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From Presentation to Publication: Publication Rates of Abstracts Presented at the Meetings of Two Neurosurgical Societies in Türkiye

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ABSTRACT

AIM: To assess the overall trends in scientific dissemination at neurosurgery meetings organized by the Turkish Neurosurgical Society (TNS) and the Society of Surgery of the Nervous System (SSNS), two major neurosurgical societies in Turkey.

MATERIAL and METHODS: We reviewed 2,696 abstracts presented at TNS and SSNS annual meetings (2018–2022) and identified subsequent full-text publications through PubMed and Google Scholar. Data collected included presentation type, neurosurgical subspecialty, journal indexing, impact factor, and time to publication.

RESULTS: Of 2,696 abstracts, 323 (11.98%) were published as full-text articles, with a median time to publication of 11 months. Oral presentations had a significantly higher publication rate than poster presentations (20.8% vs 5.9%, p<0.001). Award-winning abstracts showed a higher publication rate (73.08%, p<0.001). Most publications appeared in SCIE-indexed journals (59.9%). No significant differences were found between TNS and SSNS in terms of publication rate (p=0.419) or time to publication (p=0.806). Rates varied by subspecialty, highest in surgical neuroanatomy (30.3%), and pediatric neurosurgery (15.5%), and lowest in spinal (8.7%) and neuro-oncology (8.5%) (p<0.001).

CONCLUSION: Although overall publication rates remain modest, oral presentations, award-winning abstracts, and certain subspecialties showed higher conversion to full-text publication. Initiatives such as structured mentorship, multi-center collaboration, and editorial support may enhance dissemination and publication success.

KEYWORDS: Academic neurosurgery, Publication rate, Conference abstracts, Turkish Neurosurgical Society, Society of Surgery of the Nervous System

ABBREVIATIONS: TNS: Turkish Neurosurgical Society, **SSNS:** Society of Surgery of the Nervous System, **WoS:** Web of Science, **JCR:** Journal Citation Reports, **SCIE:** Science Citation Index Expanded, **ESCI:** Emerging Sources Citation Index, **AANS:** American Association of Neurological Surgeons, **CNS:** Congress of Neurological Surgeons

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INTRODUCTION

At scientific conferences, researchers share their findings with peers through oral or poster presentations. These gatherings serve as vital platforms for critical discussion, fostering scientific progress within the field, and representing an important step in the research process on the path to publication. The ultimate goal of scientific research is the publication of a manuscript in a peer-reviewed journal, a milestone that secures the study's place in the permanent scientific record and is widely regarded as an indicator of research validity (5).

Despite rigorous review processes, the quality of abstracts accepted for presentation at scientific conferences is often constrained by high submission volumes and word count limitations (2). A 2016 systematic review of biomedical research found that only 37% of 307,028 abstracts were subsequently published as full articles in peer-reviewed journals (4,6). In Turkish Neurosurgery, prior research reported a relatively low publication rate of 10.5% for abstracts presented at the Turkish Neurosurgical Society's annual meetings between 2011 and 2014, with marked variation by presentation type (1). These findings highlight the need to reassess publication trends and evaluate progress in scientific dissemination.

This study aimed to evaluate the overall trends in scientific dissemination at neurosurgery meetings organized by the Turkish Neurosurgical Society (TNS) and the Society of Surgery of the Nervous System (SSNS), two major neurosurgical societies in Turkey.

MATERIAL and METHODS

This observational study, approved by the Ethics Committee of Izmir Katip Celebi University (Date: 18.7.2024, Decision Number: 0056), reviewed abstracts presented at the annual scientific meetings of the Turkish Neurosurgical Society and the Society of Surgery of the Nervous System between 2018 and 2022.

