

Bibliometric analysis of publication in human anatomy over the past ten years in Indonesia and Southeast Asia

Reza Yorghi Junianto Kartika Seputro, Dwi Cahyani Ratna Sari, Nur Arfian, Junaedy Yunus

Department of Anatomy, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

<https://doi.org/10.22146/inajbcs.v58i1.27845>

ABSTRACT

Submitted: 2026-01-11

Accepted : 2026-02-24

Human anatomy is a fundamental basic science underpinning medical education and biomedical research. Despite a growing volume of anatomical publications, systematic evaluations of research output and thematic development among anatomy departments in Indonesia and Southeast Asian countries remain limited. With comparative insights from Southeast Asian nations, this study sought to describe the publication trends, collaboration patterns, and topic progression of anatomical research written by scholars connected to Indonesian Departments of Anatomy over the last ten years. Publications indexed in PubMed from 2016 to 2025 were used in a bibliometric study. To find literature about anatomy from Indonesia and Southeast Asia, affiliation-based search techniques were used. VOSviewer was used to map authorship collaboration, institutional contributions, and research themes based on Medical Subject Headings (MeSH) through network visualization and keyword co-occurrence studies. There were 4,067 publications from Southeast Asia and 737 publications from Indonesia. Despite making up a lesser share of regional output, Indonesia had the fastest rate of growth in publications over the research period. Productivity was concentrated among a small number of writers and institutions, according to co-authorship analysis. Keyword mapping revealed a preponderance of animal model-based experimental and preclinical research with a focus on molecular and cellular mechanisms. Cell differentiation, biomarkers, and mesenchymal stem cells were among the emerging areas associated with translational research. Anatomical research in Indonesia has expanded rapidly and is progressively integrating molecular and translational perspectives. These findings provide an evidence-based foundation for strengthening research capacity, fostering collaboration, and guiding strategic development within anatomical sciences.

ABSTRAK

Anatomi manusia merupakan ilmu dasar fundamental yang menjadi landasan pendidikan kedokteran dan penelitian biomedis. Meskipun jumlah publikasi di bidang anatomi terus meningkat, evaluasi sistematis terhadap luaran penelitian serta perkembangan tematik pada departemen anatomi di Indonesia dan negara-negara Asia Tenggara masih terbatas. Dengan memberikan perspektif komparatif terhadap negara-negara Asia Tenggara, penelitian ini bertujuan untuk mendeskripsikan tren publikasi, pola kolaborasi, serta perkembangan topik penelitian anatomi yang ditulis oleh peneliti yang berafiliasi dengan Departemen Anatomi di Indonesia selama sepuluh tahun terakhir. Penelitian ini merupakan studi bibliometrik terhadap publikasi yang terindeks di PubMed pada periode 2016–2025. Strategi penelusuran berbasis afiliasi digunakan untuk mengidentifikasi literatur anatomi dari Indonesia dan kawasan Asia Tenggara. Analisis kolaborasi kepenulisan, kontribusi institusi, serta pemetaan tema penelitian dilakukan menggunakan perangkat lunak VOSviewer melalui visualisasi jejaring dan analisis ko-okurensi kata kunci berdasarkan Medical Subject Headings (MeSH). Terdapat 4.067 publikasi dari Asia Tenggara dan 737 publikasi dari Indonesia. Meskipun kontribusi Indonesia terhadap luaran regional relatif lebih kecil, Indonesia menunjukkan laju pertumbuhan publikasi tercepat selama periode penelitian. Analisis ko-kepenulisan menunjukkan bahwa produktivitas penelitian terkonsentrasi pada sejumlah kecil penulis dan institusi. Pemetaan kata kunci mengindikasikan dominasi penelitian eksperimental dan praklinis berbasis model hewan dengan fokus pada mekanisme molekuler dan seluler. Topik-topik yang berkembang mencakup diferensiasi sel, biomarker, dan sel punca mesenchimal yang berkaitan dengan pendekatan translasi. Penelitian anatomi di Indonesia menunjukkan pertumbuhan yang pesat dan secara progresif mengintegrasikan perspektif molekuler serta translasi. Temuan ini memberikan dasar berbasis bukti untuk penguatan kapasitas riset, peningkatan kolaborasi, serta perumusan pengembangan strategis dalam bidang ilmu anatomi.

Keywords:

Bibliometric analysis;
human anatomy;
publication trends;
research collaboration;
Southeast Asia

INTRODUCTION

Anatomy is a fundamental biomedical science that studies the anatomical arrangement of live beings, detailing the shape, position, and spatial interactions of tissues, organs, and systems, and is essential for explaining clinical reasoning and medical practice.¹⁻² Human anatomy, in particular, is one of the basic sciences that is considered essential in medical education.³

The history of anatomy is characterized by a growing comprehension of organ functions and the human body's structure. Over the years, approaches for studying anatomy have evolved significantly, transitioning from the dissection of animal carcasses and human cadavers to the advanced medical imaging tools of the twentieth century, including X-rays, ultrasonography, and magnetic resonance imaging (MRI).⁴ In the past decade, the quick development in scientific knowledge has been paralleled by a rapid pace in anatomical research. Most anatomical researchers often categorize papers into three primary types: (1) case reports, (2) original investigations, and (3) synthesis studies.⁵

