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Evaluating Research Rigor in National Ophthalmology Abstracts: Insights from a STROBE-Based Assessment

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ABSTRACT

Objective: Congress abstracts reflect current research practices but often lack methodological transparency. In ophthalmology, the extent to which abstracts comply with standardized reporting frameworks remains unclear. To evaluate the study designs and reporting quality of oral presentation abstracts presented at the 57th National Congress of the Turkish Ophthalmology Society using an adapted STROBE checklist.

Methods: This descriptive cross-sectional study included 280 oral abstracts published in the official abstract book of the 2024 congress. Abstracts were classified by study design as observational, randomized controlled, or experimental. Reporting quality was assessed using an 11-item STROBE-based checklist. Each item was scored as 1 (present) or 0 (absent), yielding a total score out of 11. Two independent reviewers scored the abstracts. Differences between reviewers were analyzed using Student's t-test.

Results: Of the 280 abstracts, 93.6% (n=262) were observational studies, 4.6% (n=13) were experimental, and 1.8% (n=5) were randomized controlled trials. The overall mean STROBE score was 7.21 ± 0.96, with no significant difference between reviewers (p=0.430). The most frequently reported items were author contact information (S2), study objectives (S4), defined outcomes (S7), and participant numbers (S9). The least reported items were study design stated in the title (S1) and statistical methods including control for confounding (S8), indicating insufficient attention to methodological detail.

Conclusion: While the abstracts demonstrated moderate adherence to reporting standards, key elements related to study design and statistical transparency were frequently underreported. Incorporating checklists like STROBE into abstract submission processes and improving researcher training in study methodology may enhance the scientific quality of future ophthalmology congress presentations.

Keywords: STROBE, ophthalmology, congress abstracts, methodological quality, reporting standards

INTRODUCTION

Scientific congresses play a pivotal role in the dissemination of current research findings and the promotion of academic collaboration within medical disciplines (1). In particular, national ophthalmology congresses serve as critical platforms where clinicians and researchers share recent developments, discuss clinical innovations, and present new data. The abstracts presented at such congresses, especially oral presentations, offer insights into the research quality and methodological rigor upheld by the scientific community (2, 3). Although congress abstracts are generally not subjected to the same peer-review standards as full-length journal articles, they often reflect the prevailing trends in study design and reporting practices within the field (4, 5). Evaluating the methodological features of these abstracts is important not only for identifying common strengths and deficiencies but also for guiding efforts to improve research reporting and scientific communication (6-8).

The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist was developed to enhance the quality and transparency of observational research (9). Although it is primarily intended for full-text manuscripts, its key items can also

be adapted to assess the clarity and comprehensiveness of congress abstracts (10). Previous studies evaluating the adherence of abstracts to established reporting guidelines have revealed substantial variability in reporting quality across disciplines and formats.

To date, no study has systematically evaluated the methodological characteristics and reporting quality of abstracts presented at the National Congress of the Turkish Ophthalmology Society using the STROBE framework. Understanding the extent to which these abstracts adhere to standardized reporting principles can inform educational initiatives, improve abstract submission guidelines, and ultimately contribute to higher research standards in the field of ophthalmology.

This study aimed to evaluate the study designs and STROBE compliance levels of oral presentation abstracts presented at the 57th National Congress of the Turkish Ophthalmology Society. By doing so, we sought to provide an evidence-based overview of the methodological strengths and areas for improvement in the reporting practices of ophthalmology researchers in Türkiye.

METHODS

Study Design

This study was designed as a descriptive cross-sectional study. The research aimed to evaluate the methodological characteristics and reporting quality of abstracts presented at the 57th National Congress of the Turkish Ophthalmology Society, which was held as an in-person scientific event. The 57th National Congress of the Turkish Ophthalmology Society was held in Antalya, Türkiye, between 8-12 November 2023 as a face-to-face scientific meeting.

Data Source and Sample

All oral presentation abstracts accepted to the 57th National Ophthalmology Congress and published in the official abstract book were included in the study. Each abstract was reviewed and categorized based on study type and methodological design.

