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Research Article

A Web-Based Framework for Assessing Medical Journal Quality: Evidence from Iranian Journals

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ABSTRACT

Scholarly journal quality is essential for research integrity, editorial transparency, and the effective dissemination of scientific knowledge; however, conventional scientometric indicators provide limited insight into editorial practices, website quality, and compliance with publishing standards. This study aimed to propose and apply a multidimensional web-based assessment framework to evaluate journal quality using Iranian medical journals as a case study. A cross-sectional evaluation was conducted on 323 active Iranian medical journals. Journal websites were assessed using 85 observable web-based indicators categorized into 13 quality dimensions, including publication ethics, research integrity, editorial management, peer review, accessibility, indexing, and international visibility. Composite scores were calculated for each dimension, standardized using Z-scores, and subjected to K-means cluster analysis to identify homogeneous journal quality profiles. The assessment identified four distinct clusters representing different levels and patterns of journal quality. While several journals showed strong performance in editorial transparency, indexing, and publication management, substantial deficiencies were detected in research integrity, data-sharing policies, conflict-of-interest disclosure, and international visibility. The clustering approach effectively differentiated journals with shared quality characteristics and highlighted cluster-specific strengths and weaknesses. The proposed web-based framework provides a practical and comprehensive approach to evaluate journal quality beyond traditional citation-based indicators, generating evidence to support journal improvement initiatives and policy decisions, while remaining potentially adaptable to other disciplines and national contexts.

Keywords: Cluster Analysis, Journal Quality, Medical Journals, Scientific Publishing, Web Indicators.

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INTRODUCTION

The evaluation of scholarly journal quality has long been dominated by citation-based bibliometric indicators, such as Impact Factor and SCImago Journal Rank (SJR) (Mingers & Yang, 2017). While these metrics quantify academic influence, they offer a narrow, retrospective view that often overlooks the procedural, ethical, and structural dimensions fundamental to rigorous and credible scholarly communication (Shrivastava *et al*., 2015). This limitation is particularly critical in medical sciences, where journal integrity directly impacts clinical decision-making and health policy (Rivas-Ruiz, 2021).

International indexing databases such as Web of Science, Scopus, and MEDLINE incorporate a limited set of qualitative criteria-including peer-review type and publication timeliness-alongside quantitative metrics. Studies applying these hybrid criteria to Iranian medical journals have consistently revealed significant structural and editorial gaps, particularly in areas of transparency and adherence to international standards (Shahbodaghi *et al*., 2016a, 2016b; Mousavi Chalak *et al*., 2018). Bibliometric analyses further indicate that these shortcomings correlate with low global impact, with most Iranian health science journals ranking in the lower quartiles of major databases and exhibiting limited international collaboration. However, these studies have largely relied on overall quality scores or isolated indicators, providing limited insight into how different dimensions of journal quality interact to form distinct editorial quality profiles.

The challenges facing medical journals in low-and middle-income countries are not unique to Iran. A review of regional experiences reveals striking parallels. Journals in Latin America have grappled with low rejection rates (indicating weak selectivity), a scarcity of original research, irregular publication schedules, and high editorial turnover, underscoring a need for professionalization of editorial processes (Oyarzún Gómez *et al*., 2007). Similarly, Romanian medical journals have been characterized by

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publication delays, high self-citation rates, and subpar article quality, with remedies proposed including improved peer review and the adoption of publishing in English language to enhance international visibility (Robu *et al*., 2001).

In Africa, health journals face systemic barriers including low indexing in international databases, irregular publication, financial constraints, and inconsistent information across platforms, calling for sustainable financial models and international collaboration (Ogunfolaji *et al*., 2022). South Korean medical journals, despite a strong national research base, initially struggled with domestic focus and low international visibility, leading to initiatives like regional database creation and editor training through Institutions like the Asia Pacific Association of Medical Journal Editors (APAME) (Suh *et al*., 2013). Furthermore, a widespread inattention to publishing ethics, such as clinical trial registration and conflict-of-interest disclosures, has been noted in guidelines for authors across various contexts (Wu & Zou, 2015). Most recently, evidence from South Korea has shown that declining submissions from domestic authors can threaten the sustainability of national journals, highlighting that strengthening journal quality alone is insufficient without supportive national research policies (Jung *et al*., 2025).

This body of international evidence confirms that the quality and sustainability of medical journals are often hindered by a common set of structural, procedural, and promotional deficiencies. However, while these studies diagnose broad challenges, there remains a gap in applying a comprehensive, multidimensional quality framework to perform a granular, empirical segmentation of an entire national journal landscape. Such an analysis moves beyond describing common deficiencies by identifying distinct, actionable journal quality profiles, thereby providing an evidence base for targeted quality improvement strategies.

Recent studies continue to reveal persistent gaps in journal quality, including poor adherence to reporting guidelines (Hughes *et al*., 2026), geographical biases in indexing databases (Alonso-Álvarez, 2024), and the limitations of traditional bibliometric metrics (Wang, 2025). These findings underscore the need for multidimensional approaches to journal evaluation, such as the Disruption Index and advanced clustering techniques (Jiang *et al*., 2025; Tüselmann *et al*., 2025).

Although such audits highlight critical deficiencies, they often rely on isolated checklists and fail to capture journal quality as a holistic, multidimensional construct. In response, Moradzadeh *et al*. (2023) developed and validated a comprehensive model for health science journals, framing quality across five core domains: Research and Publication Ethics, Technical and Content Structure, Scientific Rigor, Human Resources, and Dissemination and Indexing. While this model provides a robust conceptual framework, its practical application for large-scale, reproducible evaluation of journal quality has not yet been demonstrated.

To address this gap, the present study introduces and applies a novel set of 85 directly observable, web-based indicators derived from Moradzadeh *et al*. (2023). These indicators enable a transparent, real-time audit of journal practices, assessing editorial policy transparency, adherence to reporting standards, website functionality, digital dissemination and selected citation-based indicators. By transforming Moradzadeh *et al*.'s (2023) conceptual model into an actionable evaluation framework, this approach supports a reproducible and objective journal quality assessment. Unlike previous studies that primarily reported average quality scores or isolated indicators, the proposed framework enables the identification of heterogeneous journal quality profiles, providing a more informative basis for evidence-based editorial and policy interventions.

