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ORIGINAL RESEARCH

Iranian Researchers' Contribution to Emergency Medicine During 1972-2024; A Bibliometric and Scientific Visualization Study

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Abstract: **Introduction:** Bibliometrics tends to analyze the scientific research items published on a specific field or topic. This study aimed to analyze Iranian researchers' production in the field of emergency medicine (EM). **Methods:** This bibliometric visualization study was conducted using a descriptive-analytical approach and based on data from the Scopus database. All scientific output of Iranian researchers in the field of EM by the end of 2024 was collected and analyzed using VOSviewer 1.6.20 software. **Results:** Iran's scientific output in the field of EM has grown significantly. The Archives of Academic Emergency Medicine is the top journal and Tehran University of Medical Sciences is the top institution publishing the scientific productions of Iranian researchers in the field. The United States, United Kingdom, Canada, and Australia are Iran's largest scientific collaborating partners. Iran is the second-ranked leading country in the Middle East, publishing 20.38% of the Middle Eastern scientific publications in the field. Out of 17 countries in the Middle East, only two countries, Turkey and Iran, are in the top 20 countries in the world. The co-occurrence map of keywords showed the five thematic clusters, including risk factors and clinical outcomes, clinical symptoms and laboratory indicators, emergency and psychiatric services, medical diagnostic and imaging tools, and vital signs and clinical monitoring. **Conclusion:** As the second-ranked country in the Middle East and the 16th-ranked in the world, Iran has a prominent position and a high capacity for scientific development and research diplomacy in EM. The trend of scientific productions of EM in Iran is also growing. Promoting this status and maintaining this trend requires special attention from officials and policy makers to research, expanding international cooperation, increasing the quality of research and focusing on interdisciplinary and problem-oriented research.

Keywords: Emergency Medicine; Iran; Bibliometric Analysis; Social Network Analysis; Data Visualization

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1. Introduction

The history of emergency medicine (EM) is relatively short worldwide, making it the most recently developed major field in medicine. EM was internationally recognized as the 23rd specialty in the medical field in 1979 (1). The field is a cross-disciplinary discipline with its strong comprehensive ability from dif ferent health perspectives (2). With its wide scope, challenges and opportunities, the specialty emerged in response to ever-changing societal and health challenges, including among others, urbanization, mechanization and regional conflicts all leading to increased trauma-related incidents and a considerable rise in chronic diseases (3). At present, the EM specialty is being accepted as an area of specialization in more than 60 countries worldwide (4, 5).

EM is a relatively young specialty in Iran. In the case of Iran as a developing country, EM as a specialty was approved by the Iranian Council of Graduate Medical Education in 1999 and the Iran University of Medical Sciences located in Tehran took authority to train the first EM residents in 2000. In early 2005, the Iranian Society of EM (ISEM) was established and the number of graduates in this field is increasing year-by-year (6, 7).

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As a globally-accepted and increasingly-developed research method for exploring the quantitative and qualitative states of research output (8), bibliometrics tends to examine and analyze the scientific research items published on a specific field or topic, contributing authors, producing and cooperating countries, assigned keywords as the manifestation of topics, and visualizing scientific trends by using computerized bibliometric programs applied for extracting big data from main indexing and abstracting databases such as Scopus, Web of Science and PubMed (9, 10). In line with a significant growth in the field of biomedical research, including medical emergencies (11), the global landscape of EM research has been widely studied through bibliometric lenses, revealing situations and patterns in research productivity by producing countries, researchers and research institutions and author collaboration (12). Some of these studies aimed to analyze scientific research in EM worldwide (13-15), a certain region (16) and individual countries (17, 18).

Iran is one of the developing countries in the Middle East that has the fastest research publication growth in the world and providing a good landscape of its research trend in any specific field (19), including EM. Conducting bibliometric studies and visualization approaches seems to be necessary for financial, political and scientific purposes and their influence on the science and technology.

Despite many bibliometric studies in research on medical fields worldwide, including some related fields in the case of Iran (20-22), global research in EM contributed by Iranian researchers has not been explored with bibliometric visualization. This study aimed to visualize and analyze the bibliometric indicators of publications authored by Iranian researchers in this field.

