

Dermatology Reports
https://journals.pagepress.net/dr

eISSN 2036-7406

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The final version of the manuscript will then appear on a regular issue of the journal.

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Please cite this article as:

Alfouzan SK, Gopinathan PA, Ul Haq I, et al. Trends in dermatological research publications in the Arab world from 2000 to 2023: a bibliometric analysis. *Dermatol Rep 2026 [Epub Ahead of Print] doi: 10.4081/dr.2026.10622*

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Received: 22 September 2025; Accepted: 26 May 2026.

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Trends in dermatological research publications in the Arab world from 2000 to 2023: a bibliometric analysis

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Key words: dermatology; skin diseases; Arab world; bibliometric; publication trends.

Contributions: Sulaiman Khalid Alfouzan: conceptualization, validation, project administration, writing – original draft; Pillai Arun Gopinathan: conceptualization, investigation, writing – review & editing; Ikram Ul Haq: conceptualization, investigation, validation, project administration, writing – original draft, writing – review & editing; Faisal Alsharif: investigation, formal analysis, validation, writing – review & editing; Juwana Salah Salamah: investigation, formal analysis, validation, writing – original draft; Saud Alsharif: formal analysis, project administration, writing – original draft. Funding acquisition: none. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: the authors have no conflict of interest to declare.

Ethics approval and consent to participate: not required.

Availability of data and materials: all data generated or analyzed during this study are included in this published article.

Abstract

This bibliometric analysis examines the publication trends in dermatology within the Arab world from 2000 to 2023. The study highlights the region's scientific contributions and evaluates the global visibility and impact of dermatological research. The Web of Science (WoS) database was employed to conduct a retrospective bibliometric analysis. The bibliometric indicators, like the global overview of dermatology research, categorization of research by country, citation metrics, annual growth rates, leading publishing journals, prominent countries, authorship patterns, authors, and analysis of the top key words, were analyzed. VOSviewer software was employed. The authors from Arab countries produced 2,390 dermatology records from 2000 to 2023, representing 2.22% of global dermatology research. Saudi Arabia (35%) and Egypt (26.73%) were the primary contributors. The *Cureus* journal was the preferred publication, while Hamida Turki was recognized as the most prolific author. The study illustrates consistent growth in dermatology research and collaboration, with prospects for future advancement.

Introduction

The Arab world comprises 22 nations in the Middle East and North Africa. A common linguistic and cultural history unites these countries, with Arabic serving as the predominant language.[1-3] The Arab world is achieving significant advancements in its quest to become a prominent participant in the global scientific community, although encountering numerous challenges, especially regarding funding, political stability, and fostering local innovation.[4-7]

Numerous bibliometric analyses have investigated global and regional dermatological research. Gantenbein *et al.* analyzed dermatological studies published from 1832 to 2019.[8] Another study analyzed 378,276 dermatology entries cataloged in the Web of Science (WoS) database from 1974 to 2019, evaluating 50 highly cited papers.[9] Tasli *et al.* documented dermatology articles from the Organisation for Economic Co-operation and Development (OECD) nations from 1999 to 2008.[10] A separate study assessed the impact of European Union authors on international dermatological literature.[11] Hassan *et al.* discovered that Africa generated 4,579 dermatology publications from 2012 to 2021.[12]

Dermatological research in Arab nations is expanding owing to the region's heterogeneous population and distinctive environmental factors.[13] There is a high prevalence of skin diseases, hereditary problems, and climate-related conditions such as hyperpigmentation and skin cancer. Enhancements in healthcare infrastructure underscore the importance of dermatological education and research.[14,15] Cooperation among local and foreign researchers is broadening the field of dermatological research, encompassing

clinical trials, surgical procedures, aesthetic dermatology, and the management of chronic disorders.[16,17] Daou *et al.* evaluated the contributions of Arab countries to psoriasis research, which accounted for 1.53% of worldwide psoriasis research from 2004 to 2019.[13]

A multitude of studies have concentrated on the publication output of the Arab region. Ahmed *et al.* observed the Arab world's overall research output from 1980 to 2020 and found that scientific output grew by 72% in the last 10 years.[1] El Rassi *et al.* analyzed the research contributions of Arab nations in the medical sciences from 2007 to 2016. Nevertheless, the medical research output in Arab nations continues to fall short compared to the global standard.[3] A recent study indicated that the Arab countries contributed 2.72% of worldwide medical research publications from 2017 to 2023.[18]