Classification of Study Designs

Abstracts were classified into specific study types according to defined criteria given below. Observational studies, including:

Case reports: Presenting individual or series of clinical cases.
Cross-sectional studies: Describing the prevalence of a condition in a defined population.
Case-control studies: Retrospective evaluations comparing exposure in individuals with and without a specific disease.
Cohort studies: Retrospective or prospective follow-up of individuals without the disease at baseline, evaluating the presence of exposure over time.

Randomized controlled trials (RCTs): Studies describing the prospective random allocation of individuals into intervention or control groups.

Experimental studies: Studies involving laboratory-based research on animals, human tissues, or in vitro models.

In determining the study design, key terms such as “randomized,” “blind,” “survey,” “prevalence,” “placebo,” “odds ratio,” “relative risk,” and “laboratory techniques” were used to guide classification.

Quality Assessment

For all abstracts classified as observational studies, the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (2007) was used to assess reporting quality (10). This tool consists of 11 items. Each item present in the abstract was scored as “1” and each missing item as “0,” generating a total STROBE score ranging from 0 to 11. Although the original STROBE checklist consists of 22 items, an 11-item version adapted for abstracts was used in this study, as the evaluation was limited to congress abstracts. This adapted version has also been employed in previous studies assessing abstract reporting quality (11).

Two independent raters evaluated and scored the abstracts separately. The results were compared for consistency, and disagreements were resolved through discussion.

To minimize potential bias, the abstracts were anonymized prior to scoring. An independent third person who was not involved in the evaluation process removed all identifying information regarding the authors and institutions before the abstracts were delivered to the raters for scoring.

Ethical Approval

Ethical approval for the study was obtained from the Non-Interventional Clinical Research Ethics Committee of Erzincan Binali Yıldırım University (Date: 01/08/2024, Decision No: 2024-10/08).

Statistical Analysis

Normality of the data was assessed using the Kolmogorov-Smirnov test. Descriptive statistics were presented as mean ± standard

deviation. Group comparisons were performed using Student's t-test. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 280 oral presentation abstracts were included in the study. Of these, 93.6% (n=262) were observational studies, 1.8% (n=5) were randomized controlled trials, and 4.6% (n=13) were experimental studies.

The mean STROBE checklist score was 7.21 ± 0.96 (7.23 ± 0.95 for Researcher 1 and 7.20 ± 0.97 for Researcher 2), with no statistically significant difference between the two raters (p=0.430). The comparison of the scores is presented in Table 1.

Table 1. Mean STROBE Item Scores and Inter-Rater Comparison for Each Checklist Criterion.

	Researcher 1	Researcher 2	Total	p
S1	0.05 ± 0.21	0.05 ± 0.21	0.05 ± 0.21	0.844
S2	0.98 ± 0.13	0.99 ± 0.08	0.99 ± 0.11	0.254
S3	0.09 ± 0.29	0.10 ± 0.29	0.09 ± 0.29	0.885
S4	0.99 ± 0.11	1 ± 0.06	0.99 ± 0.09	0.178
S5	0.71 ± 0.45	0.66 ± 0.47	0.68 ± 0.46	0.238
S6	0.53 ± 0.50	0.46 ± 0.50	0.49 ± 0.50	0.151
S7	0.99 ± 0.08	0.99 ± 0.08	0.99 ± 0.08	1
S8	0.04 ± 0.19	0.05 ± 0.22	0.05 ± 0.21	0.422
S9	1 ± 0.06	0.99 ± 0.11	0.99 ± 0.09	0.178
S10	0.93 ± 0.26	0.94 ± 0.23	0.93 ± 0.25	0.502
S11	0.94 ± 0.23	0.97 ± 0.17	0.96 ± 0.207	0.152
Total	7.23 ± 095	7.20 ± 0.97	7.21 ± 0.96	0.430

The highest scoring items were S2 (Contact details of the corresponding author), S4 (Specific objectives or hypotheses), S7 (Clearly define the primary outcome for this report), and S9 (Report the number of participants at the beginning and end of the study).