A substantial amount of research in the field of anatomy has been published to date. However, there is still a lack of comprehensive understanding of the categories and characteristics of studies that are conducted by researchers in anatomy departments. A bibliometric analysis was conducted to conduct a thorough evaluation of research output and to identify prevalent trends in anatomy-focused literature. Bibliometric analysis is a methodology that is widely recognized and utilizes statistical and mathematical tools to quantitatively and qualitatively evaluate a variety of information sources, such as scientific papers published in journals.⁶ This approach is crucial for the identification of active research domains, potential

collaborations, prominent issues, emerging trends, and future research directions. Bibliometric approaches enable the identification of notable authors, institutions, nations, journals, frequently cited publications, and significant research themes, thereby providing a comprehensive overview of the current research landscape. These discoveries are essential for the identification of knowledge gaps, the understanding of research prospects, and the direction of future research endeavors.⁷ Furthermore, employing bibliometric analysis enables the examination of temporal trends, hence facilitating researchers in remaining informed about the newest advancements in a specific research topic.⁶⁻⁷

Bibliometric analysis can provide a precise evaluation of the efficacy and impact of research in particular fields, such as anatomy. In order to provide a comprehensive understanding of the key terms, geographic distribution, publication frequency, institutions, authors, and journals associated with the research conducted by researchers in the human anatomy department, visualization tools were employed to generate a knowledge map of this research domain. In addition, bibliometric analysis provides critical insights into the current state of research and potential research trajectories by identifying the primary contributors within a particular field of study. The findings of this analysis enabled the discovery of research areas that have the potential for future exploration.⁸

This research aimed to elucidate bibliographic trends and the knowledge structure of publications by researchers affiliated with the anatomy department in Indonesia, in comparison to those from Southeast Asian countries, from 2016 to 2025, through an analysis of the co-occurrence of keywords, countries or regions, institutions, and authors.

MATERIAL AND METHODS

Data sources

Bibliographic records were gathered in January 2026 from the PubMed database. PubMed offers standardized indexing using Medical Subject Headings (MeSH), which enhances bibliometric analysis by allowing consistent identification of article subjects. The Scopus database was also checked to provide citation-related information for the included documents.

Study design

This study utilized bibliometric analysis to statistically assess the scientific literature and identify the progression of knowledge in the field. Bibliometric tools facilitate the evaluation of publication trends, citation patterns, authorship, and keyword co-occurrence, thus offering markers of developmental trajectories in scientific research.

Search strategy

The bibliometric analysis query in the PubMed database was constructed by integrating various keywords inside the Affiliation field and refining the results to encompass publications from the last decade. For data pertaining to Indonesia, the utilized keywords were (((anatomy[Affiliation]) NOT (vet*[Affiliation])) NOT (path*[Affiliation])) AND (indonesia[Affiliation]). The exclusion criteria were applied to eliminate publications not linked to human anatomy-related connections.

For the Southeast Asia region, additional affiliation keywords were included, namely “Brunei,” “Cambodia,” “Indonesia,” “Laos,” “Malaysia,” “Myanmar,” “Philippines,” “Singapore,”

“Thailand,” “Timor Leste” and “Viet Nam.” using the same query.

The results from all of the queries are then saved in Pubmed (.txt) format.

Data analysis

A network analysis approach was employed to investigate collaboration patterns and the temporal evolution of research ideas. VOSviewer (version 1.6.20) was employed to illustrate research patterns and collaboration interactions. The bibliometric dataset was converted into a Social Network Analysis (SNA) graph, a graph-theoretical approach employed to identify and quantify links across entities including authors, countries, institutions, publications, and keywords.

In the SNA graphs, nodes reflected entities (e.g., authors or MeSH terms), with node size reflecting frequency of occurrence. Edges (lines) represent collaborative links or thematic connections, with more thickness signifying higher co-occurrence frequencies. The analysis of co-authorship networks was conducted based on nation affiliations with the same methodology. Network normalization was executed with the association strength algorithm.

An investigation of advanced subject trends was conducted utilizing PubMed MeSH keywords to delineate the scope and progression of study themes. A co-occurrence network of MeSH terms was developed in VOSviewer, with nodes symbolizing MeSH terms and edges denoting their simultaneous occurrence inside the same publication. The size of nodes expanded with elevated keyword frequency, and theme clusters were depicted through normalization of connection strength. FIGURE 1 illustrates the methodology for data retrieval and analysis.

