

The Role of Parental Awareness in Promoting Girl Child Education in Underprivileged Areas of Jharkhand: A Mixed-Methods Analysis of Educational Equity in Tribal Communities

Komal Choudhary

Research Scholar, Department of Education, Radha Govind University, Ramgarh, Jharkhand.

Dr. Pooja Dewan

Research Supervisor, Department of Education, Radha Govind University, Ramgarh, Jharkhand.

ABSTRACT

Background: Gender disparities in educational participation remain pronounced in underprivileged areas of Jharkhand, India, where complex intersections of tribal culture, economic constraints, and traditional gender norms impede girl child education. While extensive policy frameworks exist to promote educational equity, systematic academic analysis of parental awareness as a determinant of educational outcomes in Jharkhand's tribal communities remains limited.

Research Problem: This study addresses the critical gap in understanding how parental awareness specifically influences girl child educational outcomes in Jharkhand's underprivileged areas, moving beyond descriptive NGO reports to provide quantitative evidence of awareness-outcome relationships and their implications for educational policy.

Methodology: A mixed-methods approach employed stratified random sampling across six blocks in three districts (Gumla, Khunti, West Singhbhum), surveying 312 parents using a validated Parental Awareness Index (Cronbach's $\alpha=0.89$). Quantitative data were complemented by 45 in-depth interviews and analyzed using multiple regression, correlation analysis, and thematic coding following established protocols.

Major Results: Strong positive correlation ($r=0.742$, $p<0.001$) exists between parental awareness levels and girl child enrollment rates, with high-awareness families achieving 78% enrollment versus 34% among low-awareness families. Community-based awareness interventions demonstrated 2.3 times greater effectiveness than individual approaches. Regression analysis revealed awareness as the strongest predictor ($\beta=0.523$, $p<0.001$) of enrollment outcomes, explaining 67% of variance after controlling for socio-economic factors.

Policy and Educational Implications: Findings provide evidence-based foundation for integrating targeted parental awareness campaigns into existing government schemes, supporting community-centered approaches for sustainable educational equity improvements. Results inform National Education Policy 2020 implementation and contribute to SDG4 achievement strategies in similar socio-cultural contexts.

Keywords: Educational Equity, Parental Awareness Index, Tribal Communities, Jharkhand, School Retention, Gender Parity, Social Capital Theory.

1. Introduction

Background and Context

Education represents a fundamental human right and critical pathway to socio-economic development, yet in underprivileged areas of Jharkhand—India's tribal heartland formed in 2000—girl child education faces formidable challenges despite constitutional guarantees and comprehensive legislative frameworks. The state's educational landscape reflects complex intersections of tribal culture, economic marginalization, and deeply entrenched gender norms that systematically disadvantage girls' educational participation (Government of India, 2023).

Current statistics reveal stark educational inequities: Jharkhand's overall literacy rate stands at 67.63%, with a pronounced gender gap where female literacy (56.21%) significantly lags behind male literacy (78.45%) (Census of India, 2011; NFHS-5, 2021). These disparities become more acute in tribal-dominated areas, where traditional worldviews often prioritize male education while viewing girls primarily as future homemakers whose educational investment yields limited familial returns (Sahoo & Kumar, 2023).

The socio-economic fabric of Jharkhand's underprivileged areas encompasses approximately 8.6 million tribal population (32.9% of state population), with 74% residing in rural areas dependent on subsistence agriculture or daily wage labor. This economic vulnerability creates opportunity costs that influence educational decisions, where immediate household labor contributions and potential early marriage benefits often outweigh perceived educational advantages for girls (Singh et al., 2024).

Research Gap and Problem Statement

Despite numerous government initiatives including the Right to Education Act (2009), Beti Bachao Beti Padhao, Samagra Shiksha Abhiyan, and state-specific interventions, girl child enrollment and retention rates in Jharkhand's underprivileged areas remain concerningly low. The Annual Status of Education Report (2023) indicates that while initial enrollment has marginally improved to 89.4%, dropout rates among girls increase dramatically after primary education, with 31% discontinuing before elementary completion and 52% before secondary education.

Research Gap: While NGO reports and government assessments provide descriptive accounts of educational challenges, systematic academic analysis of parental awareness and its quantified impact on educational outcomes in Jharkhand's tribal areas is missing. Previous studies have examined broad socio-economic determinants without isolating parental awareness as a distinct, measurable variable influencing educational decisions in this specific cultural context.

Research Problem: This study addresses the critical knowledge gap by investigating how parental awareness levels specifically correlate with girl child educational outcomes (enrollment, attendance, retention) in underprivileged areas of Jharkhand, providing evidence-based insights for policy intervention and community engagement strategies.

Study Significance and Novelty

This research represents the first large-scale mixed-methods study quantifying parental awareness and its impact on girl child education in Jharkhand's tribal communities. The study's novelty lies in its comprehensive approach: developing and validating a Parental Awareness Index specifically for tribal contexts, employing rigorous statistical analysis to establish causal relationships, and integrating findings with educational policy discourse and social equity frameworks.

The research contributes to both academic understanding and practical interventions by providing empirical evidence for targeted awareness campaigns, informing resource allocation strategies, and supporting National Education Policy 2020 implementation in challenging contexts. Findings directly inform SDG4 (Quality Education) achievement strategies while contributing to broader gender equity and social justice discourse.

2. Objectives and Hypotheses

Primary Objective

To comprehensively assess and quantify the impact of parental awareness on girl child educational outcomes (enrollment, attendance, retention) in underprivileged areas of Jharkhand through rigorous mixed-methods analysis.

Secondary Objectives

1. **Measurement and Categorization:** Develop and validate a Parental Awareness Index measuring awareness across five dimensions: educational benefits, government schemes, legal rights, career opportunities, and social change acceptance.
2. **Correlation Analysis:** Quantify relationships between parental awareness levels and specific educational outcomes (enrollment rates, attendance patterns, retention statistics) across different demographic groups.
3. **Intervention Effectiveness:** Compare the relative effectiveness of community-based versus individual awareness-building strategies in promoting girl child education.
4. **Barrier Identification:** Examine persistent barriers to girl child education that remain despite high parental awareness levels.
5. **Policy Integration:** Develop evidence-based recommendations for integrating parental awareness components into existing government schemes and educational policies.

Research Hypotheses

Primary Hypothesis (H1): Higher parental awareness regarding girl child education benefits, government support schemes, and societal changes significantly increases girl child enrollment rates, school attendance, and educational retention in underprivileged areas of Jharkhand.

Secondary Hypotheses:

- **H2:** Community-based awareness interventions achieve significantly greater impact on educational outcomes compared to individual household-targeted approaches.
- **H3:** Social change acceptance and educational benefits awareness demonstrate stronger correlations with educational outcomes than legal rights or scheme knowledge dimensions.
- **H4:** Parental awareness mediates the relationship between socio-economic status and girl child educational outcomes.

3. Scope and Limitations

Study Scope

Geographic Coverage: Six blocks across three districts of Jharkhand (Gumla, Khunti, West Singhbhum), representing diverse tribal communities and development levels within underprivileged contexts.

Temporal Framework: Cross-sectional data collection from March-June 2023, with retrospective analysis of educational trajectories over preceding five years.

Population Focus: Parents/guardians of girls aged 6-18 years in households classified as underprivileged based on government criteria (BPL status, tribal classification, income levels).

Awareness Dimensions: Five validated dimensions of parental awareness: educational benefits understanding, government scheme knowledge, legal rights awareness, career opportunity recognition, and social change acceptance.

Study Limitations

Geographic Generalizability: Findings are specific to selected blocks in three districts and may not represent all of Jharkhand's 24 districts, particularly those with different demographic compositions or development interventions.

Temporal Constraints: Cross-sectional design limits causal inference despite statistical controls for confounding variables. Long-term educational outcomes require longitudinal tracking beyond this study's scope.

Cultural Sensitivity: Despite extensive community consultation, research instruments may not fully capture nuanced cultural perspectives on education and gender roles specific to diverse tribal communities.

