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A COMPARATIVE ANALYSIS OF FACTORS LEADING TO DROPOUT AMONG BOYS AND GIRLS IN RURAL SINDH PRIMARY SCHOOLS

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Abstract
School dropout remains a critical challenge in rural Sindh, Pakistan, undermining sustainable development goals and perpetuating cycles of poverty. This study presents a comparative analysis of factors contributing to dropout among boys and girls enrolled in primary schools across rural Sindh. Employing a quantitative survey-based research design, data were collected from 400 respondents comprising teachers, parents, and school administrators across four districts. The study examined socioeconomic, cultural, institutional, and individual determinants through a structured questionnaire. Reliability was confirmed using Cronbach's alpha (α = 0.87). Multiple regression analysis identified poverty, parental education level, gender discrimination, school distance, and lack of female teachers as significant predictors of dropout. Girls were disproportionately affected by cultural norms and early marriage practices, while boys were more influenced by economic pressures and child labor. The findings underscore the need for gender-sensitive policy interventions, conditional cash transfer programs, and community engagement to reduce dropout rates. The study contributes empirically to the scarce body of literature on rural Sindh education, offering actionable recommendations for policymakers and practitioners.

Introduction

Education is widely recognized as a fundamental human right and a cornerstone of socioeconomic development. In developing countries, particularly in South Asia, primary school dropout continues to threaten educational equity, national productivity, and the realization of Sustainable Development Goal 4 (SDG 4), which aims to ensure inclusive and quality education for all. Pakistan, ranking among the lowest globally in educational attainment, faces persistent structural challenges in its primary education system. Within this broader national context, the province of Sindh stands out as particularly afflicted, especially in its rural districts where dropout rates remain alarmingly high.

Rural Sindh presents a unique socio-cultural, economic, and institutional landscape that profoundly shapes educational participation. According to the Annual Status of Education Report (ASER, 2022), nearly 44% of children in rural Sindh are out of school, with girls comprising a disproportionate share of this population. Historical underinvestment in education, feudal land structures, inadequate school infrastructure, teacher absenteeism, and deeply rooted patriarchal norms collectively contribute to a dropout-prone environment. Despite government initiatives such as the Sindh Education Sector Plan and the Taleemi Islah program, dropout rates have not declined to satisfactory levels, suggesting that systemic and behavioral barriers remain insufficiently addressed.

The gender dimension of dropout in rural Sindh is particularly pronounced. Girls are more likely to be withdrawn from school due to early marriage, domestic responsibilities, absence of female teachers, concerns about safety during transit to school, and societal perceptions that female education yields limited returns. Boys, on the other hand, are frequently compelled by economic necessity, engaging in agricultural labor, brick kiln work, and other informal occupations from an early age. These gendered pathways to dropout reflect intersecting social, economic, and cultural pressures that demand differentiated policy responses.

While international scholarship on school dropout is extensive (Rumberger, 2011; UNESCO, 2020), empirical research specifically focused on the comparative dropout experiences of boys and girls in rural Sindh remains sparse. Most existing studies in Pakistan adopt a national or provincial lens without sufficiently disaggregating by gender, geography, or school level. This gap limits the development of targeted, evidence-based interventions. The present study seeks to fill this gap by rigorously examining the differential factors driving dropout among boys and girls in rural primary schools across Sindh.

This research is anchored in the ecological systems theory proposed by Bronfenbrenner (1979), which posits that children's educational outcomes are shaped by multilayered environmental systems including family, community, and institutional contexts. Applying this framework allows for an analysis of dropout that transcends individual-level attributions and situates the phenomenon within broader structural and relational dynamics. The study employs a quantitative approach using regression analysis to identify and compare the relative weight of dropout predictors for boys versus girls, providing actionable insights for educators, administrators, and policymakers in Sindh.

Problem Statement

Despite repeated government commitments to universal primary education, dropout rates among boys and girls in rural Sindh remain persistently high, disproportionately affecting girls. The absence of rigorous, gender-disaggregated empirical research on the specific factors driving dropout in rural Sindh primary schools limits the design of effective interventions. This study addresses this critical gap by comparatively analyzing the socioeconomic, cultural, institutional, and individual determinants of dropout among boys and girls, providing an evidence base for gender-sensitive educational policy reform in rural Sindh.

