

## Socio-economic determinants of adolescent pregnancy in India

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### Abstract:

**Background:** Adolescent pregnancy is a significant public health concern, particularly in low- and middle-income countries like India, where early marriage and traditional norms drive high rates of teenage pregnancies. These pregnancies pose severe risks to both mother and child due to biological immaturity, leading to complications such as maternal mortality, poor pregnancy outcomes, and socioeconomic challenges. Despite laws like the Child Marriage Act of 2006, early marriages persist, contributing to high rates of adolescent pregnancies. This study aims to examine the prevalence, socio-economic determinants, and health complications of adolescent pregnancy in India, with a focus on its broader societal implications.

**Methods:** This study utilizes data from the National Family Health Surveys (NFHS-4 and NFHS-5), focusing on adolescent girls aged 15-19 years in India. The dependent variable is adolescent pregnancy, determined through survey responses on live births, abortions, stillbirths, and miscarriages. Independent variables include age, religion, caste, education, wealth, residence, marital status, media exposure, and family planning exposure. The prevalence rate of adolescent pregnancy is calculated as the number of pregnancies per 10,000 adolescent women. Statistical analysis includes bivariate analysis and binary logistic regression, using STATA version 16 to assess associations between pregnancy and predictor variables.

**Results:** The study reveals key socio-economic and demographic shifts in adolescent pregnancy across India between NFHS-4 and NFHS-5. A decline in adolescent pregnancy rates was observed from 7.9% to 6.8%, with rural areas showing higher rates than urban areas. Education levels and wealth index positively influenced pregnancy reduction, while the highest rates were seen among Scheduled Tribes and the poorest women. Regional differences were prominent, with significant drops in the East and increases in the North and Central regions. Media and family planning exposure were linked to reduced pregnancy, but contraceptive use showed an unexpected association with higher pregnancy odds.

**Discussion & Conclusion:** The study highlights a slight decline in adolescent pregnancy rates in India from NFHS-4 to NFHS-5, with a larger reduction in urban areas. Rural adolescents,

those with lower education, and those from marginalized communities remain at higher risk. Despite improvements, regional disparities and complexities in contraceptive use persist, indicating the need for focused interventions. Education, wealth, and media exposure significantly lower pregnancy odds, emphasizing the importance of awareness programs. Variations in pregnancy outcomes, especially among different age groups, underscore the necessity of tailored strategies to improve maternal health and reduce adolescent pregnancies across India.