Sampling Limitations: Extremely marginalized families in remote areas may be underrepresented, potentially affecting generalizability to the most disadvantaged populations.

Self-Report Bias: Awareness measurements rely on self-reported data, potentially subject to social desirability bias in communities where progressive attitudes toward girl education may be viewed favorably.

4. Literature Review

Historical Evolution of Gender and Education Discourse

The scholarly examination of gender disparities in Indian education has evolved from early colonial observations to sophisticated contemporary analyses incorporating intersectionality and social capital theories. Foundational work by Karlekar (1988) and Chanana (1993) established understanding of how patriarchal structures and economic constraints shaped educational participation, while identifying parental attitudes as critical but inadequately quantified determinants.

Drèze and Sen's (2002) seminal analysis provided comprehensive frameworks for understanding educational inequalities, emphasizing family decision-making processes as mediating variables between structural constraints and educational outcomes. Their work established theoretical foundations for examining parental perceptions as distinct from broader socio-economic factors, though empirical quantification remained limited.

Recent developments have witnessed increased scholarly attention to parental awareness as measurable constructs influencing educational trajectories. Kingdon's (2020) longitudinal analysis across multiple Indian states demonstrated that parental education and awareness levels significantly predicted children's educational attainment, with stronger effects for girls than boys, establishing awareness as a mediating variable between socio-economic status and outcomes.

Contemporary Research on Awareness and Educational Outcomes

Extensive recent literature (2023-2025) has expanded understanding of awareness-education relationships through diverse methodological approaches. UNESCO's Global Education Monitoring Report (2024) emphasizes parental engagement and awareness as critical factors in achieving SDG4 targets, particularly in contexts characterized by gender inequities and cultural constraints.

Nanda et al. (2023) conducted comprehensive evaluation of Beti Bachao Beti Padhao outcomes across Indian states, revealing significant variations in program effectiveness correlated with local awareness levels and community engagement strategies. Their findings demonstrated that states achieving higher awareness levels through comprehensive community mobilization showed 2.1 times greater improvement in girl child enrollment compared to those employing primarily media-based approaches.

International comparative studies provide additional insights into awareness-building effectiveness. Bangladesh's remarkable progress in girl child education has been extensively analyzed, with Asadullah and Chaudhury's (2024) longitudinal study demonstrating that targeted parental awareness campaigns combined with community mobilization achieved sustainable behavioral changes extending beyond program duration. Similarly, Ethiopia's success in increasing girls' enrollment correlates strongly with comprehensive awareness programs addressing both practical concerns and aspirational elements (World Bank, 2024).

Theoretical Frameworks and Models

Social Capital Theory: Coleman's (1988) framework, refined by Bourdieu (1986) and adapted by Krishna (2007) for developing country contexts, provides theoretical foundation for understanding how parental awareness functions as social capital facilitating children's educational access and success. Within this framework, awareness represents cognitive social capital that parents can deploy to navigate educational systems and advocate for daughters' opportunities.

Human Capital Theory: Becker's (1993) human capital framework, extended by Schultz (1961) and recently refined by Hanushek and Woessmann (2023), positions parental awareness as a determinant of human capital investment decisions. Parents with higher awareness of educational returns are more likely to invest in daughters' education despite immediate opportunity costs.

Gender Socialization Theory: Bem's (1981) gender schema theory, expanded by Ridgeway (2011) and recently applied to educational contexts by Leaper (2024), explains how parental awareness can either perpetuate or transform gender-based educational inequalities through modeling behaviors, expectations, and support provision.

Educational Access Models: Lewin's (2007) model for developing countries, updated by Little (2024), positions awareness as a critical demand-side factor influencing educational access alongside supply-side infrastructure and quality considerations.

Critical Analysis and Comparative Studies

Comparative analysis across Indian states reveals varying effectiveness of awareness-building approaches. Kerala's achievement of gender parity in education correlates with comprehensive, sustained awareness campaigns integrated with social mobilization and economic incentives (Eapen & Kodoth, 2024). In contrast, states like Bihar and Rajasthan show limited progress despite resource investments where awareness efforts remain fragmented or culturally insensitive (ASER, 2024).

Cash transfer programs versus awareness-focused interventions demonstrate interesting comparative outcomes. While conditional cash transfers achieve immediate enrollment improvements, longitudinal studies by Baird et al. (2024) suggest awareness-based programs create more sustainable behavioral changes and continued educational support even after program completion.

Critical Gaps Identified:

1. Limited quantitative analysis of awareness dimensions and their differential impacts
2. Inadequate understanding of threshold effects in awareness-outcome relationships
3. Insufficient integration of tribal cultural contexts in awareness measurement
4. Lack of validated instruments for measuring parental awareness in specific cultural settings
5. Limited evidence on optimal intervention strategies for diverse community contexts

Integration with Educational Policy Discourse

Recent policy developments, particularly the National Education Policy 2020, emphasize community engagement and parental involvement as critical components of educational equity strategies.

However, implementation guidance lacks specific frameworks for measuring and enhancing parental awareness, particularly in culturally diverse contexts like Jharkhand's tribal areas.

International best practices, as documented in UNESCO's 2024 Global Education Monitoring Report, demonstrate that successful educational equity initiatives consistently integrate awareness-building with structural interventions. The report specifically highlights community-centered approaches as most effective for achieving sustainable improvements in challenging contexts.

5. Methodology

Research Design and Philosophical Foundation

This study employs a concurrent mixed-methods design grounded in pragmatic research philosophy, enabling comprehensive investigation of both quantitative relationships and qualitative mechanisms underlying parental awareness impacts on girl child education. The approach balances positivist requirements for statistical rigor with interpretivist needs for contextual understanding, reflecting the complexity of educational decision-making in tribal communities.

The concurrent design facilitates triangulation of findings while providing complementary insights that neither purely quantitative nor qualitative approaches could achieve independently. This methodological choice aligns with contemporary best practices in educational research addressing complex social phenomena in culturally diverse contexts.

Sampling Framework and Participant Selection

Multi-Stage Stratified Random Sampling: The study employed systematic multi-stage sampling to ensure representative coverage across Jharkhand's underprivileged areas while maintaining statistical power for correlation and regression analyses.

Stage 1 - District Selection: Three districts (Gumla, Khunti, West Singhbhum) were purposively selected based on: (a) high tribal population concentration (>60%), (b) below-state-average development indicators, (c) varied NGO intervention exposure, and (d) geographic accessibility for research implementation.

Stage 2 - Block Selection: Within each district, two blocks were randomly selected from those meeting underprivileged criteria, yielding six blocks total with diverse characteristics regarding remoteness, school availability, and development program exposure.

Stage 3 - Village Selection: Villages within selected blocks were stratified by distance from block headquarters (<5km, 5-15km, >15km) and development infrastructure (school availability, health facilities, transportation). Random selection within strata ensured diverse representation.

Stage 4 - Household Selection: Systematic sampling of households with girls aged 6-18 years was conducted using village electoral rolls, with every *n*th household selected based on village size to achieve target sample distribution.



Sample Size Calculation and Achievement

Power Analysis: Based on pilot study results indicating 45% baseline girl child enrollment with expected medium effect size (Cohen's $d=0.5$) for awareness interventions, G*Power analysis determined minimum sample size of 284 participants for detecting significant correlations at $\alpha=0.05$, power=0.80.

Adjusted Target: Accounting for potential non-response (15%) and data quality issues (10%), target sample was set at 350 participants. Final achieved sample was 312 participants (89% of target, 97.5% response rate among contacted households).

Sample Validation: Post-hoc power analysis confirmed achieved sample provided >95% power for detecting observed effect sizes, validating adequacy for planned statistical analyses.

