

General surgery residency placements in Türkiye: institutional, geographic, and temporal patterns from 2019 to 2025

Şükran Çavdar¹, Serkan Demir⁴, Alper Yavuz², Faruk Yazıcı³,
Muhammed Salih Süer², Şener Balas²

¹Department of General Surgery, Payas State Hospital, Hatay, Türkiye

²Department of General Surgery, Etlik City Hospital, Ankara, Türkiye

³Department of General Surgery, Etimesgut Şehit Sait Ertürk State Hospital, Ankara, Türkiye

⁴Department of General Surgery, Yerköy Şehit Korgeneral Osman Erbaş State Hospital, Yozgat, Türkiye

ABSTRACT

Background: Declining interest in surgical specialties has raised concerns regarding the sustainability of the surgical workforce worldwide. In Türkiye, general surgery residency training is centrally allocated through the Medical Specialty Examination (TUS), yet longitudinal national data on placement dynamics remain limited.

Aim: To evaluate temporal, institutional, and geographic patterns of general surgery residency placements in Türkiye between 2019 and 2025.

Methods: This retrospective descriptive study analyzed 2,617 general surgery placement records obtained from fourteen consecutive TUS cycles conducted between 2019 and 2025. Quota fill rates were evaluated according to hospital type, geographic region, metropolitan status, supplementary placement process, and quota category.

Results: The overall mean quota fill rate was 48.3%, while 47.9% of quota records remained completely unfilled. Fill rates showed an overall downward trend across the study period, despite year-to-year variation, with the lowest annual levels observed in 2024–2025. City hospitals demonstrated the highest mean fill rate (82.8%), followed by training and research hospitals (59.2%) and university hospitals (40.5%). Metropolitan provinces showed higher observed fill rates than non-metropolitan provinces (54.7% vs. 23.8%). Nearly all quota records entering the supplementary placement process remained unfilled (99.9%).

Conclusion: General surgery residency placements in Türkiye demonstrate an overall decline over the study period, accompanied by marked institutional and geographic variation. Lower observed fill rates in university hospitals and non-metropolitan regions suggest an uneven distribution of residency placement outcomes across the training system. These findings highlight the need for continued monitoring and targeted workforce planning to support the sustainability of the future general surgery workforce.

Keywords: general surgery, residency training, medical workforce, TUS, surgical education, workforce planning

✉ Şükran Çavdar ▪ avdarkran@yandex.com

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Introduction

Modern health systems depend on a balanced mix of clinical specialties, yet the global surgical workforce is widely projected to fall short of demand driven by population ageing, rising procedural volumes, and shifting case complexity. The World Health Organization estimates a global shortfall of approximately 10 million health workers by 2030, with surgical disciplines disproportionately affected across high- and low-income settings (1). In parallel, ageing of the surgical workforce has emerged as an additional challenge. Ellison et al. demonstrated that demographic changes and increasing cancer burden are expected to substantially increase future demand for general surgeons (2). Cross-specialty match analyses further document a narrowing of the applicant-to-position ratio in general surgery relative to surgical subspecialties and integrated programmes, with applicant interest tilting toward non-surgical fields perceived as offering greater lifestyle control (3,4). Declining fill rates and rising reliance on supplementary placement rounds in radiation oncology, orthopaedics, and other comparable specialties have been described as concrete signals of this realignment (5).

The determinants underlying these shifts are well characterised. Systematic reviews identify lifestyle, work-life balance, discipline interest, financial expectations, and gender as dominant drivers of specialty choice, with weighting variable across countries (6). Persistent gender disparities continue to constrain surgical recruitment (7). Systemic factors — geographic maldistribution, training-site characteristics, and programme prestige — further shape where newly trained specialists ultimately practise (2,8).

