	0.07	0.00	0.000		1100	0170	0.07	
Urban										
Rural	1.04	0.82	1.32	0.88	0.69	1.13	0.95	0.67	1.35	
Caste	1.04	0.02	1.52	0.00	0.07	1.15	0.75	0.07	1.5.	
SC										
SC	0.86	0.56	1.30	0.93	0.61	1.42	1.12	0.59	2.10	
OBC	0.80	0.56	1.30	0.93	0.60	1.42 1.04	1.12	0.39	2.10	
Others	0.80		1.05		0.60		0.77			
	0.89	0.64	1.23	0.76	0.34	1.09	0.77	0.44	1.34	
Religion										
Hindu	0.07	0.40		0.00	0.5	1 20	0.60	0.00		
Muslim	0.87	0.62	1.24	0.82	0.56	1.20	0.68	0.39	1.21	
Wealth Index										
Poorest										
Poorer	0.68**	0.47	0.98	1.03	0.72	1.48	1.54	0.90	2.64	
Middle	0.46***	0.32	0.65	0.60***	0.42	0.85	1.36	0.80	2.29	
Richer	0.44***	0.30	0.65	0.54***	0.36	0.80	1.02	0.57	1.84	
Richest	0.47***	0.29	0.77	0.33***	0.20	0.57	0.55	0.24	1.22	
Mother's education										
Uneducated										
Primary	1.11	0.84	1.48	1.28*	0.96	1.72	1.00	0.66	1.51	
Secondary	0.85	0.64	1.13	0.83	0.62	1.11	1.04	0.69	1.56	
Higher	0.26***	0.12	0.57	0.31**	0.12	0.80	1.87	0.71	4.95	
Father's education										
Uneducated										
Primary	1.05	0.78	1.43	0.99	0.72	1.36	1.12	0.73	1.73	
Secondary	1.02	0.78	1.32	1.17	0.90	1.54	1.03	0.70	1.51	
Higher	0.59**	0.37	0.93	0.54**	0.32	0.91	0.52	0.24	1.14	
Mother's occupation										
Not working										
Working	1.20	0.96	1.51	1.09	0.86	1.38	0.75*	0.54	1.05	
Father's occupation										
Not working										
Working	0.78	0.24	2.53	1.00	0.27	3.65	1.63	0.69	1.57	
Birth order and Preceding	0.76	0.21	2.55	1.00	0.27	5.05	1.05	0.07	1.57	
birth interval										
1st Order										
2-3 Order and <23 months	1.78***	1.34	2.37	1.19	0.89	1.60	0.71	0.45	1.13	
Order2-3 and >24 months	1.78	0.80	1.28	0.87	0.89	1.00	1.02	0.43	1.13	
Order2+3 and >24 months Order3+ and <23 months	1.01	0.80 0.61	2.16	1.28	0.68	2.41	1.02	0.75	4.24	
Order3+ and <23 months Order3+ and>24 months	0.80	0.61	1.22	0.84	0.68	2.41 1.32		0.85	4.24 2.52	
Note: Level of signific				0.84 *** $p < 0.64$		1.32	1.40	0.78	2.32	

Table 3. Odds ratio showing the variations in nutritional status of children in Andhra Pradesh, 2005-06

Note: Level of significance: p < 0.1 + p < 0.05 + p < 0.01.