2. Methods

2.1. Study design and setting

This study is a bibliometric analysis and used a descriptive-analytical approach to examine the structure of scientific production, scientific collaborations and conceptual trends in the field of EM made by Iranian researchers. All Iranian researcher's scientific documents indexed in the Scopus database in the subject area of EM were extracted. The Scopus database was selected as it is one of the most comprehensive sources of scientific indexing, due to its wide subject coverage, advanced search capabilities and the possibility of extracting bibliographic and bibliometric data (23).

The unit of analysis in this study included published scientific papers with final publication status by the end of 2024. Documents under publication or in press excluded to ensure the accuracy and completeness. As the study had no human subjects, it had no need to be evaluated by the Institutional Review Board. In addition, an ethics approval code (IR.UMSHA.REC.1399.392) was issued by the Ethics Committee of Hamadan University of Medical Sciences.

2.2. Search strategy

The search for related documents was conducted in July 2025 to allow sufficient time for 2024-published documents to be completely indexed in the Scopus database. We used the Scopus Advanced Search feature and the following search strategy for searching EM papers:

Subject (MEDI) EM AND (LIMIT-TO (PUBSTAGE, "final")) AND (EXCLUDE (PUBYEAR, 2025) OR EXCLUDE (PUBYEAR, 2026)).

The search process was to select EM subset from the medical subject area. Documents to be published for 2025 and 2026 were extracted, with the publication status limited to final, as documents in print are considered for 2025 or 2026 journal issues. To determine the number of documents published by Middle Eastern countries, the above mentioned search strategy was limited to 17 countries in the region from countries menu.

To extract Iranian documents, the initial search in the advanced search section was limited to the country of Iran (LIMIT-TO (AFFILCOUNTRY, "Iran")) and eventually, the bibliometric information of the Iranian researchers' documents was extracted and compiled in the form of CSV files.

2.3. Data analysis

To analyze data, VOSviewer software version 1.6.20 was used. Bibliometric data were fully extracted from Scopus. One of the challenges of this stage was the variation of the spelling of keywords, including singular and plural forms, synonyms and abbreviations, which interfered with the process of drawing co-word maps. Therefore, in order to achieve conceptual coherence and prevent the spread of similar keywords, the researchers first designed a specialized terminology/thesaurus to be used in VOSviewer analyses. For data analysis, we used descriptive indicators including frequency and percentage of documents, h-index, total number of citations, average citations per article, CiteScore and quartile to fit different entities at hand. The social networking technique was used to draw the scientific cooperation network of Iran's collaborating countries. Collaboration networking focuses on the study of social structure and the analysis of collaboration of authors, organizations and countries (24). Conceptual network map was used to draw the keyword co-word network. Co-word analysis focuses on the most important words and/or keywords used in documents and is used to visualize the conceptual structure of a research area, describe main research trends and identify emerging research areas (25).

3. Results

3.1. Characteristics of included documents

1,276,773 documents were indexed for EM worldwide during the search time span and the number of documents published by Middle Eastern countries was 102,340. A total of 20,859 documents by Iranian researchers (emergency

medicine specialists or other diciplines) in the field of EM have been indexed in Scopus from the beginning in 1972 to the end of 2024. These scientific publications received 422,983 citations and an average citation rate of 20.28 per document. Most of documents were original articles (16,711; 80.11%) and the language of most documents was English (19,037; 91.27%).

Among the Middle Eastern countries, the largest share of scientific output in the field belonged to Turkey (31,664; 30.94%) and Iran (20,859; 20.38%). In total, 51.3% of Middle Eastern scientific publications in the field were published by these two countries, and 15 other Middle Eastern countries published 48.7% of the documents.

The United States was the top country with 473,465 documents and published 37.08% of the world's documents. The second–ranked country in the world was the United Kingdom with 8.59 percent of the world's share, with 109,660 published documents. It's interesting to note that out of 17 Middle Eastern countries, only two, Turkey and Iran, were among the top 20. Turkey ranked 12th and Iran ranked 16th in the world.

3.2. Publication Trends

Iranian researchers' published research in the field of EM began in 1972 with the publication of two documents and has reached 2,483 documents in 2024. Between 2019 and 2022, the production of documents had a considerable growth (COVID-19 pandemy period). The regression slope of publication trend (R2=0.9491) shows a 95% leap in the scientific publications of Iranian researchers compared to the early years of publication (Figure 1).