**Tables: Table 1. State wise prevalence of Adolescent Pregnancy in India as per NFHS-4 (2015-16) and NFHS-5 (2019-21)**

India/States/Union Territories	NFHS-4				NFHS-5			
	Combined	Urban	Rural	Total no. of Adolescent	Combined	Urban	Rural	Total no. of Adolescent
<b>Bigger States</b>								
West Bengal	18.2	13.2	21.5	9,257	16.0	8.7	20.3	9,556
Assam	14.2	8.2	15.0	2,857	12.3	5.8	13.2	3,108
Bihar	12.9	7.2	15.1	3,389	11.6	7.6	12.2	14,316
Jharkhand	12.0	9.1	13.4	12,370	9.8	5.6	11.7	3,449
Andhra Pradesh	12.8	8.8	14.5	3,882	13.6	9.5	15.6	3,562
Telangana	10.9	7.1	14.1	2,901	6.3	3.6	8.0	2,349
Maharashtra	9.0	6.6	11.2	10,424	7.6	5.0	10.8	9,390
Odisha	8.2	6.2	8.6	4,126	7.5	6.2	8.4	3,409
Karnataka	8.1	5.3	10.1	4,933	5.9	3.6	7.3	5,446
Madhya Pradesh	7.6	4.0	8.9	8,100	5.5	2.7	6.4	7,574
Rajasthan	7.0	5.0	7.6	7,089	4.0	1.8	4.6	8,440
Gujarat	7.0	4.5	8.6	5,288	5.7	2.9	7.3	5,200
Haryana	6.2	5.3	6.8	2,437	4.3	3.3	4.8	2,215
Tamil Nadu	5.3	3.8	6.7	6,984	6.7	4.7	8.5	5,764
Chhattisgarh	5.3	4.4	5.6	3,080	3.3	1.9	3.7	3,032
Uttar Pradesh	4.3	2.2	4.9	23,711	3.2	1.5	3.6	25,292
Kerala	3.1	2.7	3.4	2,628	2.5	1.8	3.2	2,428
Jammu & Kashmir	3.1	0.9	3.8	1,137	-	-	-	-
Uttarakhand	3.1	2.2	3.5	1,114	2.6	2.1	2.9	1,021
Punjab	2.7	2.6	2.8	2,045	3.7	3.2	4.0	2,175
<b>Smaller States</b>								
Tripura	19.7	14.3	21.6	329	22.9	15.2	25.4	317
Arunachal Pradesh	11.1	10.3	11.5	100	6.5	3.9	7.0	92
Meghalaya	8.9	3.7	10.4	306	7.3	3.2	8.5	337
Manipur	7.7	6.7	8.4	181	8.7	7.6	9.3	179
Mizoram	7.4	6.3	9.2	97	4.1	2.1	6.9	79
Nagaland	6.1	2.8	8.5	129	4.0	2.6	4.7	107
Goa	2.9	3.6	1.8	120	3.1	2.8	3.4	150
Sikkim	2.9	2.8	3.0	51	3.9	3.1	4.3	44
Himachal Pradesh	2.7	0.5	2.9	510	3.7	4.5	3.6	520
<b>Union Territories</b>								
Dadra & Nagar Haveli	10.3	7.1	13.7	30	4.3	3.7	5.8	42
Daman & Diu	4.5	5.2	3.3	30				
Andaman & Nicobar Islands	4.7	3.1	5.8	35	3.0	1.5	4.0	23
Puducherry	3.5	3.7	3.2	109	4.2	4.1	4.5	95
Delhi	2.8	2.7	23.4	1,704	3.8	3.7	9.7	1,718
Chandigarh	2.1	2.2	0.0	81	0.8	0.8	0.0	99

Lakshadweep	0.0	0.0	0.0	5	1.1	0.0	5.1	7
Jammu & Kashmir	-	-	-	-	1.0	0.5	1.1	989
Ladakh	-	-	-	-	0.0	0.0	0.0	18
<b>INDIA</b>	<b>7.9</b>	<b>5</b>	<b>9.2</b>	<b>1,21,552</b>	<b>6.8</b>	<b>3.8</b>	<b>7.9</b>	<b>1,22,544</b>

**Table 3: Prevalence of Adolescent pregnancy by age at 15-19 years and Socio-economic and demographic Characteristics as per NFHS-5 (2019-21) & NFHS-4 (2015-16)**

