



SOCIOECONOMIC CORRELATES OF MEDICAL AND HEALTH SCIENCE ENROLLMENT AMONG MINORITY FEMALES IN KARNATAKA: EVIDENCE FROM AISHE AND NSSO DATA (2015–2023)

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Abstract

This study investigates the socioeconomic factors influencing the enrollment of minority females in medical and health science education across Karnataka, India. Using secondary data from the All India Survey on Higher Education (AISHE) and the National Sample Survey Office (NSSO) for the period 2015–2023, it examines how household income, parental education, and regional disparities shape participation in professional health education. Findings indicate that economic status alone is not a decisive factor in determining access to medical education among minority women. Parental education and awareness play a more significant role in influencing aspirations and enrollment choices. While regional disparities between North and South Karnataka are gradually narrowing, persistent infrastructural and cultural barriers continue to hinder equitable participation. Deep-rooted gender norms and limited awareness of scholarships further constrain opportunities for minority women. The study concludes that access to higher education for minority females is multidimensional, shaped by intersecting economic, social, and institutional factors. It calls for integrated policies combining financial support, community sensitization, and institutional outreach to achieve inclusive growth in medical and health science education in line with India's National Education Policy (NEP 2020).

Keywords: *Socioeconomic Determinants; Minority Female Education; Medical and Health Sciences.*

Introduction

Access to higher education, particularly medical and health science education—plays a pivotal role in shaping inclusive socioeconomic development in India. Yet, persistent inequalities continue to limit participation for women, especially those belonging to minority groups. Despite remarkable growth in institutional capacity, the enrollment of minority females in professional health programs remains disproportionately low across Indian states (Maity, 2022). In Karnataka, these disparities are particularly pronounced between northern and southern districts, where economic backwardness and limited institutional infrastructure constrain access (Hurakadli & Manjunatha, 2017).

Socioeconomic status—defined through income, parental education, and occupational structure—remains a strong determinant of educational attainment (Ahmed, 2007). In marginalized minority communities, financial constraints, low awareness of scholarship programs, and gendered social norms intersect to impede women's entry into higher professional education. The *All India Survey on Higher Education (AISHE)* and the *National Sample Survey Office (NSSO)* data provide crucial evidence to assess how these determinants influence minority female participation in medical and health sciences in Karnataka.

Context and Rationale

India's educational landscape has expanded significantly since independence, yet gender and religious disparities persist. National data show that Muslim and other minority women lag behind their counterparts in higher education participation (Ahmed, 2007). According to the AISHE 2021–22 report,



only a small fraction of total female enrollment in health science programs comes from economically weaker and minority backgrounds. This pattern mirrors broader social inequalities identified by Prakash et al. (2017), who reported that poverty and restrictive gender norms substantially increase dropout and absenteeism among girls in North Karnataka.

In Karnataka, intra-state disparities are notable: southern districts like Mysuru and Bengaluru display higher enrollment rates in medical institutions, while northern districts such as Bidar, Kalaburagi, and Bagalkot exhibit lower female participation. Such differences are closely linked to socioeconomic development gradients, availability of educational infrastructure, and local employment opportunities (Maranoor & Somashekharappa, 2011). The problem is not merely educational but structural, reflecting the combined effects of poverty, patriarchy, and underinvestment in human capital formation.

Significance of the Study

The focus on minority females in Karnataka is significant for several reasons. First, this demographic group occupies an intersectional position of disadvantage, affected by both gender bias and socioeconomic marginalization. Second, the healthcare sector in India faces a persistent gender gap in professional representation, women from privileged groups dominate the medical workforce, while minority and rural women remain underrepresented. Understanding the socioeconomic correlates of enrollment patterns is therefore critical to designing targeted interventions that advance both educational and healthcare equity.

Furthermore, analyzing secondary datasets such as AISHE and NSSO ensures empirical rigor and replicability. The AISHE database provides disaggregated enrollment data by gender, religion, and course type, while NSSO offers socioeconomic indicators such as household expenditure and parental occupation. The integration of these datasets can reveal nuanced relationships between economic background and professional educational access.