Türkiye occupies a distinctive position within this picture. Specialty entry is governed by the centralised, biannual Tıpta Uzmanlık Sınavı (TUS), whose results, combined with candidates' ranked preferences, determine placement across

university hospitals, training and research hospitals, and the more recently introduced city hospitals (9). Despite the post-2003 Health Transformation Programme expanding training capacity, Türkiye still trails OECD averages in specialist density, and surgical specialties have shown waning appeal. A national survey of TUS candidates demonstrated that fewer than 30% of medical graduates intended to pursue surgery, with malpractice risk and workplace violence as significant negative determinants (10). A workforce analysis ranked general surgery 29th of 35 clinical specialties in candidate preference at the 2017 fall TUS, with 26% of residents leaving training before completion (11). These patterns sit within a broader physician-migration crisis: applications for Good Standing Certificates from the Turkish Medical Association rose from 59 in 2012 to 2,685 in 2022, with a structural break around 2017–2018 coinciding with overlapping economic, political, and health-system pressures (12). Reported push factors include demanding working conditions, workplace violence, systemic dysfunction, and burnout, the latter highly prevalent among attending Turkish surgeons (13,14).

What remains absent from the literature is a systematic, multi-year empirical analysis of TUS placement outcomes. Existing Turkish studies have examined single cycles, surveyed candidates, or described the broader workforce, but none has quantified how fill rates, score distributions, and supplementary-placement dynamics have evolved across consecutive cycles, or how they vary by institution type, geography, and quota structure. This gap is consequential because placement outcomes — fill rates, fully unfilled centres, and score floors and ceilings — operationalise specialty preference into tangible workforce signals that survey instruments cannot easily capture.

Methods

This retrospective descriptive study analyzed general surgery residency placement data

obtained from fourteen consecutive Tıpta Uzmanlık Sınavı (TUS) cycles conducted between 2019 and 2025 in Türkiye. All placement data were retrieved from publicly accessible datasets published on the official website of the Measurement, Selection and Placement Center (ÖSYM), the national authority responsible for residency examination and placement procedures (15).

The study dataset included institutional quota characteristics, placement outcomes, quota fill rates, placement score distributions, hospital types, geographic regions, metropolitan status, supplementary placement status, quota size, and quota category. Hospital types were classified as university hospitals, training and research hospitals, and city hospitals. Geographic analyses were performed according to the official regional classification of Türkiye. Metropolitan status was determined based on official metropolitan municipality designation.

The unit of analysis was an individual quota record, defined as a general surgery quota line for a specific institution, TUS examination period, and quota category. Thus, the same institution could contribute more than one record across different examination periods or quota categories. For each record, the fill rate was calculated as the number of filled positions divided by the number of available positions and expressed as a percentage. The overall mean fill rate represents the unweighted arithmetic mean of these record-level fill percentages rather than the position-level proportion obtained by dividing the total number of filled positions by the total number of available positions.

Quota fill rates were evaluated across examination periods, institutional categories, geographic regions, and quota structures. Fully filled, partially filled, and fully unfilled quota records were analyzed separately. Domestic and international quota lines were also examined comparatively.

Because the study used exclusively publicly accessible, fully anonymized secondary data and did not involve direct human participation, patient information, or identifiable personal data, ethics committee approval and informed consent were not required in accordance with national research regulations and institutional ethical standards. The study was conducted in accordance with the principles of the Declaration of Helsinki (16).

Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics (IBM Corp., Armonk, NY, USA). The analysis was primarily descriptive because the dataset comprised nationwide administrative placement records covering all available general surgery quota lines during the study period rather than a sample drawn for hypothesis testing. Continuous variables were summarized using mean, median, minimum, maximum, and measures of dispersion where appropriate, while categorical variables were expressed as frequencies and percentages. Fill rates were examined across examination periods, hospital types, geographic regions, metropolitan status, supplementary placement status, quota size, and quota category. Temporal changes were evaluated descriptively across consecutive examination periods and calendar years. Accordingly, comparisons between groups were interpreted as observed differences within the study dataset and were not intended to imply statistical significance or causality.