Building on the model of Moradzadeh *et al*. (2023) and the derived web-based indicators, this study aims to systematically evaluate all journals approved by the Iran Medical Sciences Publications Commission. Our objectives are to (1) characterize the multidimensional quality landscape of Iranian medical journals across ethical, structural, and dissemination domains; (2) identify distinct journal quality profiles using cluster analysis; and (3) provide evidence to support cluster-specific strategies for improving journal integrity, international visibility, and overall publishing quality. Figure 1 shows the schematic representation of the study methodology. The assessment included 323 Iranian medical journals evaluated against 85 web-based indicators grouped into 13 quality dimensions. Dimension scores were standardized and subjected to K-means cluster analysis to identify homogeneous journal quality profiles. The four resulting clusters were subsequently interpreted to generate evidence-based, cluster-specific recommendations for strengthening editorial quality, research integrity, and international visibility.

METHODOLOGY

Study Design and Population

This study employed a descriptive observational design to evaluate the observable, web-based indicators (items) for quality assessment of medical journals in Iran. The study population consisted of all journals with an active scientific-research license from the Commission for Medical Journals of the Ministry of Health and Medical Education as of September 2025. "Active" was defined as having published at least one issue in the 24 months prior to data collection and maintaining a functional website with accessible content. According to the Commission's official online registry, 478 journals met these criteria. A comprehensive roster was compiled by extracting journal names, ISSNs, publisher information, website URLs, and editor-in-chief contact details from the registry and cross-validating with the journal's own website.

Development and Selection of Quality Indicators

The primary data collection instrument was a structured checklist derived from the multidimensional quality model for health science journals proposed by Moradzadeh *et al.* (2023). The 13 dimensions, along with the number of indicators per dimension and examples, are presented in Table 1. From an initial pool of 132 criteria, two researchers independently identified 85 discrete web-based indicators based on one key operational principle: they must be directly observable, verifiable, and assessable through the public-facing website of the journal. Indicators requiring internal data (e.g., actual reviewer turnaround time) were excluded. Disagreements were resolved by a third researcher.

The checklist underwent a validation process

Content Validity

A panel of five experts in medical journalism rated the relevance of each indicator on a 4-point scale. Indicators with a Content Validity Ratio below 0.78 (Lawshe's table for 5 experts) were removed or revised; all remaining indicators met this threshold.

After selecting the 85 observable indicators, we synthesized them into 13 distinct thematic dimensions-reflecting the core domains of the original framework-to enable a comprehensive and systematic evaluation, the structure of which is outlined in Table 1. The full list of all 85 indicators with brief descriptions is provided in Appendix (Supplementary Table S1).

Each indicator was scored using a five-point Likert scale: 1=Very Poor/Criterion not observed; 2=Poor/Criterion minimally met; 3=Fair/Criterion partially met; 4=Good/Criterion largely met; 5=Excellent/Criterion fully and clearly met. This scale allowed for nuanced assessment beyond a binary present/absent score, capturing the depth and clarity of policy implementation. However, for binary indicators (e.g., presence of ISSN, HTTPS, COPE membership, or explicit conflict of interest forms), the scale was applied dichotomously: scores of 1 and 5 represented 'absent' and 'present,' respectively, while intermediate scores (2-4) were not used. For gradable indicators (e.g., comprehensiveness of author guidelines or website navigability), the full 1-5 scale was applied according to the provided anchors. This hybrid approach ensured that scoring remained both objective for factual items and nuanced for qualitative items.

Data Collection Procedure

Data were collected from October 2025 to February 2026, through direct observation of journal websites. A team of five trained researchers in medical informatics and library science evaluated the journals. Each journal website was independently assessed by two researchers; any disagreement was resolved by a third researcher. A standardized electronic form (designed in Microsoft Excel with data validation rules) was used for data entry.

Prior to the main data collection, a pilot test was conducted on 20 randomly selected journals to assess inter-rater agreement, yielding a Kappa of 0.89 (95% CI: 0.84-0.94). After the pilot, the research team participated in a 2-day norming workshop using 10 additional practice journals, reaching 90% agreement. The final inter-rater reliability, assessed on a random subset of 30 journals during the main data collection, remained excellent (Kappa=0.87; 95% CI: 0.82-0.92).

The evaluation process for each journal involved: (a) a systematic review of the entire journal website, (b) examination of the last four published issues to verify the application of policies, and (c) direct navigation to assess website functionality and accessibility. When information was ambiguous or missing on the website, the researchers contacted the editorial office by email. Of 47 such contacts, 39 (83%) received a response within 14 days, and the provided information was used to clarify scoring. However, if the website contained information that was not merely incomplete but contradictory (e.g., different statements about peer-review type on different pages), the journal was excluded from the final sample, as such inconsistencies could not be reliably resolved via email.

Inclusion and Exclusion Criteria

Of the 478 active journals identified in the registry, we excluded those with inactive or inaccessible websites (n=89) and those that had ceased publication (i.e., no issue in the previous 24 months; n=46). Journals that provided internally inconsistent information that could not be reliably resolved (e.g., contradictory statements about review type or authorship policies across different pages) were also excluded (n=20). The final sample consisted of 323 journals (67.6% of the active journals). All 323 journals had complete data for all 85 indicators; therefore, no further case-wise deletion was necessary for descriptive or cluster analyses.

Data Management and Statistical Analysis

Data were organized in a matrix with journals in rows and the 85 indicators in columns. Composite dimension scores were calculated as the mean of their respective indicators. All analyses were performed using SPSS (Version 26).

Descriptive statistics (mean, standard deviation, min, max) were computed for each composite dimension. To identify natural groupings within the journal sample, a K-means cluster analysis was performed on the standardized scores (Z-scores) of the 13 composite dimensions. The optimal number of clusters (K=4) was determined using the Elbow method and by maximizing the average Silhouette width (score=0.51). The stability of the cluster solution was tested with 1000 bootstrap iterations, which revealed that 94% of the journals were assigned to the same cluster across all iterations, indicating a highly stable clustering solution.