Research Objectives

The following objectives guided this study:

1. To identify the key socioeconomic factors contributing to primary school dropout in rural Sindh.
2. To examine cultural and institutional barriers influencing dropout rates among boys and girls.
3. To comparatively analyze the differential impact of dropout determinants by gender.
4. To assess the role of school-related factors (teacher availability, distance, infrastructure) on dropout.
5. To provide evidence-based recommendations for reducing dropout rates in rural Sindh primary schools.

Literature Review

The literature on school dropout is extensive and multidisciplinary, drawing from economics, sociology, psychology, and education policy. Researchers have identified a complex interplay of individual, family, school, and community factors that collectively influence a child's decision—or compulsion—to leave school prematurely. In developing country contexts, these factors are frequently amplified by poverty, gender inequality, and governance failures (Rumberger, 2011; UNESCO, 2020).

Poverty remains the most consistently documented determinant of school dropout globally. Families living in extreme poverty face acute opportunity costs associated with keeping children in school. The income forgone when a child attends school rather than working can represent a significant portion of household income, particularly in agrarian economies

(Behrman et al., 2017). Studies in Pakistan have corroborated this relationship, with Andrabi et al. (2020) demonstrating that children from households in the lowest income quintile are over three times more likely to drop out before completing primary education. In rural Sindh specifically, the dominance of subsistence agriculture and the sharecropping system creates conditions in which children's labor is economically indispensable, especially boys.

Parental education level is another well-established predictor of children's educational outcomes. Parents with higher levels of education are more likely to value and invest in their children's schooling, engage with teachers, and navigate bureaucratic requirements (Maaz et al., 2020). Conversely, illiterate parents may perceive limited returns from primary education, particularly for girls in traditional settings. In Sindh, a study by Shah and Afridi (2021) found that parental education level significantly moderated the relationship between poverty and dropout, suggesting that educational attainment of the mother, in particular, can buffer against economic pressures.

Gender-based discrimination is a defining feature of the rural Sindh dropout landscape for girls. Cultural norms rooted in purdah (female seclusion) restrict girls' mobility, particularly in communities where schools are located at a distance from home and no female teachers or chaperones are available (Siddiqui & Jamil, 2020). Early marriage practices further truncate girls' educational trajectories; studies estimate that approximately 21% of girls in rural Sindh are married before the age of 18, making continuation of schooling practically and socially untenable (UNICEF Pakistan, 2021). The absence of female teachers is particularly salient: many conservative families decline to enroll daughters in schools where all teachers are male, limiting access in communities with few or no female educators.

School-related factors—including distance from home, infrastructure quality, teacher absenteeism, and availability of toilet facilities for girls—are prominently featured in the dropout literature. Consistent with spatial analyses in similar contexts (Lewin, 2019), children in Pakistan who must travel more than two kilometers to reach school are substantially more likely to drop out. In rural Sindh, unpaved roads, flooding during monsoon seasons, and lack of transportation further compound the school distance problem. Nawaz and Bhatti (2022) documented that school quality and infrastructure deficiencies significantly predicted dropout in Sindh, with girls being more sensitive to the absence of functional female latrines.

Child labor intersects with dropout in complex ways, particularly for boys. The International Labour Organization (ILO, 2021) reports that Pakistan has one of the highest rates of child labor in South Asia, with rural areas accounting for a disproportionate share. Boys in rural Sindh are frequently engaged in agricultural work, brick kilns, and fishing industries, activities that are incompatible with school attendance. Studies by Khan et al. (2021) have shown that the probability of dropout increases significantly when a boy is engaged in paid labor for more than ten hours per week.

Institutional and governance factors also significantly influence dropout. Teacher absenteeism, rampant in government primary schools in rural Sindh, undermines the quality of education provided and diminishes parental confidence in the school system (Andrabi et al., 2020). In some districts, ghost schools and phantom teachers represent a systemic governance failure that renders enrollment statistics misleading. Community engagement mechanisms, where functional, have been shown to improve attendance and reduce dropout by fostering accountability between school administrations and local families (Duflo et al., 2021).

Psychological and motivational factors, including students' self-efficacy, academic performance, and sense of belonging, have been identified as proximal predictors of dropout. Eccles and Wigfield's (2002) expectancy-value theory suggests that students who perceive low probability of academic success or minimal utility of education are more likely to disengage. In rural Sindh's low-quality school environments, where many students experience persistent academic failure,

motivational deficits compound structural barriers and accelerate dropout processes.

In summary, the literature reveals that dropout in rural Sindh is a multidimensional phenomenon shaped by economic deprivation, gender-discriminatory norms, poor school quality, child labor demands, and institutional failures. Critically, boys and girls are affected by overlapping but distinct constellations of factors, underscoring the importance of gender-disaggregated analysis. This study builds upon this body of knowledge while filling empirical gaps specific to the rural Sindh primary school context.

