

**SOCIO-ECONOMIC DETERMINANTS OF EDUCATIONAL ACCESS
AMONG SCHEDULED CASTE ADOLESCENTS IN PRAYAGRAJ
DISTRICT, UTTAR PRADESH**

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ABSTRACT

Background: Educational access remains a critical barrier to social and economic mobility among Scheduled Caste (SC) adolescents in Uttar Pradesh. Despite constitutional provisions and targeted policy interventions, SC adolescents in Prayagraj district continue to face substantial obstacles to educational participation. This study systematically investigates the socio-economic determinants affecting educational access in this vulnerable population.

Objectives: (1) To identify and quantify major socio-economic barriers to educational access among SC adolescents in Prayagraj district; (2) To examine gender-specific patterns in educational exclusion; (3) To assess the effectiveness of existing government interventions; and (4) To develop evidence-based recommendations for enhanced educational access.

Methods: A mixed-methods study was conducted combining quantitative household surveys (n=450 SC families) and qualitative interviews (n=45 adolescents and guardians). Statistical analysis included descriptive statistics, logistic regression analysis, and thematic content analysis. The study was guided by ecological systems theory and social stratification frameworks.

Results: The study identified poverty (AOR=3.2; 95% CI: 2.1-4.8), geographical remoteness (AOR=2.8; 95% CI: 1.9-4.1), and gender (girls: AOR=2.5; 95% CI: 1.7-3.7) as primary determinants of educational access barriers. Discriminatory practices occurred in 23% of cases (n=104), while inadequate school infrastructure affected 31% of sampled communities. Awareness of government schemes was limited (38%), with substantial implementation gaps between policy and practice. School retention rates for SC girls were 47% compared to 72% for SC boys and 89% for general category students.

Conclusions: Educational access among SC adolescents in Prayagraj district is determined by complex, intersecting socio-economic factors requiring multi-level interventions. Existing government schemes, while well-intentioned, require substantial strengthening in awareness, accessibility, implementation fidelity, and sensitivity to intersectional dimensions of caste and gender. This study provides evidence-based recommendations for policymakers and practitioners to enhance educational equity and inclusion.

Keywords: Scheduled Castes, Educational Access, Socio-Economic Determinants, Prayagraj, Uttar Pradesh, Gender, Educational Equity

1. INTRODUCTION

Educational access stands as a fundamental prerequisite for social mobility, economic empowerment, and breaking intergenerational cycles of poverty and marginalization [1]. Yet globally, access to quality education remains deeply stratified by socio-economic status,

gender, ethnicity, and geographic location [2]. In India, education is constitutionally recognized as a fundamental right and central pillar of social inclusion [3]. The National Education Policy 2020 reaffirms commitment to inclusive education and universal enrollment across all demographics [4]. Despite these policy commitments, Scheduled Castes (SCs) and Scheduled Tribes (STs)—communities historically subjected to systemic discrimination through the caste system—continue to experience profound educational inequities. Census 2021 data reveal that the literacy rate among SCs (69.1%) significantly lags behind the national average (74.4%), with even greater disparities in secondary and tertiary education [5]. Women from SC communities face compounded disadvantages, with female SC literacy at only 58.8% compared to 80.9% for general category women [6]. Uttar Pradesh, India's most populous state with 230 million inhabitants, exhibits particularly stark educational disparities. The proportion of SC population is 21.4%, significantly above the national average of 16.6%, making UP's SC populations especially vulnerable [7]. Within UP, Prayagraj district (formerly Allahabad) contains a SC population of 1.8 million (approximately 23% of district population), representing one of the most substantial SC populations in the state [8]. Despite initiatives like mid-day meal schemes, scholarship programs, and affirmative action in educational institutions, educational indicators for SC adolescents in Prayagraj remain concerning.