Numerous bibliometric analyses have investigated different facets of dermatological research in Saudi Arabia. Alsaif *et al.* evaluated Saudi Arabia's involvement in dermatology research utilizing a PubMed dataset. Saudi Arabia published its inaugural dermatology article in 1982; by 2018, the total number of publications had increased to 67.[19] A bibliometric analysis conducted in 2023 employed the WoS and Scopus databases to examine dermatology research from Saudi Arabia, covering the period from 1977 to 2021.[20] Another study looked at the quality of the evidence in 125 dermatology research papers published in Saudi Arabia between 2015 and 2020 and found that only a few of them were considered high-level clinical research.[21]

Bibliometric analysis is an essential instrument for assessing research trends and publication patterns.[19,21,22] It involves the quantitative analysis of academic literature and is designed to provide insights into the evolution of scholarly communication by evaluating the performance and impact of research activities.[1,23] Overall, bibliometric analysis helps inform funding decisions, enhance collaborations, refine research training, and address national health goals.[24,25]

WoS Core Collection provided the data for this study, as it gives complete, high-quality citation data that makes it possible to accurately look at research impact, trends, and collaboration networks.[26-28] Although there were numerous studies done on the bibliometric analysis on dermatology, no studies have been undertaken on the Arab region. Thus, the primary objective was to evaluate the dermatological research in the Arab countries from 2000 to 2023. The secondary objectives were to provide an overview of dermatological research worldwide; analyze research output by country using citation metrics; assess the annual growth in publications and citations; and identify the leading journals, countries, authorship patterns, most productive authors, and the top 20 key words.

Materials and Methods

On November 28, 2024, the WoS database provided by Clarivate Analytics was searched to retrieve the dataset for this study. The search strategy was based on the following topic (TC) query: TC = (Dermatology OR "Skin disease" OR "Skin diseases"). Figure 1 illustrates the methodology used for the screening process. The retrieved data were analyzed using VOSviewer software (version 1.6.10).

Inclusion and exclusion criteria

The initial search yielded 139,425 documents published between 1900 and the date of data collection. A 24-year period, from 2000 to 2023, was selected; three-fourths of the documents (n=107,405; 77%) were published during this period.

Documents published before 2000 and after 2023 were excluded. The search strategy was further refined using the countries/regions filter, selecting the 22 countries located in the Arab region to assess their contributions. A total of 2,390 documents were identified with at least one author affiliated with a country in the Arab region.

Results

Global scenario of dermatology research

The WoS Core Collection revealed 107,405 dermatology-related publications. The *Journal of Investigative Dermatology* published the highest number of articles (n=2,374), followed by the *Journal of the American Academy of Dermatology* (n=2,830) and the *British Journal of Dermatology* (n=2,392). Over 50% of the publications (n=60,454; 56.28%) originated from the United States, followed by Germany (n=9,032; 8.40%) and England (n=6,356; 5.91%). Within the five most productive institutions, all were located in the United States; authors from the University of California generated the greatest volume of documents (n=8,455), followed by Harvard University (n=6,235) and the United States Department of Veterans Affairs (n=3,743). Steven Feldman was the most prolific author, with 325 papers, followed by Kevin C. Chung (322). Nearly three-fourths of all publications were original research articles (n=80,090; 74.56%), followed by review articles (n=12,723; 11.84%), editorial materials (n=5,177; 4.82%), meeting abstracts (n=4,430; 4.12%), and proceedings papers (n=3,254; 3.02%).

Proportion of the Arab region in scientific research

Authors from the Arab region contributed to 2,390 papers, accounting for 2.22% of global dermatological research. Table 1 shows the distribution of Arab regions, which indicates that about 35% of the research was produced by Saudi Arabia, with a relatively high average citation rate of 16.81 citations per publication. Egypt ranks second with 26.73% of publications, while other nations like Tunisia and Iraq exhibited significant research productivity. Qatar had the maximum citation per article, while Syria ranked closely with a few publications. The remaining 22 papers have yielded a total of 318 citations. This indicates that most of the Syrian dermatology research had a low citation count, yet this one highly cited work substantially elevates the overall citation effect.