Results

A total of 2,617 placement records obtained from fourteen consecutive TUS examination periods conducted between 2019 and 2025 were included in the analysis. Annual record counts ranged from 314 (12.0%) in 2020 to 485 (18.5%) in 2025, with a balanced distribution between spring ($n = 1,319$; 50.4%) and autumn ($n = 1,298$; 49.6%) examination periods. University hospitals contributed 1,839 records (70.3%),

training and research hospitals 534 (20.4%), and city hospitals 244 (9.3%). The largest regional contribution was from Marmara (29.6%), followed by Central Anatolia (21.7%), the Black Sea (14.7%), Aegean (13.0%), Eastern Anatolia (7.3%), Mediterranean (6.7%), Southeastern Anatolia (6.5%), and Cyprus (0.6%). Metropolitan provinces accounted for 79.4% of records. The median quota size was 2 positions (range: 1–18); single-position quotas comprised 43.6% of records and quotas of ≥ 6 positions 5.7%. Domestic quotas represented 72.9% of records and international quotas 27.1% (Table 1).

The pooled mean fill rate across the study period was 48.30%, with 45.3% of quota records fully filled and 47.9% fully unfilled. Period-specific mean fill rates ranged from 38.99% (2021 spring) to 68.47% (2020 autumn). The highest values were observed in 2020 autumn (68.47%), 2019 autumn (66.07%), and 2020 spring (58.83%); the lowest were observed in 2021 spring (38.99%), 2023 autumn (39.59%), and 2024 autumn (39.92%). The proportion of fully unfilled quota records ranged from 30.4% (2020 autumn) to 57.7% (2024 autumn) (Table 2).

Mean fill rates differed across hospital types. City hospitals had a mean fill rate of 82.83%, with 82.0% of quota records fully filled and 15.6% fully unfilled. Training and research hospitals had a mean fill rate of 59.24% (54.9% fully filled; 36.7% fully unfilled). University hospitals had a mean fill rate of 40.54% (37.7% fully filled; 55.4% fully unfilled) (Table 3).

Mean fill rates ranged from 3.33% (Cyprus) to 60.87% (Marmara). Values in the remaining regions were 58.09% in the Mediterranean, 53.89% in Central Anatolia, 47.81% in the Aegean, 35.64% in Southeastern Anatolia, 28.77% in the Black Sea, and 26.69% in Eastern Anatolia. The proportion of fully unfilled quota records was lowest in Marmara (36.1%), the Mediterranean (40.0%), and Central Anatolia (43.7%), and highest in Cyprus (93.3%), the Black Sea (67.5%), and Eastern Anatolia (62.8%) (Table 4).

Table 1. Descriptive characteristics of the study dataset (n = 2617 placement records).

Variable	n	%
Examination year		
2019	341	13.0
2020	314	12.0
2021	376	14.4
2022	335	12.8
2023	344	13.1
2024	422	16.1
2025	485	18.5
Examination period		
Spring	1319	50.4
Autumn	1298	49.6
Supplementary placement		
No	1733	66.2
Yes	884	33.8
Hospital type		
University hospital	1839	70.3
Training and research hospital	534	20.4
City hospital	244	9.3
Geographic region		
Marmara	775	29.6
Central Anatolia	568	21.7
Black Sea	385	14.7
Aegean	339	13.0
Eastern Anatolia	191	7.3
Mediterranean	175	6.7
Southeastern Anatolia	169	6.5
Cyprus	15	0.6
Provincial status		
Metropolitan	2077	79.4
Non-metropolitan	540	20.6
Quota size group		
1 position	1141	43.6
2 positions	526	20.1
3–5 positions	801	30.6
≥ 6 positions	149	5.7
Quota type		
Domestic quota	1908	72.9
International quota	709	27.1

Data were compiled from ÖSYM TUS placement guides (2019–2025). No missing values. Median quota size was 2 (range: 1–18). ÖSYM: Assessment, Selection and Placement Centre (Ölçme, Seçme ve Yerleştirme Merkezi); TUS: Medical Specialty Examination (Tıpta Uzmanlık Sınavı).