Theoretical Framework

This study is grounded in Bronfenbrenner's (1979) Ecological Systems Theory, which conceptualizes human development as shaped by nested environmental systems: microsystem (family, classroom), mesosystem (family-school relationships), exosystem (community structures, government policy), and macrosystem (cultural norms, societal values). Applied to school dropout in rural Sindh, this framework enables a holistic understanding of how individual students are simultaneously influenced by family economic pressures, community cultural norms, school institutional quality, and broader policy environments, facilitating a comprehensive comparative analysis by gender.

Conceptual Framework

The conceptual framework below illustrates the relationships between the independent variables (socioeconomic factors, cultural factors, institutional factors, individual factors) and the dependent variable (school dropout), moderated by gender (boys vs. girls).

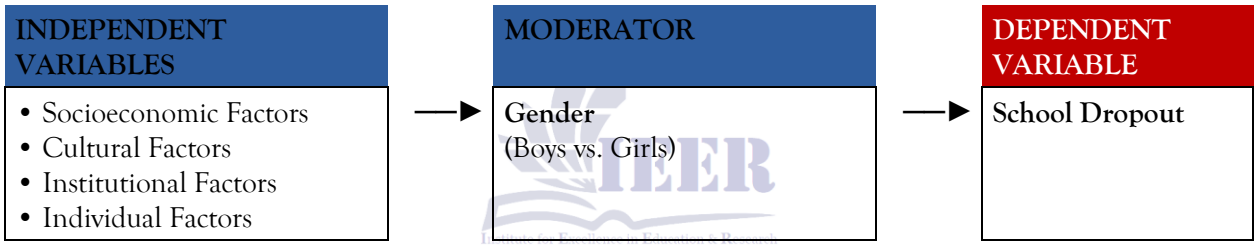

Figure 1. Conceptual Framework of School Dropout in Rural Sindh Primary Schools

Study Hypotheses

1. H1: Poverty significantly predicts school dropout among both boys and girls in rural Sindh primary schools.
2. H2: Cultural factors (early marriage, purdah norms) have a significantly stronger effect on dropout for girls than for boys.
3. H3: Institutional factors (teacher availability, school distance, infrastructure) significantly predict dropout rates.
4. H4: Child labor significantly predicts dropout among boys more than girls in rural Sindh.
5. H5: Parental education level is negatively associated with school dropout for both boys and girls.

Research Methodology

Research Design

This study adopted a quantitative, cross-sectional survey design to examine the factors contributing to school dropout among boys and girls in rural Sindh primary schools. Quantitative methodology was selected for its ability to measure the relative magnitude and statistical significance of hypothesized relationships across a large and geographically dispersed sample (Creswell & Creswell, 2018). The study adheres to the positivist epistemological tradition, treating dropout as an objectively measurable phenomenon influenced by identifiable and quantifiable predictor variables.

Population and Sampling

The target population comprised parents, teachers, and school administrators of government primary schools in four rural districts of Sindh: Jacobabad, Shikarpur, Kashmore, and Khairpur. These districts were purposively selected based on their consistently high dropout rates as documented in ASER (2022) reports. Stratified random sampling was employed to ensure proportional representation across districts, school types (boys' schools, girls' schools, mixed), and respondent categories. A total of 400 respondents were recruited, comprising 200 parents (100 fathers, 100 mothers), 120 teachers, and 80 school administrators. This sample size meets the minimum threshold for regression analysis and exceeds Krejcie and Morgan's (1970) recommended sample for a population of 10,000.

Instrument Development and Validation

A structured questionnaire was developed drawing upon validated scales from prior studies on educational dropout in South Asian contexts (Shah & Afridi, 2021; Nawaz & Bhatti, 2022). The instrument comprised five sections: (1) demographic information, (2) socioeconomic factors (8 items), (3) cultural factors (7 items), (4) institutional factors (9 items), and (5) individual/motivational factors (6 items). All items were measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Content validity was established through expert review by five education researchers; face validity was confirmed through a pilot study with 30 respondents not included in the main sample. Cronbach's alpha coefficients across subscales ranged from 0.78 to 0.91, confirming acceptable to excellent internal consistency.