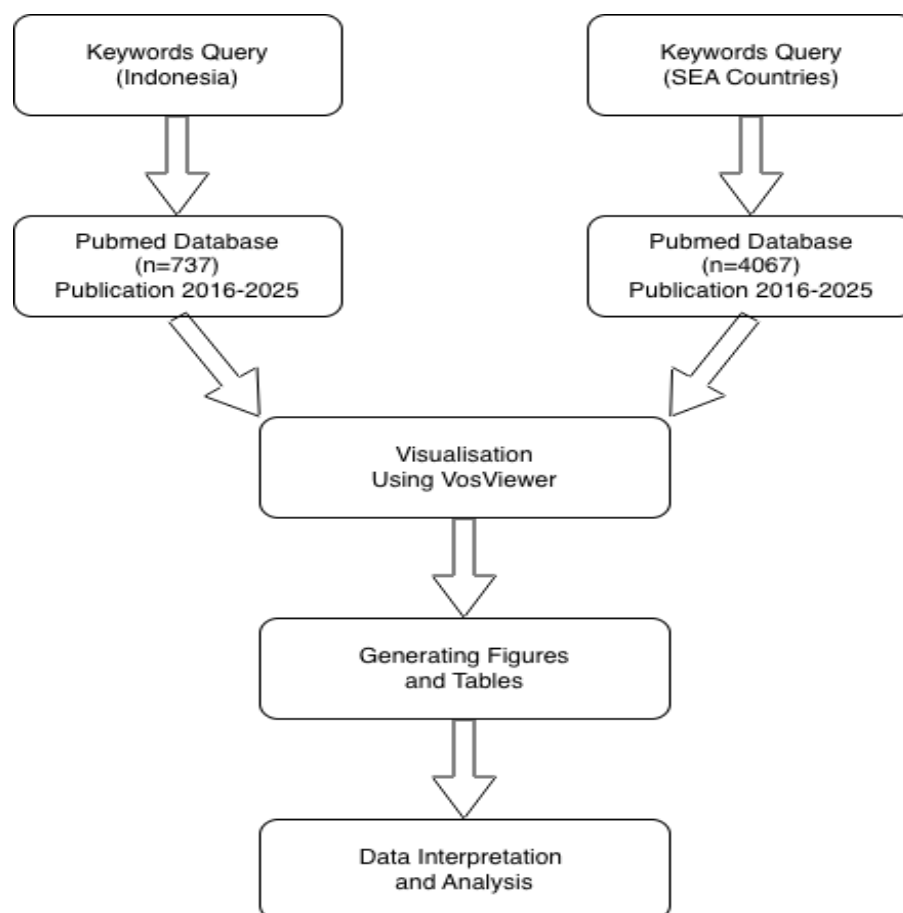


FIGURE 1. Search strategy and data analysing method (flow diagram).

RESULTS

Over a ten-year period (2016–2026), PubMed indexed 737 publications authored by researchers affiliated with Departments of Anatomy in Indonesia. Across Southeast Asian countries, a total of 4,067 publications authored by researchers affiliated with Departments of Anatomy were indexed in PubMed. A comparative analysis of Southeast Asian countries reveals that Thailand produced the largest percentage of publications at 39.24%, followed by Malaysia at 25.22%, Singapore at 18.94%, and Indonesia at 18.03%.

As illustrated in FIGURE 2, over the past decade (2016–2025), the yearly output of publications by researchers associated with Departments of Anatomy in Indonesia surged nearly tenfold, rising from 14 publications in 2016 to 145 publications in 2025. The overall number of publications from the Southeast Asia region increased by roughly 2.3 times during the same period, rising from 276 publications in 2016 to 630 publications in 2025. According to TABLE 1 and PubMed statistics, Indonesia exhibits the most significant rate of publication growth relative to other nations in Southeast Asia.



FIGURE 2. Annual number of publications published by researchers affiliated with Anatomy Department in Indonesia and Southeast Asian countries.

TABLE 1. Amount of publications published by authors affiliated with Anatomy Department in Southeast Asian countries in the last 10 years.

Country	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Brunei	0	0	0	0	0	0	2	0	1	0	3
Cambodia	0	0	1	1	0	0	0	1	1	1	5
Indonesia	14	11	29	55	69	82	107	140	156	145	808
Laos	0	0	1	0	0	0	0	1	1	0	3
Malaysia	64	85	82	108	99	143	146	133	120	127	1107
Myanmar	0	0	1	3	4	5	0	2	2	1	18
Philippines	3	4	4	8	11	22	21	28	19	23	143
Singapore	83	85	100	80	93	92	79	85	74	101	872
Thailand	127	134	131	151	182	211	208	198	218	270	1830
Timor Leste	0	1	0	0	0	0	0	0	1	0	2
Vietnam	1	0	3	5	8	5	9	5	4	8	48