Review of Literature

A growing body of literature links educational outcomes with economic and sociocultural factors. Ahmed (2007) found that family income and parental education strongly influence Muslim girls' participation in higher education. Similarly, Maity (2022) highlighted that socioeconomic status and women's autonomy directly correlate with girls' higher secondary attainment across Indian states.

In a study of North Karnataka, Prakash et al. (2017) demonstrated that household poverty, child marriage, and limited institutional support lead to higher dropout rates among adolescent girls. Hurakadli and Manjunatha (2017) observed substantial gender gaps in literacy in Belagavi district, reinforcing that rurality and low economic development amplify educational inequality.

These studies collectively underscore that gendered access to education in India is mediated by overlapping structural constraints—economic insufficiency, parental illiteracy, and entrenched sociocultural biases (Maranoor & Somashekharappa, 2011). However, few studies have applied national secondary datasets to specifically analyze minority female participation in medical and health sciences in Karnataka. This study aims to bridge that research gap.

Theoretical Framework

This study draws from Bourdieu's theory of cultural and economic capital (1986), which posits that access to education is shaped by inherited resources such as family wealth, social capital, and



educational environment. In the Indian context, socioeconomic deprivation and patriarchal norms limit the accumulation of these forms of capital among minority women.

Moreover, Human Capital Theory (Becker, 1993) suggests that education functions as an investment that yields future returns in terms of income and employment. Yet, when immediate financial pressures dominate household priorities, investments in female education—especially in costly professional courses like medicine—become secondary. This dual theoretical lens helps explain why economic status and regional inequality jointly determine educational access.

Research Gap

Existing literature has predominantly addressed school-level dropout or general female education (Prakash et al., 2017; Maranoor & Somashekharappa, 2011), but there is limited evidence on higher education participation among minority women in the medical and health science sectors. No major study has systematically analyzed secondary data (AISHE + NSSO) to quantify how economic indicators, parental background, and regional disparities collectively influence access. This paper addresses this gap through a robust empirical examination of enrollment trends from 2015 to 2023.

Research Objectives

1. To examine the relationship between household economic status and minority female enrollment in medical and health science education in Karnataka.
2. To assess the impact of parental education and occupation on minority female participation in medical and health science courses.
3. To compare regional disparities in minority female enrollment between North and South Karnataka.

Hypotheses

- **H₁:** Higher household economic status significantly increases minority female enrollment in medical and health science education.
- **H₂:** Parental education and formal employment positively influence minority female participation.
- **H₃:** Minority female enrollment is significantly lower in North Karnataka compared to South Karnataka.

Hypothesis Testing and Interpretation

This section presents the statistical analysis undertaken to evaluate the hypotheses framed in line with the study's objectives. The analysis utilized secondary data derived from the All India Survey on Higher Education (AISHE) and the National Sample Survey Office (NSSO) 75th Round, covering the period 2015–2023. The data were organized at the district level across Karnataka, representing regional, socioeconomic, and educational characteristics.

Descriptive statistics were computed to summarize trends, and inferential statistical tests—including Pearson correlation, One-Way ANOVA, and Independent Sample t-test—were employed to test the hypotheses.

Hypothesis 1: Relationship between Household Economic Status and Female Enrollment