Data Collection

The abstract information, including author names, study titles, and content for both oral and poster presentations, was accessed through different sources for each society's meetings. For SSNS meetings, congress booklets were requested by email from the society's secretariat. For TNS meetings, abstracts were retrieved from the Turkish Neurosurgery Journal, available through its official website (https://norosirurji.dergisi.org/archive.php). In addition to presentation type (oral or poster), abstracts were categorized into subgroups by topic, including spinal, neurovascular, neuro-oncological, pediatric, and others.

Publication Search Strategy

The original Turkish titles and keywords of the abstracts were translated into English to ensure consistency in search. To determine whether the abstracts were subsequently published as full-text articles, a systematic search was conducted in PubMed using the following stepwise approach:

- The Turkish and English titles of each abstract were searched.
- If no match was found, the first author's name was searched in combination with the first Turkish and English keywords.
- If still unsuccessful, the first author's name was searched with the second Turkish and English keywords.
- This process was repeated sequentially for each Turkish and English keyword.
- If no publication was identified, the same procedure was sequentially applied to the second and third authors.

If no corresponding publication was identified in PubMed, the identical search strategy was repeated using Google Scholar.

Matching Criteria

When a potential publication was identified, its abstract was compared with the original conference abstract to confirm accuracy. A study was classified as a "published article" if the title, authorship, and study content were nearly identical.

Exclusion Criteria:

- Minor modifications were allowed; however, studies with major changes, such as alterations in protocol, more than 10% difference in sample size, or a change in follow-up duration, were considered different and excluded from the "published article" category.
- Abstracts already published as full-text articles before being presented at the meeting or later retracted after publication were also excluded.

For each matched publication, the journal name, indexing databases, and publication date were recorded Impact factors for journals indexed in Science Citation Index Expanded (SCIE) or Emerging Sources Citation Index (ESCI) were noted according to the corresponding year's *Web of Science* (WoS) *Journal Citation Reports* (JCR). For journals published in 2024, the 2023 JCR data were used, as the 2024 reports were not yet available at the time of writing.

The 2018–2022 period was selected as it represented the most recent five-year window available at the time of data collection (2024) and provided a sufficient interval for abstracts to progress to full-text publication.

Statistical analyses were performed using IBM SPSS, version 27. Descriptive statistics were reported as the mean and standard deviation for continuous variables, median for ordinal variables, and percentages for nominal variables. Pearson's chi-square was used for binary comparisons of nominal data, while Independent Samples *t*-tests were applied to continuous variables. The normality of the journal impact factor was assessed with the Shapiro–Wilk test and analyzed using the Mann–Whitney U test. Publication trends over time were evaluated using the Cochran–Armitage test. Differences in publication rates among neurosurgical subspecialties were evaluated using the Kruskal–Wallis test. A p-value of <0.05 was considered indicative of statistical significance.

RESULTS

Of 2,796 abstracts initially reviewed, 89 were excluded because they had already been published as full-text articles before the meeting, and one was excluded due to retraction after publication. The 2020 TNS meeting was cancelled due to the COVID-19 pandemic; thus, only the 2018, 2019, 2021, and 2022 meetings were analyzed. SSNS meetings were held annually, but no poster presentations took place in 2021 and 2022. In total, 2,696 abstracts were included in the analysis (Table I). Of these, 323 (11.98%) were subsequently published as full-text articles in peer-reviewed journals. Publication occurred in 228 of 1,096 oral presentations (20.80%) and 95 of 1,600 poster presentations (5.94%), a statistically significant difference (χ^2, p<0.001).

TNS meetings accounted for 2,513 abstracts, with a publication rate of 12.14%. SSNS meetings included 183 abstracts, with a publication rate of 9.84%, a difference that was not statistically significant (χ^2, p=0.419). However, oral presentations at TNS showed a significantly higher publication rate (22.5%) than those at SSNS (10.5%) (p=0.001).

The overall publication rate varied across the study period (Table II), peaking at 15.2% in 2018 and reaching its nadir (3.6%) in 2020, likely due to the COVID-19 pandemic. A significant trend was observed for TNS meetings, showing a decline over the years (Cochran–Armitage trend test, p=0.026), whereas no consistent trend was seen for SSNS (Cochran–Armitage trend test, p=0.247) (Figure 1).