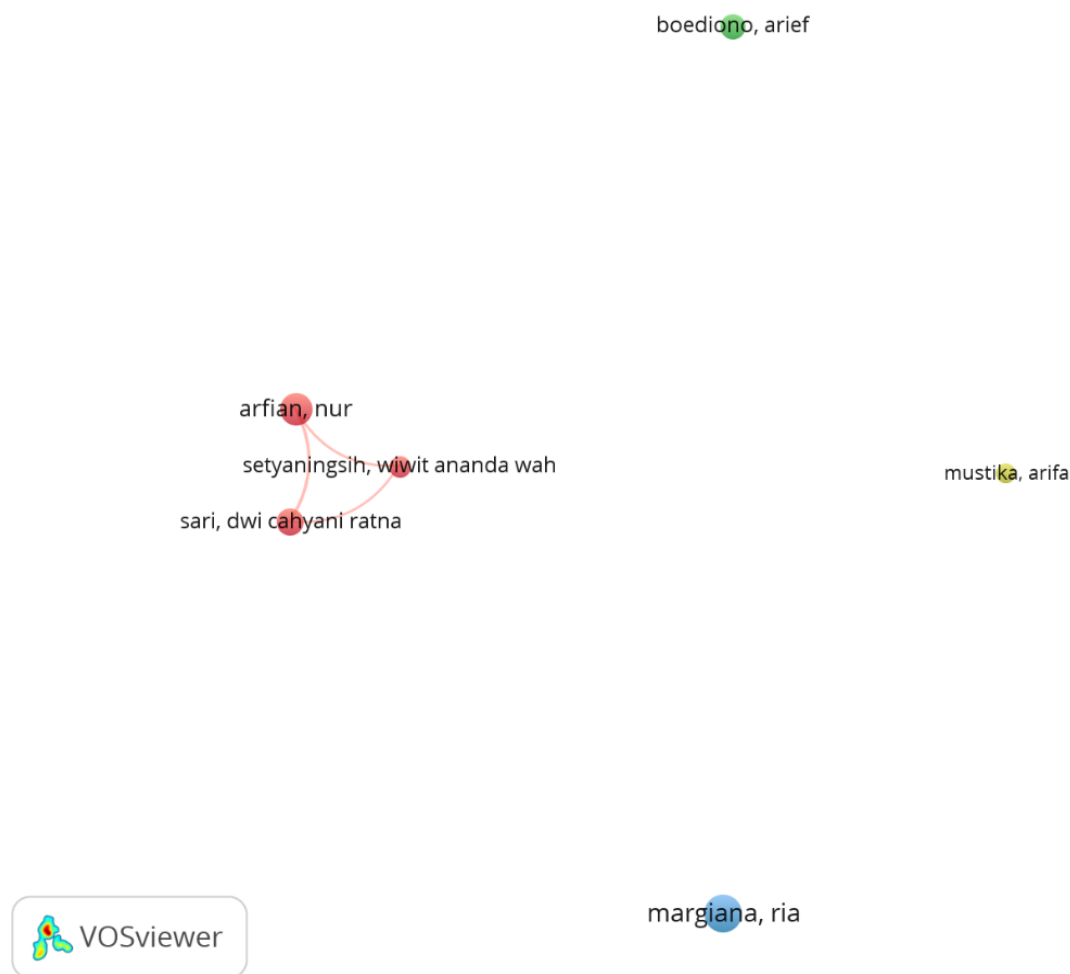


FIGURE 3. Network visualization map for co-authorship in publications wrote by researchers affiliated with Anatomy Department in Indonesia.

FIGURE 3 depicts the social network analysis of the co-authorship network among publications indexed in PubMed produced by researchers from Departments of Anatomy in Indonesia. A decreased length between nodes and/or increased edges between nodes signifies a greater intensity of collaboration among writers. Six writers with the greatest number of publications associated with Departments of Anatomy in Indonesia were chosen. Among these six writers, one cluster (red nodes)

comprises three authors from the same university, Universitas Gadjah Mada. The most prolific author was Ria Margiana, with 38 publications, associated with the Department of Anatomy at Universitas Indonesia. She was succeeded by Nur Arfian (27 publications), Dwi Cahyani Ratna Sari (19 publications), Arief Boediono (17 publications), Wiwit Ananda Wahyu Setyaningsih (12 publications), and Arifa Mustika (11 publications). TABLE 2 summarizes the publication count for each author.

TABLE 2. Top contributing authors affiliated with Anatomy Department in Indonesia.

Author's name	Affiliation	Publication
Ria Margiana	Department of Anatomy, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia.	38
Nur Arfian	Department of Anatomy, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia	27
Dwi Cahyani Ratna Sari	Department of Anatomy, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia	19
Arief Boediono	Department of Anatomy, Physiology and Pharmacology, IPB University, Bogor, Indonesia	17
Wiwit Ananda Wahyu Setyaningsih	Department of Anatomy, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia	12
Arifa Mustika	Department of Anatomy, Histology, and Pharmacology, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia	11

Over the past decade, as depicted in FIGURE 4, certain research keywords have emerged as significant themes in the publications of researchers affiliated with Departments of Anatomy in Indonesia. Each node in the illustration signifies a keyword, with the node size corresponding to the keyword's frequency, while the links and their thickness indicate the strength of co-occurrence among the keywords. The coloration of the nodes signify distinct groups of keywords, representing significant study themes. Three major clusters exist. The predominant cluster, indicated in red, is centered around the phrase "animals" and pertains to

preclinical and experimental research utilizing animal models, including rats, Wistar rats, and mice. This cluster is closely associated with study subjects in molecular and cellular biology, including inflammation, apoptosis, signal transduction, cultured cells, diabetes mellitus (both experimental and type 2), and kidney research. This cluster includes keywords related to mesenchymal stem cells and wound healing, highlighting the significant application of animal models in regenerative and translational research. Recent papers regularly feature the keywords "diabetes mellitus" and "cell differentiation," as illustrated in FIGURE 5.