3.3. Top journals publishing Iranian researchers' documents on EM

The bibliometric indicators of the top 20 journals that published the most scientific productions of Iranian researchers are presented in Table 1. A total of 4,443 (21.31%) papers were published by the top 20 journals. The Archives of Academic Emergency Medicine on the top was the leading journal publishing the scientific productions of Iranian researchers in the field. The Journal of Education and Health Promotion, and the Journal of Mazandaran University of Medical Sciences were ranked second and third, respectively.

3.4. Top Iranian productive research institutions

Table 2 shows the specifications of the 10 Iranian productive institutions. The ranking of institutions based on the number of published documents indicated that Tehran University of Medical Sciences is ranked first with 5,033 (24.13%) documents. Shahid Beheshti University of Medical Sciences with 3,247 (15.57%) documents and Iran University of Medical Sciences with 2,879 (13.80) documents ranked second and third, respectively. When the top institutions were ranked based on their rates of average citations per article (quality of publications), Mazandaran University of Medical Sciences (112.45) ranked first, followed by Iran University of Medical Sciences (64.47) and Shahid Beheshti University of Medical Sciences (53.43).

3.5. Iranian Researchers' Collaboration network with authors from other countries

In terms of the number of collaborated documents, the United States (1698), the United Kingdom (611), Canada (564) and Australia (523) were the most collaborating countries of Iran. Figure 2A shows the number of documents and average citations per document for the 20 major collaborating countries. In total, Iranian authors collaborated with authors from 144 countries to publish 20,859 documents during the study period.

An analysis of international scientific collaboration network included 42 countries with more than 50 collaborated items in three clusters (Figure 2B). Cluster one is composed of 18 countries, mainly in Western and Northern Europe (including the UK, Italy, Sweden, Germany, the Netherlands, Switzerland, Spain, France, Poland and Denmark)or Asian and Middle Eastern countries (including among others India, China, Turkey, Malaysia, Egypt, Pakistan, Iraq and Saudi Arabia). Cluster three with 6 countries, comprising the three Anglosphere countries of the United States, Canada and Australia, along with the three countries of Brazil, South Africa and Nigeria from the Southern Hemisphere.

In terms of the duration and length of scientific collaboration, countries such as Sweden, Malaysia, South Africa, the United States, Austria and the Netherlands were among the countries with the earliest collaborations. In contrast, new collaborating countries were countries such as Nigeria, Iraq, Poland, Turkey, Portugal, Spain, Hong Kong, and Saudi Arabia (Figure 3C). In terms of average citation rates, Finland, Hong Kong, Austria, Romania, Singapore, Portugal, Switzerland and Spain were at the top (Figure 2D).

3.6. Co-occurrence map of the highly-frequent keywords

Figure 3A shows the 20 most frequently-used keywords in Iranian scientific publications in the field of EM, along with the rates of the average citation per document. The five keywords including hospitalization, risk factor, emergency department, mortality, and computer assisted tomography were the top highly-frequent keywords in this field. The most frequent keywords were grouped into five thematic/subject clusters (Figure 3B). Cluster one (in red with 23 keywords) considers risk factors and clinical implications in EM. This cluster is the most prevalent one, with keywords such as hospitalization, risk factor, mortality, and ICU. The main focus of this cluster is on the analysis of complications, severity of disease, chronic diseases (diabetes, hypertension), mortality, length of patient stay and prognosis. The second cluster (in green with 23 keywords) is devoted to clinical symptoms and laboratory indicators. This cluster addresses the occurrence of clinical symptoms such as fever, dyspnea, headache, and

laboratory indicators such as CRP, leukocyte count, and creatinine, indicating a focus on early diagnosis and symptomology of disease. The third cluster (in blue with 18 keywords) refers to emergency and psychiatric services, and the implications related to the emergency work environment and the psychological moods of patients are evident in this cluster. It highlights keywords such as emergency department, EM, procedure, anxiety, pain assessment, and mental health. The fourth cluster (in yellow with 11 keywords) covers diagnostic and medical imaging tools. This cluster includes keywords such as computer assisted tomography, diagnostic accuracy, echography, and physical examination, referring to the attention to diagnostic evaluations and the accuracy of imaging tools in emergency services. The fifth cluster (in purple with five keywords) is dedicated to vital signs and clinical monitoring. In this cluster, physiological indicators such as blood pressure, ECG, heart rate and oxygen saturation are present, indicating the monitoring of the vital signs of patients in critical conditions. Figure 3C shows the historical trend of EM research topics in Iran. The trends can be divided into four periods/phases based on the average year of keywords occurred in publications:

Structural and trauma-focused clinical phase (until 2018): In this phase, the focus of EM research was on trauma pathology, accidents, and physical assessment. Concepts such as injury, traffic accident, scoring system, EM, physical examination, pain assessment, and resuscitation are among the common topics of this phase.