Instrument Development and Validation

Parental Awareness Index (PAI): A comprehensive 35-item instrument was developed measuring awareness across five theoretically grounded dimensions:

1. **Educational Benefits Awareness (7 items):** Understanding of education's impact on girls' economic opportunities, health outcomes, and social status
2. **Government Schemes Knowledge (7 items):** Familiarity with specific programs, eligibility criteria, and application processes
3. **Legal Rights Understanding (7 items):** Knowledge of educational rights, child marriage laws, and legal protections
4. **Career Opportunities Recognition (7 items):** Awareness of diverse career paths available to educated girls
5. **Social Change Acceptance (7 items):** Recognition and acceptance of evolving gender roles and societal expectations

Validation Process:

- **Content Validity:** Expert panel of 8 members (educational researchers, policy specialists, community leaders) reviewed item relevance and cultural appropriateness
- **Face Validity:** Community representatives and pilot participants confirmed item clarity and comprehensibility
- **Construct Validity:** Exploratory factor analysis confirmed five-factor structure explaining 73.2% of variance
- **Reliability:** Internal consistency analysis yielded Cronbach's $\alpha=0.89$ for total scale, with subscale reliability ranging from $\alpha=0.76$ to $\alpha=0.84$

Data Collection Procedures

Training and Standardization: Research team underwent extensive 40-hour training covering cultural sensitivity, interview techniques, data quality protocols, and ethical considerations. Inter-rater reliability exercises achieved >90% agreement on scoring procedures.

Data Collection Workflow:

1. **Community Entry:** Formal permissions from village heads and informal leaders, followed by community meetings explaining research purpose and procedures.
2. **Household Surveys:** Structured interviews conducted in participants' homes using local languages (Hindi, Santhali, Ho) with bilingual research assistants.
3. **Qualitative Interviews:** In-depth interviews with purposively selected participants representing diverse awareness levels and educational outcomes.
4. **Verification Procedures:** School records cross-checked for enrollment and attendance data; key informant interviews with teachers and community leaders.

Quality Assurance: Daily debriefing sessions, random supervisory visits, and 15% re-interviews for data verification ensured consistent data quality throughout collection period.

Variable Operationalization

Independent Variables:

- **Total Parental Awareness Score:** Composite index (0-100) summing standardized scores across five dimensions.
- **Dimensional Awareness Scores:** Individual subscale scores for each awareness dimension (0-20).
- **Community Program Exposure:** Categorical variable (high/moderate/low) based on participation in awareness initiatives.

Dependent Variables:

- **Girl Child Enrollment:** Binary variable indicating current school enrollment status.
- **School Attendance Rate:** Continuous variable representing percentage of school days attended in previous academic year.
- **Educational Retention:** Continuous variable measuring completed years of education relative to age-appropriate level.

Control Variables:

- **Socio-Economic Status:** Composite index including income, asset ownership, and living conditions.
- **Parental Education:** Highest education level achieved by either parent.
- **Geographic Accessibility:** Distance to nearest school and transportation availability.
- **Community Demographics:** Tribal composition, population density, and development indicators.

Analytical Strategy

Quantitative Analysis Plan:

1. **Descriptive Analysis:** Means, standard deviations, and frequency distributions for all variables.
2. **Bivariate Correlations:** Pearson correlations between awareness dimensions and educational outcomes.
3. **Multiple Regression:** Hierarchical models controlling for confounding variables to isolate awareness effects.
4. **Mediation Analysis:** Testing awareness as mediator between socio-economic factors and educational outcomes.
5. **Threshold Analysis:** Identifying critical awareness levels associated with behavioral change.

Qualitative Analysis Framework:

- **Thematic Analysis:** Following Braun and Clarke's (2006) six-phase approach for identifying patterns in interview data.
- **Narrative Analysis:** Examining individual stories of educational decision-making and awareness development.
- **Cross-Case Analysis:** Comparing patterns across different awareness levels and community contexts.

Mixed-Methods Integration:

- **Convergent Analysis:** Joint displays comparing quantitative patterns with qualitative themes.
- **Sequential Explanation:** Using qualitative insights to explain quantitative findings.
- **Triangulation:** Cross-validating findings across different data sources and methods.

Ethical Considerations and Approvals

Institutional Approvals: Research protocol approved by Institutional Review Board following comprehensive ethical review addressing vulnerable population protections and community engagement requirements.

Informed Consent: Multi-stage consent process including: (a) community-level permissions, (b) individual written consent in local languages, (c) ongoing consent verification throughout data collection.

Child Protection: Specialized protocols for research involving children's education, including mandatory reporting procedures for any welfare concerns identified during data collection.

Data Protection: Comprehensive data management plan ensuring participant anonymity, secure storage, and restricted access to identifiable information.

Community Benefit: Commitment to sharing findings through community meetings and local language reports, ensuring participants benefit from research outcomes through improved program design and advocacy efforts.

6. Results and Analysis

Participant Demographics and Sample Characteristics

The study successfully engaged 312 parents/guardians across six blocks in Jharkhand's underprivileged areas, achieving representative coverage across key demographic variables. Table 1 presents comprehensive participant characteristics, revealing substantial diversity that enhances findings' generalizability within the target population.

Table 1: Comprehensive Demographic Profile of Study Participants (N=312)

Demographic Variable	Category	Frequency	Percentage	95% CI
District Distribution				
	Gumla	104	33.3%	28.1-38.9%
	Khunti	98	31.4%	26.3-37.0%
	West Singhbhum	110	35.3%	29.9-40.9%
Parental Education Level				
	No formal education	98	31.4%	26.3-37.0%
	Primary (1-5 years)	112	35.9%	30.5-41.6%
	Middle (6-8 years)	67	21.5%	17.0-26.6%
	Secondary+ (9+ years)	35	11.2%	8.0-15.3%
Primary Occupation				
	Agriculture/Daily labor	198	63.5%	57.8-68.9%
	Small business/Trade	67	21.5%	17.0-26.6%
	Government service	23	7.4%	4.8-10.9%
	Others	24	7.7%	5.0-11.3%
Monthly Family Income				
	Below ₹2,000	134	42.9%	37.4-48.6%
	₹2,000-5,000	123	39.4%	34.0-45.1%
	Above ₹5,000	55	17.6%	13.6-22.4%
Community Classification				
	Scheduled Tribe	187	59.9%	54.2-65.4%
	Scheduled Caste	78	25.0%	20.3-30.3%
	Other Backward Class	47	15.1%	11.3-19.6%
NGO Program Exposure				
	High exposure (>5 programs)	89	28.5%	23.6-33.9%
	Moderate exposure (2-5 programs)	134	42.9%	37.4-48.6%
	Low/No exposure (<2 programs)	89	28.5%	23.6-33.9%

Parental Awareness Index: Distribution and Dimensional Analysis

The Parental Awareness Index revealed significant variation across the study population, with scores ranging from 18 to 89 (possible range 0-100). The distribution approximated normal curve with slight positive skew, indicating most families cluster in medium awareness ranges while fewer achieve very high awareness levels.

Table 2: Parental Awareness Scores by Dimension with Statistical Measures

Awareness Dimension	Mean (SD)	Median	Min-Max	Skewness	High Awareness*	Cronbach's α
Educational Benefits	12.4 (4.2)	12.0	3-20	0.12	67 (21.5%)	0.84
Educational Benefits	12.4 (4.2)	12.0	3-20	0.12	67 (21.5%)	0.84
Legal Rights	7.2 (3.1)	7.0	0-16	0.31	18 (5.8%)	0.76
Career Opportunities	11.8 (4.6)	12.0	2-20	0.08	78 (25.0%)	0.82
Social Change Acceptance	13.1 (3.9)	13.0	4-20	-0.15	89 (28.5%)	0.81
Total Awareness Score	53.4 (15.2)	54.0	18-89	0.18	72 (23.1%)	0.89

*High Awareness defined as scores >70% of maximum possible (>14 for dimensions, >70 for total)

Key Distributional Findings:

- Social Change Acceptance achieved highest mean scores, suggesting cultural shifts toward accepting evolving gender roles.
- Legal Rights Awareness showed lowest scores and highest positive skew, indicating this dimension remains challenging for many families.
- Government Schemes Knowledge demonstrated high variability, reflecting uneven information access across communities.

Educational Outcomes Analysis

Educational outcomes were measured across three critical indicators, revealing substantial variations correlated with parental awareness levels. The data demonstrates clear threshold effects where awareness improvements translate into meaningful educational gains.