Award data were unavailable for all SSNS meetings and the TNS 2018 meeting, and the TNS 2020 meeting was cancelled. Award-winning abstracts, all from TNS meetings (2019, 2021, 2022), had a significantly higher publication rate (73.08%) than non-awarded abstracts (χ^2, p<0.001).

Most full-text publications appeared in SCIE-indexed journals (n=193, 59.9%), followed by ESCI (n=46, 14.3%), TRDizin

Table I: Distribution of Abstracts Presented at TNS and SSNS Meetings (2018–2022), Categorized by Presentation Type (Oral or Poster). For Each Year, Oral and Poster Presentations are Shown Separately by Society. The "Total by Category" Row Indicates the Sum of Each Presentation Type by Year Across Both Societies. The "Total by Society" Column Provides the Cumulative Number of Presentations for Each Meeting Over the Five-Year Period

Meeting	2018		2019		2020		2021		2022		Total by Society	
	Oral	Poster	Oral	Poster	Oral	Poster	Oral	Poster	Oral	Poster	Oral	Poster
TNS	260	510	233	430	0[a]	0[a]	172	289	279	340	944	1569
SSNS	31	8	16	13	18	10	55	0[b]	32	0[b]	152	31
Categorical Total	291	518	249	443	18	10	227	289	311	340	1096	1600
Total	809		692		28		516		651		2696	

TNS: *Turkish Neurosurgical Society.* ***SSNS:*** *The Society of Surgery of the Nervous System.*

a. *The TNS meeting was not held in 2020 due to the COVID-19 pandemic.* ***b.*** *No poster presentations were included in SSNS meetings in 2021 and 2022.*

Table II: Publication Rates Of Oral And Poster Presentations at TNS and SSNS Meetings (2018–2022). The Table Shows the Number (n) and Percentage (%) of Oral and Poster Presentations at the Turkish Neurosurgical Society (TNS) and Society of Surgery of the Nervous System (SSNS) Annual Meetings that Resulted in Publications. The "Total by Category" Row Indicates the Sum of Oral And Poster Presentations for Each Year. The "Total by Society" Column Provides the Cumulative Number and Percentage of Published Presentations for Each Society Across the Five-Year Period

Meeting	2018 n (%)		2019 n (%)		2020 n (%)		2021 n (%)		2022 n (%)		Total by Society	
	Oral	Poster	Oral	Poster	Oral	Poster	Oral	Poster	Oral	Poster	Oral	Poster
TNS	71 (27.4)	44 (8.6)	49 (21.0)	31 (7.2)	0[a]	0[a]	45 (26.2)	10 (3.5)	47 (8.9)	8 (2.4)	212 (22.5)	93 (5.9)
SSNS	6 (19.4)	2 (25.0)	2 (12.5)	0	1 (5.6)	0	4 (7.3)	0[b]	3 (9.4)	0[b]	16 (10.5)	2 (6.5)
Categorical Total	77 (26.5)	46 (8.9)	51 (20.5)	31 (7.0)	1 (5.6)	0	49 (21.6)	10 (3.5)	50 (16.1)	8 (2.4)	228 (20.8)	95 (5.9)
Total	123 (15.2)		82 (11.9)		1 (3.6)		59 (11.4)		58 (8.9)		323 (12.0)	