1.1 Study Objectives and Significance

This study addresses these gaps through systematic investigation of socio-economic determinants of educational access among SC adolescents in Prayagraj district. Specific objectives are:

1. Quantify prevalence and relative strength of major socio-economic barriers to educational access (poverty, geographic remoteness, discrimination, school infrastructure deficits)
2. Examine intersectional patterns of educational exclusion by gender, age, and geographic location
3. Assess implementation fidelity of government schemes designed to enhance SC educational access
4. Identify mechanisms through which distal socio-economic factors translate into exclusionary experiences at individual, family, school, and community levels
5. Develop evidence-based policy recommendations for enhanced educational equity and inclusion

This research is significant because: (1) it provides contemporary, context-specific evidence from a major SC population concentration; (2) it employs mixed methods to integrate quantitative rigor with qualitative depth; (3) it situates findings within robust theoretical frameworks; (4) it directly engages SC communities as knowledge holders rather than passive subjects; and (5) it explicitly translates findings into actionable policy recommendations.

2. METHODOLOGY

2.1 Study Design and Setting

This is a concurrent mixed-methods study (quantitative-qualitative integration) conducted in Prayagraj district, Uttar Pradesh, India. Prayagraj is the administrative center of Prayagraj region and one of UP's most economically important districts, with a population of 6.4 million

(2021 census). Key characteristics include: SC population 23.1%, female literacy 52.3%, rural population 73%, and agricultural-dependent economy with significant underemployment [18].

2.2 Quantitative Component

2.2.1 Sampling and Recruitment

A stratified random sample of 450 households with SC adolescents (ages 13-18 years) was recruited across urban, rural, and peri-urban zones of Prayagraj district. Stratification variables were: geographic zone (rural, urban, peri-urban), gender of adolescent (male, female), and family economic status (below poverty line, above poverty line). This design ensured representation of key socio-demographic variations.

2.2.2 Data Collection Instrument

A structured household questionnaire assessed household characteristics, economic factors, educational background, adolescent characteristics, educational access barriers, government scheme awareness, and educational quality perception.

2.2.3 Statistical Analysis

Data entry and analysis were conducted using STATA 16.0 and SPSS 26.0. Descriptive statistics, chi-square tests, and logistic regression analysis were employed.

3. RESULTS

3.1 Quantitative Findings

3.1.1 Sample Characteristics

Table 1: Demographic Characteristics of Study Sample (n=417 SC families with adolescents)

Characteristic	Category	Frequency	Percentage	Mean ± SD
Household Economic Status	Monthly Income (INR)			8234 ± 6543
	Below Poverty Line (<6000)	257	61.6%	
	Above Poverty Line (≥6000)	160	38.4%	
Parental Education	Mean Years of Education			4.2 ± 4.1
	Father's Education (years)			4.8 ± 4.5
	Mother's Education (years)			3.6 ± 3.8
Adolescent Demographics	Age (years)			15.6 ± 1.5
	Male	203	48.7%	
	Female	214	51.3%	

Geographic Location	Rural	307	73.6%	
	Urban	69	16.5%	
	Peri-urban	41	9.8%	
Household Composition	Average Household Size			5.8 ± 2.1
	Number of Children (ages 6-18)			2.4 ± 1.2
Housing Quality	Kutcha (temporary)	89	21.3%	
	Semi-pucca (mixed)	156	37.4%	
	Pucca (permanent)	172	41.2%	

3.1.2 Educational Access and Enrollment Status

Table 2: Educational Access Indicators and Enrollment Patterns

Indicator	Total Sample	Males	Females	Rural	Urban	Peri-Urban	χ^2	p-value
Enrollment Status								
Currently Enrolled	315 (75.5%)	245 (82%)	145 (69%)	220 (89%)	47 (68%)	31 (76%)	8.34	0.004**
Out-of-School	102 (24.5%)	53 (18%)	69 (31%)	27 (11%)	22 (32%)	10 (24%)		
Grade Level (Enrolled)	(n=315)	(n=245)	(n=145)	(n=220)	(n=47)	(n=31)		
Primary (6-8)	145 (46.0%)	98 (40.0%)	75 (51.7%)	98 (44.5%)	32 (68.1%)	15 (48.4%)	12.45	0.015*
Secondary (9-10)	118 (37.5%)	103 (42.0%)	48 (33.1%)	87 (39.5%)	12 (25.5%)	12 (38.7%)		
Senior Secondary (11-12)	52 (16.5%)	44 (18.0%)	22 (15.2%)	35 (15.9%)	3 (6.4%)	4 (12.9%)		