Clinical and paraclinical diagnostic phase (2019): This phase focuses on the expansion of diagnostic tools and the increased use of laboratory and imaging data. This includes keywords such as CT scan, ECG, echography, diagnostic imaging, hospital discharge, abdominal pain, dyspnea, headache, and nausea.

Chronic Diseases and Risk Factor Control (2020): The subjects of this phase are representative of comorbidities and concurrent complications, with attention to the mental health of emergency patients. Keywords such as diabetes mellitus, hypertension, body mass, inflammation, cardiovascular disease, mental health, psychology, and complication are prominent in this phase.

Epidemiology and Molecular Experiments (2021 and onward): Topics in this phase address the vital signs and biomarkers associated with viral diseases such as COVID-19. keywords such as mortality rate, RT-PCR, oxygen saturation, CRP, and fatigue are representative of this period. The average citation per document rates for Iranian EM research in Figure 3D shows that the highest impact belongs to major clinical topics. Keywords such as morbidity, mortality and comorbidity have a high impact (citation average rate >70). The subjects of the risk factor assessment are of medium impact. Key terms such as blood pressure, disease severity, pregnancy, GCS, mental health, and prognosis have a medium impact (median average citation rate ranging 15-70). In contrast, low citation rates were recorded for diagnostic and therapeutic methods, such as ECG, Echography, CRP, thorax radiography, resuscitation, and physical examination (average citation rate <15).

4. Discussion

Findings of this study showed an increasing trend in Iranian scientific output in the field of EM, similar to that reported globally (13-15) and in some other countries and regions (16-18). One of the key factors in this increasing trend is Iranian journals being indexed in the Scopus database, especially specialized and reputable journals such as the Archives of Academic EM, which has provided a native platform for the publication of articles by domestic researchers. Increased capacity for admission of medical students and specialists, expansion of emergency medical centers in the country, enhancement of the university research accreditation system, incentives by the Ministry of Health for publication in peer-reviewed journals and expansion of international collaborations are among other factors contributing to this ever-increasing trend. Also, crises such as the COVID-19 pandemic have played an important role in accelerating research activities in EM, as the need for immediate responses and scientific documentation to health crises has led researchers to write immediate and extensive papers. This trend reflects the gradual maturation of research infrastructures in Iran and the more active involvement of Iranian researchers into the global network of science in the field.

The regional analysis of scientific productions showed that EM in the Middle East, especially in the countries of Turkey and Iran experienced significant growth and dynamism. Iran, in the second place, has a high potential for further development, especially if it can expand its regional and international cooperation. The distance between Iran and the leading countries, as well as Turkey, in the Middle East region is large. Filling this gap requires increasing research funding, strengthening research infrastructure and expanding international collaboration. However, Iran has a comparative advantage in the region and has a higher scientific standing compared to many countries in the Middle East. This advantage can be used as a basis for developing scientific diplomacy and attracting regional and global collaborations.

Analysis of publication venues showed that 18 of the top 20 journals publishing Iranian EM research are domestic, reflecting the accessibility and familiarity of local platforms. Tehran University of Medical Sciences, Shahid Beheshti University of Medical Sciences, and Iran University of Medical Sciences were the most prolific institutions. Yet, when assessed by average citations per article, a proxy for research quality, Mazandaran University of Medical Sciences ranked highest, followed by Iran University of Medical Sciences and Shahid Beheshti University. This discrepancy between quantity and quality underscores the need to prioritize high-impact, purposeful research over sheer volume. Iranian researchers have established broad international collaboration networks, particularly with Anglosphere countries

such as the United States, United Kingdom, Canada, and Australia. The co-authorship network analysis revealed diverse geographical partnerships, with long-standing collaborations with countries like Sweden, Malaysia, and the United States, and more recent ties with nations such as Nigeria, Iraq, and Poland. Notably, countries like Hong Kong, Austria, and Singapore demonstrated high citation impact, suggesting that strategic partnerships with scientifically influential nations can enhance research visibility and quality (26).