Quality Assurance and Ethical Considerations

To further ensure data quality, a random subset of 50 journals (15.5% of the final sample) was independently evaluated by two researchers. The Intraclass Correlation Coefficient (ICC) for the overall quality score was 0.91 (95% CI: 0.87-0.94). Discrepancies in 12 of the 85 indicators across 8 journals were resolved through consensus discussion. All communications with journals were conducted transparently, respecting editorial autonomy.

RESULTS

The final analytic sample comprised 323 scientific-research medical journals approved by the Iran Medical Sciences Publications Commission. With respect to the academic rank of the editor-in-chief, the vast majority of journals (87.6%, *n*=283) were led by full professors, while the remainder (12.4%, *n*=40) were led by associate professors. Regarding language of publication, most journals (74.6%, *n*=241) were bilingual (English and Persian), while a quarter (25.4%, *n*=82) published exclusively in English.

Descriptive Analysis of Quality Dimensions

This section presents the findings from the systematic evaluation of 323 Iranian medical journals based on the 85 web-based quality indicators. The results are organized into two main parts. First, we provide the descriptive statistics for the 13 composite quality dimensions, offering an overview of the overall landscape and specific strengths and weaknesses based on observable information provided on journals websites. Second, we detail the

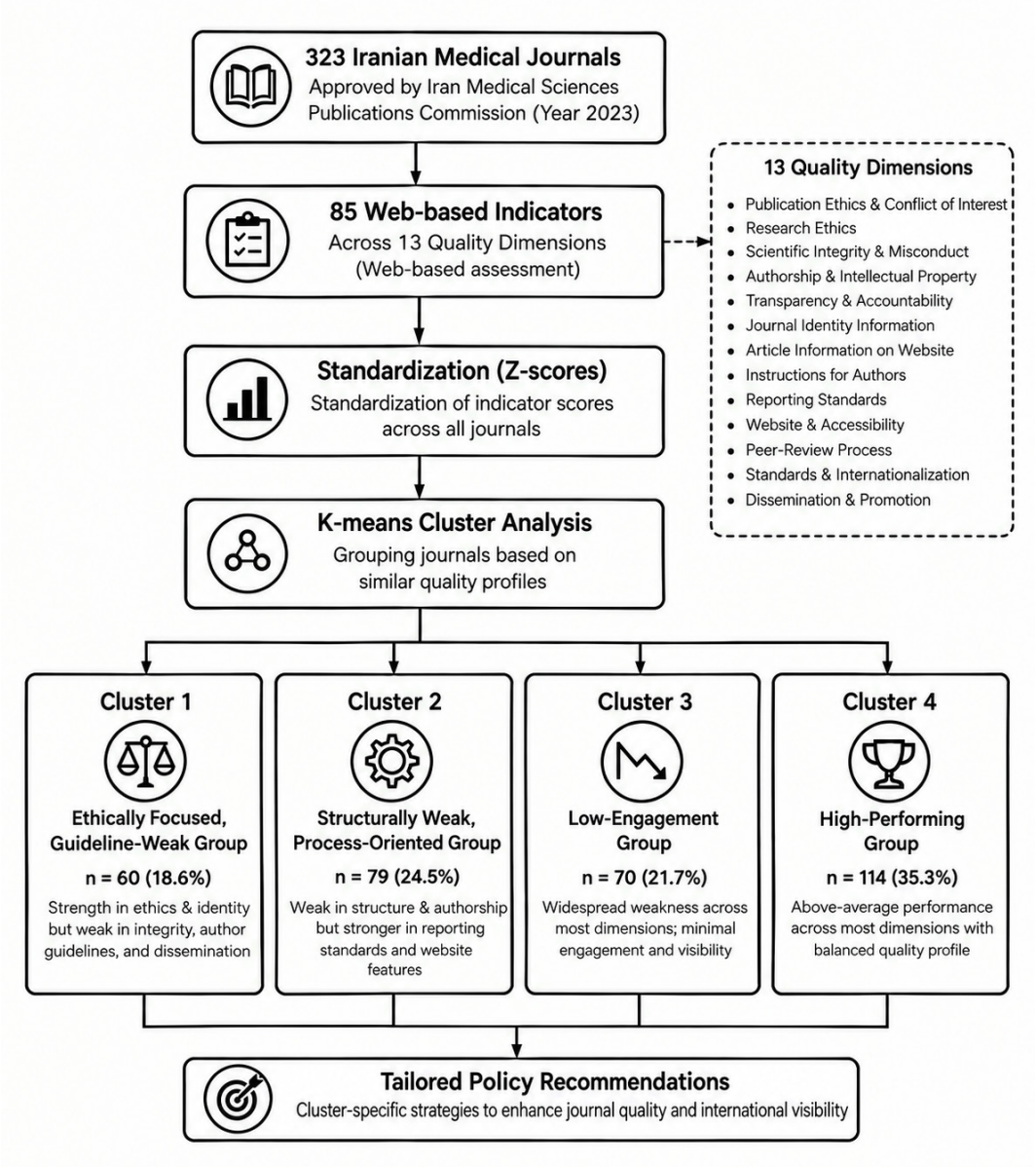


Figure 1: Workflow of the Web-Based Quality Assessment and Cluster Analysis of Iranian Medical Journals.

Table 1: Dimensions and Web-Based Indicators for Journal Quality Assessment.

Dimension	Number of Indicators	Example(s)
Publication Ethics & Conflict of Interest	8	Explicit conflict of interest policy page, downloadable declaration forms.
Research Ethics	6	Requirement for ethical approval, plagiarism policy specifying software use.
Scientific Integrity & Research Misconduct	6	Clear policies for article retraction, correction, and handling image manipulation.
Authorship & Intellectual Property	7	Adherence to ICMJE authorship criteria, mandatory ORCID iDs, use of CRediT taxonomy.
Transparency & Accountability	6	Defined process for handling complaints, policy on data sharing.
Journal Identity Information	10	Clear statement of ISSN, listing in indexing databases, detailed Aims & Scope.
Article Information on Website	10	Display of DOI, complete author affiliations, article history dates, full-text formats (PDF/HTML/XML).
Instructions for Authors	8	Detailed guidelines on article structure, specified file formats for submission.
Reporting Standards	4	Endorsement of reporting guidelines (e.g., CONSORT for trials, PRISMA for reviews).
Website & Accessibility	7	Use of HTTPS, responsive design for mobile, functional search feature.
Peer-Review Process	5	Disclosure of peer-review type (single/double-blind), provision of guidelines for reviewers.
Standards & Internationalization	4	Membership in COPE, geographical diversity of the editorial board.
Dissemination & Promotion	4	Active presence on social media platforms, policy on article sharing.
Total	85	

outcome of the cluster analysis, which identifies distinct quality clusters among the journals, moving beyond overall mean scores to reveal the underlying structural heterogeneity within the publishing ecosystem.