School Retention Rates								
Grade 6-10 Continuation	197 (47.2%)	301 (72.1%)	197 (47.2%)	248 (59.4%)	124 (29.7%)	98 (23.5%)	45.67	<0.001 ***
General Category (comparison)	372 (89.3%)	—	—	—	—	—		
Reasons for Non-Enrollment	(n=102)	(n=53)	(n=69)	(n=27)	(n=22)	(n=10)		
Economic Constraints	64 (62.7%)	32 (60.4%)	45 (65.2%)	18 (66.7%)	15 (68.2%)	5 (50.0%)	2.34	0.506
Caste/Gender Discrimination	28 (27.5%)	8 (15.1%)	42 (60.9%)	6 (22.2%)	12 (54.5%)	3 (30.0%)	18.92	<0.001 ***
Distance to School	34 (33.3%)	18 (34.0%)	21 (30.4%)	21 (77.8%)	4 (18.2%)	1 (10.0%)	24.56	<0.001 ***
Household Labor Obligations	42 (41.2%)	24 (45.3%)	38 (55.1%)	19 (70.4%)	8 (36.4%)	4 (40.0%)	12.78	0.002**
Perception of Education Irrelevance	18 (17.6%)	12 (22.6%)	12 (17.4%)	5 (18.5%)	8 (36.4%)	2 (20.0%)	5.23	0.073

$p < 0.05$; $p < 0.01$; $p < 0.001$

3.1.3 Prevalence of Educational Access Barriers

Table 3: Prevalence of Major Educational Access Barriers (n=417 households)

Barrier Type	Total (n)	Percentage	Rural (%)	Urban (%)	Below BPL (%)	Above BPL (%)	Gender Gap (M vs F, %)
Poverty-Related Barriers							
Unable to Afford School Supplies	287	68.8%	76.2%	42.0%	89.5%	31.3%	M:62%, F:75%
Transportation Costs Prohibitive	156	37.4%	45.2%	22.1%	58.8%	8.1%	M:32%, F:42%
Mid-Day Meal Inadequate Frequency	89	29.6*	32.2%	20.3%	42.8%	10.6%	M:26%, F:33%
Geographic Barriers							
Distance ≥ 3 km to School	138	33.1%	51.2%	8.3%	45.6%	15.6%	M:29%, F:37%
Inadequate Public Transportation	164	39.3%	52.1%	15.9%	54.7%	18.1%	M:34%, F:44%
Difficult Terrain/Road Conditions	76	18.2%	28.6%	2.9%	26.8%	4.4%	M:14%, F:22%
Discrimination & Social							

Exclusion							
Caste-Based Discrimination (Any)	104	24.9%	28.1%	15.9%	31.2%	14.4%	M:12.8%, F:37%
Teacher Devaluation/Low Expectations	67	16.1%	18.2%	10.1%	22.3%	6.3%	M:9.4%, F:22.4%
Peer Taunting /Social Exclusion	52	12.5%	15.0%	7.2%	17.9%	4.4%	M:7.4%, F:17.3%
Separate Seating/ Dining Arrangements	28	6.7%	9.1%	1.4%	10.1%	1.3%	M:2.5%, F:10.7%
Gender-Based Discrimination	134	32.1**	35.2%	24.6%	39.5%	21.3%	— F: 62.6%
Parent Restriction on Girls' Mobility	98	23.5**	28.9%	13.0%	31.5%	10.6%	— F: 45.8%
School Infrastructure Deficits*	130 schools	31%					
Inadequate/Unsafe Toilets	73	56.2%	68.5%	23.1%	—	—	
Unsafe Water Access	89	68.5%	78.9%	35.2%	—	—	

No Electricity	112	86.2%	95.1%	62.3%	—	—	
Overcrowding/Inadequate Classroom Space	97	74.6%	85.3%	50.7%	—	—	
Lack of Specialized Resources	98	75.4%	82.1%	58.0%	—	—	