The conceptual structure of Iranian EM research has evolved over time. Early studies focused on trauma and primary emergency care, while later phases emphasized diagnostic precision through imaging and laboratory tests. More recent research has addressed chronic diseases, mental health, and systemic complications, culminating in a surge of publications related to COVID-19, including topics such as RT-PCR, oxygen saturation, and inflammatory markers. The most highly cited studies were those addressing major clinical outcomes and public health crises, indicating that Iranian researchers have successfully engaged with globally relevant and high-impact topics. In comparison to other countries, Iran demonstrates notable strengths both quantitatively and qualitatively. For instance, while South Korea has shown steady growth in EM publications, its h-index and citation metrics remain modest, and its focus leans heavily toward publishing in international journals due to limited impact of domestic outlets (17). In contrast, Iran has achieved balanced growth across both domestic and international platforms, with broader collaborative reach and higher citation performance. Similarly, Turkey's EM research, particularly in converting conference abstracts into full publications, faces structural challenges—only 8.2% of abstracts were published, and a small fraction appeared in Q1 journals (18). Iran, by contrast, has demonstrated more effective pathways from research to publication in indexed and impactful journals.

Globally, while the United States and other Western nations dominate EM research output (15), Iran has carved out a meaningful presence by focusing on clinically significant and widely cited topics. Compared to Latin American countries, which struggle with limited journal visibility, weak research networks, and low international collaboration rates (16), Iran benefits from stronger institutional support, targeted policies, and more robust scientific networking. These comparative insights suggest that Iran's success in EM research stems from a strategic blend of domestic capacity-building, policy-driven incentives, and international engagement—offering a potential model for other developing nations seeking to enhance their scientific footprint.

The analysis of the identified subject clusters reflects Iranian research trends and priorities in the field. The first cluster was devoted to risk factors, clinical outcomes, and mortality indicators. This shows that epidemiological and clinical approaches are predominant in Iranian studies and researchers are paying special attention to these topics. The historical trend of Iranian EM research shows that in the early years, Iranian studies were more focused on trauma, accidents, and primary emergency treatments such as cardiopulmonary resuscitation and GCS examination. This represents an attempt to cover the traditional emergency needs of the country. In the subsequent period, the focus shifted towards increasing the accuracy of diagnosis by using imaging technologies (CT, MRI, ECG) and specialized tests. Also, clinical symptomatology became more diverse and non-traumatic illnesses (such as abdominal pain and shortness of breath) received more attention. In the third period, research entered a new phase where conceptual terms related to underlying diseases, mental health, concomitant complications, and interactions between bodily systems were further explored. In the latest period, the findings reflect the entry of key players associated with the COVID-19 pandemic. Concepts such as RT-PCR, mortality rate, oxygen saturation and CRP reflect the orientation of research towards screening, molecular diagnostics, and measurement of the severity of infectious diseases. The average citation rates showed that papers focusing on major clinical outcomes, high-risk diseases, and public health crises received the most attention from the scientific community. These were also the most cited nodes worldwide (26). Therefore, despite structural constraints, Iranian researchers have been able to address high-impact topics in the field.

Aligned with the primary objectives of this study, namely, examining the structure of scientific output, international collaborations, and conceptual trends in Iranian emergency medicine research—the findings demonstrate that Iran has achieved a notable position both regionally and globally, with over 20,000 scientific documents published between 1972 and the end of 2024. The concentration of research output in major academic institutions, particularly in recent years, reflects the maturation of Iran's research infrastructure and the expansion of its scientific capacity. Extensive collaborations with 144 countries, especially with Anglosphere and European nations, highlight Iran's active engagement in international scientific networks and its potential for advancing research diplomacy. Furthermore, the conceptual evolution of Iranian EM research, from early focus on trauma and primary care to more complex topics such as chronic diseases, mental health, and emerging epidemics, demonstrates a purposeful shift toward high-impact and globally relevant themes.