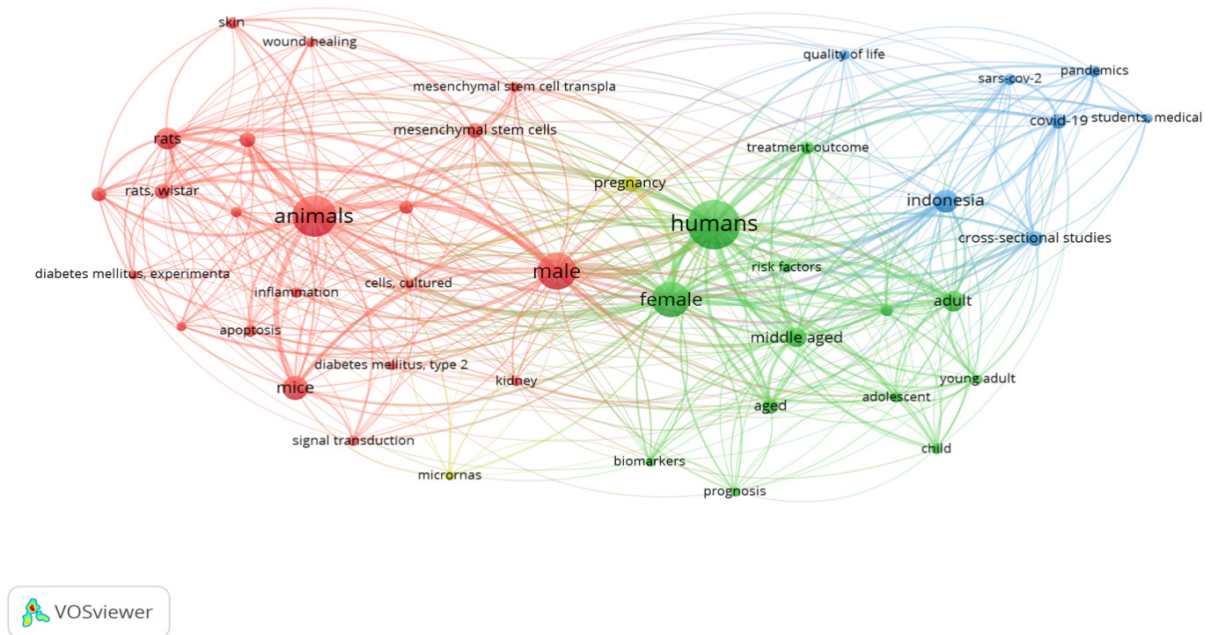


FIGURE 4. Network visualization map for co-occurrence of MeSH keywords in publications wrote by authors affiliated with Anatomy Department in Indonesia.

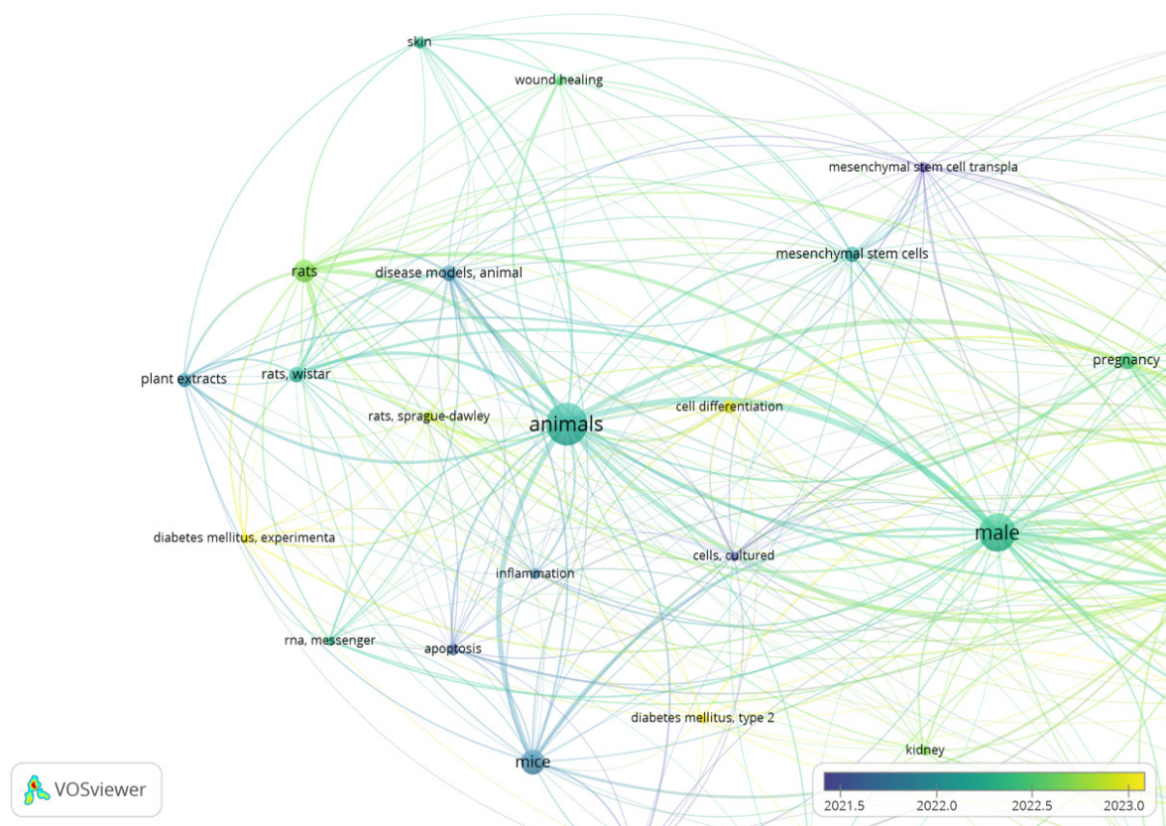


FIGURE 5. Overlay visualization map for co-occurrence of MeSH keywords in publications wrote by authors affiliated with Anatomy Department in Indonesia.

FIGURE 4 prominently illustrates that bridging nodes like “male” and “female” connect the animal-based (red) and human-based (green) clusters, signifying conceptual and methodological connections between preclinical and clinical research. Likewise, keywords associated with mesenchymal stem cells and biomarkers function as translational links within clusters, highlighting the incorporation of experimental results into human health research.

Keywords corresponding to published research by researchers affiliated with Departments of Anatomy in Southeast Asian countries are illustrated in FIGURE 6. The extensive and interconnected keyword clusters are depicted on the left side of the picture, represented by green and blue nodes. The green cluster, centered on the major phrase “animals,” represents experimental and preclinical investigations. This cluster is closely associated with animal disease models, particularly those utilizing rats (including Wistar and Sprague-Dawley strains) and mice (including inbred C57BL and knockout strains). The prominent keywords encompass inflammation, reactive oxygen

species, apoptosis, neurons, brain, hippocampus, antioxidants, and plant extracts, indicating a significant focus on neurobiology, oxidative stress, and pharmacological or phytotherapeutic interventions in animal models.

The blue cluster signifies research in molecular and cellular biology, closely linked to experimental and translational research. This blue cluster has terms including cell proliferation, cell survival, cell differentiation, regulation of gene expression, messenger RNA, microRNAs, cell lines, tumor cell lines, and antineoplastic drugs. The strong interconnections within this blue cluster signify an emphasis on cellular biology, gene control, and cancer research, frequently serving as a mechanistic bridge from animal studies to human study.