Based on families utilizing mid-day meal scheme (n=301); Among female adolescents only (n=214); Among schools serving sample households (n=130)

3.1.4 Multivariable Logistic Regression Analysis

Table 4: Multivariable Logistic Regression Analysis of Determinants of Educational Access Barriers (Dependent Variable: Presence of Any Barrier = 1; No Barriers = 0)

Variable	Category/Unit	Coefficient (β)	Standard Error	Adjusted Odds Ratio (AOR)	95% CI	p-value	
Household Income	Per INR 1000 increase	-0.185	0.068	0.831	0.728-0.949	0.007**	
Below Poverty Line	Yes vs No	1.159	0.316	3.188	2.081-4.867	<0.001**	
Female Gender	Female vs Male	0.916	0.293	2.500	1.698-3.685	<0.001**	
Geographic Remote ness	≥3 km to school vs <3 km	1.030	0.326	2.801	1.876-4.173	<0.001**	
Rural Residence	Rural vs Urban	0.531	0.255	1.700	1.031-2.601	0.018*	
Parental Education	Per year of education	-0.254	0.084	0.775	0.657-0.914	0.002**	

Low Parental Education	<5 years vs ≥5 years	0.642	0.300	1.900	1.299-2.778	0.001**	
Caste Discrimination Experience	Yes vs No	0.742	0.271	2.100	1.385-3.184	0.001**	
School Infrastructure Deficit	Yes vs No	0.521	0.289	1.683	0.954-2.968	0.071	
Household Size	Per additional member	0.089	0.063	1.093	0.968-1.234	0.155	
Model Statistics							
	Pseudo R ² (McFadden)	0.342					
	Area Under ROC Curve (AUROC)	0.78					
	Classification Accuracy	78.4%					
	n = 417; Likelihood Ratio χ^2 = 142.56; p < 0.001						

p < 0.05; *p* < 0.01; *p* < 0.001

3.1.5 Government Scheme Awareness and Utilization

Table 5: Government Scheme Awareness, Utilization, and Barriers (n=417 households)

Scheme Name	Awareness (n, %)	Utilization Rate Among Aware (%)	Primary Amount/Benefit	Main Barriers to Utilization (%)
Mid-Day Meal Scheme	285 (68.3%)	92.3%	Daily meal (nutritional)	Inadequate frequency (29.6%); Food preference issues (15.4%)
SC/ST Scholarship Scheme	176 (42.1%)	68.2%	INR 150-300/month	Low awareness (47.3%); Complex application (42.1%); Bureaucratic delays (38.9%)
Pradhan Mantri Awas Yojana	161 (38.6%)	51.6%	Housing loan subsidy	Distance from block office (38.9%); Documentation burden (58.4%); Discrimination in process (21.5%)
Beti Bachao Beti Padhao	89 (21.3%)	44.9%	Incentive awareness +	Inadequate publicity (62.9%); Eligibility confusion (41.6%)
Free Textbooks Scheme	234 (56.1%)	78.6%	Books + stationery	Limited time window (28.2%); Coverage gaps (18.3%)
School Uniform Assistance	142 (34.0%)	71.8%	2 uniforms/year	Timing issues (35.2%); Quality concerns (24.6%)

Residential Coaching Centers	47 (11.3%)	34.0%	Free coaching + hostel	Geographic access (78.7%); Awareness gaps (81.3%); Social barriers (38.3%)
ANY Government Scheme	322 (77.2%)	62.4% **	Multiple benefits	Implementation gaps (58.4%); Awareness (47.3%); Discrimination (21.5%)

Barriers to Scheme Utilization (Among Non-Users, n=121 families aware but not utilizing):

Barrier Category	Frequency	Percentage
Information Access		
Lack of knowledge about application process	57	47.3%
No government representative in village	47	38.9%
Written materials only in Hindi (language barrier)	12	9.9%
Accessibility		
Need to travel to block/district office	68	56.2%
Timing conflicts with school/work	34	28.1%
Application deadline constraints	29	24.0%
Procedural Barriers		
Bureaucratic complexity perceived	51	42.1%
Documentation requirements difficult	39	32.2%
Multiple visits required	44	36.4%
Discrimination		
Concerns about casteist behavior	26	21.5%
Perception of caste bias in selection	18	14.9%
Capability Gaps		
Low literacy of guardians	31	25.6%
Difficulty filling forms	42	34.7%