This study showed that Iran has managed to establish a significant presence in the field of EM at the regional and global levels over the past two decades by relying on the expansion of higher education capacities, improving healthcare and research infrastructure, and taking advantage of international opportunities. However, maintaining and enhancing this trend requires addressing several key axes: first, moving away from quantitative approaches towards enhancing scientific quality, emphasizing the publication of articles in high impact journals; second, balancing the distribution of resources and opportunities at the national level, in order to reduce

centralization and create scientific fairness at the national university level; third, strengthening supportive policies for the development of international scientific collaborations with countries of high performers in indicators of specialization and research quality; and fourth, strategically orientating research towards emerging, cross-cutting and transnational issues, including health crises, mental health and non-communicable diseases, which are not only national priorities, but also of global concern to the scientific community. Finally, EM in Iran is moving from the stage of decline to the stage of scientific maturity and effectiveness. To sustain and deepen this path, it is suggested that research policy-making institutions, by adopting forward-looking approaches, put on the agenda for supporting problem-oriented research in line with the real needs of society. The development of a scientific roadmap in the field of EM with the participation of universities, health centers and specialized associations can help expand research.

5. Limitations

Nonetheless, this bibliometric study is subject to certain structural limitations that may influence the interpretation of its findings. First, the exclusive reliance on the Scopus database may have led to the omission of relevant publications indexed in other reputable sources such as Web of Science and PubMed, potentially underrepresenting the full scope of Iranian EM research. Second, due to the timing of the data collection, documents from 2025 that have not yet been fully indexed were excluded from the analysis. While this approach is standard in bibliometric studies to ensure data consistency, it may result in the inadvertent omission of newly published articles. Third, the study primarily focuses on quantitative bibliometric indicators and does not assess the qualitative content or scientific depth of the publications. As such, evaluations of innovation, methodological rigor, or clinical relevance fall outside the scope of this analysis. These limitations should be considered when interpreting the results within the methodological boundaries of bibliometric research.

6. Conclusions

As the second-ranked country in the Middle East and the 16th-ranked in the world, Iran has a prominent position and a high capacity for scientific development and research diplomacy in EM. The trend of scientific productions of EM in Iran is also growing. Promoting this status and maintaining this trend requires special attention from officials and policy makers to research, expanding international cooperation, increasing the quality of research and focusing on interdisciplinary and problem-oriented research.

7. Declarations

7.1. Acknowledgments

NA.

7.2. Authors' contributions

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7.4. Conflict of interest

The authors declare that they have no conflict of interest.

7.5. Ethical statement

The study has been approved by the Ethics Committee of Hamadan University of Medical Sciences (Ethical code: IR.UMSHA.REC.1399.392).

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Table 1: Top 20 journals that published the most scientific productions of Iranian researchers during 1972-2024

No	Journal title	Documents (N = 20,859)		h-index (rank)*	CiteScore 2024 (rank)	Quartile
		N	%			
1	Archives of Academic emergency medicine	415	1.99	27 (3)	0.494 (5)	Q1
2	Journal of Education and Health Promotion	322	1.54	22 (9)	0.205 (12)	Q3
3	Journal of Mazandaran University of Medical Sciences	304	1.46	11 (17)	0.142 (17)	Q4
4	Trauma Monthly	280	1.34	18 (12)	0.155 (14)	Q4
5	Journal of Isfahan Medical School	279	1.34	8 (18)	0.120 (18)	Q4
6	Medical Journal of the Islamic Republic of Iran	260	1.25	22 (9)	0.384 (9)	Q3
7	Acta Medica Iranica	259	1.24	17 (13)	0.151 (16)	Q4
8	Iranian Red Crescent Medical Journal**	218	1.05	26 (6)	-	-
9	Tehran University Medical Journal	217	1.04	8 (18)	0.115 (19)	Q4
10	Archives of Iranian Medicine	212	1.02	28 (2)	0.367 (10)	Q4
11	Journal of Military Medicine	211	1.01	15 (14)	0.155 (15)	Q4
12	Anesthesiology and Pain Medicine	204	0.98	27 (3)	0.467 (7)	Q2
13	Journal of Research in Medical Sciences	187	0.90	24 (8)	0.437 (8)	Q3
14	American Journal of EM	177	0.85	27 (3)	0.764 (2)	Q1
15	Iranian Journal of Public Health	171	0.82	30 (1)	0.489 (6)	Q3
16	Health in Emergencies and Disasters Quarterly	151	0.72	8 (18)	0.248 (11)	Q2
17	Iranian Journal of Obs Gyn and Infertility	149	0.71	14 (15)	0.174 (13)	Q3
18	Health Science Reports	146	0.70	13 (16)	0.567 (4)	Q2
19	BMC Public Health	141	0.68	26 (6)	1.359 (1)	Q1
20	International Journal of Preventive Medicine	140	0.67	21 (11)	0.607 (3)	Q2

* Equal journals have the same ranking number and then a gap is left in the ranking numbers.
**not indexed in Scopus from 2020.