Prior to the descriptive analysis, the normality of the 13 composite dimensions was examined using the one-sample Kolmogorov-Smirnov test with Lilliefors correction. All dimensions showed significant deviation from normality ($p<0.01$ for each), justifying the use of non-parametric tests for subsequent inferential comparisons (Table 2).

The dimensions concerning the ethical framework of journals showed moderate performance. The composite scores for Publication Ethics & Conflict of Interest (Mean=3.52, SD=0.46) and Research Ethics (Mean=3.48, SD=0.54) indicate that foundational policies are typically present on journal websites, though they often lack depth, clarity, or prominent accessibility.

Scientific Integrity & Research Misconduct, which encompasses policies for retractions and handling data manipulation, scored marginally higher (Mean=3.54, SD=0.51), yet the standard deviation suggests inconsistent implementation of robust and transparent correction mechanisms across the landscape.

The operational and procedural dimensions presented a mixed profile. Transparency & Accountability (Mean=3.61, SD=0.53) and Instructions for Authors (Mean=3.61, SD=0.45) scored reasonably well, reflecting adequate availability of basic guidelines and complaint-handling procedures. Across all dimensions, Dissemination & Promotion had the lowest mean score (M=2.89, SD=0.84), followed by Standards & Internationalization (M=3.12, SD=0.67). Among the core editorial categories, Research Ethics (M=3.48, SD=0.54) and Authorship & Intellectual Property (M=3.49, SD=0.44) scored lower than other operational areas. This reveals a widespread weakness: journals often fail to clearly define authorship criteria (such as those outlined in ICMJE guidelines) and rarely implement contributor role taxonomies like CRediT.

The strongest performance was identified in areas related to basic online infrastructure and article metadata. Article Information on Website (Mean=3.74, SD=0.36) and Journal Identity Information

(Mean=3.70, SD=0.36) were the highest-scoring dimensions. Journals demonstrated competence in providing essential metadata, including article titles, complete author affiliations, abstracts, DOIs, and publication dates.

Similarly, Website & Accessibility information was adequate (Mean=3.65, SD=0.47). However, transparency in the Peer-Review Process (Mean=3.50, SD=0.57) and the explicit endorsement of specific reporting standards like CONSORT or PRISMA (Mean=3.58, SD=0.64) showed considerable room for improvement in detail and standardization. Notably, Reporting Standards (SD=0.64), along with Standards & Internationalization (SD=0.67) and Dissemination & Promotion (SD=0.83), showed relatively high variability, indicating heterogeneous adoption of guidelines across journals.

The most significant gaps were found in the dimensions critical for global scholarly integration. Standards & Internationalization (Mean=3.12, SD=0.67) was notably weak, primarily due to low membership in international committees like COPE and a lack of geographical diversity among editorial boards and authors. The lowest score across all dimensions was for Dissemination & Promotion (Mean=2.89, SD=0.84). This indicates a severe deficit in active engagement strategies, characterized by:

- A minimal or absent presence on academic and social media platforms.
- Underdeveloped policies for article sharing, self-archiving, and digital preservation.
- Ineffective use of online tools and strategies to increase article visibility and readership.

In summary, while Iranian medical journals demonstrate competence in maintaining basic online identity and article metadata, they show moderate performance in core editorial ethics and transparency. The most pressing challenges lie in embracing international publishing standards, diversifying their editorial networks, and actively promoting their content in the digital scholarly ecosystem.

Cluster Analysis

Instead of relying on average scores alone, we performed a K-means cluster analysis, which divided the journals into four distinct groups based on their quality profiles (see Table 3). The large distances between the final cluster centers (ranging from 2.056 to 2.543) confirm that these groups are clearly separated and meaningful.

Characterization of the Four Clusters

Cluster 1 (n=60, 18.6% of journals): The Ethically Focused, Guideline-Weak Group This cluster demonstrates a pronounced internal contradiction. It has clear strengths in Research Ethics (Z = 0.64) and Journal Identity (Z = 0.64), but shows marked weaknesses in Scientific Integrity (Z = -0.81), Author Guidelines (Z = -0.65), and Dissemination (Z = -0.59). Journals in this group prioritize ethical declarations and basic identity information, yet fail to provide clear instructions for authors or robust policies for corrections and retractions.

Cluster 2 (n=79, 24.5% of journals): The Structurally Weak, Process-Oriented Group This cluster struggles with foundational editorial structure but maintains some procedural rigor. It has a severe deficit in Authorship & Intellectual Property (Z = -0.77), and is also

Table 2: Descriptive Statistics for Composite Quality Dimensions (*n*=323).

Dimension	Mean (Out of 5)	Std. Deviation	Min	Max
1. Publication Ethics & Conflict of Interest	3.52	0.46	2.13	4.75
2. Research Ethics	3.48	0.54	2.00	4.83
3. Scientific Integrity & Research Misconduct	3.54	0.51	1.67	4.83
4. Authorship & Intellectual Property	3.49	0.44	2.14	4.43
5. Transparency & Accountability	3.61	0.53	2.00	4.67
6. Journal Identity Information	3.70	0.36	2.64	4.64
7. Article Information on Website	3.74	0.36	2.64	4.55
8. Instructions for Authors	3.61	0.45	2.00	4.63
9. Reporting Standards	3.58	0.64	2.00	5.00
10. Website & Accessibility	3.65	0.47	2.14	4.86
11. Peer-Review Process	3.50	0.57	2.00	4.80
12. Standards & Internationalization	3.12	0.67	1.25	4.75
13. Dissemination & Promotion	2.89	0.83	1.00	5.00

weak in Journal Identity (Z = -0.58) and Article Information (Z = -0.45). However, it partially compensates with strengths in Reporting Standards (Z = 0.49) and Website & Accessibility (Z = 0.39), suggesting attention to specific reporting guidelines (e.g., CONSORT, PRISMA) and technical website features.