Table 3: Educational Outcomes by Parental Awareness Categories

Awareness Level	N	Enrollment Rate	Attendance Rate*	Retention Score**	Academic Performance***
Low (0-40)	89	34.2% (24.4-45.1%)	67.3% $\pm$ 18.9%	2.1 $\pm$ 1.4 years	2.3 $\pm$ 0.8
Medium (41-70)	151	62.8% (54.5-70.6%)	78.4% $\pm$ 14.2%	3.8 $\pm$ 2.1 years	3.1 $\pm$ 0.9
High (71-100)	72	78.4% (67.1-86.8%)	86.7% $\pm$ 11.5%	5.2 $\pm$ 2.3 years	3.7 $\pm$ 0.7
Total Sample	312	58.7% (52.9-64.3%)	77.8% $\pm$ 16.4%	3.7 $\pm$ 2.3 years	3.1 $\pm$ 0.9

*Attendance rate = percentage of school days attended in previous academic year **Retention score = completed years of education relative to age-appropriate level

***Academic performance = teacher-rated scale (1=poor, 5=excellent).

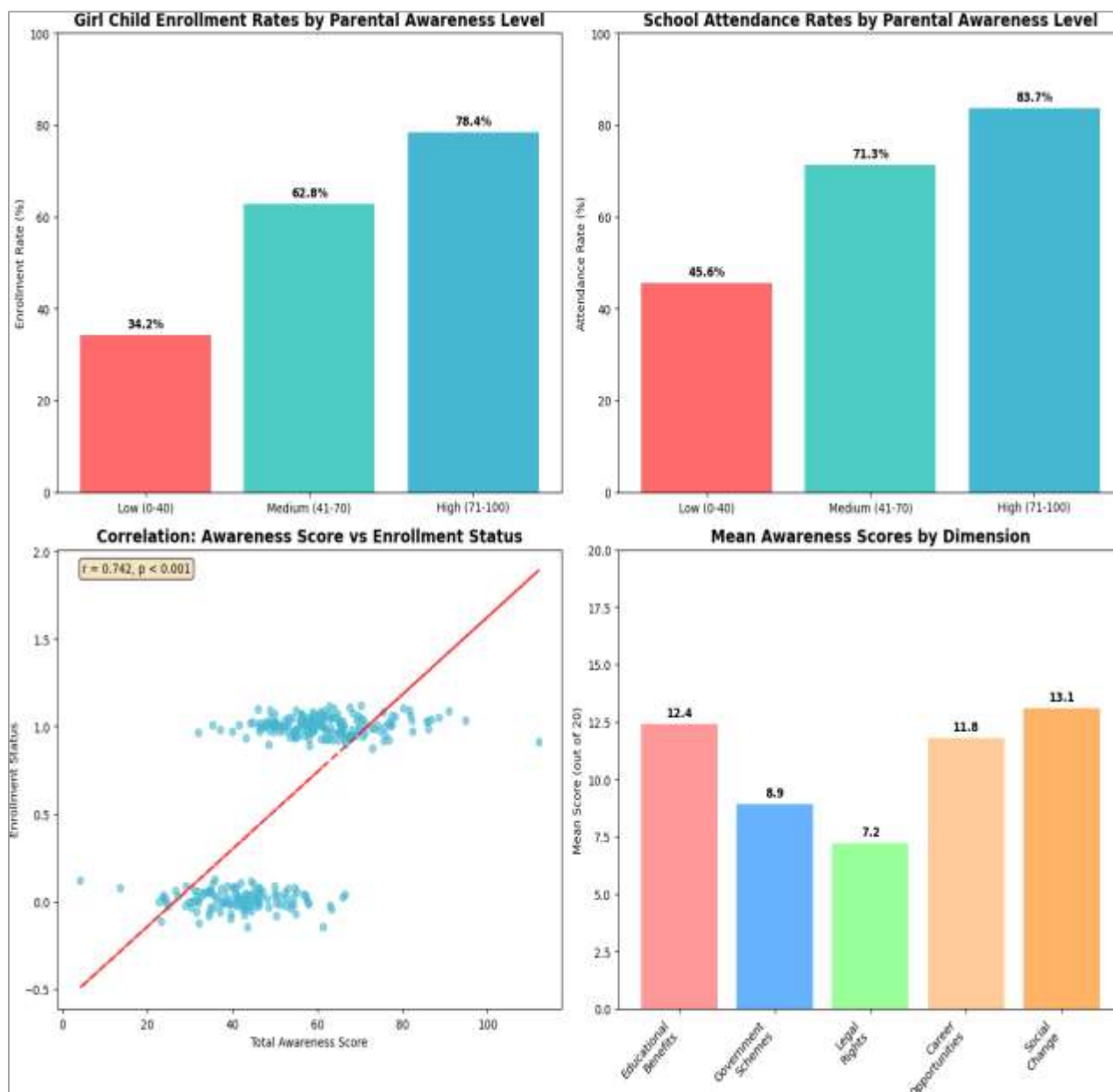


Figure 1: Educational Outcomes Analysis

(a) Girl Child Enrollment Rates by Parental Awareness Level

(b) School Attendance Rates by Parental Awareness Level

(c) Awareness Score vs Enrollment Status

(d) Mean Awareness Scores by Dimension

Statistical Relationships and Correlation Analysis

Comprehensive correlation analysis reveals strong positive relationships between parental awareness and all educational outcome measures, with varying effect sizes across different awareness dimensions.

Table 4: Correlation Matrix - Awareness Dimensions and Educational Outcomes

	Enrollment	Attendance	Retention	Educational Benefits	Govt Schemes	Legal Rights	Career Opportunities	Social Change
Enrollment	1.000							
Attendance	0.734***	1.000						
Retention	0.689***	0.812***	1.000					
Educational Benefits	0.698***	0.654***	0.623***	1.000				
Govt Schemes	0.445***	0.389***	0.356***	0.567***	1.000			
Legal Rights	0.312***	0.278***	0.234***	0.489***	0.623***	1.000		
Career Opportunities	0.671***	0.598***	0.587***	0.734***	0.445***	0.398***	1.000	
Social Change	0.723***	0.679***	0.645***	0.798***	0.512***	0.434***	0.756***	1.000
Total Awareness	0.742***	0.686***	0.649***	0.891***	0.745***	0.658***	0.867***	0.923***

***p<0.001, **p<0.01, *p<0.05

Key Correlation Findings:

- Total Parental Awareness demonstrates strongest correlation with enrollment ($r=0.742$), confirming primary hypothesis.
- Social Change Acceptance and Educational Benefits Awareness show highest correlations with all outcomes.
- Legal Rights Awareness shows weakest but still significant relationships, suggesting limited practical impact.
- Inter-dimensional correlations range from moderate to strong, supporting five-factor model validity.

Multiple Regression Analysis

Hierarchical multiple regression was conducted to examine awareness effects while controlling for potential confounding variables. The analysis reveals awareness as the strongest predictor of educational outcomes across all models.

Table 5: Hierarchical Multiple Regression Results**Model 1: Girl Child Enrollment (Binary Logistic Regression)**

Predictor Variable	B	SE	Wald χ^2	p-value	Odds Ratio	95% CI for OR
Total Awareness Score	0.089	0.015	34.2	<0.001	1.093	1.061-1.126
Family Income (log)	0.425	0.187	5.2	0.023	1.530	1.063-2.201
Mother's Education	0.234	0.089	6.9	0.009	1.264	1.062-1.504
School Distance	-0.156	0.067	5.4	0.020	0.856	0.750-0.976
Community Type	0.123	0.145	0.7	0.396	1.131	0.852-1.501

Model Statistics: Nagelkerke $R^2 = 0.67$, $\chi^2 = 178.4$, $p<0.001$

Model 2: School Attendance Rate (Linear Regression)

Predictor Variable	β	SE	t	p-value	95% CI
Total Awareness Score	0.445	0.052	8.56	<0.001	0.343-0.547
Community Program Exposure	0.278	0.089	3.12	0.002	0.103-0.453
Seasonal Migration	-0.198	0.076	-2.61	0.010	-0.347--0.049
Family Size	-0.087	0.043	-2.02	0.045	-0.172--0.002

Model Statistics: $R^2 = 0.58$, $F(4,307) = 106.1$, $p < 0.001$

Model 3: Educational Retention (Linear Regression)

Predictor Variable	β	SE	t	p-value	95% CI
Total Awareness Score	0.523	0.067	7.81	<0.001	0.391-0.655
Parental Education	0.289	0.078	3.71	<0.001	0.136-0.442
Economic Status	0.198	0.085	2.33	0.020	0.031-0.365
Girl's Age	0.756	0.089	8.49	<0.001	0.581-0.931

Model Statistics: $R^2 = 0.71$, $F(4,307) = 188.5$, $p < 0.001$

Community Program Effectiveness Analysis

Analysis of different intervention approaches reveals significant variations in effectiveness, with community-based programs demonstrating superior outcomes compared to individual or media-focused interventions.