The lowest scoring items were S1 (Indicate the study design with a commonly used term in the title) and S8 (Describe statistical methods, including those used to control for confounding) (Figure 1).

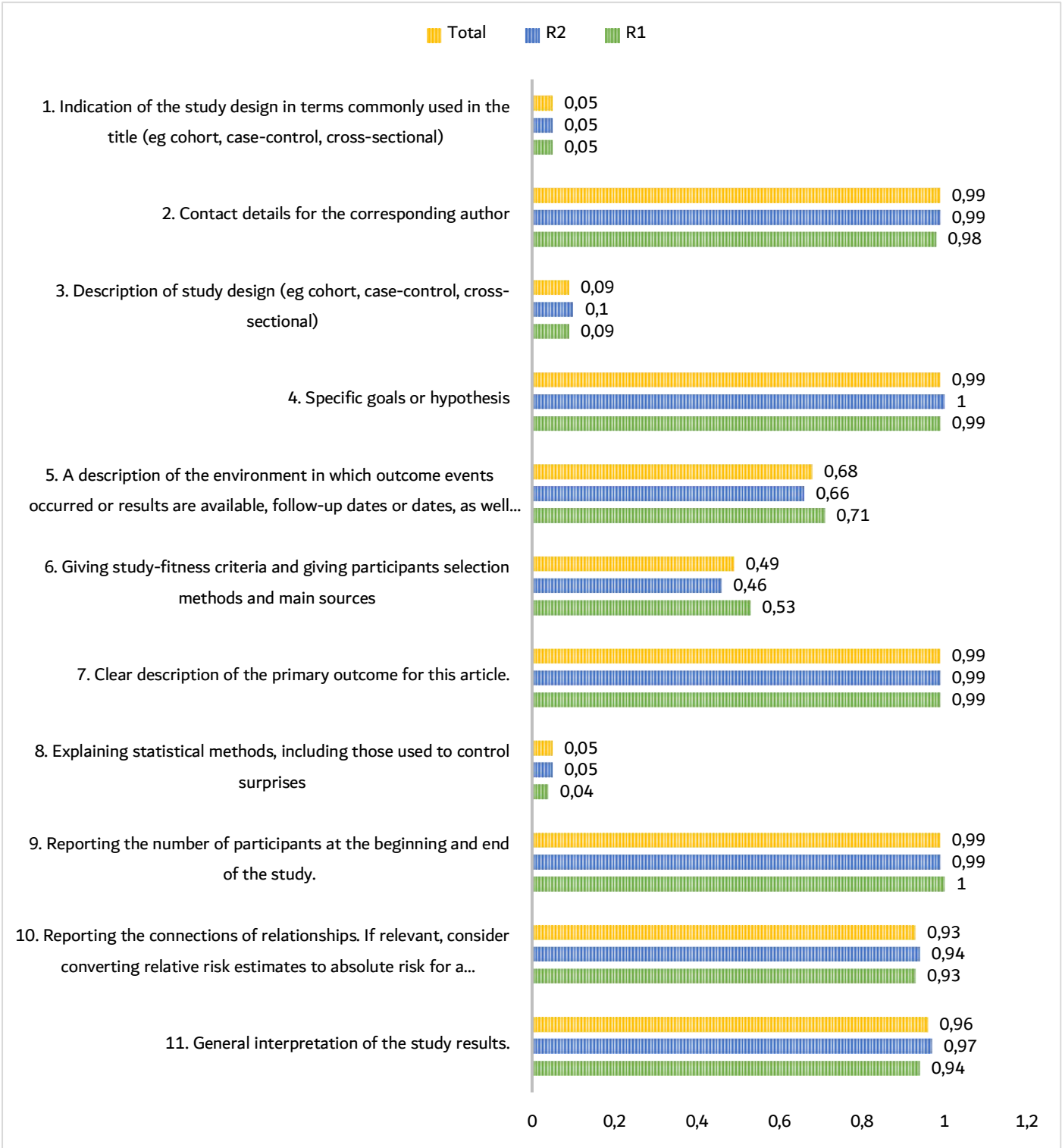

Figure 1. Item-wise STROBE Checklist Scores Assigned by Two Independent Reviewers.