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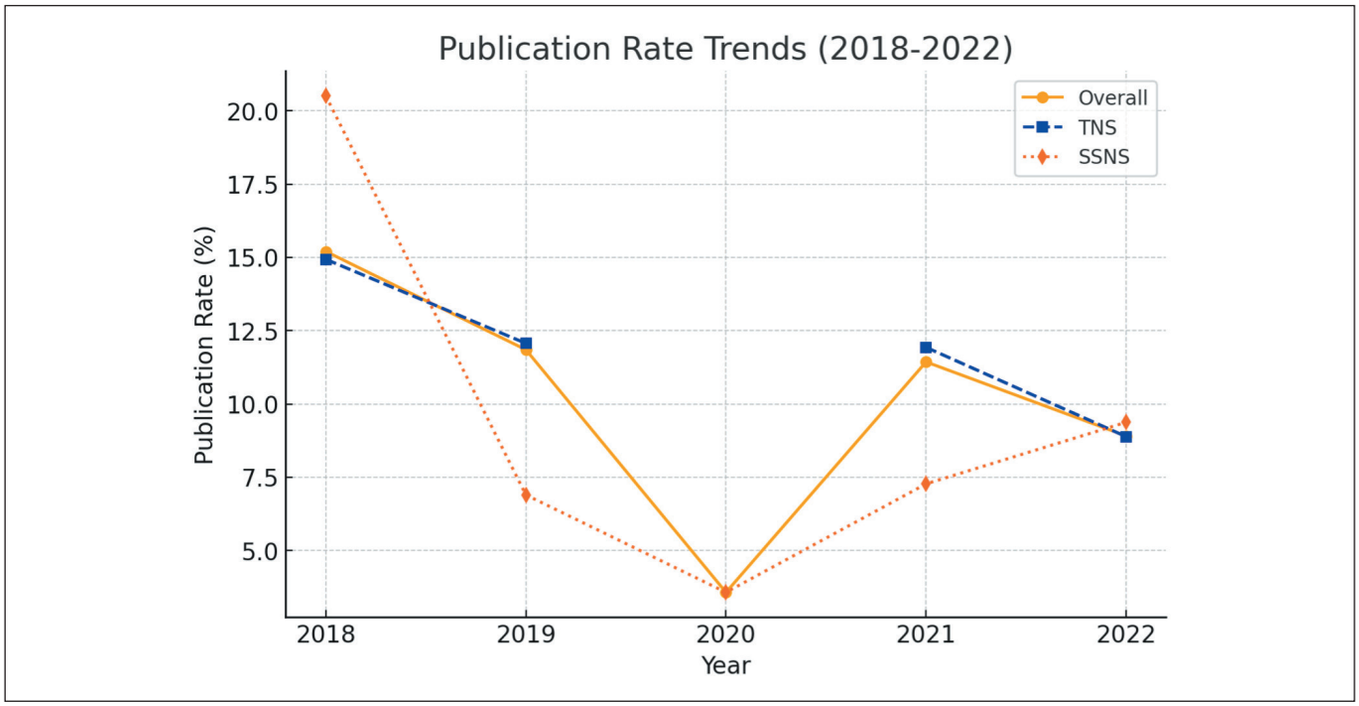

Figure 1: Publication rate trends (2018–2022) for abstracts presented at TNS and SSNS meetings. TNS data are shown in blue squares with a dashed line, SSNS data as orange diamonds with a dotted line, and overall data as yellow circles with a solid line. The 2020 TNS meeting was cancelled due to the COVID-19 pandemic. Overall, TNS meetings exhibited a gradual decline in publication rates over the years, whereas SSNS meetings showed more fluctuation.

(n=29, 9.0%), other national journals (n=22, 6.8%), Scopus (n=16, 5.0%), and other international journals (n=16, 5.0%). When analyzed by conference, TNS abstracts were mainly published in SCIE (n=184, 60.5%), followed by ESCI (n=41, 13.5%), TRDizin (n=28, 9.2%), other national journals (n=21, 6.9%), Scopus (n=15, 4.9%), and other international journals (n=15, 4.9%). SSNS abstracts were most frequently indexed in SCIE (n=9, 50%), followed by ESCI (n=5, 27.8%), while the remaining categories (TRDizin, other national journals, Scopus, and other international journals) each accounted for a single publication (n=1, 5.6%).