Table 2. Quota fill profile by examination year and period.

Year	Period	n	Mean fill rate (%)	Fully filled quota records (%)	Fully unfilled quota records (%)
2019	Spring	172	53.58	52.9	45.3
2019	Autumn	169	66.07	65.1	32.5
2020	Spring	166	58.83	57.8	39.8
2020	Autumn	148	68.47	67.6	30.4
2021	Spring	182	38.99	32.4	52.7
2021	Autumn	194	42.00	40.2	54.6
2022	Spring	181	57.67	53.0	38.1
2022	Autumn	154	46.08	38.3	44.2
2023	Spring	169	50.02	47.9	46.7
2023	Autumn	175	39.59	32.6	51.4
2024	Spring	209	41.09	39.2	56.5
2024	Autumn	213	39.92	38.5	57.7
2025	Spring	240	46.09	42.9	50.0
2025	Autumn	245	40.04	37.6	57.1
Pooled	—	2617	48.30	45.3	47.9

Fill rate was calculated for each quota record as the number of placed candidates divided by the number of available positions. Percentages for fully filled and fully unfilled categories were calculated using the number of quota records within each examination period as the denominator. The pooled mean fill rate represents the unweighted mean of record-level fill percentages.

Table 3. Quota fill profile by hospital type.

Hospital type	n (%)	Mean fill (%)	Fully filled (%)	Partially filled (%)	Unfilled (%)
City hospital	244 (9.3)	82.83	82.0	2.5	15.6
Training and research hospital	534 (20.4)	59.24	54.9	8.4	36.7
University hospital	1839 (70.3)	40.54	37.7	6.9	55.4

Percentages for fully filled, partially filled, and unfilled categories were calculated using quota records within the corresponding group as the denominator.

Table 4. Quota fill profile by geographic region.

Geographic region	n (%)	Mean fill (%)	Fully filled (%)	Partially filled (%)	Unfilled (%)
Marmara	775 (29.6)	60.87	58.3	5.5	36.1
Mediterranean	175 (6.7)	58.09	57.1	2.9	40.0
Central Anatolia	568 (21.7)	53.89	52.1	4.2	43.7
Aegean	339 (13.0)	47.81	43.4	8.3	48.4
Southeastern Anatolia	169 (6.5)	35.64	31.4	11.2	57.4
Black Sea	385 (14.7)	28.77	26.5	6.0	67.5
Eastern Anatolia	191 (7.3)	26.69	18.8	18.3	62.8
Cyprus	15 (0.6)	3.33	0.0	6.7	93.3

Percentages for fully filled, partially filled, and unfilled categories were calculated using quota records within the corresponding geographic region as the denominator.

Table 5. Fill profile by metropolitan status and quota size.

Variable	n (%)	Mean fill (%)	Fully filled (%)	Unfilled (%)
Panel A. Provincial status				
Metropolitan	2077 (79.4)	54.68	51.9	41.8
Non-metropolitan	540 (20.6)	23.76	20.2	71.1
Panel B. Quota size				
1 position	1141 (43.6)	41.72	41.7	58.3
2 positions	526 (20.1)	44.01	41.3	53.2
3–5 positions	801 (30.6)	57.70	51.3	33.8
≥6 positions	149 (5.7)	63.35	55.0	24.8

Quota size groups were defined according to the total number of announced positions within each quota record.

Percentages for fully filled and unfilled categories were calculated using quota records within the corresponding provincial-status or quota-size group as the denominator.

Table 6. Mean quota fill rates by examination year and hospital type (%).

Year	University hospital	Training & research hospital	City hospital	Overall mean
2019	53.17	85.37	95.45	59.77
2020	55.69	88.89	95.65	63.37
2021	32.40	59.94	88.62	40.54
2022	44.56	67.09	86.56	52.34
2023	34.76	56.09	82.50	44.72
2024	30.20	46.83	79.17	40.50
2025	34.09	51.10	70.37	43.04

All values are unweighted mean record-level fill percentages.

