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Editorial

From Metric Compliance to Disciplinary Leadership: Strategic Roadmaps in Medical and Pharmaceutical Higher Education

Payam Khazaeli[1], **Sara Shafian**[2*]

[1]Pharmaceutics Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
[3]School of Medicine, Kerman University of Medical Sciences, Kerman, Iran

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***Corresponding author:** School of Medicine, Kerman University of Medical Sciences, Kerman, Iran. Email: hajarshafian@gmail.com

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Introduction

Global biomedical research governance has decisively moved beyond raw publication counts and superficial impact factors toward structural maturity, disciplinary balance, and tangible clinical outcomes (1, 2). For developing health systems and regional academic centers, international prestige cannot be sustained through peripheral, uncoordinated participation in global citation streams. Instead, institutional excellence requires targeted leadership within specialized niches that directly address population disease burdens and healthcare delivery priorities (3, 4). In medical and pharmaceutical education, this paradigm shift necessitates rigorous scientometric roadmaps that move beyond passive descriptive metrics to guide resource allocation, curriculum modernization, and translational research (5).

Addressing this strategic need in this issue of *Strides in Development of Medical Education* (SDME), Khazaeli et al. (6) delineate an empirical roadmap across thirteen specialized pharmaceutical disciplines. Supported by the Academy of Medical Sciences of the I.R. Iran, their investigation establishes a tripartite classification—Flagship, Pioneer, and Emerging tiers—based on Scopus productivity parameters alongside national infrastructure assessments. While the authors present a comprehensive institutional inventory, the critical imperative for educational leaders lies in critically interpreting these bibliometric tiers: transforming academic research productivity into measurable health system capacity and patient safety outcomes. Their work moves the discourse from reactive metric compliance to proactive, evidence-based strategic steering (7).

Decoding the Tiered Taxonomy: Lessons for Medical Education

By integrating Scopus-based scientometrics with national capacity data, Khazaeli et al. (2026) categorized thirteen pharmaceutical disciplines into three tiers. However, from a health-systems perspective, these tiers must not be viewed merely as bibliometric ranks, but as functional levers directly influencing clinical care, patient safety, and drug policy:

Flagship Groups (e.g., Pharmacology, Pharmaceutics, Pharmaceutical Biotechnology): Established research productivity in these domains directly underpins national self-reliance in biological therapeutics, rational antimicrobial dosing, and advanced delivery systems, mitigating critical drug shortages and therapy failures.

Pioneer Groups (e.g., Clinical Pharmacy, Pharmaceutical Nanotechnology, Traditional Pharmacy, Drug Control): These groups represent the frontline of patient safety and quality assurance. For

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instance, advancing the strategic footprint of Clinical Pharmacy directly correlates with reduced inpatient Adverse Drug Events (ADEs) and optimized polypharmacy management, while standardized Drug Control and evidence-informed Traditional Pharmacy curb counterfeit products and mitigate toxic botanical-drug interactions in primary healthcare.

Emerging Groups (e.g., Drug Economics & Management, Nuclear Pharmacy): Far from peripheral, targeted capacity building in pharmacoeconomics provides health ministries with essential Cost-Effectiveness Analyses (CEAs), ensuring that scarce healthcare budgets are allocated to high-yield therapies rather than low-value pharmaceutical expenditure.

Thus, applying this taxonomy prevents the pitfall of pursuing publication metrics disconnected from disease burden, aligning academic output with measurable clinical endpoints.

Bibliometric Implications and the Path Forward

From the perspective of global scholarly communication and disciplinary prominence, publishing foundational policy research serves two vital functions:

Thematic Anchoring: It positions the journal at the nexus of contemporary debates regarding research governance, science policy, and higher education reform. By curating such analyses, the journal contributes to the broader scholarly ecosystem, fostering nuanced discussions on how academic research outputs can be better aligned with national health mandates and societal needs.

Actionable Knowledge Translation: It facilitates the essential transition from abstract scientometric data to concrete administrative decision-making. By offering an empirical framework—such as the one proposed here—to university deans, curriculum planners, and policymakers, the journal fulfills its commitment to serving as a platform for evidence-based institutional stewardship and strategic academic development.

As we navigate the complexities of academic integrity, AI integration, and shifting global health demands, the medical education community must transition from scattered scholarship to orchestrated scientific leadership. The roadmap proposed by Khazaeli and colleagues suggests that achieving disciplinary Leadership depends on disciplined tier-specific planning, structural alignment, and strategic institutional stewardship.

Conclusion

Achieving sustainable disciplinary leadership and clinical relevance in medical and pharmaceutical higher education requires moving beyond indiscriminate resource allocation toward disciplined, tier-differentiated governance. To operationalize scientometric roadmaps into institutional excellence, educational leaders and curriculum planners must implement three actionable strategies:

Tier-Aligned Resource Allocation and Faculty Recruitment: University deans and department heads should tailor budgeting, infrastructure investments, and faculty recruitment to the specific developmental stage of each discipline—prioritizing translational capacity in Flagship fields, patient-safety integration in Pioneer areas, and health-economic justification in Emerging domains.

Competency-Based Curriculum Redesign: Medical and pharmaceutical curriculum committees must embed empirical metrics directly into academic programs—such as incorporating adverse drug event (ADE) mitigation and polypharmacy management into clinical pharmacy training, and health technology assessment (HTA) principles into pharmacoeconomics curricula.

Evidence-Based Strategic Steering: Institutional policymakers should leverage scientometric taxonomies not merely for compliance or ranking purposes, but as dynamic monitoring tools to align faculty research outputs with national health burdens, therapeutic self-reliance, and patient safety outcomes.

Acknowledgements: Editorial Independence

To maintain strict editorial independence and adhere to COPE and ICMJE guidelines on in-house submissions:

- Both Dr. Payam Khazaeli (Editor-in-Chief of SDME) and Dr. Sara Shafian (Associate Editor of SDME) completely recused themselves from the peer review, editorial evaluation, and decision-making processes regarding this editorial and the related empirical study.

- The evaluation, peer review, and final acceptance of this manuscript were overseen independently by an

assigned Guest Editor, without any involvement or access to the editorial tracking data by the authors.

Conflict of interests: PK is the Editor-in-Chief and SS is an Associate Editor of Strides in Development of Medical Education (SDME), and both are co-authors of the article discussed in this commentary (Khazaeli et al., 2026). In strict adherence to the Committee on Publication Ethics (COPE) and ICMJE guidelines on editorial submissions, the authors recused themselves from all peer-review, editorial handling, and final publication decisions regarding this editorial and the related empirical study. All editorial processes were managed independently by an external Guest Editor. The authors declare no other competing interests.

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