		Stunting		U	Inderweigh	t	Wasting			
Background Characteristics	95.0% C.I.for				95.0%	C.I.for	95.0% C.I.for			
	Exp(B) E		P(B)	Exp(B)	EXP(B)		Exp(B)	EX	P(B)	
Age at marriage		Lower	Upper		Lower	Upper		Lower	Uppe	
Upto 17 years										
18-24 years	1.14	0.89	1.47	1.03	0.80	1.32	1.01	0.76	1.33	
25 years and above	2.48	0.43	14.38	4.23*	0.78	22.91	4.16	0.61	28.32	
Age at first birth										
Upto 17 years										
18-24 years	1.03	0.84	1.27	1.05	0.85	1.29	0.96	0.77	1.20	
25 years and above	0.68	0.35	1.35	0.75	0.38	1.48	0.56	0.24	1.33	
Place of Residence										
Urban										
Rural	0.95	0.70	1.29	1.01	0.74	1.38	0.98	0.70	1.37	
Caste	0.75	0.70	1.27	1.01	0.7 1	1.50	0.20	0.70	1.07	
SC										
ST	0.59	0.20	1.70	0.21***	0.07	0.69	0.50	0.13	1.91	
OBC	0.66***	0.51	0.85	0.64***	0.50	0.82	0.75**	0.58	0.97	
Others	0.54***	0.31	0.05	0.45***	0.30	0.64	0.62**	0.42	0.97	
Religion	0.54	0.56	0.77	0.45	0.51	0.04	0.02	0.42	0.92	
Hindu										
Muslim	1.26	0.05	1 67	1.42**	1.07	1.89	0.95	0.62	1.16	
	1.20	0.95	1.67	1.42***	1.07	1.89	0.85	0.62	1.10	
Wealth Index										
Poorest	0.07	0.77	1.00	0.01*	0.64	1.00	0.02	0.70	1 10	
Poorer	0.97	0.77	1.22	0.81*	0.64	1.02	0.93	0.72	1.18	
Middle	0.98	0.73	1.30	0.73**	0.54	0.97	0.84	0.61	1.16	
Richer	0.58***	0.40	0.84	0.62***	0.43	0.89	0.85	0.57	1.28	
Richest	0.35***	0.19	0.61	0.34***	0.19	0.61	0.61	0.32	1.18	
Mother's education										
Uneducated										
Primary	0.74*	0.55	1.01	0.77*	0.56	1.04	0.69**	0.48	0.99	
Secondary	0.95	0.70	1.29	0.85	0.62	1.15	0.87	0.61	1.23	
Higher	0.54	0.22	1.29	1.11	0.49	2.48	1.32	0.55	3.15	
Father's education										
Uneducated										
Primary	1.20	0.89	1.60	1.19	0.89	1.59	1.24	0.91	1.67	
Secondary	0.99	0.79	1.25	1.15	0.91	1.45	0.88	0.68	1.13	
Higher	0.51***	0.33	0.79	0.48***	0.31	0.75	0.64*	0.38	1.06	
Mother's occupation										
Not working										
Working	1.06	0.86	1.31	1.02	0.83	1.26	0.65***	0.52	0.82	
Father's occupation										
Not working										
Working	1.96	0.78	4.94	4.01***	1.43	11.26	10.22**	1.08	96.2	
Birth order and Preceding			, .							
birth interval										
1st Order										
2-3 Order and <23 months	1.40**	1.01	1.93	1.42**	1.02	1.96	1.30	0.92	1.84	
Order2-3 and >24 months	1.52***	1.18	1.96	1.38**	1.02	1.78	1.03	0.72	1.36	
Order3+ and <23 months	1.65***	1.13	2.33	1.40**	0.99	1.97	0.85	0.57	1.30	
Order3+ and>24 months	1.28*	0.99	2.33 1.67	1.40***	1.14	1.97	1.17	0.37	1.24	
Note: Level of signific				$\frac{1.48}{p} < 0.01.$	1.14	1.73	1.1/	0.00	1.50	

Table 4. Odds ratio showing the variations in nutritional status of children in Bihar, 2005-06