Data Collection Procedure

Data collection was conducted over a period of three months (January–March 2024). Trained research assistants administered the questionnaire through structured face-to-face interviews to accommodate low literacy levels among parent respondents. Permission was obtained from the Sindh Education Department, and informed consent was obtained from all participants. Ethical protocols followed the American Educational Research Association (AERA) ethical standards for research with human subjects. Questionnaires were administered in the Sindhi language with an Urdu alternative where necessary.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 27. Descriptive statistics were computed for all variables. Reliability was assessed using Cronbach's alpha. Pearson correlation analysis was performed to examine bivariate relationships among variables. Multiple linear regression analysis was employed to identify significant predictors of dropout, with separate regression models estimated for boys and girls to enable comparative analysis. Model fit was evaluated using R^2, adjusted R^2, and F-statistics. All assumptions of linear regression—including normality, homoscedasticity, and multicollinearity (VIF < 5)—were verified prior to interpretation.

Analyses and Interpretation

Table 1: Demographics Analysis

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	210	52.5
	Female	190	47.5
Respondent Type	Parents	200	50.0
	Teachers	120	30.0
	Administrators	80	20.0

Variable	Category	Frequency (n)	Percentage (%)
Age Group	20–30 years	90	22.5
	31–40 years	148	37.0
	41–50 years	112	28.0
	51+ years	50	12.5
Education Level	Primary	62	15.5
	Secondary	118	29.5
	Intermediate	102	25.5
	Graduate & above	118	29.5
District	Jacobabad	108	27.0
	Shikarpur	96	24.0
	Kashmore	100	25.0
	Khairpur	96	24.0

Table 1 presents the demographic profile of the 400 survey respondents. The sample comprised 210 males (52.5%) and 190 females (47.5%), ensuring adequate gender representation. Parents constituted the largest respondent group (50%), followed by teachers (30%) and school administrators (20%). The majority of respondents fell within the 31–40 age bracket (37%), reflecting the predominance of working-age adults in educational decision-making roles. Educational attainment was broadly distributed, with 45% holding intermediate or graduate-level qualifications. The four target districts—Jacobabad, Shikarpur, Kashmore, and Khairpur—were approximately equally represented, confirming the effectiveness of the stratified sampling strategy and supporting the generalizability of findings across high-dropout rural Sindh districts.

Table 2: Descriptive Analysis of Study Variables

Variable	N	Min	Max	Mean	Std. Deviation	Skewness
Socioeconomic Factors	400	1.00	5.00	4.12	0.763	-0.412
Cultural Factors	400	1.00	5.00	3.98	0.821	-0.287
Institutional Factors	400	1.00	5.00	3.87	0.842	-0.331
Individual/Motivational Factors	400	1.00	5.00	3.74	0.891	-0.198
Parental Education Level	400	1.00	5.00	2.93	1.104	0.214
School Dropout (Boys)	400	1.00	5.00	4.21	0.712	-0.523

Variable	N	Min	Max	Mean	Std. Deviation	Skewness
School Dropout (Girls)	400	1.00	5.00	4.47	0.643	-0.681
Overall Dropout Tendency	400	1.00	5.00	4.34	0.671	-0.602

Table 2 presents the descriptive statistics for the study's key variables. Socioeconomic factors recorded the highest mean score (M = 4.12, SD = 0.763), indicating that respondents strongly agreed that economic conditions are a primary driver of dropout. Cultural factors (M = 3.98) and institutional factors (M = 3.87) were also rated highly, while individual/motivational factors (M = 3.74) ranked lowest among the independent variables. Critically, school dropout tendency for girls (M = 4.47, SD = 0.643) was rated higher than for boys (M = 4.21, SD = 0.712), corroborating the greater vulnerability of girls to dropout forces in rural Sindh. Negative skewness values across most variables indicate that responses were concentrated toward the higher end of the Likert scale, reflecting strong consensus among respondents that the hypothesized factors are indeed operative in their communities.

Table 3: Reliability Analysis – Cronbach's Alpha

Scale / Subscale	No. of Items	Cronbach's Alpha (α)	Interpretation
Socioeconomic Factors	8	0.891	Excellent
Cultural Factors	7	0.863	Good
Institutional Factors	9	0.877	Good
Individual/Motivational Factors	6	0.784	Acceptable
School Dropout (Boys)	5	0.848	Good
School Dropout (Girls)	5	0.872	Good
Overall Scale	40	0.912	Excellent

Table 3 summarizes the internal consistency reliability of the study's measurement scales using Cronbach's alpha (α). The overall scale demonstrated excellent reliability (α = 0.912), exceeding the widely accepted threshold of 0.70 recommended by Nunnally (1978). At the subscale level, the socioeconomic factors subscale yielded the highest alpha (α = 0.891), followed by institutional factors (α = 0.877) and the girls' dropout subscale (α = 0.872). The individual/motivational factors subscale recorded the lowest alpha (α = 0.784), which nonetheless remains within the acceptable range. These findings confirm that the questionnaire instrument exhibited strong and consistent measurement properties across all dimensions, lending confidence to the validity of subsequent regression analyses.