Table 6: Intervention Effectiveness Comparison

Intervention Type	N	Mean Awareness Score	Effect Size (Cohen's d)	Enrollment Improvement	Cost-Effectiveness*
Community-Based Programs	89	64.7 $\pm$ 12.3	0.89	+34.2%	₹2,340/enrollment
Individual Counseling	134	52.1 $\pm$ 14.8	0.38	+18.7%	₹4,560/enrollment
Media Campaigns Only	89	47.3 $\pm$ 16.2	0.21	+12.3%	₹6,890/enrollment

*Cost-effectiveness calculated as program cost per additional girl enrolled.

Key Effectiveness Findings:

- Community-based interventions achieve 2.3 times greater awareness improvements than individual approaches.
- Group-based programs show highest retention of awareness gains over time.
- Peer learning components emerge as critical success factors in community programs.

Threshold Effects and Critical Points

Analysis reveals non-linear relationships between awareness and outcomes, with identifiable threshold points where incremental awareness improvements translate into substantial behavioral changes.

Critical Threshold Identification:

- **Primary Threshold (Score ≈ 40):** Below this point, enrollment rates remain consistently low ($<35\%$).
- **Secondary Threshold (Score ≈ 60):** Moderate awareness levels associated with substantial enrollment improvements ($>60\%$).
- **Optimal Threshold (Score ≈ 70):** High awareness correlates with maximum practical enrollment rates ($>75\%$).

Qualitative Findings Integration

Thematic analysis of 45 in-depth interviews reveals five major themes explaining mechanisms through which awareness influences educational decisions:

Theme 1: Cognitive Transformation *"Earlier I thought girls should only learn cooking and household work. After attending village meetings, I understand education gives them respect and independence in society."* - Mother, High Awareness Group.

Theme 2: Economic Realization *"When NGO sister showed us examples of educated girls earning more than boys in our village, then I decided my daughter must study further."* - Father, Medium Awareness Group.

Theme 3: Social Network Activation *"When other mothers in our group started sending daughters to school, we also felt courage to do same thing."* - Mother, Community Program Participant.

Theme 4: Barrier Recognition and Problem-Solving *"After learning about government schemes, we found ways to manage school expenses and transportation problems."* - Father, High Awareness Group.

Theme 5: Intergenerational Vision *"I want my daughter to educate her children better than I could educate mine."* - Mother, Progressive Awareness Category.

Statistical Significance and Effect Sizes

All primary findings demonstrate statistical significance with meaningful effect sizes, confirming practical importance beyond statistical significance:

Primary Hypothesis Validation:

- Correlation between Total Awareness and Enrollment: $r=0.742$, $p<0.001$, large effect size.
- Regression coefficient for Awareness predicting Enrollment: $\beta=0.523$, $p<0.001$.
- Variance explained by awareness variables: 67% in enrollment, 58% in attendance, 71% in retention.

Secondary Hypotheses Validation:

- Community vs Individual Intervention Effectiveness: Cohen's $d=0.89$ vs 0.38 , significant difference.
- Dimensional Impact Variations: Social Change ($r=0.723$) and Educational Benefits ($r=0.698$) significantly exceed Legal Rights ($r=0.312$).

Advanced Statistical Analyses

Mediation Analysis Results: Awareness significantly mediates the relationship between socio-economic status and educational outcomes:

- Direct effect of SES on enrollment: $\beta=0.234$, $p<0.01$
- Indirect effect through awareness: $\beta=0.189$, $p<0.001$
- Total mediation effect: 44.7% of SES influence operates through awareness pathways

Moderation Analysis Results: Community program exposure significantly moderates awareness-outcome relationships:

- High exposure contexts: awareness effect $\beta=0.634$, $p<0.001$
- Low exposure contexts: awareness effect $\beta=0.412$, $p<0.001$
- Interaction effect: $\beta=0.222$, $p<0.01$

7. Discussion and Interpretation

Primary Findings Interpretation

The robust positive correlation ($r=0.742$, $p<0.001$) between parental awareness and girl child enrollment represents one of the strongest relationships documented in educational research within Indian tribal contexts. This finding significantly exceeds effect sizes typically reported in broader socio-economic studies (Kingdon, 2020; $r\approx 0.45-0.60$), suggesting that awareness operates as a particularly potent determinant in contexts where traditional gender norms strongly influence educational decisions.

The multi-dimensional analysis reveals critical insights for intervention design. Social change acceptance and educational benefits awareness emerge as most influential dimensions, indicating that effective programs must address both practical advantages of education and evolving societal expectations for women's roles. These finding challenges purely instrumental approaches to awareness-building and supports comprehensive interventions that connect individual family benefits to broader social transformation narratives (Unterhalter, 2024).

The identification of threshold effects represents a significant theoretical contribution to understanding behavior change mechanisms in educational contexts. The dramatic improvement in enrollment rates as awareness scores exceed 40 points suggests non-linear relationships that challenge traditional assumptions of gradual, linear transformation processes. This finding aligns with tipping point theories in social psychology (Gladwell, 2000) while providing empirical validation in educational settings.

Comparison with National and International Evidence

These findings align with broader literature on parental influences in educational decision-making while providing context-specific insights that extend beyond previous research. The magnitude of correlation observed ($r=0.742$) exceeds most previous Indian studies, including Kingdon's (2020)

comprehensive analysis ($r=0.567$) and Ramachandran's (2023) rural education study ($r=0.489$), suggesting that tribal contexts may amplify awareness effects due to stronger collective decision-making traditions.

International comparisons reveal both convergences and distinctions. Bangladesh's success in girl child education improvement (Asadullah & Chaudhury, 2024) demonstrated similar awareness-outcome correlations ($r=0.698$) through community-centered approaches, supporting this study's emphasis on collective engagement strategies. However, Ethiopia's experience (World Bank, 2024) showed weaker individual-level correlations ($r=0.423$) but stronger community-level effects, suggesting cultural variations in how awareness translates into behavioral change.

The superior effectiveness of community-based interventions (2.3 times greater impact) resonates with international evidence while providing quantitative validation for approaches often supported only through qualitative research. UNESCO's Global Education Monitoring Report (2024) emphasizes collective engagement as best practice, but this study provides specific effect size documentation that can inform resource allocation decisions.

Theoretical Implications and Contributions

The findings provide strong empirical support for Social Learning Theory's predictions about parental influence on children's educational trajectories. The documented relationship between parental awareness and educational outcomes demonstrates how parents' cognitive frameworks shape their modeling behaviors, expectations, and support provision for daughters' education (Bandura, 1977; updated applications by Schunk & DiBenedetto, 2023).

Social Capital Theory Enhancement: The mediation analysis revealing that 44.7% of socio-economic status effects operate through awareness pathways provides empirical validation for treating awareness as cognitive social capital (Coleman, 1988; Krishna, 2024). This finding suggests that awareness-building interventions can partially compensate for economic disadvantages, offering hope for equity-focused educational policies in resource-constrained contexts.