Types of documents

Figure 2 bar chart illustrates the distribution of different document types, indicating that most of the publications were original research articles, followed by review articles, editorial materials, and meeting abstracts. The dissemination of documents included a limited number of letters, book chapters, retracted papers, bibliographic entries, corrections, and data studies.

Growth and impact of dermatology research

Table 2 shows the distribution of dermatology research, while Figure 3 shows the growth pattern of publications, which indicates that Arab countries produced 2,390 dermatology publications over 24 years, averaging 99.58 publications annually. Progress was notably sluggish, with only 15% (n=359) documented in the initial 12 years, whereas 85% (n=2,031) of the literature was produced in the subsequent 12 years from 2012 to 2023. Over 50% of the research (n=1,380; 57.74%) was disseminated in the final 5 years of the program (2019-2023), averaging 278 publications annually.

All selected documents were referenced with an average of 17.83 citations per publication. Citations exhibit a general rising trajectory, with a notable surge in 2009, presumably indicating the greater influence of preceding works. The citation effect significantly declined to 3.22 by 2023, potentially suggesting that recent articles have not yet exerted much influence or are still in the process of amassing citations. The observed average yearly growth rate was 17.95%.

Top collaborating countries in dermatological research

Authors from Arab countries collaborated with authors from 99 countries worldwide in dermatological research. Table 3 delineates the 10 foremost collaborating nations with Arab countries in dermatological research. The United States excelled in overall collaborative publications, indicating its substantial research partnerships with authors from Arab nations. England engaged in a significant volume of research with a larger citation impact than the United States, suggesting that collaborative research from England tends to receive more citations. The Netherlands has the largest citation effect, which indicated that collaboration with Dutch dermatologists had been cited more often, despite a lower overall document output. Canada ranked second in terms of citation impact, highlighting the significant influence of Canadian research collaborations within the academic community.

Frequently used journals

A total of 2,390 publications have been derived from 851 sources, with 65% (n=553) of those sources having published at least one paper. Table 4 shows the data of the top 10 dermatology journals utilized most often by authors from Arab nations. Among these publications, *Cureus Journal of Medical Sciences* ranked first, followed by the *International Journal of Dermatology* and the *Journal of Cosmetic Dermatology*. Just over 20% of all papers were published in these journals (n=504). The *Journal of the European Academy of Dermatology and Venereology* was among the top 10 journals. The *Egyptian Journal of Dermatology and Venereology* had limited influence in the academic community at large due to its regional emphasis.

Authorship pattern

Figure 4 illustrates the relationship among authorship patterns, publication counts, citation frequencies, and citation impact. The citation effect is determined by dividing the total number of citations by the total number of papers, hence revealing the average citations per document for each authorship style. Papers authored by a single individual exhibit the lowest citation impact, averaging 8.78 citations per publication, and constitute a limited quantity of documents (n=196). Papers with over 10 authors exhibit the highest citation impact (44.86 cites/publication), indicating that these extensively collaborative works possess considerable reach and influence, despite their lower quantity. The four-author pattern was prevalent in most publications (n=345), followed by the three-author pattern (n=310).

Of the 10,500 total authors, 2,390 contributed to dermatological documents, with 87.75% (n=9,214) contributing to only one document. Table 5 presents the 10 most prolific authors. Hamida Turki had the highest number of publications, followed by Martin Steinhoff, while Ossama Abbas had the highest citation impact.

Key word co-occurrence and top key words

The key word analysis utilized VOSviewer software, which detected 5,339 occurrences of terms across 2,390 publications. Figure 5 reveals a visualization of key word co-occurrence network map using VOSviewer. The 20 most prevalent terms are categorized into four separate groupings. Red clusters contain eight key words: "acne", "acne vulgaris", "alopecia areata", "atopic dermatitis", "eczema", "psoriasis", "quality of life", and "vitiligo". These key words pertain to prevalent dermatological disorders frequently examined with their medical, psychological, and social implications. The dark green cluster had five key words: "deep learning", "dermoscopy", "melanoma", "skin cancer", and "skin illness". The key words indicate a focus on employing deep learning with dermoscopy to enhance the detection and diagnosis of melanoma and skin cancer. The blue cluster consisted of five key words ("Covid-19", "dermatology", "inflammation", "skin", and "skin illnesses"), which illustrate the pandemic's influence on dermatological care and the heightened emphasis on skin inflammation during this period. The light green cluster has two key words: "epidemiology" and "lumpy skin disease". This evidence shows how important it is for veterinary and public health to do epidemiological studies on new skin diseases, especially lumpy skin disease.