Table 2: Top ten Iranian productive institutions publishing on emergency medicine (EM) during 1972-2024 (number of document = 20,859)

Rank	Institution	Documents		Total citation (rank)	Citations/article (rank)	h-index (rank)
		N	%			
1st	Tehran UMS	5033	24.13	225230 (1)	44.75 (6)	138 (1)
2nd	Shahid Beheshti UMS	3247	15.57	173185 (3)	53.43 (3)	116 (3)
3rd	Iran UMS	2879	13.80	185559 (2)	64.47 (2)	124 (2)
4th	Tabriz UMS	1983	9.51	78489 (6)	49.58 (4)	87 (5)
5th	Shiraz UMS	1957	9.38	90752 (5)	46.37 (5)	92 (4)
6th	Isfahan UMS	1754	8.41	53633 (8)	30.58 (9)	75 (8)
7th	Mashhad UMS	1600	7.67	61875 (7)	38.67 (8)	78 (7)
8th	Islamic Azad University	1402	6.72	41187 (10)	29.38 (10)	64 (9)
9th	Kerman UMS	978	4.69	42192 (9)	43.14 (7)	62 (10)
10th	Mazandaran UMS	922	4.42	103683 (4)	112.45 (1)	79 (6)

UMS: University of Medical Sciences.

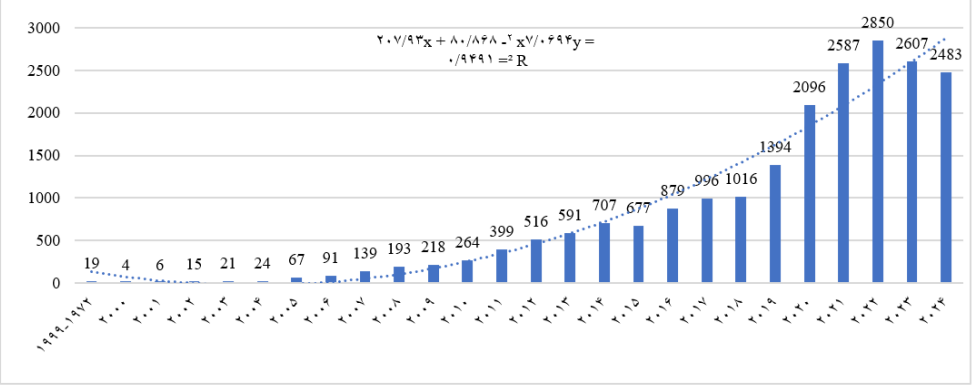

Figure 1: Publication trend of Iranian researchers' documents in EM (1972-2024).