Mean fill rates were 54.68% in metropolitan provinces (51.9% fully filled; 41.8% fully unfilled) and 23.76% in non-metropolitan provinces (20.2% fully filled; 71.1% fully unfilled). When stratified by quota size, mean fill rates were 41.72% for single-position quotas, 44.01% for two-position quotas, 57.70% for 3–5 position quotas, and 63.35% for quotas of ≥6 positions (Table 5).

Mean fill rates declined across all three hospital types between 2019 and 2025. In university hospitals, mean fill rates decreased from 53.17% in 2019 to 34.09% in 2025, with a low of 30.20% in 2024. In training and research hospitals, mean fill rates decreased from 85.37% in 2019 to 51.10% in 2025, with a low of 46.83% in 2024. In city hospitals, mean fill rates decreased from 95.45% in 2019 to 70.37% in 2025. The overall annual mean fill rate ranged from 40.50% (2024) to 63.37% (2020) (Table 6).

Among quotas with at least one placed candidate ($n = 1,364$), the median minimum placement score ranged from 47.88 (2024) to 53.00 (2025), and the median maximum placement score ranged from 49.88 (2020) to 55.25 (2021 and 2025). Full ranges of minimum scores spanned 45.05 to 68.90 across years, and maximum scores spanned 45.10 to 73.68 (Table 7).

Of all quota records, 1,733 (66.2%) were filled within the principal placement round, with a mean fill rate of 72.93% (68.3% fully filled; 31.7% fully unfilled). The remaining 884 quota records (33.8%) entered the supplementary placement stage; in this round their mean fill rate was 0.10%, and 99.9% remained fully unfilled (Table 8). Stratified by hospital type, the rate of entering the supplementary stage was 11.9% for city hospitals, 24.3% for training and research hospitals, and 39.4% for university hospitals (Table 9).

Table 7. Distribution of minimum and maximum scores in filled quotas by examination year.

Year	n	Minimum score (median, IQR)	Maximum score (median, IQR)	Min (range)	Max (range)
2019	207	50.45 (47.12–54.12)	51.88 (47.56–56.67)	45.12–66.34	45.12–69.12
2020	203	48.12 (46.12–51.34)	49.88 (46.45–53.45)	45.12–63.45	45.12–66.34
2021	174	51.54 (47.52–55.84)	55.25 (51.14–59.54)	45.09–68.90	45.12–73.68
2022	198	50.59 (47.52–55.01)	54.68 (49.45–58.69)	45.09–68.22	45.12–73.68
2023	175	48.45 (46.16–52.46)	52.13 (49.13–56.73)	45.09–65.62	45.13–73.68
2024	182	47.88 (45.88–50.12)	50.67 (47.51–53.03)	45.12–61.12	45.12–61.12
2025	225	53.00 (50.00–56.12)	55.25 (52.12–58.97)	45.05–68.90	45.10–70.12

Only quotas with at least one placed candidate are included; fully unfilled quotas have no score record. IQR: interquartile range.

Table 8. Impact of the supplementary placement process on quota fill.

Placement stage	n (%)	Mean fill (%)	Fully filled (%)	Unfilled (%)
Did not enter supplementary stage	1733 (66.2)	72.93	68.3	31.7
Entered supplementary stage	884 (33.8)	0.10	0.1	99.9

Percentages were calculated using quota records within each placement-stage category as the denominator. Entry into the supplementary stage followed non-filling during the principal placement round; therefore, the observed association should not be interpreted as a causal effect of supplementary placement.

Table 9. Supplementary information: rate of entering the supplementary stage by hospital type.

Hospital type	No supplementary (%)	With supplementary (%)
City hospital	88.1	11.9
Training and research hospital	75.7	24.3
University hospital	60.6	39.4

Percentages represent the proportion of quota records within each hospital type that entered the supplementary placement stage.

Table 10. Comparison of domestic and international quota profiles.