Background Characteristics	NFHS-4, (2015-16)		NFHS-5, (2019-21)	
	Prevalence of Adolescent pregnancy age 15-19 years	Total No. of Adolescent girls (N)	Prevalence of Adolescent pregnancy age 15-19 years	Total No. of Adolescent girls (N)
<b>Place of residence</b>				
Urban	5.4	36,932	4.2	34,543
Rural	9.8	84,620	8.4	88,000
(chi2, p-value)	(477.0; <0.001)		(438.4; 0.000)	
<b>Regions</b>				
North	5.2	16,117	8.0	11,739
Central	5.1	34,891	12.2	17,039
East	14.2	29,142	2.7	1,123
Northeast	13.3	4,049	5.1	24,067
West	8.3	15,876	6.1	51,540
South	7.7	21,477	8.4	17,018
(chi2, p-value)	(1400; 0.000)		(454.0; 0.000)	
<b>Adolescent's Religion</b>				
Hindu	8.4	95,862	7.0	97,827
Muslim	9.4	19,918	8.8	19,410
Christian	7.0	2,391	7.2	2,475
Other religions*	7.6	3,381	4.5	2,832
(chi2, p-value)	(26.0; 0.000)		(57.2; 0.000)	
<b>Adolescent's Caste/Tribe</b>				
Scheduled castes (SC)	9.4	25,911	7.8	28,204
Scheduled tribes (ST)	11.2	11,609	9.3	11,691
Other backward classes (OBC)	7.5	54,029	6.2	53,755
Others	7.5	25,656	6.3	23,168
(chi2, p-value)	(165.5; 0.000)		(145.7; 0.000)	
<b>Wealth index</b>				
Poorest	11.2	25,257	11	27,513
Poorer	11.4	27,378	9	27,957
Middle	8.8	25,999	7	25,635
Richer	6.4	23,379	6	22,789
Richest	2.9	19,540	2	18,650
(chi2, p-value)	(1200; 0.000)		(1000; 0.000)	
<b>Education Status</b>				
No education	21.4	8,311	19	5,335
Primary education	15.6	8,495	13	6,358
Secondary education	7.3	96,489	7	1,01,901
Higher Education	2.4	8,257	3	8,950
(chi2, p-value)	(3000; 0.000)		(1900; 0.000)	
<b>Marital status</b>				
Never married	0.1	1,02,841	0.04	1,06,960
Married	54.8	18,493	56.8	15,407
Widowed	63.3	35	57.8	31
Divorced	20.5	62	10.4	50
Separated	37.4	122	42.7	96
(chi2, p-value)	(64000; 0.000)			
<b>Media exposure</b>				
Not exposed	13.7	18,852	11.6	24,153

Exposed	7.5	102701	6.2	98,391
(chi2, p-value)	(1000; 0.000)		(773.2; 0.000)	
<b>Family planning exposure</b>				
Not exposed	10.6	45,281	8.7	45,805
Exposed	7.2	76,271	6.4	76,736
(chi2, p-value)	(339.2; 0.000)		(150.7; 0.000)	
<b>Contraceptive Use</b>				
Not using	7.3	118623	5.5	1,17,485
Modern Method	59.1	1945	46.6	3,247
Traditional Method	46.8	984	48.8	1,811
(chi2, p-value)	(7700; 0.000)		(12000; 0.000)	
<b>Over all</b>		<b>1,21,552</b>		<b>1,22,544</b>

**Table 4. Adjusted odds ratio of socio-economic and demographic determinants on adolescent Pregnancy in India as per NFHS-5 (2019-21)**

Background Characteristics	Odds Ratio (95% C.I.)
<b>Place of residence</b>	
Rural ®	1
Urban	0.90** (0.84, 0.95)
<b>Regions</b>	
North®	1
Central	0.88* (0.80, 0.97)
East	0.41*** (0.33, 0.50)
Northeast	0.43*** (0.40, 0.47)
West	0.38*** (0.36, 0.41)
South	0.76*** (0.70, 0.82)
<b>Adolescent's Religions</b>	
Hindu ®	1
Muslim	0.73*** (0.67, 0.80)
Christian	0.73*** (0.66, 0.83)
Other religions	0.67*** (0.58, 0.78)
<b>Adolescent's Caste/Tribe</b>	
Scheduled castes (SC)®	1
Scheduled tribes (ST)	0.70*** (0.65, 0.76)
Other backward classes (OBC)	0.84*** (0.79, 0.89)
Non-SC/ST/OBC	0.77*** (0.70, 0.84)
<b>Wealth index</b>	
Poorest ®	1
Poorer	0.78*** (0.73, 0.83)
Middle	0.75*** (0.69, 0.80)
Richer	0.60*** (0.55, 0.66)
Richest	0.34*** (0.30, 0.38)
<b>Level of Education</b>	
No education®	1
Primary education	0.45*** (0.40, 0.50)
Secondary education	0.23*** (0.21, 0.25)
Higher education	0.12*** (0.10, 0.14)
<b>Media exposure</b>	
Not exposed®	1
Exposed	0.68*** (0.63, 0.72)
<b>Family planning exposed</b>	
Not exposed ®	1
Exposed	0.90*** (0.85, 0.95)
<b>Contraceptive use</b>	
Not using®	1
Using	0.80*** (12.64, 14.59)