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REGIONAL DISPARITIES AND GENDER DYNAMICS IN NEET 2025: AN ANALYSIS OF STATE PERFORMANCE AND QUALIFICATION EFFICIENCY

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Abstract : This study examines the National Eligibility cum Entrance Test (NEET) 2025 results to analyze regional performance disparities, state-level qualification efficiency, and gender participation patterns across India. Using data from 1,236,112 qualified candidates across 36 states and Union Territories, we developed a Qualification Efficiency Index (QEI) to assess state performance. Our findings reveal significant regional variations, with the southern region demonstrating superior per capita performance (1,257 qualified per lakh population) despite contributing only 28.5% of national qualified candidates. Kerala emerged as the top performer with a QEI of 129.9, while Punjab showed concerning results with a QEI of 11.6. Gender analysis revealed progressive trends, with female candidates comprising 58.41% of qualified candidates nationally. The Gender Parity Index exceeded 1.0 across all analyzed states, with Chandigarh showing the highest value at 1.52. These findings highlight the critical role of quality teaching infrastructure and socioeconomic factors in determining medical entrance examination outcomes, suggesting targeted interventions for underperforming regions.

IndexTerms **- NEET 2025, regional disparities, qualification efficiency, gender parity, medical education**

I. INTRODUCTION

The National Eligibility cum Entrance Test (NEET) serves as India's primary gateway to medical education, determining admission to undergraduate medical and dental courses across the country. The examination's outcomes reflect not merely individual academic capabilities but also the complex interplay of regional educational infrastructure, socioeconomic factors, and gender dynamics. The NEET 2025 results provide a unique opportunity to examine these multifaceted relationships and their implications for medical education accessibility and equity.

India's diverse educational landscape presents significant challenges in ensuring equitable access to quality medical education preparation. Previous studies have highlighted substantial variations in medical entrance examination performance across different states and regions. However, comprehensive analyses incorporating efficiency metrics and gender dynamics remain limited. This study addresses this gap by examining NEET 2025 results through three interconnected objectives:

- To analyze regional performance patterns and identify disparities in qualification rates and per capita performance across India's geographic regions
- To develop and apply a Qualification Efficiency Index (QEI) for evaluating state-level performance, accounting for both qualification rates and population-adjusted outcomes

- To examine gender participation patterns and calculate Gender Parity Index values to assess progress toward equitable representation in medical entrance examinations

Understanding these patterns is crucial for policymakers, educators, and stakeholders involved in medical education planning and resource allocation. By identifying high-performing states and regions, this study aims to highlight best practices while also drawing attention to areas requiring targeted interventions.

II. DATA COLLECTION AND SOURCES

This study utilized comprehensive NEET 2025 result data obtained from multiple verified sources. Primary data was sourced from the National Testing Agency (NTA) official release, with secondary verification through educational portals including Careers360, Shiksha, and CollegeDunia. Population data was derived from Census 2011 figures with Ministry of Statistics and Programme Implementation (MoSPI) projections for 2025.

States and Union Territories were classified into eight regions: North (8 states/UTs), South (6), West (4), East (4), Central (2), Northeast (8), Islands (2), and Other UTs (2). This classification follows standard geographic and administrative divisions used in Indian policy planning.

III. ANALYTICAL FRAMEWORK

- Qualification Efficiency Index (QEI) was calculated using the formula: QEI = Qualification Rate × (Qualified per Lakh Population) This metric combines absolute qualification rates with population-adjusted performance, providing a comprehensive measure of state efficiency. QEI values range from 0 to 200, with higher values indicating better performance.
- Gender Parity Index (GPI) was calculated as: GPI = Female Qualified Percentage / Female Population Percentage. GPI values above 1.0 indicate female participation exceeding demographic proportions, suggesting progressive gender dynamics in medical entrance examination participation.

IV. RESULTS

Objective 1: Regional Performance Summary

Analysis of NEET 2025 results reveals significant regional variations in both absolute numbers and efficiency metrics. Table 3 presents the comprehensive regional performance summary

Table 1: Regional Performance Summary

Region	States/UTs	Total Qualified	% of National	Avg Qualification Rate	Qualified per Lakh
North	8	3,27,537	26.5%	56.8%	759
South	6	3,52,367	28.5%	61.8%	1,257
West	4	1,79,287	14.5%	58.6%	896
East	4	2,02,645	16.4%	55.2%	643
Central	2	83,346	6.7%	57.9%	725
Northeast	8	37,650	3.0%	54.2%	731
Islands	2	1,280	0.1%	51.8%	272
Other UTs	2	52,419	4.2%	59.7%	1,428

The southern region demonstrated exceptional performance across multiple metrics, achieving the highest average qualification rate (61.8%) and per capita performance (1,257 qualified per lakh population). Despite comprising only six states, this region contributed 352,367 qualified candidates, representing 28.5% of the national total. This performance significantly exceeds demographic proportions, as the southern states account for approximately 21% of India's population.