Cluster 3 (n=70, 21.7% of journals): The Low-Engagement Group This cluster is characterized by widespread disengagement from key editorial and promotional standards. It exhibits the lowest scores in Reporting Standards (Z = -1.01), Peer-Review Process (Z = -0.70), Research Ethics (Z = -0.61), and Website & Accessibility (Z = -0.58). No dimension exceeds a Z-score of 0.23. Journals in this cluster meet only minimal baseline requirements (e.g., basic metadata) but lack depth in editorial policies, peer-review transparency, and online visibility efforts.

Cluster 4 (n=114, 35.3% of journals): The High-Performing Group As the largest cluster, this group represents the most balanced and higher-quality profile. It performs above average across most dimensions, with notable strengths in Scientific Integrity (Z = 0.59), Peer-Review Process (Z = 0.55), Reporting Standards (Z = 0.38), and Dissemination & Promotion (Z = 0.25). It is the only cluster with a positive score in Dissemination, indicating relatively better (though still modest) online promotional activity. Weaknesses are minor, with Transparency & Accountability scoring slightly negative (Z = -0.17).

The four clusters obtained from the K-means analysis showed clear separation, as indicated by the distances between final cluster centers (ranging from 2.056 to 2.543; see SPSS output). The ANOVA table (not reported here due to circularity, as noted by SPSS) is only descriptive and cannot be used for inferential testing. To avoid circular inference, no statistical tests of differences on the clustering variables are presented. Instead, the distinctiveness of the clusters is evident from the Z-score profiles in Table 3 and the cluster center distances. For external validation, we compared clusters on two variables not used in the clustering - journal age and number of issues per year - and found significant differences (Kruskal-Wallis, $p<0.001$ for both), supporting the practical relevance of the four-cluster solution.

Association Between Editor-in-Chief's Academic Rank and Journal Quality

The potential association between the editor-in-chief's academic rank and the journal's overall quality was examined. As presented in Table 4, the majority of journals (87.6%, $n=283$) were led by full professors, while 12.4% ($n=40$) were led by associate professors. A Mann-Whitney U test revealed no statistically significant difference in the composite overall quality score between journals led by full professors (Median=3.510, IQR=0.221) and those led by associate professors (Median=3.477, IQR=0.231), U=5518.50, Z=-0.256, $p=0.798$. This indicates that the editor's academic rank, within the categories examined, was not a significant differentiating factor for the overall web-based quality of journals in this sample.

DISCUSSION

This study moves beyond simply stating that Iranian medical journals have deficiencies. Instead, it shows that these deficiencies are not the same for all journals and that journals fall into distinct quality groups with different strengths and weaknesses. While prior research consistently documented a gap with international standards-evidenced by low Scopus quartile rankings (Mousavi Chalak *et al.*, 2018) and incomplete adoption of basic structural criteria for databases like Web of Science and MEDLINE (Shahbodaghi *et al.*, 2016a, 2016b)-our findings reveal that this gap is not uniform. The application of Moradzadeh *et al.*'s (2023) holistic model and subsequent cluster analysis demonstrates

Table 3: Final Cluster Centers (Z-Scores) from K-Means Analysis (n=323).

Dimension	Cluster 1 (n=60)	Cluster 2 (n=79)	Cluster 3 (n=70)	Cluster 4 (n=114)
Publication Ethics & Conflict of Interest	-0.20266	-0.17480	0.11564	0.15679
Research Ethics	0.64280	-0.19033	-0.61018	0.16825
Scientific Integrity & Research Misconduct	-0.80937	-0.35263	0.12657	0.59264
Authorship & Intellectual Property	0.44186	-0.76611	0.20223	0.17417
Transparency & Accountability	0.12021	0.12564	0.03357	-0.17095
Journal Identity Information	0.63798	-0.58230	-0.34299	0.27835
Article Information on Website	0.07692	-0.44706	-0.15891	0.36689
Instructions for Authors	-0.64513	0.01757	0.21681	0.19424
Reporting Standards	-0.19691	0.48618	-1.00503	0.38385
Website & Accessibility	0.09536	0.38985	-0.57795	0.03454
Peer-Review Process	-0.14299	-0.06650	-0.69828	0.55010
Standards & Internationalization	-0.05504	0.14306	-0.03537	-0.04845
Dissemination & Promotion	-0.59460	-0.11690	0.22953	0.25302

Values with Z > 0.40 indicate strengths and Z < –0.40 indicate weaknesses.

Table 4: Comparison of Overall Quality Score by Editor-in-Chief's Academic Rank.

Academic Rank	n (%)	Median (IQR)	Mean Rank	Test Statistics
Professor	283 (87.6%)	3.510 (0.221)	162.50	Mann-Whitney U=5518.50
Associate Professor	40 (12.4%)	3.477 (0.231)	158.46	Z=-0.256, p=0.798
Total	323 (100%)	3.509 (0.223)	-	-

that the journal's quality landscape is segmented into distinct typologies, each with a unique profile of strengths and weaknesses.

Our findings extend previous evidence by demonstrating that, although medical journals share common challenges such as limited international visibility and weaknesses in editorial practices, these challenges are distributed unevenly across distinct quality profiles rather than affecting all journals uniformly. We found that 35.3% of Iranian medical journals actually perform quite well. This "High-Performing Cluster" demonstrates that a substantial proportion of journals already possess the capacity to meet international publishing standards. This is similar to what happened in South Korea, where focused support helped some journals improve and gain global recognition (Suh *et al*., 2013).

Because journals are so different, we cannot use the same improvement plan for all of them. A "one-size-fits-all" approach simply won't work. Instead, our findings support the adoption of cluster-specific improvement strategies tailored to the distinct strengths and weaknesses of each journal group. For example:

Journals in the "Ethically Focused, Guideline-Weak Group" need help professionalizing their editorial processes-exactly what Oyarzún Gómez *et al*. (2007) recommended for Latin American journals.