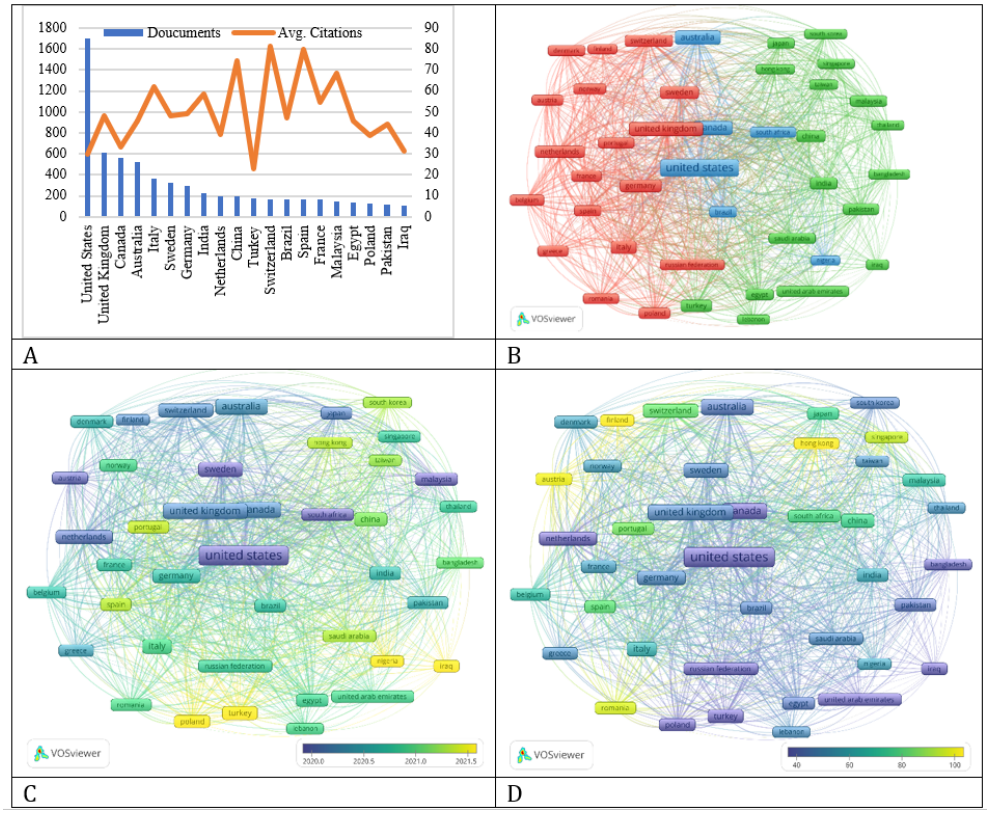

Figure 2: Co-authorship network of different collaborating countries and regions in Iranian researchers' documents on emergency medicine.

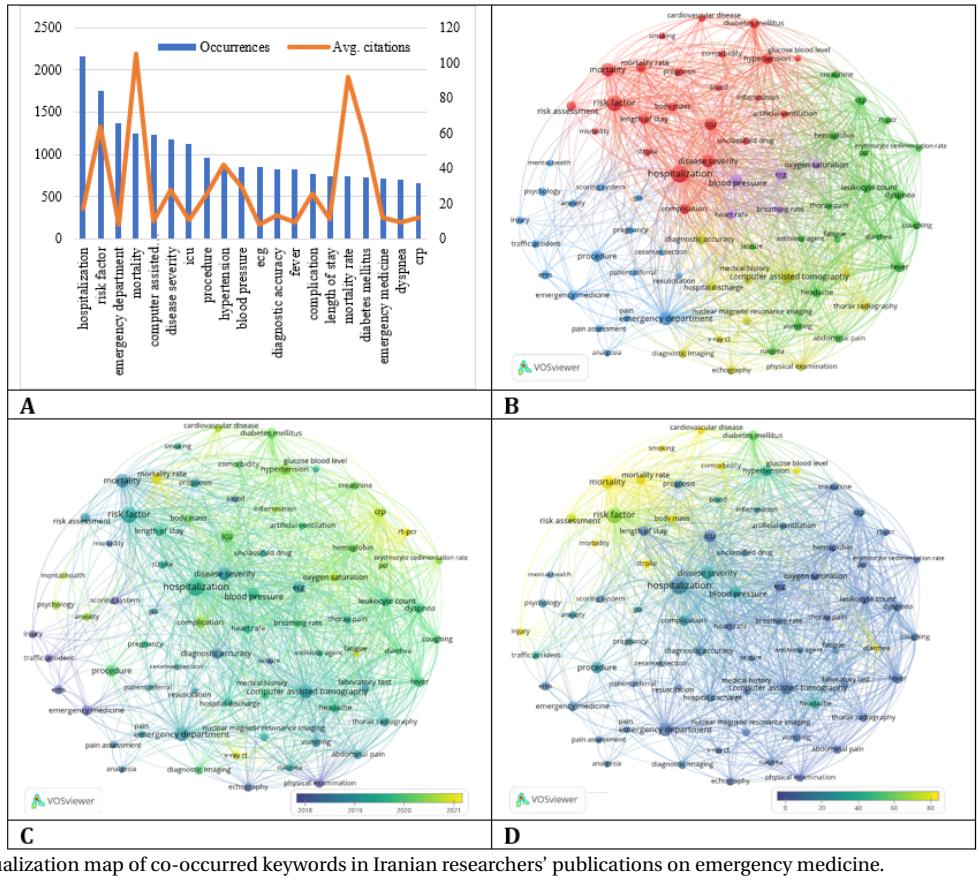

Figure 3: Visualization map of co-occurred keywords in Iranian researchers' publications on emergency medicine.