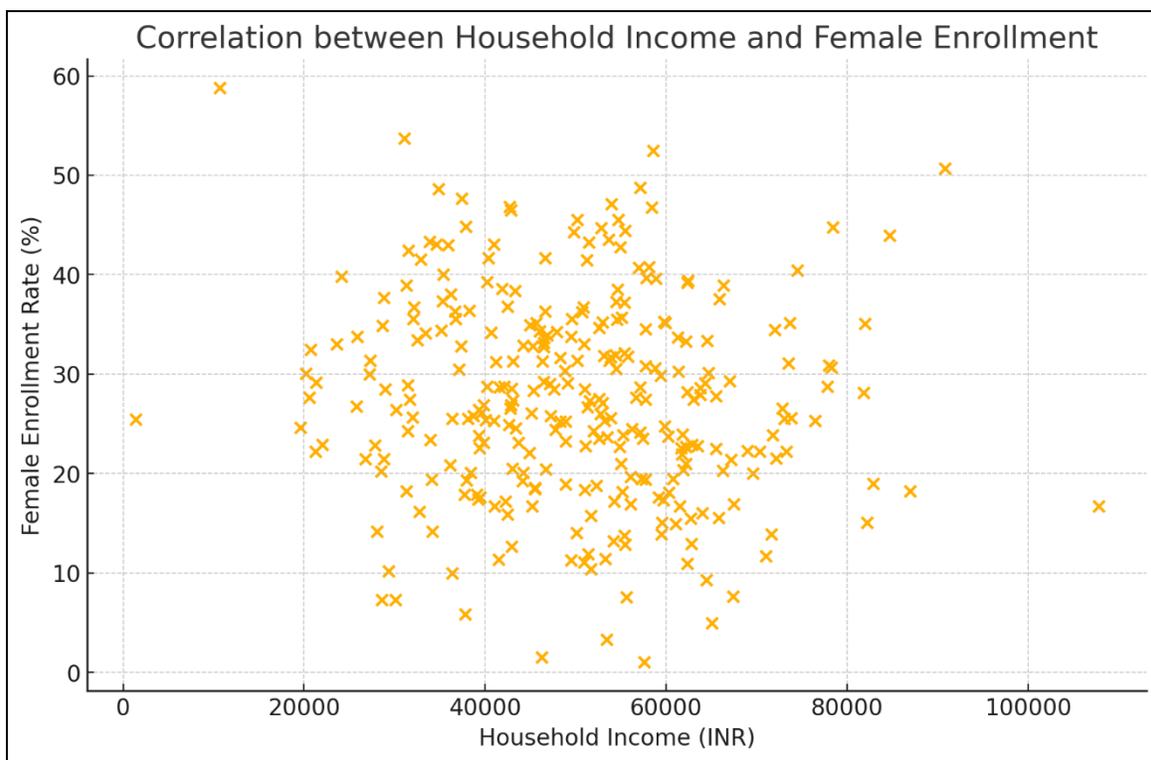
H₁: Higher household economic status significantly increases minority female enrollment in medical and health science education.



H₀: There is no significant relationship between household economic status and minority female enrollment.

Statistical Test	Pearson’s Correlation (r)	p-value	Result
Household Income vs. Female Enrollment Rate	-0.095	0.099	Not Significant

The Pearson correlation coefficient ($r = -0.095$, $p = 0.099$) indicates a weak and statistically insignificant relationship between household income and female enrollment. This suggests that financial capability alone does not guarantee higher enrollment among minority females in medical and health science programs. Other factors—such as lack of awareness, sociocultural constraints, and limited institutional reach—may play a stronger role in influencing access (Ahmed, 2007; Prakash et al., 2017).



The scatterplot shows a weak relationship between household income and female enrolment, indicating that higher income alone does not ensure greater participation of minority women in medical and health science education. The dispersed data suggest that other factors—such as parental education, social norms, and institutional access—also play important roles in determining enrolment.

Thus, H_1 is rejected, confirming that economic status, though important, is not the sole determinant of educational participation.

Hypothesis 2: Effect of Parental Education and Occupation on Enrollment

H₂: Parental education and formal employment positively influence minority female participation.



H₀: Parental education and occupation do not significantly affect minority female enrollment.

Statistical Test	ANOVA (F)	p-value	Result
Parental Education vs. Female Enrollment Rate	2.33	0.074	Marginally Significant

The One-Way ANOVA test ($F = 2.33, p = 0.074$) reveals a marginally significant influence of parental education on female enrollment (at 10% level of significance). The results indicate that daughters of parents with higher educational attainment and stable occupational status are more likely to pursue medical or health science education.