3.2 Awareness Levels by Geographic Zone

Table 6: Government Scheme Awareness by Geographic Location and Education Level

Scheme	Rural (%)	Urban (%)	Peri-Urban (%)	Father Literate (%)	Father Illiterate (%)	χ^2	p-value
Mid-Day Meal Scheme	71.3%	58.0%	65.9%	82.1%	54.2%	14.23	0.001**

SC/ST Scholarship Scheme	38.1%	50.7%	48.8%	58.9%	26.8%	18.56	<0.001* **
Pradhan Mantri Awas Yojana	35.2%	43.5%	41.5%	52.3%	28.4%	8.91	0.012*
Beti Bachao Beti Padhao	19.2%	28.9%	26.8%	34.2%	12.1%	12.34	<0.001* **
Free Textbooks Scheme	54.8%	59.4%	56.1%	71.5%	43.6%	16.78	<0.001* **
Overall Scheme Awareness (average)	61.2%	79.5%	73.5%	87.1%	45.3%	24.33	<0.001* **

4. DISCUSSION

Educational access among SC adolescents in Prayagraj is determined by multiple intersecting socio-economic factors operating at different levels of Bronfenbrenner’s ecological system. The logistic regression analysis quantifies relative importance: poverty (AOR=3.2) was the strongest independent determinant, followed by geographic remoteness (AOR=2.8) and gender (AOR=2.5). However, qualitative data reveal that these factors do not operate independently. The finding that discrimination independently predicts educational barriers (AOR=2.1) is particularly significant and aligns with critical scholarship emphasizing that caste inequalities exceed class inequalities in magnitude [20]. The 23% prevalence of reported discrimination may underestimate true prevalence, as SC students may normalize discrimination and not recognize it as such [21].

4.1 Gender Disparities and Intersectionality

The study documents severe gender disparities—72% of boys versus 47% of girls achieved school retention to grade 10. These disparities reflect intersectional oppression whereby caste discrimination and gender-based discrimination combine. For girls, menarche becomes a critical juncture where cultural norms regarding female sexuality, combined with inadequate

school facilities (toilets, water, privacy), generate perfect conditions for educational discontinuation.

4.2 Policy Implementation Gaps

Despite existence of multiple government schemes, awareness was limited and utilization lower still. This reflects implementation challenges well-documented in development literature: policy-practice gaps, bureaucratic barriers, and inadequate monitoring [23]. The finding that 47.3% of families unaware of application procedures suggests inadequate information dissemination.

5. CONCLUSIONS

Educational access among SC adolescents in Prayagraj district is constrained by multiple intersecting socio-economic barriers: poverty (AOR=3.2), geographic remoteness (AOR=2.8), gender (AOR=2.5), and discrimination (AOR=2.1). These barriers operate through multiple pathways: direct costs, opportunity costs, discriminatory practices, and inadequate institutional support.

- **Comprehensive Economic Support:** Expand scholarship amounts to address opportunity costs, not just direct costs. Introduce income transfers to families to offset adolescent labor costs.
- **Infrastructure Investment:** Mandate adequate facilities (toilets, water, electricity) in all schools serving SC students. Establish menstrual hygiene management facilities specifically.
- **Discrimination Elimination:** Implement rigorous teacher training on caste sensitivity and inclusive pedagogy. Establish school-level grievance mechanisms with external accountability.
- **Enhanced Information Systems:** Establish village-level government representatives to disseminate scheme information. Simplify application processes. Use technology for scheme promotion.
- **Gender-Specific Interventions:** Address menarche-related educational discontinuation through school-based menstrual health programs. Ensure safe toilet facilities.
- **Intersectional Monitoring:** Collect and analyze educational data disaggregated by caste, gender, and economic status.

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