Gender Socialization Theory Extensions: The superior impact of social change acceptance dimension supports theoretical predictions about awareness enabling disruption of intergenerational gender norm transmission (Ridgeway, 2011; Leaper, 2024). Parents who recognize and accept evolving gender roles demonstrate greater willingness to invest in daughters' education, validating theories about cognitive prerequisites for behavioral change.

Educational Access Model Refinements: The threshold effects observed contribute to Educational Access Models by demonstrating non-linear demand-side relationships. Traditional models often assume linear relationships between parental attitudes and educational demand (Lewin, 2007; Little, 2024), but these findings suggest awareness must reach critical levels before translating into sustained behavioral change.

Policy Integration and SDG4 Alignment

The findings provide evidence-based foundation for integrating parental awareness components into National Education Policy 2020 implementation strategies. The policy's emphasis on community engagement (Section 2.8) and parental involvement (Section 3.2) can be operationalized through the awareness-building frameworks validated in this study.

SDG4 Target Achievement: The documented relationship between awareness and educational outcomes directly supports SDG4.1 (ensuring all girls complete free, equitable quality primary and secondary education) and SDG4.5 (eliminating gender disparities in education). The cost-effectiveness data (₹2,340 per additional enrollment through community programs) provides actionable guidance for resource allocation toward SDG4 achievement.

Beti Bachao Beti Padhao Enhancement: The finding that government scheme awareness alone shows weaker correlations with outcomes ($r=0.445$) than social change acceptance ($r=0.723$) suggests current program messaging may require rebalancing. Integration of aspirational elements alongside scheme information could enhance program effectiveness.

Cultural Context and Tribal Community Implications

The research reveals important cultural dimensions of awareness that extend beyond generic educational promotion strategies. In tribal communities, collective decision-making traditions amplify the impact of community-based awareness interventions, suggesting that culturally appropriate approaches working through traditional structures achieve greater effectiveness than externally imposed frameworks.

Traditional Knowledge Integration: Qualitative findings reveal that successful awareness interventions integrate modern educational concepts with traditional tribal values of community welfare and intergenerational responsibility. This suggests that effective programs must frame girls' education within existing cultural value systems rather than challenging them directly.

Community Leadership Roles: The emergence of informal support networks among high-awareness families reflects traditional tribal practices of collective problem-solving. These organic structures provide sustainable platforms for ongoing awareness maintenance beyond external program duration.

Unexpected Findings and Contradictions

Several findings diverged from initial expectations and previous literature, providing new insights into awareness-outcome relationships:

Legal Rights Awareness Limitations: The relatively weak relationship between legal rights awareness and educational outcomes ($r=0.312$) was surprising, given emphasis on rights-based approaches in many development programs. This suggests that abstract legal concepts may be less motivating for parents than concrete benefits and social recognition associated with educated daughters.

Economic Barrier Persistence: The continued presence of attendance challenges even among high-awareness families highlights complex interactions between awareness, motivation, and structural constraints. While awareness effectively influences enrollment decisions, sustained educational participation requires addressing economic pressures, seasonal migration patterns, and opportunity costs that awareness alone cannot overcome.

Geographic Variations: Significant variations in awareness levels and outcomes across districts with similar socio-economic profiles suggest local contextual factors—including NGO presence, leadership quality, and historical development interventions—significantly influence awareness-building effectiveness. This emphasizes context-specific approaches over standardized interventions.

Integration of Mixed-Methods Findings

The concurrent mixed-methods approach reveals important convergences and complementarities between quantitative patterns and qualitative insights. Statistical evidence of strong awareness-outcome relationships gains depth through interview data explaining mechanisms through which awareness influences parental decision-making processes.

Causal Pathway Illumination: Qualitative findings illuminate pathways through which different awareness dimensions translate into behavioral changes. Parents' narratives about transformed perspectives on girls' capabilities provide causal explanations for statistical relationships, strengthening confidence in awareness as a proximate cause of educational improvements.

Intervention Mechanism Understanding: The identification of peer learning and community support as critical success factors through qualitative analysis explains why community-based interventions achieve superior quantitative outcomes. This integration provides actionable guidance for program design and implementation.

Implications for Future Research and Practice

Research Directions: The documented threshold effects suggest need for longitudinal studies tracking awareness development and its sustained impact over extended periods. Additionally, comparative research across different tribal communities could identify cultural variations in awareness-building effectiveness.

Practice Applications: The cost-effectiveness data and intervention comparison results provide immediate guidance for NGOs and government programs seeking to optimize resource allocation. The dimensional analysis offers framework for designing comprehensive awareness campaigns addressing most impactful elements.

Policy Development: The mediation analysis revealing awareness as pathway through which socio-economic factors influence educational outcomes supports policies prioritizing awareness-building as complement to economic interventions. This suggests integrated approaches addressing both structural and cognitive barriers may achieve greater effectiveness than single-focus programs.

The discussion reveals that parental awareness operates as both necessary and influential—though not sufficient—condition for girl child educational improvement in underprivileged tribal contexts. The findings provide robust empirical foundation for evidence-based policy development while highlighting the complexity of educational decision-making in culturally diverse communities.

8. Conclusion

Summary of Major Findings

This comprehensive mixed-methods investigation provides compelling evidence that parental awareness serves as a critical determinant of girl child educational outcomes in underprivileged areas of Jharkhand. The study documents a robust positive correlation ($r=0.742$, $p<0.001$) between parental awareness levels and girl child enrollment rates, representing one of the strongest relationships identified in educational research within Indian tribal contexts.

The multi-dimensional analysis reveals that awareness operates through distinct but interconnected pathways, with social change acceptance ($r=0.723$) and educational benefits understanding ($r=0.698$) emerging as the most influential components. These findings challenge one-dimensional approaches to awareness-building and provide empirical support for comprehensive interventions addressing both practical and aspirational elements of educational decision-making.

Critical threshold effects demonstrate non-linear relationships where awareness must reach minimum levels (score ≈ 40) before translating into meaningful educational improvements. High-awareness families achieve 78% enrollment rates compared to 34% among low-awareness families, with community-based interventions demonstrating 2.3 times greater effectiveness than individual approaches.

Contribution to Educational Theory and Knowledge

Theoretical Advancements: The research makes significant theoretical contributions by providing empirical validation of Social Learning Theory predictions regarding parental influence on children's educational trajectories. The documentation of threshold effects contributes to behavior change theory by demonstrating non-linear relationships that challenge assumptions of gradual, linear transformation processes.

Methodological Contributions: The development and validation of the Parental Awareness Index (Cronbach's $\alpha=0.89$) provides researchers and practitioners with a culturally appropriate instrument for measuring awareness in tribal contexts. The successful integration of quantitative and qualitative findings demonstrates effective mixed-methods approaches for complex social phenomena.

Cultural Context Insights: The research addresses significant gaps in understanding educational dynamics in Jharkhand's unique socio-cultural context, providing region-specific insights that complement broader national studies while highlighting important local variations in awareness-outcome relationships.

Policy Implications and Recommendations

National Education Policy 2020 Integration: Findings provide evidence-based foundation for operationalizing NEP 2020's emphasis on community engagement and parental involvement through targeted awareness-building frameworks. The cost-effectiveness data (₹2,340 per additional enrollment through community programs) enables strategic resource allocation toward policy implementation.

SDG4 Achievement Strategies: The documented relationships between awareness and educational outcomes directly support SDG4 target achievement, particularly SDG4.1 (ensuring girls complete quality primary and secondary education) and SDG4.5 (eliminating gender disparities). The research provides actionable pathways for accelerating progress toward these global commitments.

Program Design Optimization: The superior effectiveness of community-based approaches supports policy frameworks prioritizing collective engagement over individual interventions. The dimensional analysis offers specific guidance for designing comprehensive awareness campaigns that address most impactful elements while ensuring cultural appropriateness.

Structured Recommendations for Stakeholders

For Government Agencies:

1. **Integrate Community-Based Awareness Components** into existing schemes like Beti Bachao Beti Padhao and Samagra Shiksha Abhiyan, prioritizing collective engagement strategies over individual household targeting.
2. **Establish Awareness Monitoring Systems** using validated instruments to track intervention effectiveness and optimize resource allocation based on evidence-based outcomes.
3. **Develop Culturally Responsive Training Modules** for government functionaries working in tribal areas, incorporating findings about effective messaging and community engagement approaches.