		Stunting		U	nderweigl		Wasting			
Background Characteristics		95.0%	C.I.for			C.I.for	95.0% C.I.fo			
	Exp(B)	EXP(B)		Exp(B)	EXP(B)		Exp(B)	EXP(B)		
Age at marriage		Lower	Upper		Lower	Upper		Lower	Uppe	
Upto 17 years										
18-24 years	0.94**	0.90	0.99	0.92***	0.87	0.97	0.97	0.91	1.03	
25 years and above	0.84^{***}	0.73	0.96	0.74***	0.64	0.85	0.82**	0.69	0.97	
Age at first birth										
Upto 17 years										
18-24 years	0.93***	0.88	0.98	0.97	0.92	1.03	1.06*	0.99	1.13	
25 years and above	0.76***	0.69	0.85	0.89**	0.80	1.00	1.12*	0.99	1.28	
Place of Residence										
Urban										
Rural	0.90***	0.86	0.95	0.95*	0.90	1.00	0.97	0.90	1.03	
Caste										
SC										
ST	0.83***	0.78	0.89	0.79***	0.74	0.85	1.03	0.95	1.11	
OBC	0.89***	0.84	0.95	0.91***	0.85	0.96	0.97	0.90	1.04	
Others	0.81***	0.76	0.86	0.78***	0.73	0.84	0.85***	0.78	0.91	
Religion										
Hindu										
Muslim	1.01	0.95	1.07	0.95	0.89	1.01	0.96	0.89	1.04	
Wealth Index										
Poorest										
Poorer	0.88***	0.83	0.94	0.76***	0.72	0.81	0.81***	0.76	0.87	
Middle	0.77***	0.72	0.82	0.61***	0.58	0.65	0.72***	0.67	0.78	
Richer	0.63***	0.58	0.68	0.49***	0.46	0.53	0.62***	0.57	0.68	
Richest	0.41***	0.38	0.45	0.33***	0.30	0.36	0.51***	0.45	0.57	
Mother's education										
Uneducated										
Primary	0.89***	0.84	0.95	0.86***	0.81	0.92	0.94*	0.87	1.01	
Secondary	0.77***	0.73	0.82	0.74***	0.70	0.78	0.85***	0.79	0.92	
Higher	0.55***	0.49	0.63	0.55***	0.47	0.63	0.92	0.78	1.08	
Father's education										
Uneducated										
Primary	0.97	0.91	1.03	0.97	0.91	1.03	0.93*	0.86	1.00	
Secondary	0.88***	0.83	0.93	0.89***	0.84	0.94	0.93**	0.87	1.00	
Higher	0.70***	0.64	0.77	0.74***	0.67	0.82	0.82***	0.72	0.92	
Mother's occupation	0.70	0.01	0.77	0.71	0.07	0.02	0.02	0.72	0.72	
Not working										
Working	1.08***	1.03	1.13	1.09***	1.04	1.14	0.95**	0.90	1.00	
Father's occupation	1.00	1.05	1.15	1.07	1.04	1.14	0.75	0.70	1.00	
Not working										
Working	0.94	0.81	1.09	0.99	0.85	1.16	1.01	0.84	1.22	
Birth order and Preceding	0.94	0.01	1.07	0.77	0.05	1.10	1.01	0.04	1.22	
birth interval										
1st Order										
2-3 Order and <23 months	1.36***	1.28	1.46	1.27***	1.18	1.36	0.98	0.90	1.07	
Order2-3 and >24 months	1.06**	1.28	1.40	1.27	0.96	1.07	0.98 1.06*	1.00	1.13	
Order2-3 and >24 months Order3+ and <23 months	1.06** 1.47***	1.01		1.01 1.20***		1.07	1.06* 0.87*		0.97	
			1.61		1.10			0.77		
Order3+ and>24 months Note: Level of significance:	1.10***	1.04	$\frac{1.17}{***p < }$	1.11***	1.04	1.18	1.11***	1.03	1.19	

Table 5. Odds ratio showing the variations in nutritional status of children in India, 2005-06

Note: Level of significance: p < 0.1 * p < 0.05 * p < 0.01.