Journals in the "High-Performing Cluster" are ready for the next step: building international collaborations, as suggested for African journals by Ogunfolaji *et al*. (2022).

The middle clusters (not the best nor the worst) give us deeper insights. The 'Ethically Focused, Guideline-Weak Group' (18.6% of journals) shows a gap that earlier studies also found: having formal policies (for example, ethics statements) does not mean that journals turn them into practical, easy-to-follow guidelines for authors. Similarly, the Structurally Weak, Process-Oriented Group (24.5%) reflects a pattern of selective compliance, where journals may prioritize specific technical outputs (like XML files) while neglecting foundational editorial governance (like clear authorship policies). This underscores that journal quality is not achieved through compliance with isolated indicators but requires coordinated improvements across editorial governance, ethical standards, and dissemination practices.

A pivotal, cross-cutting finding was the universal deficit in Internationalization and Dissemination. This weakness, observed across all four clusters, helps explain the persistent gap between structural improvements and international research visibility. Studies like Sedghi and Ghafari-Hashjin (2017) noted low international editorial and author collaboration in Iranian medical journals, while Mousavi Chalak *et al*. (2018) measured low global impact. Our finding aligns with Erfanmanesh & Abrizah (2018), who reported limited foreign authorship (34.8%) and editorial board members (33.6%) in Iranian JCR-indexed journals. Our study connects these dots: even journals with sound internal processes fail to achieve global reach without active strategies to strengthen international editorial collaboration, expand database indexing, and enhance digital visibility. This aligns with broader scientometric understanding that a journal's influence is shaped by both its intrinsic quality but also by its international visibility, collaboration networks, and digital discoverability.

Results also showed that the editor-in-chief's academic rank (professor vs. associate professor) was not significantly associated with the journal's overall quality score (see Table 4). This suggests that formal academic seniority alone may not translate directly into better editorial practices or web-based quality presentation. Other factors, such as editorial team experience, institutional support, resource allocation, and familiarity with international publishing standards, are likely to play more influential roles in determining a journal's quality profile.

Therefore, this research supports a shift toward differentiated improvement strategies. Generalized, one-size-fits-all policies are unlikely to address the diverse needs identified across journal clusters. Effective intervention must be cluster-specific: launching advanced branding initiatives for High Performers, providing foundational editorial training for Low-Engagement journals, and helping intermediate clusters integrate their isolated strengths into cohesive workflows.

Our findings on the structural heterogeneity and prevalent weaknesses within Iranian medical journals resonate strongly with documented challenges in other regions. The 'Low-Engagement Cluster' in our study, characterized by weak peer review and poor online dissemination, mirrors the 'weak selectivity' and infrastructural issues reported in Latin America (Oyarzún Gómez *et al*., 2007) and Africa (Ogunfolaji *et al*., 2022). The common deficit in 'Internationalization and Dissemination' across all our clusters echoes the core problem of low global visibility identified in studies from Romania (Robu *et al*., 2001) and South Korea (Suh *et al*., 2013). Furthermore, the inconsistent adherence to detailed author guidelines and ethical standards observed in our clusters aligns with the global concerns raised by Wu & Zou (2015) regarding neglected publishing ethics.

However, our cluster analysis extends these previous observations by demonstrating that these common challenges are distributed unevenly across distinct journal quality profiles rather than affecting all journals uniformly. The presence of a 'High-Performing Cluster' (35.3%) indicates that substantial institutional capacity for excellence already exists, similar to Korean journals that achieved international recognition following targeted interventions (Suh *et al*., 2013). This heterogeneity supports the need for cluster-specific improvement strategies rather than generalized interventions. For instance, journals in our 'Structurally Contradictory Cluster' need the professionalization of editorial processes advocated by Oyarzún Gómez *et al*. (2007), whereas strengthening international collaboration and global visibility represents a logical next step for the 'High-Performing Cluster', consistent with recommendations for African journals (Ogunfolaji *et al*., 2022).

A recent finding from Korea shows that fewer local authors are submitting to Korean journals. This warns us that improving journal quality alone is not enough. If national policies do not encourage researchers to publish in domestic journals, even good journals may struggle. Therefore, our proposed actions should be embedded within sustainable national research and publishing policies that strengthen the long-term competitiveness of domestic journals (Jung *et al*., 2025).

This study has several methodological limitations. First, the assessment relied on publicly available web-based information, which may not fully reflect actual editorial practices. A journal may present comprehensive policies on its website but fail to implement them consistently in daily operations. Additionally, despite achieving excellent inter-rater reliability, the use of Likert-scale scoring for qualitative indicators inevitably involves some degree of subjective judgment. Second, the cross-sectional design captures journal quality at a single time point and cannot track evolution over time; journal websites are frequently updated, and our findings may not reflect recent improvements or deteriorations. Third, while we assessed structural and procedural quality, we did not evaluate the intrinsic scientific quality of published content, such as methodological rigor, novelty, or clinical relevance. A journal with high web-based scores may still publish low-quality research. Fourth, our sample was limited to Iranian medical journals, which restricts the generalizability of the findings to journals in other disciplines or countries with different publishing infrastructures and policy environments. Despite these limitations, the study provides a robust and replicable framework for assessing journal quality using observable web indicators and cluster analysis. Future research could integrate web-based indicators with bibliometric measures and expert peer review to provide a more comprehensive evaluation of journal quality.

CONCLUSION

This study demonstrates that the quality of Iranian medical journals is best understood not through an aggregate score but through a typology of distinct editorial quality profiles. By implementing the multidimensional framework of Moradzadeh *et al*. (2023) via a web-based audit and cluster analysis, we have moved beyond confirming the existence of a "quality gap" to mapping its specific architecture. The identification of four clusters-High-Performing, Ethically Focused, Guideline-Weak Group, Structurally Weak, Process-Oriented Group, and Low-Engagement-provides a more precise, evidence-based framework for understanding the heterogeneous quality profiles of medical journals and supporting targeted improvement strategies.

Previous studies on Iranian medical journals primarily reported overall quality scores and concluded that journal quality was generally moderate. However, our findings demonstrate that these aggregate assessments mask substantial heterogeneity. Rather than representing a single level of quality, Iranian medical journals are distributed across four distinct clusters, each characterized by a unique combination of strengths and weaknesses.