Panel A. Overall fill profile					
Quota type	n (%)	Mean fill (%)	Fully filled (%)	Partially filled (%)	Unfilled (%)
Domestic	1908 (72.9)	58.24	54.2	9.1	36.6
International	709 (27.1)	21.56	21.3	0.6	78.1

Panel B. Distribution by year					
Year	Domestic n (%)	International n (%)	Domestic mean fill (%)	International mean fill (%)	International share (%)
2019	257 (75.4)	84 (24.6)	71.53	23.81	24.6
2020	252 (80.3)	62 (19.7)	67.46	46.77	19.7
2021	285 (75.8)	91 (24.2)	47.35	19.23	24.2
2022	265 (79.1)	70 (20.9)	56.92	35.00	20.9
2023	257 (74.7)	87 (25.3)	51.88	23.56	25.3
2024	260 (61.6)	162 (38.4)	56.50	14.81	38.4
2025	332 (68.5)	153 (31.5)	57.65	11.33	31.5

Of international quota positions, 94.1% were located in university hospitals and 5.8% in training and research hospitals; city hospitals offered no international quota in practice (n = 1). The share of international quotas increased in 2024 (from 19.7% to 38.4%), and this structural change should be considered when interpreting overall fill trends.

Domestic quotas ($n=1,908$; 72.9%) had a mean fill rate of 58.24% (54.2% fully filled; 9.1% partially filled; 36.6% fully unfilled). International quotas ($n=709$; 27.1%) had a mean fill rate of 21.56% (21.3% fully filled; 0.6% partially filled; 78.1% fully unfilled). The share of international quotas was 24.6% in 2019, 19.7% in 2020, 24.2% in 2021, 20.9% in 2022, 25.3% in 2023, 38.4% in 2024, and 31.5% in 2025. Mean fill rates for international quotas ranged from 11.33% (2025) to 46.77% (2020), and mean fill rates for domestic quotas ranged from 47.35% (2021) to 71.53% (2019). Of international quota positions, 94.1% were located in university hospitals and 5.8% in training and research hospitals (Table 10).

Discussion

Across the seven-year study period, general surgery placement patterns changed in several notable ways. Mean fill rates showed an overall downward pattern despite year-to-year fluctuations, and clear differences were observed across hospital types, geographic regions, and metropolitan status. Quota records that entered supplementary placement also showed persistent non-filling. These findings are broadly consistent with previous reports describing declining interest in surgical careers and changing residency recruitment patterns (3-5).

Differences across hospital types were among the most notable findings of the study. City hospitals had the highest observed mean fill rate (82.8%), followed by training and research hospitals (59.2%) and university hospitals (40.5%). University hospitals, despite their traditional role as major training quota records, showed lower observed fill rates than the other hospital categories. Career preferences are shaped by a range of personal, professional, and working-environment factors, and these may interact with institutional characteristics when candidates rank training positions (6,10). Several factors may therefore contribute to the differences observed in the present study. University hospitals accounted for 70.3% of all

quota records, while international quotas, which had lower observed fill rates, were concentrated predominantly in university hospitals. In addition, hospital type, metropolitan location, quota category, and other institutional characteristics may overlap. Therefore, the observed differences between hospital types should not be interpreted as independent effects of institution type alone.

The geographic gradient is even more dramatic, with mean fill ranging from 60.9% in Marmara to 3.3% in Cyprus, and a 31-percentage-point gap between metropolitan (54.7%) and non-metropolitan (23.8%) provinces. This pattern is consistent with the broader geographic maldistribution of the surgical workforce described in other settings (8). In the Turkish context, persistently low fill rates in Eastern Anatolia and the Black Sea region may contribute to ongoing geographic imbalances in the surgical workforce. The Cyprus finding should be interpreted more cautiously because of the small number of observations.