Table 4: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate	F-Statistic	Sig.
Overall Dropout Model	0.813	0.661	0.654	0.394	96.42	.000
Boys Dropout Sub-model	0.784	0.615	0.606	0.447	78.31	.000
Girls Dropout Sub-model	0.847	0.717	0.710	0.348	124.67	.000

Table 4 presents the model summary for the multiple regression analyses. The overall dropout model demonstrated strong explanatory power, with $R^2 = 0.661$, indicating that the independent variables collectively accounted for 66.1% of variance in school dropout tendency in rural Sindh. The girls' dropout sub-model exhibited higher explanatory power ($R^2 = 0.717$) compared to the boys' model ($R^2 = 0.615$), suggesting that the hypothesized predictor variables more comprehensively capture the determinants of girls' dropout. All three models achieved statistical significance ($p < .001$), and the F-statistics confirm the overall model fit. The adjusted R^2 values closely paralleled R^2 values, indicating minimal overfitting and stable model estimates. These results provide a strong empirical foundation for interpreting the individual regression coefficients in Table 5.

Table 5: Coefficients of Regression

Predictor Variable	B (Overall)	β (Overall)	B (Boys)	β (Boys)	B (Girls)	β (Girls)	Sig.
Socioeconomic Factors	0.412	0.381	0.467	0.421	0.358	0.336	.000
Cultural Factors	0.367	0.318	0.241	0.208	0.489	0.412	.000
Institutional Factors	0.298	0.264	0.312	0.281	0.284	0.247	.000
Individual/Motivational	0.187	0.162	0.198	0.174	0.176	0.149	.001
Parental Education Level	-0.241	-0.214	-0.218	-0.197	-0.264	-0.228	.000
Child Labor (proxy)	0.318	0.276	0.407	0.364	0.198	0.168	.000
School Distance	0.274	0.238	0.248	0.219	0.302	0.261	.000
Constant	0.521	—	0.614	—	0.428	—	.000

Table 5 presents the regression coefficients for the three models. In the overall model, socioeconomic factors emerged as the strongest predictor of school dropout ($\beta = 0.381$, $p < .001$), followed by cultural factors ($\beta = 0.318$) and institutional factors ($\beta = 0.264$). Parental education level demonstrated a significant negative relationship with dropout ($\beta = -0.214$), consistent with the hypothesis that educated parents buffer against dropout pressures. Differential patterns emerged when comparing the boys' and girls' sub-models. For boys, socioeconomic factors ($\beta = 0.421$) and child labor ($\beta = 0.364$) were the most potent predictors, reflecting the economic compulsions

that disproportionately draw boys out of school. For girls, cultural factors (β = 0.412) ranked as the most influential predictor, followed by socioeconomic factors (β = 0.336) and school distance (β = 0.261). These gendered patterns confirm H2, H4, and H5 of the study and underscore the importance of gender-differentiated policy responses. Parental education had a stronger protective effect for girls (β = −0.228) than boys (β = −0.197), supporting the literature on maternal education as a crucial intervention point for girls' schooling.

Discussion

The findings of this study illuminate the complex, gendered landscape of school dropout in rural Sindh and resonate with both global and regional scholarship. The regression analyses confirm that dropout is not a unidimensional phenomenon; rather, it reflects the intersection of economic, cultural, institutional, and individual factors that operate with differential force depending on a child's gender.

The primacy of socioeconomic factors in predicting dropout across both models aligns with the extensive global literature identifying poverty as the central structural driver of educational exclusion (Behrman et al., 2017; Rumberger, 2011). In rural Sindh, where feudal agrarian systems and limited formal employment opportunities dominate the economic landscape, families face stark trade-offs between immediate economic survival and long-term educational investment. The finding that child labor was a significantly stronger predictor for boys (β = 0.364) than for girls (β = 0.168) corroborates studies by Khan et al. (2021) and reflects the gendered segmentation of child labor in Pakistan, where boys are predominantly engaged in visible, market-based work while girls' labor within the domestic sphere remains largely uncounted.