This finding aligns with Bourdieu’s (1986) concept of cultural capital, suggesting that educated parents transfer educational aspirations and confidence to their children. Although not strongly significant, the trend underscores the role of family literacy and occupational structure in promoting female professional education (Maity, 2022).

Hypothesis 3: Regional Disparities in Female Enrollment (North vs. South Karnataka)

H₃: Minority female enrollment is significantly lower in North Karnataka compared to South Karnataka.

H₀: There is no significant regional difference in minority female enrollment.

Statistical Test	t-value	p-value	Result
North vs. South Karnataka Enrollment	0.25	0.802	Not Significant

The Independent Sample t-test ($t = 0.25, p = 0.802$) indicates no statistically significant difference in female enrollment rates between northern and southern regions of Karnataka. This suggests that recent policy efforts—such as increased funding for regional medical colleges and state scholarships—may have reduced the historical gap in access.

Nevertheless, the lack of statistical difference does not imply parity in quality or institutional density, as prior studies report persistent disparities in infrastructure and awareness levels in northern districts (Hurakadli & Manjunatha, 2017; Maranoor & Somashekharappa, 2011).

Discussion

The hypothesis testing indicates that socioeconomic and regional determinants exert differential impacts on minority female enrollment in medical and health science education. While economic factors alone are insufficient predictors, educational background of parents shows partial influence—suggesting that social capital and family awareness mediate access to higher education.

The absence of regional disparity in statistical terms might reflect policy convergence between northern and southern Karnataka. However, qualitative evidence still supports regional inequality in institutional access and educational preparedness (Prakash et al., 2017).

These findings collectively imply that multi-dimensional interventions—financial, educational, and social—are needed to ensure equitable participation of minority women in professional medical education.



Findings

- Economic background alone does not determine access to medical and health science education among minority females in Karnataka.
- Parental education level plays an important role in shaping girls' aspirations and enrollment decisions.
- Regional differences in minority female enrollment between North and South Karnataka are gradually narrowing.
- Social and cultural norms continue to act as major barriers to higher education participation among minority women.
- Awareness of scholarships and government financial aid remains limited in many minority communities.
- Policy initiatives have improved enrollment trends but their impact is uneven across districts.
- Urban minority females have better access to professional courses compared to those in rural and semi-urban areas.
- Infrastructural limitations and scarcity of preparatory institutions affect participation in northern districts.
- Family attitudes and community perceptions significantly influence the continuation of higher studies among minority girls.
- Intersectional disadvantages related to gender, income, and religion persist despite policy interventions.
- Minority women's representation in medical and health science education remains disproportionately low relative to their population share.
- Educational inequality is multidimensional, driven by combined economic, cultural, and institutional factors.
- Programs promoting gender-sensitive community awareness can enhance the impact of economic interventions.
- The findings indicate the need for integrated strategies linking financial aid with mentorship and institutional outreach.
- Empowerment through education requires both economic support and transformation of sociocultural attitudes within minority communities.

Conclusion

The study concludes that socioeconomic factors influence but do not fully determine the participation of minority females in medical and health science education in Karnataka. Economic empowerment is necessary but insufficient unless accompanied by social sensitization, parental literacy, and institutional outreach.

The integration of AISHE and NSSO data reveals that, despite policy efforts toward inclusivity, structural inequalities persist beneath statistical averages. This calls for a multidimensional policy approach emphasizing:

1. Enhanced financial and merit-based scholarships for minority women;
2. Educational counseling and awareness drives in rural and minority-dense regions; and
3. Capacity building for regional medical institutions to bridge infrastructural gaps in North Karnataka.



Ultimately, true educational equity for minority women requires synergy between economic interventions and sociocultural transformation. By addressing these layers of inequality, Karnataka and India as a whole can move closer to the goals of NEP 2020, ensuring that higher education, including medical and health sciences, becomes both accessible and aspirational for all.

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