A key cross-cutting finding was that all four clusters shared persistent weaknesses in internationalization and dissemination. Regardless of their overall quality level, journals showed limited capacity to enhance their international visibility through global editorial collaboration, database coverage, and digital dissemination. Even journals within the High-Performing Cluster demonstrated shortcomings in these dimensions, suggesting that strong internal editorial quality alone is insufficient to achieve broader international recognition.

This finding extends previous studies by identifying internationalization and dissemination as a common challenge across all journal quality profiles, thereby providing a more comprehensive explanation for the limited global visibility of Iranian medical journals.

For the Iran Medical Sciences Publications Commission, journal editors, and policymakers, these findings offer a clear roadmap. To overcome the limited international visibility documented by Erfanmanesh & Abrizah (2018), cluster-specific policies are essential. Improvement must be targeted:

For the High-Performing Cluster, support should focus on international branding, leadership in open science practices, and networking.

For the Low-Engagement Cluster, mandatory foundational training in editorial management and ethical publishing is essential.

For the intermediate clusters, initiatives should bridge their specific disconnects, such as transforming ethical policies into practical author guidelines.

Future research should track the evolution of these clusters over time to assess the impact of interventions and further investigate the relationship between a journal's web-based quality profile and its long-term citation performance and inclusion in major international indices. Ultimately, elevating the stature of Iranian medical publishing requires replacing generalized improvement strategies with evidence-based, cluster-specific interventions informed by the multidimensional typology proposed in this study

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT solely for language polishing and grammatical refinement. No generative AI was used for data analysis, thematic synthesis, or the generation of core scientific content. The authors take full responsibility for the integrity and originality of the work.

ABBREVIATIONS

SJR: SCImago Journal Rank; **SPSS:** Statistical Package for the Social Sciences; **ICMJE:** International Committee of Medical Journal Editors; **ORCID:** Open Researcher and Contributor ID; **CRediT:** Contributor Roles Taxonomy; **DOI:** Digital Object Identifier; **PDF:** Portable Document Format; **HTML:** HyperText Markup Language; **XML:** Extensible Markup Language; **CONSORT:** Consolidated Standards of Reporting Trials; **PRISMA:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses; **COPE:** Committee on Publication Ethics; **ICC:** Intraclass Correlation Coefficient; **CI:** Confidence Interval; **IQR:** Interquartile Range.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCES

Alonso-Álvarez, P. (2024). Exploring research quality and journal representation: a comparative study of African Journals Online, Scopus, and Web of Science. Research Evaluation, 33(4), rvae057. https://doi.org/10.1093/reseval/rvae057

Erfanmanesh, M., & Abrizah, A. (2018). International contributions to the system of scholarly communication in Iran. Serials Review, 44(2), 86-97. https://doi.org/10.1080/00987913.2018.1471319

Hughes, G., O'Brien, C., Anderson, R., & Vassar, M. (2026). Improving transparency in publishing: gaps in standardised reporting across surgical pathology and laboratory medicine journals. Journal of Clinical Pathology, 79(1), 37-42. https://doi.org/10.1136/jcp-2024-209858

Jiang, Y., Liu, X. L., & Wang, L. (2025). Evaluation and comparison of the academic quality of open-access mega journals and authoritative journals: disruptive innovation evaluation. Journal of Medical Internet Research, 27, e59598. https://doi.org/10.2196/59598

Jung, J., Jang, Y., Radnaabaatar, M., Jo, D. S., Kim, J. M., & Yoo, J. H. (2025). Insights into JKMS submissions and medical journal publications in Korea. Journal of Korean Medical Science, 40(1). https://doi.org/10.3346/jkms.2025.40.e76

Mingers, J., & Yang, L. (2017). Evaluating journal quality: A review of journal citation indicators and ranking in business and management. European journal of operational research, 257(1), 323-337. https://doi.org/10.48550/arXiv.1604.06685

Moradzadeh, M., Sedghi, S., & Panahi, S. (2023). Towards a new paradigm for 'journal quality' criteria: a scoping review. Scientometrics, 128(1), 279-321. https://doi.org/10.1007/s11192-022-04520-5.

Mousavi Chalak, A., Riahi, A., & Zare, A. (2018). Qualitative and quantitative study of Iran's scientific journals in the field of medicine in the Scopus Database. Payavard Salamat, 12(1), 11-24. http://payavard.tums.ac.ir/article-1-6468-en.html

Ogunfolaji, O., Tangmi, A., Dada, O. E., Sebopelo, L. A., Sichimba, D., Djoutsop, OM., *et al.* (2022). Profiling African health journals: a bibliometric study. International Journal of Public Health, 67, 1604932. https://doi.org/10.3389/ijph.2022.1604932

Oyarzún Gómez, M., Ramírez Venegas, A., Agüero Fernández, A., Martínez, J. A. B., Bermúdez Gómez, M., Cáneva, J. O., *et al.* (2007). Situational study of seven Latin-American pulmonology journals. Jornal Brasileiro de Pneumologia, 33(3), 358-361. https://doi.org/10.1590/s1806-37132007000300021. PMID: 17906801

Rivas-Ruiz, R. (2021). The importance of national medical journals in a global world. Revista Médica del Instituto Mexicano del Seguro Social, 57(6), 334-336. PMID: 33001606

Robu I., Marineanu D., Aciu I., & Wood-Lamont S. (2001). Improving standards in the scientific biomedical community in Romania by using journal ranking to improve journal quality. Health Information & Libraries Journal, 18(2), 91-98. https://doi.org/10.1046/j.1365-2532.2001.00313.x

Sedghi, S & Ghaffari-Heshajin, S. (2017). Conformity Assessment of Iranian Medical Journals Written in English with the Objective Acceptance Criteria of Journals in the Scopus Database. Health Information Management, 13(6), 426-431.