DISCUSSION

This study evaluated the methodological characteristics and reporting quality of oral presentation abstracts presented at the 57th National Congress of the Turkish Ophthalmology Society using the STROBE checklist as a standardized tool. The analysis revealed that while the overall compliance with basic reporting elements was moderate, substantial deficiencies were observed in key methodological and statistical domains.

The overwhelming dominance of observational studies (93.6%) is consistent with patterns observed in other national and international congresses, where practical constraints often limit the feasibility of conducting and presenting interventional research (3,

12, 13). However, the notably low proportion of randomized controlled trials (1.8%) and experimental studies (4.6%) raises concerns about the diversity and robustness of evidence presented at ophthalmology congresses. This trend may reflect a research culture that favors descriptive or hypothesis-generating studies over hypothesis-testing designs, which are critical for advancing clinical practice (14, 15).

The mean STROBE score of 7.21 out of 11 suggests that, while many abstracts fulfilled fundamental structural expectations, important methodological components were frequently underreported (8, 11). Notably, the highest scoring item was the inclusion of the corresponding author's contact information (S2), followed by the articulation of specific objectives or hypotheses (S4), definition of primary outcomes (S7), and reporting of participant numbers (S9). It is important to note, however, that the high compliance with S2 is likely attributable to the congress abstract submission template, which mandates author contact details. Therefore, this score reflects adherence to editorial or formatting requirements rather than deliberate methodological rigor on the part of researchers.

In contrast, items such as "indicating the study design in the title" (S1) and "describing statistical methods, including those used to control for confounding" (S8) received the lowest scores. These omissions are particularly concerning, as they suggest a limited emphasis on research methodology and statistical transparency during the abstract preparation process (16, 17). Such deficiencies hinder the reader's ability to critically assess study validity and replicate findings, thereby undermining the scientific value of the presented research (6, 7). The lack of methodological detail in abstracts may be partially explained by word count limitations; however, it also points to potential gaps in training or prioritization of research design and statistical literacy among contributors (7).

The consistency between the two independent scorers (p=0.430) reinforces the objectivity of the evaluation process and supports the reliability of the scoring system. The anonymization of abstracts prior to scoring further minimized potential evaluator bias, strengthening the internal validity of the study.

These findings align with prior research evaluating the reporting quality of medical congress abstracts, which consistently highlight the need for improved methodological transparency and adherence to reporting standards (8, 18). Promoting the routine use of checklists such as STROBE—even at the abstract stage—can enhance clarity, reproducibility, and overall research quality. Furthermore, providing targeted education in study design and biostatistics for early-career researchers may help address recurring deficiencies in methodological reporting (10, 11, 19).

Limitations

This study is not without limitations. It focuses solely on one congress year (2024), and the findings may not reflect patterns observed in other years or congresses. Additionally, the analysis was limited to oral presentation abstracts and did not include poster presentations, which may exhibit different reporting trends. Finally, the assessment was based on abstract content only, which is inherently limited in detail compared to full manuscripts.

CONCLUSION

In conclusion, while the reporting quality of oral abstracts presented at the 57th National Congress of the Turkish Ophthalmology Society was moderate, key elements related to study design and statistical methodology were frequently underreported. This highlights a need for increased emphasis on research design and biostatistics during both the preparation and review of abstracts. The integration of reporting checklists like STROBE into the abstract submission process, along with structured training initiatives, may serve to improve research quality and transparency in future ophthalmology congresses.

DECLARATIONS

Ethical Consideration: This study was approved by the Non-Interventional Clinical Research Ethics Committee of Erzincan Binali Yıldırım University (Date: 01/08/2024, Decision No: 2024-10/08).

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Conflicts of Interest Statement: The authors declare no conflicts of interest related to this study.

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