Recent studies have keywords such as “mesenchymal stem cells,” “biomarkers,” and “antioxidants,” although these terms are still somewhat underrepresented, as seen by smaller node sizes. FIGURE 7 and FIGURE 8 depict a timeline indicating the years in which these keywords were published.

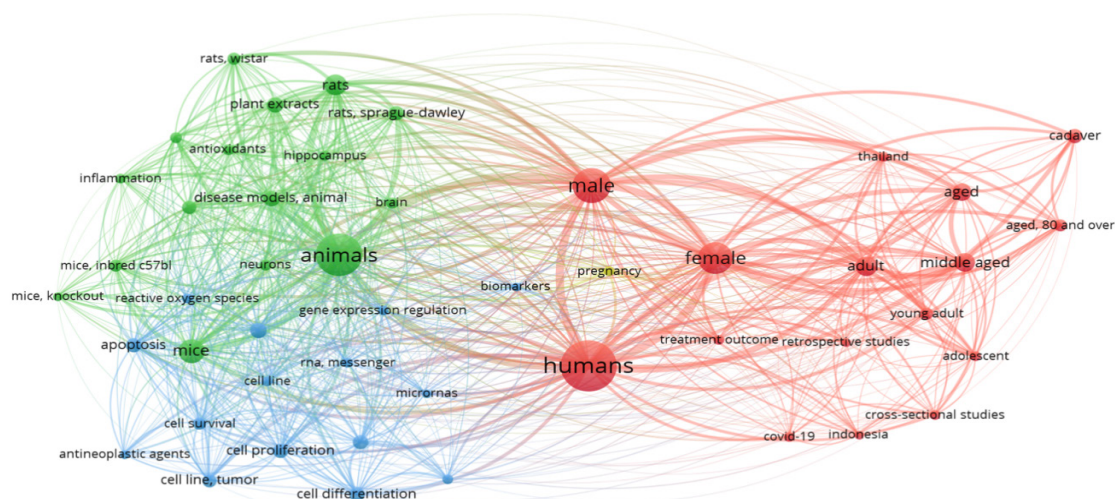


FIGURE 6. Network visualization map for co-occurrence of MeSH keywords in publications wrote by authors affiliated with Anatomy Department in Southeast Asian Countries.

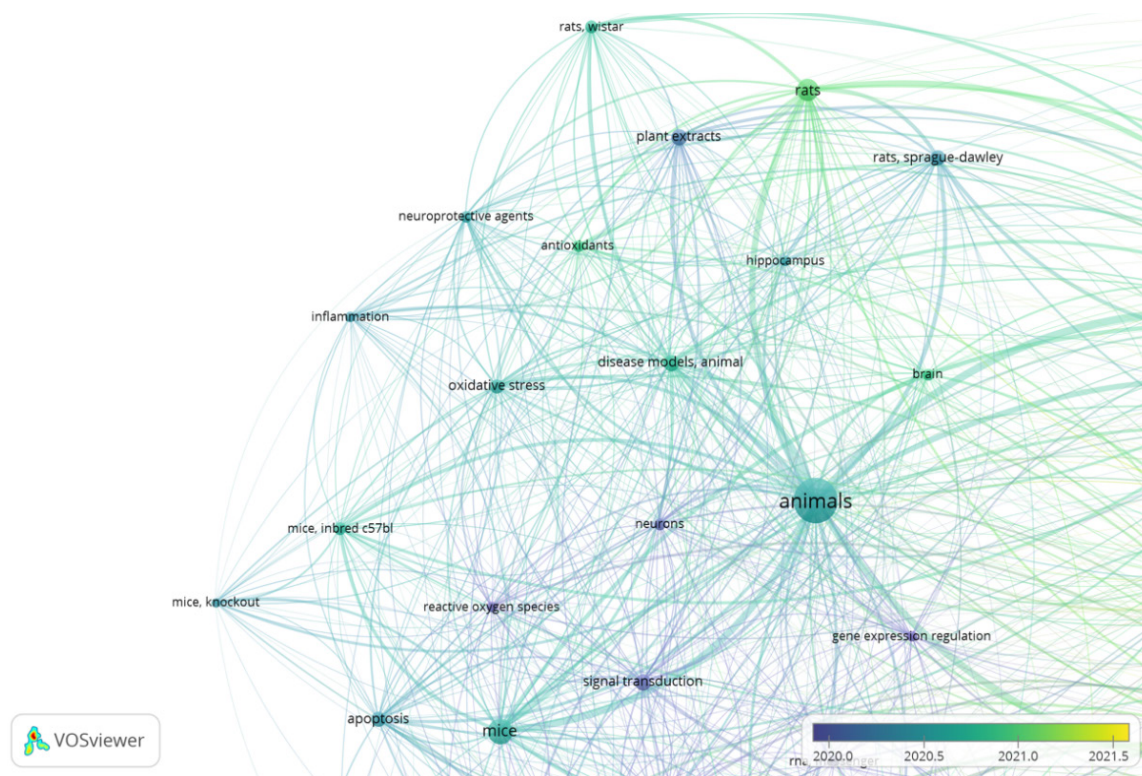


FIGURE 7. Overlay visualization map for co-occurrence of MeSH keywords (first cluster) in publications written by authors affiliated with Anatomy Department in Southeast Asian countries.