The temporal trajectory aligns with the push factors documented in recent Turkish literature. Although annual fill rates fluctuated over the study period, the overall pattern was downward across all three hospital types between 2019 and 2025, with the largest absolute decrease observed in university hospitals (53.2% to 34.1%) and the lowest overall annual level recorded in 2024. Yıldız and Khan reported that fewer than 30% of TUS candidates intended to pursue surgery, with malpractice risk and workplace violence as significant deterrents (10), while Aydın and colleagues documented a more than 45-fold rise in Good Standing Certificate applications across the same window (12). Burnout among attending Turkish surgeons (14) and the broader brain-drain literature (13) complete the picture. The present results extend that evidence base by demonstrating that these macro-level pressures translate directly into measurable placement-level outcomes. A similar pattern has also been observed in general surgery subspecialty placements in Türkiye, where occupancy rates declined over time despite

an increase in available positions, suggesting that reduced filling may extend beyond core residency recruitment to later stages of surgical training (17).

Two aspects of the results deserve closer attention. Quota records entering the supplementary placement stage showed a very high rate of persistent non-filling, with 99.9% remaining fully unfilled. However, entry into the supplementary stage occurs after failure to fill during the principal placement round, and this association should therefore not be interpreted as evidence that the supplementary process itself causes poor filling. Rather, supplementary placement appears to identify quota records with a particularly high likelihood of remaining unfilled. Separately, international quota records showed a notable mismatch between increasing quota availability and declining observed fill rates. The share of international quotas increased from 19.7% in 2020 to 38.4% in 2024, while their mean fill rate decreased over the same period. This pattern may indicate that expansion in available positions was not matched by a corresponding increase in placement demand. Such findings should be considered within the broader context of specialty-choice determinants and changing physician career preferences reported in Türkiye and elsewhere (6,10-13,17).

Notably, placement score distributions among filled quota records remained relatively stable across the study period, with median minimum scores ranging from 47.9 to 53.0. This finding suggests that the observed decline in fill rates was not accompanied by a marked shift in the score distribution among successfully placed candidates. However, because completely unfilled quota records have no placement score data, these findings should be interpreted with caution and may be subject to selection effects.

This study has several limitations. First, the ecological analysis was based on administrative placement records and did not include candidate-level characteristics such as age,

sex, socioeconomic background, individual preferences, or reasons for specialty choice. Second, hospital type, geographic location, metropolitan status, and quota category may be interrelated, and the descriptive design does not allow these factors to be separated as independent determinants of fill rates. Third, candidate preference-ranking data were not available, limiting interpretation of why particular institutions or regions were selected or avoided. In addition, placement outcomes do not necessarily reflect subsequent residency enrollment, retention, transfer, resignation, or completion. Finally, the observational design does not permit causal attribution of the observed patterns to specific policy, economic, institutional, or workforce-related changes.

Conclusion

Between 2019 and 2025, general surgery residency placements in Türkiye showed an overall decline in fill rates, although the pattern was not uniform from year to year. The findings also revealed substantial variation across hospital types, geographic regions, metropolitan status, and quota categories. Lower fill rates were particularly evident in university hospitals and non-metropolitan areas, while quota records entering supplementary placement frequently remained unfilled. These findings should be interpreted as descriptive national patterns rather than independent or causal effects of institutional or geographic characteristics. Continued monitoring of placement trends, together with candidate-level preference and follow-up data, may help clarify the factors shaping general surgery recruitment and support more targeted workforce planning.

Ethical approval

Ethics committee approval was not required because this study analyzed publicly available, fully anonymized secondary data obtained from the official website of the Measurement,

Selection and Placement Center (ÖSYM). The study did not involve human participants, identifiable or re-identifiable personal data, or any intervention. The study was conducted in accordance with relevant ethical principles and the Declaration of Helsinki.

Author contribution

The authors confirm contribution to the paper as follows: Study conception and design: SC, SD, SB; data collection: SC, AY, FY, MSS; analysis and interpretation of results: SC, SD, AY, SB; draft manuscript preparation: SC, SD, MSS; critical revision: SD, FY, SB; supervision: SB. All authors reviewed the results and approved the final version of the manuscript.

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Conflict of interest

The authors declare that there is no conflict of interest.

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