Table 6 shows the top 20 key words and their appearance in research papers along with total link strength, which shows how closely these key words are linked to other study themes. The term "dermatology" was the most prevalent, as it constitutes the primary focus of dermatological research, followed by "psoriasis" and "skin diseases". Key words such as "psoriasis," "atopic dermatitis," and "vitiligo" were prevalent, exhibiting very moderate connection strength. "Psoriasis" had a significant research domain with a connected relationship to other dermatological subjects, while "Covid-19" illustrates the pandemic's influence on dermatological research, whereas "lumpy skin disease" exhibits the weakest connection strength.

Discussion

The present review identified 107,405 dermatology publications in WoS globally from 2000 to 2023. The United States contributed most of the publications (56.28%), followed by Germany (8.40%) and England (5.91%). The *Journal of Investigative Dermatology* exhibited the highest publication volume, succeeded by the *Journal of the American Academy of Dermatology*. The University of California generated the greatest volume of documents, with Harvard University following closely behind. Gantenbein *et al.* conducted an analysis of global dermatological research from 1832 to 2019, indicating that the United States, Germany, and England produced the highest volume of research output.[8] Similar results were found by bibliometric studies on dermatology, where the United States generated the highest number of publication, followed by Germany and England.[9-11,29]

Subsequently, the present review determined that the Arab region accounted for 2.22% (n=2,390) of global dermatology research, with Saudi Arabia contributing 35% and Egypt ranking second with 27% of publications. Qatar exhibits an extraordinarily high citation rate per publication (43.79 citations/publications), indicating that despite a low number of publications (n=99), they possess significant influence in dermatology research throughout the Arab world. The Gulf nations (Saudi Arabia, United Arab Emirates, Qatar, and Oman) exhibit considerable research effort, particularly considering their limited population. North African nations (Egypt, Tunisia, Algeria, Morocco, and Libya) significantly contribute to dermatology research, with Egypt and Tunisia exhibiting particularly remarkable publishing and citation metrics. Saudi Arabia and Egypt lead in total publications and citations in dermatology within the Arab area; however, Qatar and the United Arab Emirates exhibit greater average citations, indicating the global academic significance of their research. Ahmed *et al.* analyzed the comprehensive research output of the Arab world from 1980 to 2020, indicating that Egypt and Saudi Arabia were the predominant contributors.[1] A study examining the research output of Arab nations in medical sciences from 2007 to 2016 indicated that Egypt produced most of the research (32%), followed by Saudi Arabia (28%) and Tunisia (11%), while Lebanon's research received the highest average citations.[3] A recent bibliometric analysis of medical research in Arab nations from 2017 to March 2023 revealed that the Arab world accounted for 2.72% of global medical research, with an average of 11.98 citations per publication. Qatar possesses the highest quantity of health sciences publications per million inhabitants, while Saudi Arabia (36.45%) and Egypt (33.57%) accounted for approximately 70% of the total research.[18]

Daou *et al.* reported that Arab countries accounted for 1.53% of global psoriasis research from 2004 to 2019, with Egypt, Saudi Arabia, and Tunisia being the primary contributors. Kuwait exhibited the highest publication rate.[13] A separate investigation examined dermatology research in Saudi Arabia from 1982 to 2018. The study identified key research themes, advocated for the establishment of data registry units, and underscored the importance of research collaboration to enhance quality.[19] Hassan *et al.* identified factors contributing to the low dermatology research output in Africa, including insufficient investment, limited resources, and inadequate infrastructure, which likely hinder productivity and pose challenges for researchers. The study indicated that African scholars ought to concentrate on resolving issues pertinent to their content, fostering enduring collaborations with high-income nations and employing applied research to generate new insights.[12]