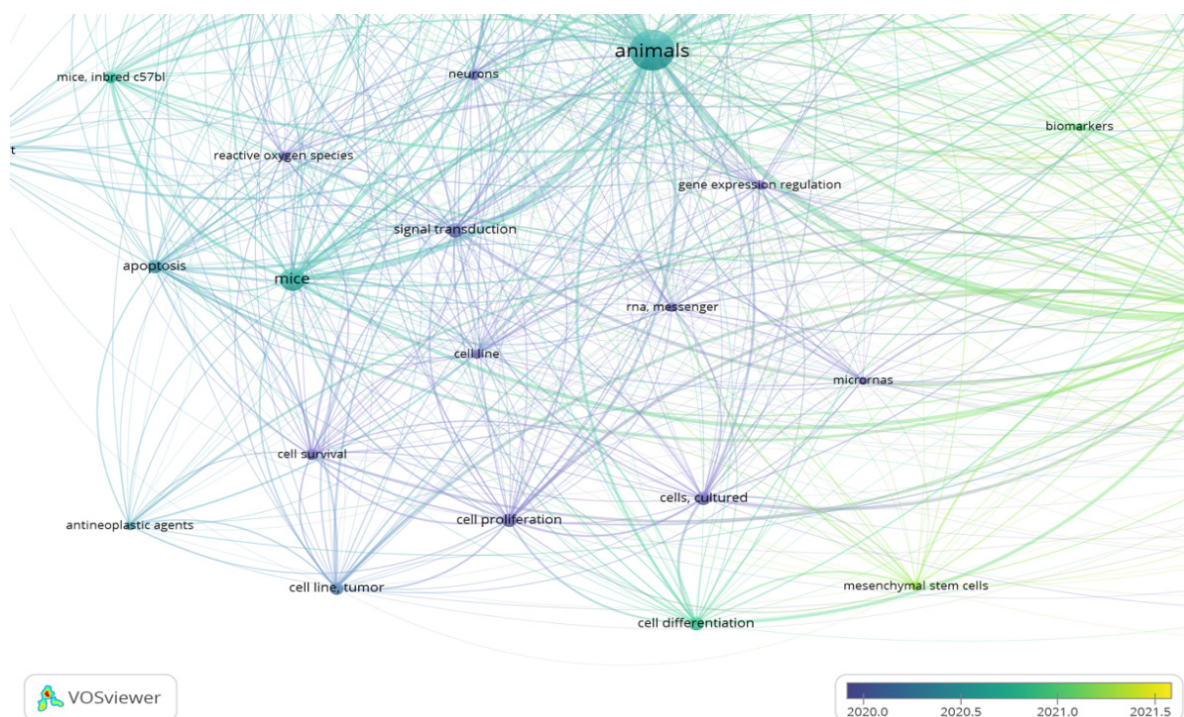


FIGURE 8. Overlay visualization map for co-occurrence of MeSH keywords (second cluster) in publications written by authors affiliated with Anatomy Department in Southeast Asian countries.

The keyword patterns illustrated in FIGURE 4 and 6 demonstrate significant similarities. This study suggests that research patterns among researchers in Indonesian Departments of Anatomy closely resemble those of their counterparts in other Southeast Asian nations.

DISCUSSION

This bibliometric analysis demonstrates a substantial increase in publications by academics affiliated with Indonesian anatomy departments during the past decade. Similar to other fields, the publishing rate in certain study domains typically increases as scientific communities and institutional interests evolve over time. Bibliometric analyses in several biomedical research domains have revealed an increase in publication volume over time, signifying the expansion of these study fields.⁹

The study was restricted to publications from the past decade (2016-2025) to guarantee that the findings reflect current trends, organizational structures, and issues in anatomical science. Significant advancements have occurred in biomedical research during the previous decade, including the incorporation of molecular techniques, translational research, digital imaging methodologies, and publication trends. Previous literature may reflect historical research priorities, differing indexing standards, and insufficient worldwide collaboration, potentially obscuring contemporary developments. The last decade offers a clearer representation of contemporary research capabilities, collaborative dynamics, and thematic elements, while remaining sufficiently lengthy to identify notable trends in publishing rates across time. This timeframe aligns with the conventions of bibliometric analysis aimed at reflecting contemporary research evolution. Numerous bibliometric analyses have

opted to examine a recent multi-year span (5-10 yr) for their research.^{8,10-11}

Although Indonesia's share of total anatomical publications in Southeast Asia was less than that of Thailand, Malaysia, and Singapore, the growth rate of Indonesian publications was the most significant. The elevated growth rates align with bibliometric evaluations of other emerging research domains, where national research systems demonstrate catch-up effects related to enhancements in facility and academic incentives.¹² This growth may result from enhanced research capacities, financial support for the dissemination of research findings, and promotion practices that prioritize publication within the faculties of medical and health sciences.

Our social network study revealed a concentration of output among a limited number of productive authors, along with a notable degree of clustering inside institutional confines. This collaborative trend mirrors findings from other bibliometric studies, indicating that a core group of persons accounts for a large number of research output, typically occurring within established research settings.¹³

The theme mapping indicates that experimental and preclinical research with animal models remains a significant domain. The centrality of the keywords animal models, inflammation, and oxidative stress aligns with bibliometric data regarding animal model research on disease mechanisms and therapeutic interventions, as highlighted in recent bibliometric literature on mesenchymal stem cell research and other preclinical domains.¹⁴ The significance of these subjects underscores the enduring relevance of anatomical sciences in advancing fundamental research at the molecular, cellular, and tissue levels.