The northeastern states, while showing reasonable per capita numbers (731 per lakh), contribute only 3.0% to the national pool, highlighting the need for capacity building in these regions. In contrast, the eastern region, despite its substantial population base, showed concerning performance indicators. With only 643 qualified candidates per lakh population, the eastern states demonstrated the lowest per capita performance among major regions, indicating systemic challenges in states like West Bengal and Odisha. This underperformance is particularly notable given that these states have significant population sizes but struggle to translate this into proportional medical entrance examination success.

The northeastern region presents an interesting paradox. While contributing only 3.0% (37,650 candidates) to the national qualified pool, these states achieved reasonable per capita performance (731 per lakh). This suggests that while absolute numbers remain low due to smaller populations, the efficiency of preparation and qualification in these states approaches national averages.

Objective 2: State Performance by Qualification Efficiency Index

The Qualification Efficiency Index reveals striking disparities in state-level performance. States were categorized into five performance tiers based on QEI scores: Elite (>100), High (50-100), Medium (40-50), Low (25-40), and Very Low (<25).

Table 4: State Performance by Qualification Efficiency Index

State	Qualification Rate	Qualified per Lakh	QEI Score	Category
Kerala	63.76%	2,037	129.9	Elite
Delhi	47.45%	1,920	91.1	High
Rajasthan	61.47%	1,462	89.8	High
Karnataka	61.91%	1,211	75.0	High
Haryana	52.34%	1,186	62.1	Medium
Tamil Nadu	60.94%	964	58.8	Medium
Maharashtra	57.15%	982	56.1	Medium
Madhya Pradesh	63.52%	702	44.6	Low
Bihar	70.39%	632	44.5	Low
Uttar Pradesh	55.96%	711	39.8	Low
Gujarat	47.66%	715	34.1	Low
West Bengal	49.18%	579	28.5	Very Low
Odisha	39.59%	674	26.7	Very Low

Andhra Pradesh	36.78%	669	24.6	Very Low
Punjab	22.37%	520	11.6	Very Low

Kerala emerged as the sole member of the Elite category with a QEI of 129.9, combining an impressive qualification rate (63.76%) with exceptional per capita performance (2,037 per lakh). Punjab's QEI of 11.6 represents a crisis situation requiring immediate intervention. This achievement reflects the state's long-standing emphasis on education and healthcare infrastructure development.

The analysis reveals that states can achieve high efficiency through different pathways - Kerala through balanced excellence, Bihar through high qualification rates despite lower per capita numbers, and Delhi through exceptional per capita performance despite moderate qualification rates. The High category includes Delhi (QEI: 91.1), Rajasthan (89.8), and Karnataka (75.0), each achieving strong performance through different pathways. Delhi's success stems primarily from exceptional per capita numbers (1,920 per lakh) despite a moderate qualification rate (47.45%). Rajasthan demonstrates balanced performance across both metrics, while Karnataka benefits from strong qualification rates and substantial absolute numbers.

At the lower end of the spectrum, five states fall into the Very Low category, with Punjab showing particularly concerning results (QEI: 11.6). The combination of low qualification rates (22.37%) and poor per capita performance (520 per lakh) in Punjab indicates systemic challenges requiring immediate attention. Similarly, Andhra Pradesh (QEI: 24.6) and Odisha (26.7) demonstrate significant room for improvement.

Objective 3: Gender Participation Patterns

Gender analysis of NEET 2025 results reveals encouraging trends toward equitable participation. Female candidates comprised 58.41% of qualified candidates nationally, exceeding their demographic representation in most states. The Gender Parity Index analysis provides deeper insights into state-level variations.