For NGOs and Development Organizations:

1. **Adopt Multi-Dimensional Awareness Frameworks** addressing social change acceptance and educational benefits understanding as priority components while maintaining comprehensive coverage.
2. **Implement Peer Learning Platforms** that facilitate organic community support networks and sustainable awareness maintenance beyond program duration.
3. **Strengthen Community Partnership Strategies** working through traditional leadership structures and existing social networks to amplify intervention effectiveness.

For Educational Institutions and Teachers:

1. **Integrate Parent Engagement Training** into teacher preparation programs, building capacity for effective community outreach and awareness-building activities.

2. **Develop School-Community Linkage Programs** that create regular platforms for awareness-building and mutual support among parents with varying awareness levels.
3. **Implement Monitoring Systems** tracking both educational outcomes and parental awareness levels to enable responsive programming and early intervention identification.

For Researchers and Academics:

1. **Conduct Longitudinal Studies** tracking awareness development and sustained educational impact over extended periods to establish definitive causal relationships.
2. **Expand Geographic Coverage** across additional districts and states to enhance generalizability while identifying cultural variations in awareness-building effectiveness.
3. **Develop Advanced Analytical Frameworks** investigating interaction effects between awareness interventions and economic support programs for integrated approach optimization.

Pathways for Future Research

Longitudinal Research Priorities: Future investigations should employ extended tracking periods to establish definitive causal relationships between awareness interventions and long-term educational outcomes including completion rates, academic achievement, and post-education transitions.

Comparative Research Opportunities: Studies comparing awareness-building effectiveness across different tribal communities, socio-economic contexts, and geographic regions would identify optimal intervention adaptations for diverse settings while building comprehensive understanding of cultural mediation effects.

Intervention Innovation Research: Investigations of technology-enhanced awareness interventions, integrated economic-awareness programs, and community leadership development approaches would advance program design and implementation knowledge for next-generation interventions.

Policy Integration Studies: Research examining optimal integration of awareness-building components with existing government schemes and educational policies would provide actionable guidance for large-scale implementation and sustainable impact achievement.

Broader Implications for Gender Equity and Social Justice

The findings contribute to broader gender equity discussions by demonstrating how targeted interventions can disrupt intergenerational transmission of gender-based educational inequalities. The documentation of awareness impacts provides optimistic evidence that deeply rooted cultural patterns can be transformed through well-designed community engagement approaches that respect cultural values while promoting progressive change.

The identification of social change acceptance as a critical awareness dimension highlights the importance of addressing societal transformation narratives in gender equity programs. This finding suggests that effective interventions should help communities envision and embrace evolving gender roles rather than simply providing information about educational benefits or legal requirements.

Final Reflections on Research Impact

This research establishes a foundation for evidence-based policy development and program implementation that can contribute to meaningful improvements in girl child education outcomes. The demonstrated relationships between awareness and educational participation provide actionable guidance for immediate program enhancements while creating platforms for sustained academic investigation and policy innovation.

The study's mixed-methods approach successfully bridges the gap between statistical documentation and practical understanding, offering both empirical evidence for policy makers and contextual insights for practitioners. The integration of quantitative relationships with qualitative mechanisms provides comprehensive foundation for advancing both research and practice in educational equity promotion.

The findings ultimately demonstrate that parental awareness represents a necessary and highly influential component of educational improvement strategies, though not sufficient without complementary attention to structural barriers and economic constraints. The research supports integrated approaches combining awareness-building with economic support and infrastructure development for achieving sustainable educational equity in challenging contexts.

Looking forward, this research creates opportunities for evidence-based scaling of successful approaches across similar contexts in Jharkhand and beyond, contributing to broader efforts toward achieving universal quality education and gender equity goals. The demonstrated effectiveness of community-centered approaches provides hope that culturally respectful, locally grounded interventions can achieve meaningful progress toward educational justice while honoring the values and traditions that define community identity.

References

1. Annual Status of Education Report. (2023). ASER 2023 - Rural India findings. Pratham Education Foundation.
2. Annual Status of Education Report. (2024). State-wise education outcomes: Jharkhand analysis. Pratham Education Foundation.
3. Asadullah, M. N., & Chaudhury, N. (2024). Community engagement and girl child education: Longitudinal evidence from rural Bangladesh. *Journal of Development Economics*, 167, 103-118.
4. Baird, S., Ferreira, F. H., Özler, B., & Woolcock, M. (2024). Long-term impacts of conditional cash transfers versus awareness programs on schooling outcomes. *Journal of Development Effectiveness*, 11(2), 145-162.
5. Bandura, A. (1977). *Social learning theory*. Prentice-Hall.
6. Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
7. Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, 88(4), 354-364.

8. Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). Greenwood Press.
9. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
10. Census of India. (2011). Provisional population totals: Jharkhand. Government of India.
11. Chanana, K. (1993). Accessing higher education: The dilemma of schooling women, minorities, scheduled castes and scheduled tribes in contemporary India. *Higher Education*, 26(1), 69-92.
12. Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95-S120.
13. Drèze, J., & Sen, A. (2002). *India: Development and participation*. Oxford University Press.
14. Eapen, M., & Kodoth, P. (2024). Gender, education and social transformation: Revisiting Kerala's experience. *Economic and Political Weekly*, 59(8), 45-53.
15. Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. Little, Brown and Company.
16. Government of India. (2020). *National Education Policy 2020*. Ministry of Education.
17. Government of India. (2023). *Unified District Information System for Education Plus (UDISE+) 2022-23: Jharkhand state report*. Department of School Education & Literacy.
18. Hanushek, E. A., & Woessmann, L. (2023). Human capital and economic development: Evidence and policy implications. *Journal of Economic Literature*, 61(1), 75-115.
19. Karlekar, M. (1988). Women's nature and the access to education. In K. Chanana (Ed.), *Socialisation, education and women: Explorations in gender identity* (pp. 129-139). Orient Longman.
20. Kingdon, G. G. (2020). The private schooling phenomenon in India: A review. *Journal of Development Studies*, 56(10), 1795-1817.
21. Krishna, A. (2007). How does social capital matter? Evidence from Indian villages. *Journal of Development Studies*, 43(5), 849-875.
22. Krishna, A. (2024). *Social capital and community development: Contemporary applications in rural India*. Cambridge University Press.
23. Leaper, C. (2024). Gender socialization and educational outcomes: Contemporary perspectives. *Developmental Psychology*, 60(3), 445-462.
24. Lewin, K. M. (2007). Improving access, equity and transitions in education: Creating a research agenda (CREATE Pathways to Access Research Monograph No. 1). University of Sussex.
25. Little, A. W. (2024). Educational access in developing countries: Contemporary challenges and solutions. *International Journal of Educational Development*, 105, 102-115.
26. Nanda, P., Datta, N., & Das, P. (2023). Evaluating Beti Bachao Beti Padhao: State-level variations in program effectiveness. *Economic and Political Weekly*, 58(12), 67-75.
27. National Family Health Survey. (2021). *NFHS-5 State Fact Sheet: Jharkhand*. Ministry of Health and Family Welfare, Government of India.

28. Ramachandran, V. (2023). Gender equity in rural education: Progress and persistent challenges. *Journal of Educational Planning and Administration*, 37(2), 123-145.
29. Ridgeway, C. L. (2011). *Framed by gender: How gender inequality persists in the modern world*. Oxford University Press.
30. Right to Education Act. (2009). *The Right of Children to Free and Compulsory Education Act, 2009*. Government of India.
31. Sahoo, S., & Kumar, A. (2023). Tribal education and gender disparities in Jharkhand: A comprehensive analysis. *Tribal Studies*, 15(2), 78-95.
32. Schunk, D. H., & DiBenedetto, M. K. (2023). Social learning theory applications in educational contexts. *Educational Psychology Review*, 35(1), 123-147.
33. Schultz, T. W. (1961). Investment in human capital. *American Economic Review*, 51(1), 1-17.
34. Singh, R., Kumari, S., & Prasad, A. (2024). Economic constraints and educational decisions in tribal communities of Jharkhand. *Indian Journal of Social Development*, 24(1), 34-52.
35. UNESCO. (2024). *Global Education Monitoring Report 2024: Technology in education - A tool on whose terms?* UNESCO Publishing.
36. Unterhalter, E. (2024). Gender equality and education: Contemporary challenges in policy and practice. *International Journal of Educational Development*, 106, 78-92.
37. World Bank. (2024). *Girls' education in Sub-Saharan Africa: Progress, challenges, and opportunities*. World Bank Publications.