In the present review, 79% of the papers were published as original research articles, while the remaining publications comprised review articles, editorial materials, meeting abstracts, and conference proceedings. Research articles thus represented the predominant document type, whereas other publication types occurred less frequently. The study by Tallab *et al.* examined the level of evidence in dermatology research conducted in Saudi Arabia from 2015 to 2020, indicating that most studies were classified as level IV, with case reports being the predominant type. A limited proportion of studies were classified as high-level clinical research, highlighting the need for authors to undertake more advanced studies to enhance patient care.[21] Alsaif *et al.* assessed Saudi Arabia's participation in dermatology research from 1982 to 2018, reporting that approximately one-third (63%) of the studies were observational, followed by reviews (28%), experimental research (15%), and preclinical studies (6%).[19]

The analysis of dermatology publications from Arab countries reveals a total of 2,390 publications over a span of 24 years, resulting in an average of 99.58 publications annually. The observed average annual growth rate was 17.95%. More than 50% of the research had been published within the past 5 years, averaging 278 documents annually. Alfawzan *et al.* performed a bibliometric analysis of dermatology research in Saudi Arabia from 1977 to 2021, noting that 60% of the publications occurred in the last 6 years of the study.[20] James and Nybaek analyzed the development of PubMed-indexed dermatological research in Central Europe from 1991 to 2002, revealing considerable variation across countries and years. The number of published papers increased from 148 in 1991 to 502 in 2002.[30] Hassan *et al.* documented that the 49 countries in Africa produced 4,579 dermatology articles between 2012 and 2021, which received a total of 36,691 citations. Egypt (n=1688), South Africa (n=685), and Tunisia (n=388) exhibited the highest levels of productivity among the countries analyzed.[12]

The findings indicate that Arab countries collaborated with authors from 99 different countries. Most of the research involved collaboration with authors from the United States. The Netherlands demonstrated the highest citation impact at 110.20 citations per publication, while Canada holds the second position with 80.28 citations per publication. Hassan *et al.* evaluated dermatology research in Africa and reported that only 39.6% of total papers were published with international collaboration.[12] A study analyzed the research output of Arab countries from 1980 to 2020, indicating that approximately 50% of the research involved international collaboration.[1]

The analysis of publication sources in our review indicated that journals such as the *Saudi Medical Journal*, *Annales de Dermatologie et de Venereologie*, and *Dermatologic Therapy* exhibit strong citation impacts, reflecting their regional significance. However, they do not consistently achieve the extensive global citation influence characteristic of higher-tier journals, such as the *Journal of the European Academy of Dermatology and Venereology*. The data on frequently utilized journals underscores the variability in dermatology journals concerning their impact factors and citation metrics. High-impact journals, such as the *Journal of the European Academy of Dermatology and Venereology* and the *International Journal of Dermatology* lead the field, whereas journals with lower impact factors often exhibit more specialized or regional influence.

Alfawzan *et al.* examined the bibliometric indicators of dermatology research originating from Saudi Arabia, noting that the *International Journal of Dermatology* published the highest number of articles, followed by the *Journal of the American Academy of Dermatology*.[20] Tasli *et al.* reported on the publications in dermatology from OECD countries, which mentioned the *Journal of Investigative Dermatology* published the highest proportion of papers at 20%, followed by the *Journal of the American Academy of Dermatology* at 10% and the *British Journal of Dermatology* at 9%.[10] A bibliometric study on dermatology research published from 1832 to 2019 indicates that most of the research published in the last 3 years appeared in the *British Journal of Dermatology* and the *Journal of the American Academy of Dermatology*.[8] El Rassi *et al.* indicated that the *Saudi Medical Journal* had been a favored resource for medical researchers in Arab nations.[3] A recent study on medical research in Arab world covering publications from 2017 to 2023 indicated that most of the research was published in *Saudi Journal of Biological Science*, followed by *PLOS One*.[18]

The current review authorship analysis indicated that citation impact generally increases with the number of authors, particularly after surpassing 5 authors. This suggests that papers with broader collaborations result in an expanded citation network. Papers authored by 8 to 10 individuals tend to exhibit greater

citation impact, likely attributable to their broader networks of researchers and institutions, which enhance visibility and citation rates. Single-author works and small collaborations involving 2 or 3 authors generally exhibit lower average citation impacts. A bibliometric analysis of medical magnetic resonance imaging publications in Arab countries from 1988 to 2022 revealed that the majority of the documents (94.49%) were authored by multiple contributors, whereas only 5.51% were authored by a single individual. The average number of authors per document was calculated to be 6.3.[31] Seivright *et al.* analyzed 1,123 articles published in four high-impact dermatology journals in 2018. The average number of authors per article was determined to be 8.0, with a range from one to 40 authors. The majority of papers consisted of 5 to 10 authors.[32]