Publications were most often in Q3 (n=79) and Q4 (n=85) journals, with fewer in Q2 (n=31) and Q1 (n=9) journals. TNS abstracts were mainly published in Q4 (n=82) and Q3 (n=75) journals, followed by Q2 (n=29) and Q1 (n=8) journals. SSNS abstracts were published in Q4 (n=3), Q3 (n=3), Q2 (n=2), and Q1 (n=1) journals.

The median impact factor (IF) was 1.40 for TNS abstracts and 1.83 for SSNS abstracts, with no significant difference between the two groups (Mann–Whitney U test, p=0.319).

The median time to publication was 11 months (mean: 15.96), with no significant difference between TNS and SSNS (Mann–Whitney U test, p=0.806) (Figure 2). A total of 88 articles were published within six months, whereas 77 were published more than 24 months after presentation.

Subspecialty analysis revealed variation in both volume and publication rates. Spinal & Peripheral Nerve and Neuro-oncological Surgery produced the largest number of abstracts but had lower publication rates (8.7% and 8.5%, respectively). Surgical Neuroanatomy (30.3%) and Pediatric Neurosurgery (15.5%) showed the highest rates. The differences across subspecialties were statistically significant (Kruskal–Wallis test, p<0.001).

When categorized by institution type, the majority of the published abstracts originated from university hospitals (75.9%), followed by training and research hospitals (11.2%), state hospitals (8.1%), and private hospitals (5.0%). All published abstracts included identifiable institutional data.

DISCUSSION

Publication Rates

In this observational study of abstracts presented at TNS and SSNS meetings (2018–2022), the overall publication rate was approximately 12%, with no significant difference between the two societies. This aligns with the 10.5% rate reported by Eksi et al. for TNS meetings (2011–2014), indicating only modest improvement in recent years (1). These rates are low relative to international spine and neurosurgery conferences, such as the Congress of Neurological Surgeons (CNS) and the American Association of Neurological Surgeons (AANS), where publication rates exceed 30% (3). Publication rates also fluctuated over time, with a marked decline in 2020, likely reflecting cancellation of the TNS 2020, reduced research output, and delays in peer review during the COVID-19 pandemic. Although rates rebounded in 2021, the continued downward trend into