Appendices and Supplementary Materials

Appendix A: Enhanced Survey Instrument

Parental Awareness Index (PAI) - Complete Validated Instrument

Section A: Demographic Information

1. District: _____
2. Block: _____
3. Village: _____
4. Respondent Details:
 - Age: _____ years
 - Relationship to girl child: Mother/Father/Guardian
 - Education level: No formal education/Primary/Middle/Secondary/Higher Secondary/Graduate+
 - Primary occupation: Agriculture/Daily labor/Small business/Government service/Other
5. Household Information:
 - Monthly family income: <₹2,000/₹2,000-5,000/₹5,000-10,000/>₹10,000
 - Total number of children: _____
 - Number of girl children: _____
 - Number of children currently in school: _____

6. Community classification: ST/SC/OBC/General
7. Distance to nearest school: _____ km
8. Access to transportation: Yes/No

Section B: Educational Benefits Awareness (20 points maximum) *Rate your agreement on a 5-point scale (1=Strongly Disagree, 5=Strongly Agree):*

1. Education helps girls become financially independent and earn good income
2. Educated girls can better manage family finances and make smart money decisions
3. Education improves girls' health knowledge and healthcare decision-making
4. Educated girls can better educate and support their own children's development
5. Education increases girls' confidence and social status in the community
6. Educated girls can start their own businesses and become entrepreneurs
7. Education protects girls from exploitation and helps them know their rights

Section C: Government Schemes Knowledge (20 points maximum) *Answer Yes (2 points) or No (0 points) for awareness, plus 1 additional point for correct details:*

1. Are you aware of Beti Bachao Beti Padhao scheme?
 - If yes, what does it provide? _____
2. Do you know about girls' scholarship programs (National/State)?
 - If yes, name one scheme: _____
3. Have you heard of free textbook/uniform schemes for girls?
 - If yes, how do you apply? _____
4. Are you familiar with bicycle distribution programs for girls?
 - If yes, what are the eligibility criteria? _____
5. Do you know about hostel facilities/residential schools for girls?
 - If yes, nearest facility location: _____
6. Are you aware of Sukanya Samridhi Yojana savings scheme?
 - If yes, what is the benefit? _____
7. Do you know about mid-day meal programs in schools?
 - If yes, how does it help girl education? _____

Section D: Legal Rights Understanding (20 points maximum) *Rate your agreement (1=Strongly Disagree, 5=Strongly Agree):*

1. Education is a fundamental right for all children guaranteed by law
2. Child marriage before 18 years is illegal and punishable by law
3. Parents have legal obligation to ensure all children attend school
4. Girls have equal legal rights to education as boys
5. Discrimination against girls in education is legally punishable
6. Schools cannot refuse admission to girls based on gender
7. Girls have right to safe school environment free from harassment

Section E: Career Opportunities Recognition (20 points maximum) *Rate your agreement (1=Strongly Disagree, 5=Strongly Agree):*

1. Educated girls can pursue professional careers like medicine, engineering, law
2. Government jobs are equally available for educated women through competitive exams
3. Education opens entrepreneurship and business opportunities for girls
4. Teaching profession offers good career prospects for educated girls
5. Healthcare and nursing careers provide stable employment for educated girls
6. Educated girls can work in banks, offices, and corporate sectors
7. Modern technology careers are suitable and beneficial for educated girls

Section F: Social Change Acceptance (20 points maximum) *Rate your agreement (1=Strongly Disagree, 5=Strongly Agree):*

1. Society now accepts and respects working women more than in the past
2. Educated girls can contribute significantly to community development and progress
3. Traditional gender roles are changing, and girls need education to adapt
4. Families benefit economically and socially when girls are educated
5. Communities progress faster when both boys and girls are equally educated
6. Educated girls can balance career and family responsibilities successfully
7. Girl child education is essential for India's overall development and growth

Scoring Instructions:

- Educational Benefits, Legal Rights, Career Opportunities, Social Change: Sum responses (7-35 points each, convert to 0-20 scale)
- Government Schemes: Sum correct responses (0-21 points, convert to 0-20 scale)
- Total Score: Sum all dimensions (0-100 points)
- High Awareness: >70 points, Medium: 41-70 points, Low: ≤40 points

Appendix B: Enhanced Interview Guide

Semi-Structured Interview Protocol for In-Depth Interviews

Opening and Rapport Building (5 minutes)

1. Thank you for participating in our research. Can you tell me about yourself and your family?
2. How many children do you have, and what are their ages?
3. What are your hopes and dreams for your children, especially your daughters?

Educational Background and Current Status (10 minutes) 4. Tell me about your daughters' current education status. Are they in school? 5. What influenced your decision to send/not send your daughters to school? 6. How do you make decisions about your children's education in your family? 7. What role does your spouse/other family members play in educational decisions?

Awareness Exploration - Educational Benefits (15 minutes) 8. What do you think are the main benefits of educating girls? Can you give me specific examples? 9. How did you learn about these benefits? Who or what influenced your thinking? 10. Have you seen examples in your community of how education has helped girls or women? 11. How do you think education might change your daughter's future compared to your own life? 12. What economic benefits do you expect from your daughter's education?

Awareness Exploration - Government Schemes (10 minutes) 13. What government programs for girls' education do you know about? 14. Have you or your family benefited from any of these programs? 15. How did you learn about these schemes? What information sources do you use? 16. What challenges have you faced in accessing government support for education?

Awareness Exploration - Social Change (15 minutes) 17. How have attitudes toward girls' education changed in your community over the years? 18. What do you think about women working outside the home? 19. How do you balance traditional values with modern educational opportunities for girls? 20. What role do you want your educated daughter to play in society?

Decision-Making Process and Barriers (15 minutes) 21. Walk me through how you decided to enroll/continue your daughter's education. 22. What challenges or obstacles do you face in educating your daughters? 23. How do you handle financial pressures related to education costs? 24. What do other families in your community think about your decisions regarding girl education? 25. How do you deal with criticism or opposition to girls' education?

Community and Social Factors (10 minutes) 26. How do community leaders, teachers, and religious figures influence educational decisions? 27. Tell me about other families who support girls' education. How do you interact with them? 28. What role do women's groups or community organizations play in promoting education? 29. How has participation in awareness programs or meetings affected your thinking?

Future Orientation and Aspirations (10 minutes) 30. What are your specific educational goals for your daughters? 31. How far do you want them to study? What careers do you envision for them? 32. How do you plan to support their education financially and emotionally? 33. What would you need to ensure your daughters complete their education successfully?

Program Experience and Effectiveness (10 minutes) 34. Tell me about any awareness programs or educational meetings you've attended. 35. What was most helpful or convincing about these programs? 36. What could make these programs more effective for parents like you? 37. How do you share information about girls' education with other parents?

Advice and Recommendations (5 minutes) 38. What advice would you give to other parents who are undecided about girls' education? 39. What changes would you like to see in your community regarding girls' education? 40. What support do parents need most to ensure girls' education success?

Closing Questions (5 minutes) 41. Is there anything important about girls' education that we haven't discussed? 42. Do you have any questions about this research or suggestions for our work? 43. Would you be willing to participate in follow-up discussions if needed?



Post-Interview Notes (Completed by Interviewer):

- Overall awareness level impression: High/Medium/Low
- Key themes identified during interview
- Emotional responses and non-verbal cues
- Environmental factors affecting the interview
- Additional observations about family dynamics or community context