Shahbodaghi, A., Farhadi, A., Shekofteh, M., & Karami, M. (2016a). The Structural Status of Iranian Medical Journals Based on the Medline Selection Criteria. Health Information Management, 13(3), 203-208. https://him.mui.ac.ir/article_11492.html?lang=en

Shahbodaghi, A., Shekofteh, M., & Karami, M. (2016b). Investigating the Iranian Medical Journals Compliance with the Structural Requirements of PubMed Central Journal Selection Criteria. Journal of Modern Medical Information Sciences, 2(1), 70-74. http://jmis.hums.ac.ir/article-1-76-fa.html

Shrivastava, S. R., Shrivastava, P. S., & Ramasamy, J. (2015). Assessment of the quality of a journal: Scientific approach. International Journal of Advanced Medical and Health Research, 2(1), 61-62. https://doi.org/10.4103/2349-4220.159160

Suh, C. O., Oh, S. J., & Hong, S.T. (2013). Korean Association of Medical Journal Editors at the forefront of improving the quality and indexing chances of its member journals. Journal of Korean Medical Science, 28(5), 648-650. https://doi.org/10.3346/jkms.2013.28.5.648

Tüselmann, H., Sinkovics, R. R., & Pishchulov, G. (2025). An advanced meta-ranking for the expanding international business field - journal status and future trajectories. Journal of World Business, 60(2),101609. https://doi.org/10.1016/j.jwb.2024.101609

Wang, J. (2025). Frontiers in bibliometric analysis: the overrepresentation of bibliometric analyses in grey publisher journals. Current Medical Research and Opinion. 41(4), 667-668. https://doi.org/10.1080/03007995.2025.2488949

Wu, Y., & Zou, Q. (2015). The ethical issues in instructions for authors of Chinese biomedical journals. Learned Publishing, 28(3), 216-222. https://doi.org/10.1087/20150307

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Supplementary Table S1: Appendix: List of 85 Web-Based Indicators Categorized into 13 Dimensions.

Dimension (Number of Indicators)	Indicator (Brief description)
1. Publication Ethics & Conflict of Interest (8)	1. Explicit conflict of interest (COI) policy page visible. 2. Downloadable COI disclosure form for authors. 3. COI policy for reviewers stated. 4. COI policy for editors stated. 5. Requirement for authors to declare COI in manuscript. 6. Policy on handling COI cases. 7. Statement on funding sources and role of funder. 8. Policy on commercial sponsorship.
2. Research Ethics (6)	9. Requirement for ethical approval from an authorized committee. 10. Statement on informed consent for human studies. 11. Policy on animal welfare (for animal studies). 12. Plagiarism policy with specified software (e.g., iThenticate). 13. Statement on clinical trial registration (e.g., IRCT, ClinicalTrials.gov). 14. Policy on handling unethical research submissions.
3. Scientific Integrity & Research Misconduct (6)	15. Clear retraction policy. 16. Retraction notice format and link to original article. 17. Correction policy (errata, corrigenda). 18. Expression of concern policy. 19. Policy on handling image manipulation. 20. Policy on data fabrication/falsification.
4. Authorship & Intellectual Property (7)	21. Adherence to ICMJE authorship criteria. 22. Requirement for ORCID iDs of authors. 23. Use of CRediT (Contributor Roles Taxonomy). 24. Policy on changes to authorship (add/remove). 25. Copyright transfer or licensing agreement (e.g., CC BY). 26. Policy on preprint posting. 27. Policy on self-archiving (Green OA).
5. Transparency & Accountability (6)	28. Complaint and appeal process described. 29. Data sharing policy (availability statement). 30. Policy on publication fees (APC) clearly stated. 31. Waiver policy for low-income countries. 32. Contact information for editorial office (phone, email, address). 33. Journal governance statement (e.g., editorial board roles).
6. Journal Identity Information (10)	34. ISSN (print and online) displayed. 35. Journal's Aims & Scope clearly defined. 36. Journal's abbreviation (e.g., for indexing). 37. Name of publisher and its location. 38. Year of first publication. 39. Publication frequency (e.g., quarterly, monthly). 40. List of indexing databases (e.g., Scopus, DOAJ). 41. Link to journal's page in indexing databases. 42. Editor-in-chief name and affiliation. 43. Journal's h-index or other metrics (if displayed).
7. Article Information on Website (10)	44. DOI displayed on each article page. 45. Full author names and affiliations. 46. Article history (received, revised, accepted, published dates). 47. Abstract in structured format. 48. Keywords assigned. 49. Full-text available in PDF. 50. Full-text available in HTML. 51. XML version (if available). 52. Citation information formatted (e.g., RIS, BibTeX). 53. Article metrics (views, downloads, citations).
8. Instructions for Authors (8)	54. Detailed manuscript structure guidelines. 55. Required file formats for submission (e.g., .docx, .tex). 56. Reference style specified (e.g., Vancouver). 57. Word/Page limit. 58. Guidelines for tables and figures. 59. Policy on supplementary material. 60. Instructions for online submission system link. 61. Sample manuscript or template provided.
9. Reporting Standards (4)	62. Endorsement of CONSORT for randomized trials. 63. Endorsement of PRISMA for systematic reviews. 64. Endorsement of STROBE for observational studies. 65. Endorsement of CARE for case reports.
10. Website & Accessibility (7)	66. HTTPS protocol enabled. 67. Responsive design (mobile-friendly). 68. Functional search feature on website. 69. Clear navigation menu. 70. Website loads within reasonable time. 71. No broken links (tested on main pages). 72. Language toggle (if bilingual).

Dimension (Number of Indicators)	Indicator (Brief description)
11. Peer-Review Process (5)	73. Disclosure of peer-review type (single-blind, double-blind, open). 74. Reviewer guidelines available. 75. Statement on handling reviewer conflicts of interest. 76. Policy on peer-review appeals. 77. Time to first decision (average) stated.
12. Standards & Internationalization (4)	78. Membership in COPE (Committee on Publication Ethics). 79. Membership in other international bodies (e.g., ICMJE, WAME). 80. Geographical diversity of editorial board (≥3 countries). 81. Policy on international authorship (encourages collaboration).
13. Dissemination & Promotion (4)	82. Active presence on social media (Twitter/X, LinkedIn, etc.). 83. Policy on article sharing (e.g., Scholarly Sharing). 84. Use of promotional tools (e.g., email alerts, RSS). 85. Digital preservation policy (e.g., LOCKSS, CLOCKSS).