Background characteristics		Andhra Pradesh			Bihar		India			
Age at marriage	Stunted	Underweight	Wasting	Stunted	Underweight	Wasting	Stunted	Underweight	Wastin	
Less than 18	43.95	32.91	12.21	56.69	57.17	28.07	10348	9018	4086	
18-24	33.12	24.2	10.83	47.36	47.36	23.77	7044	5820	3074	
25-29	22.81	17.54	7.02	45.45	36.36	18.18	534	421	274	
30 and above	15.38	15.38	15.38	-	50.00	50.00	96	72	47	
Age at first birth	10.00	10100	10100		20100	20100	,,,		.,	
Less than 18	50.19	37.64	11.79	58.01	58.61	29.31	5761	5000	2173	
18-24	34.91	25.43	11.58	52.36	52.54	25.68	10900	9192	4590	
25-29	23.91	20.29	8.7	35.09	33.33	14.04	1134	970	603	
30 and above	25.00	19.44	13.89	-	20.00	40.00	244	184	125	
Age of the child in month	25.00	17.44	15.67	-	20.00	40.00	244	104	125	
Upto 6 months	15.79	24.06	21.80	21.66	35.94	33.64	785	1049	1125	
7-12 months	25.56	25.00	21.80	32.52	49.51	40.78	1143	1267	1035	
18-24 months										
	36.47	21.65	9.40	56.74	57.45	34.04	4027	3073	1591	
25-35 months	43.01	26.58	9.04	63.45	59.94	23.68	3917	3041	1186	
Place of residence		10 50		10.00		a a ta			• • • • •	
Urban	30.60	19.70	11.79	40.28	45.07	30.42	5623	4530	2409	
Rural	40.95	32.87	15.04	51.38	56.18	32.89	12416	10816	5082	
Caste										
SC	40.26	31.17	11.69	61.29	67.74	38.25	3706	3250	1466	
ST	50.72	46.38	17.39	60.00	30.00	20.00	3074	2589	1339	
OBC	34.79	25.35	16.13	47.23	52.35	32.27	6285	5481	2602	
Others	28.11	16.22	8.92	38.08	41.84	26.78	4342	3545	1874	
Religion										
Hindu	34.65	26.60	14.73	47.63	52.16	33.02	12602	11182	5452	
Muslim	33.07	18.33	8.76	50.00	55.93	28.81	3083	2539	1177	
Christian	32.56	20.93	6.98	-	-	-	1583	1035	551	
Sikhs	-	-	-	-	-	-	226	167	87	
Others	_	-	-	_	-	-	306	214	113	
Wealth Index							500	211	110	
Lowest	57.53	46.58	15.07	55.56	65.17	37.84	4231	4019	1836	
Second	51.43	45.71	20.00	53.20	57.10	34.54	4013	3510	1542	
Middle	37.83	28.26	15.22	49.21	45.50	25.40	4065	3313	1553	
Fourth	32.20	28.20	13.22	49.21	45.50	23.40 29.55	4003 3624	2876	1353	
Highest	21.81	11.41	9.40	22.14	28.24	24.43	2106	1628	1106	
Mother's Education	15.05	24.42	1554		60.00	24.07		0000	2502	
Illiterate	45.25	34.43	15.74	54.61	60.00	34.87	9022	8039	3593	
Primary	35.21	29.58	15.49	41.88	47.01	29.06	2855	2399	1130	
Secondary	30.85	19.46	11.18	36.98	40.00	26.79	5593	4454	2369	
Higher and above	15.15	9.09	9.09	19.57	23.91	26.09	569	454	399	
Father's Education										
Illiterate	46.05	35.09	17.11	55.04	61.59	35.36	5316	4738	2150	
Primary	39.10	26.32	15.04	58.55	60.53	39.47	3070	2641	1183	
Secondary	32.26	23.79	12.30	45.85	50.87	29.69	8215	6773	3397	
Higher and above	18.40	7.36	7.36	23.36	25.55	23.36	1211	985	662	
Mother's Occupation										
Primary Occupation	53.17	40.48	15.87	59.70	66.04	31.72	4790	4274	1895	
Secondary Occupation	38.89	37.04	11.11	45.16	51.61	29.03	1422	1263	593	
Tertiary Occupation	46.51	16.28	6.98	36.00	40.00	32.00	621	481	246	
Quaternary Occupation	1	10.20	5.75	20.00			41	34	19	
Not Working	30.31	21.37	12.92	44.96	49.25	32.44	11165	9294	4738	
Father's Occupation	50.51	21.57	14.74	- - -,70	+7.23	52.74	11105	7274	-130	
	11 05	25 60	1674	57 20	60 54	25 71	5504	1016	2250	
Primary Occupation	41.85	35.68	16.74	52.38	60.54	35.71	5594	4816	2256	
Secondary Occupation	35.21	25.28	12.92	49.26	53.38	32.21	9358	8085	3887	
Tertiary Occupation	25.57	11.36	9.09	35.21	36.62	26.76	1974	1538	889	
Quaternary Occupation	20.83	6.25	12.50	23.08	23.08	38.46	282	214	131	
Not Working	31.82	25.00	9.09	49.15	54.24	25.42	831	693	328	
Total	34.21	24.30	12.93	48.06	52.86	32.15	17407	14865	7281	

Appendix 1. Percentage of children classified as undernourished by selected background characteristics of selected states and India; 2005-06