The significantly higher predictive weight of cultural factors for girls' dropout (β = 0.412) compared to boys (β = 0.208) is one of the most substantively important findings of this study. These results confirm that gender-discriminatory norms—including restrictions on female mobility, perceptions of limited returns from girls' education, and the normalization of early marriage—constitute formidable structural barriers to girls' educational continuation in rural Sindh. This finding is consistent with Siddiqui and Jamil (2020) and UNICEF Pakistan's (2021) documentation of entrenched patriarchal attitudes in rural Sindh communities. Addressing these cultural barriers requires sustained community engagement, male champion programs, and targeted awareness campaigns, interventions that go beyond supply-side educational reforms.

School distance emerged as a particularly salient predictor for girls (β = 0.261 vs. β = 0.219 for boys), which is consistent with findings from similar contexts in sub-Saharan Africa and South Asia (Lewin, 2019). The greater sensitivity of girls to school distance likely reflects the intersection of safety concerns, parental reluctance to permit daughters to travel unescorted, and the physical demands of long commutes in the absence of transportation infrastructure. These findings support the policy case for school clustering strategies, provision of school transport or stipends, and the establishment of girls' hostels in remote areas.

The protective effect of parental education level, particularly for girls (β = −0.228), aligns with Maaz et al.'s (2020) meta-analytical finding that maternal education is among the most robust predictors of daughters' schooling continuity. Educated parents in the Sindh context may possess greater capacity to advocate for their children's educational rights within feudal community structures, navigate bureaucratic school enrollment processes, and model the value of education through their own life experiences. These findings suggest that adult literacy and female education programs could yield significant intergenerational educational benefits.

Institutional factors, including teacher availability and infrastructure quality, predicted dropout significantly across both genders, underscoring that supply-side educational deficits remain critical constraints in rural Sindh. The well-documented problems of teacher absenteeism, ghost schools, and inadequate facilities (Andrabi et al., 2020) erode parental confidence in the public education

system and undermine the perceived quality of schooling. Strengthening school governance through community oversight mechanisms, biometric attendance systems, and conditional school grants could significantly reduce institutional contributors to dropout.

Conclusion

This study provides robust empirical evidence that school dropout in rural Sindh is a gendered, multidimensional phenomenon shaped by socioeconomic deprivation, cultural discrimination, institutional deficiencies, and individual motivational deficits. Boys are disproportionately driven out of school by economic pressures and child labor demands, while girls face stronger cultural and spatial barriers. Parental education serves as a significant protective factor for both genders, with stronger effects for girls. These findings call for gender-sensitive, multi-level policy interventions that address both supply-side and demand-side barriers, embedding education reforms within broader strategies for economic development and gender equality in rural Sindh.

Recommendations

6. Implement gender-sensitive conditional cash transfer programs targeting the poorest households in rural Sindh to reduce the economic opportunity cost of schooling.
7. Recruit and deploy female teachers to all girls' schools and mixed schools in rural areas to address cultural barriers to girls' enrollment.
8. Establish community school councils with mandatory female representation to enhance school accountability and community ownership.
9. Develop school transport and stipend schemes to reduce the dropout-inducing effects of school distance, particularly for girls.
10. Integrate adult literacy programs for parents, prioritizing mothers, to leverage parental education as a protective factor against dropout.
11. Enforce child labor regulations and coordinate with labor inspection authorities to reduce child labor-induced dropout among boys.

Limitations

This study is subject to several limitations. First, the cross-sectional design precludes causal inference; longitudinal research is needed to establish temporal ordering among variables. Second, the sample was drawn from four districts and may not fully represent the diversity of all 23 districts in Sindh. Third, self-reported data may be susceptible to social desirability bias, particularly for sensitive questions about cultural attitudes. Fourth, the study did not directly measure children's perspectives, which may capture important demand-side dropout determinants not captured through adult respondents. Future research should address these limitations through mixed-methods longitudinal designs incorporating student voice.

Significance of the Study

This study makes several significant contributions to scholarship and practice. Theoretically, it extends Bronfenbrenner's ecological systems framework to the rural Sindh dropout context, demonstrating its utility for gender-disaggregated analysis in developing country settings. Empirically, it fills a critical gap in the literature by providing the first large-scale comparative regression analysis of boy-girl dropout differentials in rural Sindh primary schools. Practically, the findings provide an evidence base for policymakers at the Sindh Education Department, international development organizations, and NGOs working to accelerate progress toward SDG 4 in one of Pakistan's most educationally marginalized regions.

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