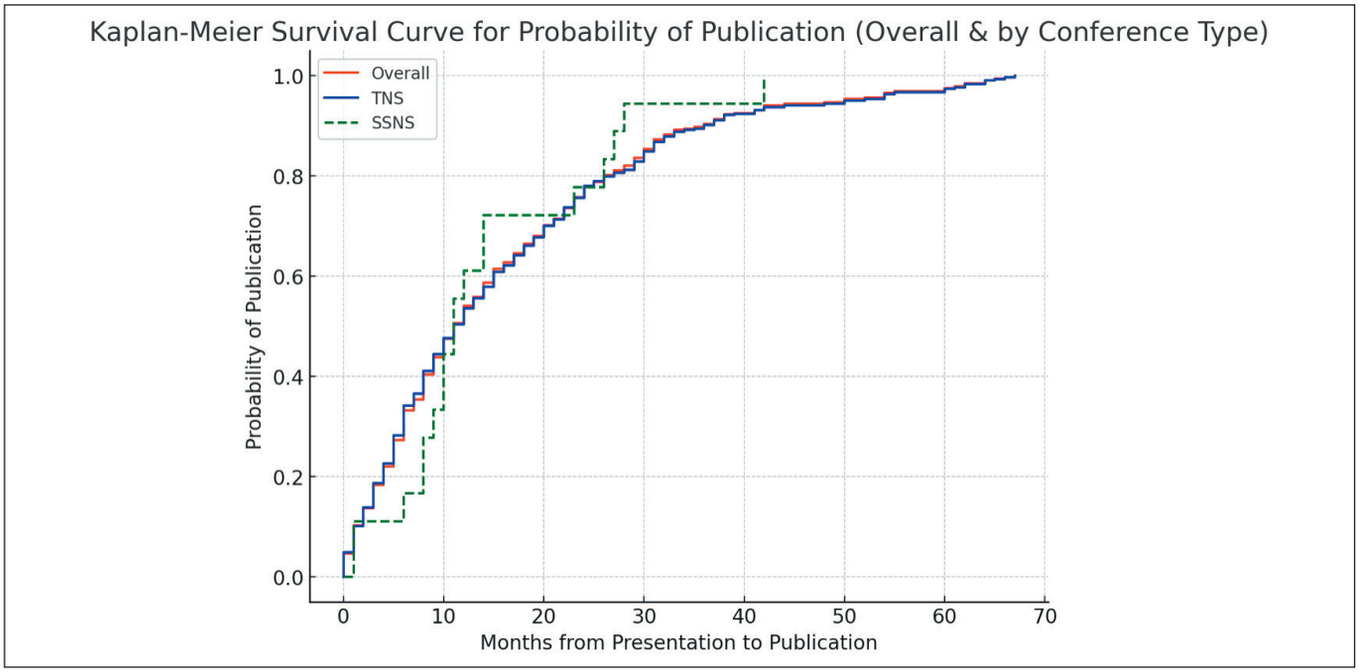

Figure 2: Kaplan-Meier survival curves showing the probability of publication over time (months) following presentations at TNS and SSNS meetings. The red solid line represents all abstracts combined, the blue solid line represents TNS abstracts, and the green dashed line represents SSNS abstracts. The x-axis shows months from presentation to publication, and the y-axis shows the cumulative probability of an abstract being published. The probability increased over time for all groups, with no significant difference between TNS and SSNS (Mann–Whitney U test, p=0.806).

2022 suggests a potential long-term impact of the pandemic on academic dissemination, warranting ongoing monitoring.

Quality of the Journals

The indexing of published abstracts is an important indicator of the visibility and impact of research presented at neurosurgical conferences. Most abstracts in this study were published in SCIE-indexed journals (59.9%), followed by ESCI (14.3%) and TRDizin (9.0%), with fewer in other national and international journals. This pattern was consistent by conference type: TNS abstracts appeared mainly in SCIE-indexed journals (60.5%), while SSNS abstracts also favored SCIE (50%) but showed a relatively higher proportion in ESCI (27.8%). These findings suggest that both conferences facilitate broad dissemination, with SCIE-indexed journals representing the most common avenue for full-text publication. Among abstracts published in WoS-indexed journals (SCIE or ESCI), most appeared in lower-quartile outlets, particularly Q4 (n=85) and Q3 (n=79) journals, with fewer in Q2 (n=31) and Q1 (n=9). The overall median journal impact factor was 1.45. This distribution mirrors previous reports, as conference abstracts are often published in lower-quartile journals due to their preliminary nature and the preference of high-impact journals for large-scale, methodologically robust studies (2).

Oral Presentation vs Poster Presentation

Presentation type strongly influenced the likelihood of full-text publication. Oral presentations had a significantly higher publication rate (20.8%) than posters (5.9%), a pattern consistently reported in the literature. For example, an analysis of major spine meetings showed that podium (oral) presentations are more likely to be published than posters, as conferences typically reserve podium slots for studies deemed methodologically sound or clinically impactful (2). Similarly, Weale et al. reported higher conversion rates for oral presentations at surgical conferences across the UK (6). In our study, oral presentations were also more frequently published in SCIE-indexed journals (64.9%) compared with poster presentations (47.9%). This reinforces the observation that oral presentations tend to be associated with higher-impact publications, likely reflecting more rigorous selection criteria for oral sessions and the higher level of evidence emanating from these studies. These findings are consistent with previous studies showing that high-impact research is preferentially selected for podium presentations at scientific conferences.

Oral presentations at TNS meetings had a significantly higher publication rate than those at SSNS meetings. This discrepancy may reflect variations in abstract review processes, the range of research topics, or how each society structures and prioritizes oral sessions. Differences in conference size may also contribute to heterogeneity in publication outcomes.