The consistent emergence of molecular and cellular keywords, such as cell differentiation, gene expression, and microRNAs, signifies that anatomical

research is becoming interdisciplinary through the integration of mechanistic methodologies. This is unsurprising, as it mirrors the prevailing trend in biomedical research, where classical structural sciences are merging with molecular biology and translational research, resulting in increasingly interdisciplinary studies that encompass both basic and applied science. It is noteworthy that phrases associated with COVID-19 and public health concerns are incorporated in the current clusters. The abrupt surge in COVID-19-related papers has been extensively recorded across multiple disciplines, demonstrating an exponential rise in academic output in reaction to the pandemic and the capacity of scientific research to quickly address rising global health challenges.¹⁵

The overlay illustration in VOSviewer reflects the average publishing year of keywords based on their frequency and co-occurrence patterns, rather than the complete duration of the data. The study, covering articles from 2016 to 2025, indicates that the clustering of overlay colors around 2020-2021 marks the period of the most significant development of recurrent and thematically related terms. These years signify the focal point of thematic growth within the network, rather than the limitations of the study period. This is a prevalent occurrence in the bibliometric overlay mapping approach, where years exhibiting the highest publishing growth, strongest keyword co-occurrence, and rapid topic diversification dominate the calculation of the average year of publication. The current dataset indicates a significant rise in anatomical research output post-2019, leading to a more concentrated manifestation of novel and recurrently co-occurring MeSH terms in 2020-2021. The initial years (2016-2018) exhibited a lower volume of publications, resulting in diminished significance within the network's temporal distribution. Conversely, the most recent period

(2023-2025) introduce novel keywords that have not yet achieved adequate co-occurrence frequency to influence the average year towards the conclusion of the time frame.

Therefore, the overlay map should be seen as representing the period of greatest theme cohesion and expansion, rather than implying that research effort was limited to 2020-2021. This visualization tool effectively illustrates when the principal research issues achieved structural relevance within the network over the study period from 2016 to 2025.

A comparative investigation into keyword patterns in Indonesian anatomical studies and Southeast Asian studies on anatomy-related terms indicates a fundamental resemblance in research themes and methodologies. Bibliometric analyses in the biomedical sciences reveal that similarities in keyword patterns generally signify related research topics, regional health concerns, and convergent scientific cultures, hence highlighting the significance of cross-national analysis in research landscape studies.⁹

These observations indicate that the Indonesian anatomical research community is progressing towards a more integrated research paradigm that includes experimental, molecular, and clinical dimensions. Augmenting joint initiatives and fostering global engagement could significantly diversify the international research scene of Indonesian anatomical sciences.

This study also has limitations that are intrinsic to bibliometric analyses. Firstly, this study exclusively utilized the PubMed database; hence, any publications indexed in alternative databases, such as Embase, Scopus, Web of Science, or local portals (SINTA, Garuda), are excluded. This may result in an underestimation of the overall research output. This study only utilized the PubMed database as its primary data

source due to its highly standardized indexing system employing Medical Subject Headings (MeSH), which is particularly advantageous for bibliometric network and keyword co-occurrence analysis. MeSH offers a controlled lexicon that facilitates consistent thematic categorization of publications, hence enhancing the precision of clustering and overlay visualization in applications like as VOSviewer. Although Embase covers a wider variety of articles in certain biomedical domains, its indexing approach (Emtree) is fundamentally distinct from MeSH and does not fully align with the controlled vocabulary utilized in PubMed. Harmonizing the two databases without introducing discrepancies in keyword mapping would be tough, hence complicating comparisons in the network analysis.¹⁶

PubMed is widely recognized as a principal database in biomedical and anatomical sciences, offering extensive coverage of peer-reviewed medical literature and global accessibility. The primary objective of this study was not to perform a thorough systematic evaluation of all current research, but rather to concentrate on theme structure, collaboration patterns, and trends; thus, it was more advantageous to utilize a single database with consistent indexing. In bibliometric investigations, it is customary and recognized to prioritize the dependability of the network over the standards of indexing, rather than emphasizing the comprehensiveness of the database.¹⁷

Secondly, affiliation-based searching may be affected by discrepancies in the reporting of institutional names and departmental affiliations, potentially resulting in the misattribution or omission of certain pertinent articles. Affiliation-based searching depends on authors disclosing institutional and departmental names in their articles. Discrepancies in terminology (e.g., "Department of

Anatomy," "Anatomy Division," or broader faculty-level affiliations) and English translation across international boundaries may lead to the inadequate recording of relevant information. Moreover, multidisciplinary research may be conducted by personnel trained in anatomy but affiliated with different departments, such as biomedical sciences, medical education, or research institutes. This inherent unpredictable nature creates a risk of underrepresentation, a recognized methodological problem in affiliation-based bibliometric analysis.

CONCLUSION

This bibliometric analysis demonstrates a notable and consistent rise in the volume of anatomical research published from Indonesia over the past decade, exhibiting the fastest rate of publication growth among Southeast Asian countries, despite a comparatively lower absolute contribution. The research remains predominantly centered on experimental and preclinical studies utilizing animal models and molecular-cellular methodologies; nevertheless, the increasing prevalence of translational terms such as cell differentiation, biomarkers, and mesenchymal stem cells signifies a progressive transition in thematic emphasis. The notable resemblance in the keyword structures of Indonesian and Southeast Asian publications signifies a convergence in research focus and methodologies across Southeast Asia. The co-authorship analysis of the articles reveals a significant concentration of output within a limited number of institutions and writers, highlighting the critical role of established research ecosystems. These data indicate that anatomical research in Indonesia is progressively transitioning towards an integrated and translational emphasis, providing a robust evidence foundation to inform future capacity development,

collaboration, and policy formulation in anatomical sciences.

ACKNOWLEDGMENT

The authors declare that they have no conflict of interest.

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