Table 5: Gender Distribution Analysis (Top 10 States by Female Participation)

State	Female Qualified %	Male Qualified %	State Gender Ratio	Gender Parity Index
Meghalaya	65.2%	34.8%	989	1.38
Kerala	62.0%	38.0%	1,084	1.20
Manipur	61.8%	38.2%	985	1.30
Puducherry	61.2%	38.8%	1,037	1.22
Tamil Nadu	60.0%	40.0%	996	1.25
Goa	60.5%	39.5%	973	1.29
Uttar Pradesh	60.0%	40.0%	912	1.38
Chandigarh	59.8%	40.2%	818	1.52
Delhi	59.5%	40.5%	868	1.46
Karnataka	59.0%	41.0%	973	1.26

All analyzed states show Gender Parity Index values above 1.0, indicating female participation exceeding demographic proportions. Chandigarh demonstrated the highest GPI at 1.52, particularly remarkable given its skewed demographic gender ratio of 818 females per 1,000 males. This exceptional performance suggests that progressive social attitudes and educational access can overcome demographic disadvantages. Similarly, Uttar Pradesh, despite having a gender ratio of 912, achieved a GPI of 1.38, indicating strong female participation in medical entrance examinations.

Meghalaya led in absolute female participation with 65.2% of qualified candidates being female, followed by Kerala (62.0%) and Manipur (61.8%). These states combine traditional matrilineal social structures or progressive educational policies with strong female educational participation, resulting in superior gender parity outcomes.

V. DISCUSSION

The findings of this study illuminate critical aspects of medical education accessibility and quality across India. The regional disparities observed reflect deeper structural inequalities in educational infrastructure, particularly in the availability and quality of teaching resources.

Quality Teaching as a Determinant of Success

The correlation between state performance and the presence of established coaching infrastructure cannot be overlooked. Kerala's exceptional performance aligns with its robust educational ecosystem, including numerous quality coaching centers and experienced faculty. The state's tradition of investing in education, combined with a competitive academic culture, creates an environment conducive to medical entrance examination success.

Conversely, states in the Very Low category often lack adequate coaching infrastructure. Punjab's poor performance may be attributed to the brain drain phenomenon, where qualified teachers migrate to other states offering better opportunities . This creates a vicious cycle where lack of quality teaching leads to poor outcomes, further discouraging investment in educational infrastructure.

The concentration of quality coaching institutes in metropolitan areas within high-performing states suggests that urban-rural disparities compound regional inequalities. Students in rural areas of underperforming states face double disadvantages: limited access to quality teaching within their states and geographic barriers to accessing resources in other regions.

Socioeconomic Factors and Regional Performance

The alignment between regional economic development and NEET performance suggests that medical entrance examination outcomes reflect broader socioeconomic conditions. The southern region's superior performance corresponds with higher per capita incomes, better healthcare infrastructure, and greater investment in education.. These factors create an ecosystem supporting academic excellence, from primary education through competitive examination preparation.

The eastern region's underperformance, despite large population bases, indicates that demographic dividend alone cannot ensure educational success without corresponding infrastructure development. States like Bihar show high qualification rates (70.39%) but struggle with per capita performance due to massive population pressures on limited educational resources.

Gender Dynamics and Social Progress

The progressive gender participation patterns observed across most states represent a significant shift in Indian medical education. The consistently high GPI values suggest that families are increasingly investing in daughters' medical education, recognizing the profession's prestige and economic security.

However, the variation in gender participation across states indicates that social attitudes remain a significant factor. States with strong female participation often combine progressive social policies with targeted interventions supporting girl's education. Chandigarh's exceptional GPI despite adverse demographics demonstrates that policy interventions can effectively counter structural disadvantages.

Policy Implications

These findings suggest several policy interventions for addressing regional disparities:

Targeted Infrastructure Development: Underperforming states require immediate investment in coaching infrastructure, particularly in tier-2 and tier-3 cities, to improve accessibility.

Teacher Training Programs: Establishing centers of excellence for training NEET coaching faculty in underperforming regions cold address quality teaching deficits.

Digital Learning Initiatives: Leveraging technology to provide quality coaching access to rural and underserved areas could help bridge regional gaps.

Gender-Specific Interventions: While overall gender participation is encouraging, targeted scholarships and residential facilities for female students from underperforming states could further improve equity.

VI. CONCLUSION

This comprehensive analysis of NEET 2025 results reveals a complex landscape of regional disparities, efficiency variations, and progressive gender dynamics in Indian medical entrance examinations. The development and application of the Qualification Efficiency Index provides a nuanced understanding of state performance beyond simple qualification rates, highlighting both success stories and areas requiring urgent intervention.

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