Awarded Presentations

Award-winning abstracts at TNS meetings had a significantly higher likelihood of publication, consistent with data from international conferences (1,2). This is expected, as award committees typically recognize studies with rigorous methodology, clinical relevance, and strong preliminary data, all of which increase the likelihood of publication.

Publication by Subspecialties

The distribution of abstracts across neurosurgical subspecialties revealed notable differences in submission volume and publication rates. Most abstracts were submitted in spinal & peripheral nerve surgery and neuro-oncological surgery, but these groups showed relatively low publication rates (8.72% and 8.50%, respectively). In contrast, surgical neuroanatomy, despite having fewer abstracts, exhibited the highest publication rate (30.34%), followed by pediatric neurosurgery (15.52%), a statistically significant difference ($p<0.001$). Several factors may explain these disparities. Subspecialties with higher publication rates, such as surgical neuroanatomy, often involve anatomical dissections, cadaveric studies, and imaging-based research, which tend to be more structured and methodologically robust, increasing their chances of acceptance in peer-reviewed journals. Similarly, pediatric neurosurgery often addresses rare conditions, long-term outcomes, and specialized surgical techniques, which may draw greater editorial interest due to their novelty and clinical relevance.

Publication Time

The timeline from presentation to publication showed a distinct pattern, with the highest number of studies published within the first six months (88 articles), followed by a gradual decline over the 6–24 month period and a subsequent increase beyond 24 months (77 articles). Delayed publications may reflect extensive revisions, additional data collection, or multiple resubmissions. Authors seeking to publish in higher-impact journals, which often have longer review timelines, may also face delays. Conversely, studies published within six months likely had robust methodology, clear results, and well-prepared manuscripts at the time of presentation, facilitating faster acceptance. There was no significant difference in publication timelines between TNS and SSNS meetings ($p=0.806$), suggesting consistent publication timelines across different Turkish neurosurgical conferences, likely influenced by similar submission practices, journal preferences, and peer-review durations.

Institutional Contribution

The vast majority of published abstracts originated from university hospitals (75.9%), with lower contributions from training and research hospitals (11.2%), state hospitals (8.1%), and private hospitals (5.0%). These findings align with previous reports, including Yakar et al., who showed that university-affiliated centers dominate neurosurgical research productivity in Turkey (7). Differences in academic environment, research expectations, and access to funding and infrastructure are likely to contribute to this disparity among institution types.

Limitations

A limitation of our study is the relatively short interval between presentation and analysis (two to six years). Publication rates may rise with longer follow-up. Another limitation is the reliance on PubMed and Google Scholar databases; abstracts published in journals not indexed in these databases may have been missed, leading to a possible underestimation of the true publication rate.

CONCLUSION

Although overall publication rates remain modest, our analysis highlights key determinants of the likelihood of full-text publication. Oral presentations, award-winning abstracts, and specific subspecialties (such as Pediatric Neurosurgery) were associated with higher publication rates, aligning with global trends. These findings underscore the need for ongoing evaluation of conference outcomes to ensure that high-quality abstracts progress to publication in peer-reviewed journals. Strategies such as multi-center collaborations, dedicated writing workshops, and systematic tracking of abstract submissions may further improve conversion to publication and advance neurosurgical research.

Declarations

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Availability of data and materials: The datasets generated and/or analyzed during the current study are available from the corresponding author by reasonable request.

Disclosure: The authors declare no competing interests.

AUTHORSHIP CONTRIBUTION

Study conception and design: EMT, SB, HKS
Data collection: EMT, IES, SB
Analysis and interpretation of results: SB, IES, HKS
Draft manuscript preparation: EMT, IES, SB
Critical revision of the article: HKS
Other (study supervision, fundings, materials, etc...): HKS
All authors (EMT, IES, SB, HKS) reviewed the results and approved the final version of the manuscript.

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