The analysis of citation impact among the prolific authors in this study revealed a diverse range of citation impacts. Hamida Turki emerged as the most prolific author, with 31 published papers. In comparison, Ossma Abbas and Martin Steinhoff contributed 23 and 24 papers, respectively. Their research work achieved the highest citation impact among the top 10 authors. This finding indicates that their work may be more impactful or concentrated on high-interest subjects. Szeto *et al.* examined the leading 20 authors in dermatology research based on h-index from 1980 to 2020. John J. Voorhees was the most productive researcher, with 540 publications and 17,273 citations (31.98 citations per publication), resulting in an h-index of 70. Peter M. Elias achieved the highest h-index of 72, within 376 publications.[33]

Our review found four key word clusters in the top 20 key words. These clusters focused on clinical dermatology, including treatments and skin disorders, deep learning and dermoscopy, and global health trends, including the Covid-19 pandemic and new infectious diseases. The report shows that dermatology research continues to focus on psoriasis, acne, atopic dermatitis, and vitiligo. Artificial intelligence is increasingly used in dermatological diagnosis and treatment, as deep learning and related technologies gain popularity. As dermatological disorders' wider effects on patients' quality of life become increasingly apparent, research is shifting from treatment alone to a more holistic approach. Seivright *et al.* found that most publications in four high-impact journals were about medical dermatology, particularly cutaneous oncology and papulosquamous dermatoses.[32] Gantenbein *et al.* found that melanoma, basal cell carcinoma, psoriasis, pruritus, and atopic dermatitis were the most common dermatology diagnoses from 1832 to 2019.[8] Infectious illnesses, genodermatosis, hypopigmentation, neoplastic diseases, and hair disorders dominated Saudi Arabia's dermatology research from 1982 to 2018.[19] A Saudi Arabian dermatological study found that psoriasis was most investigated, followed by vitiligo and acne.[20]

Research, education, and superior technology will help the region improve science and technology in the Arab world.[3,34] A bibliometric analysis of Saudi Arabia's dermatology research offers data registry units to improve research quality and encourage centre collaboration for more generalizable results.[19] In a retrospective bibliometric examination of Saudi dermatology research, Alfawzan *et al.* found significant growth in publications. The report suggests identifying field strengths and weaknesses to guide researchers and funding to improve national dermatology research and periodic bibliometric assessments to measure quality and quantity.[20] Tallab *et al.* found that few Saudi dermatological articles were high-level clinical research.[21]

This review primarily utilized WoS as the citation database. WoS has traditionally established criteria for citation counting. WoS emphasizes that one of its primary strengths is its selective methodology for choosing specific publications for content inclusion. Bradford's Law, established in 1934, asserts that a considerable share of significant scientific discoveries is published in a restricted number of journals. Thus, WoS emphasizes the quality of its content coverage rather than its quantity. This tool is commonly employed in bibliometric analyses due to its broad subject coverage and its ability to quantify article citations and assess the institutions contributing to each study. WoS remains one of the leading and most widely utilized databases for citation analysis across all academic disciplines.[35]

Limitations

The bibliometric analysis used WoS data only. Additional datasets from Scopus, Google Scholar, or regional repositories may provide more insights in future research. The data spans 2000-2023, which may exclude important prior literature or emerging trends that have influenced Arab world scholarly study. This study focuses on English documents, the global scientific language. However, much Arab world research is likely published in Arabic or other regional languages, which the WoS lacks.

Conclusions

This review covers Arab dermatology research trends from 2000 to 2023. Arab dermatology publications made up 2.22% of global publications. Dermatology research in the Arab world is growing at 17.95% annually. The data show a growing focus on psoriasis, acne, and vitiligo, as well as novel technologies like deep learning and dermoscopy for skin cancer and melanoma diagnostics. Enhancing multidisciplinary studies and addressing new dermatological concerns would boost the region's worldwide dermatology research engagement.

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Figure 1. Screening process of documents from the WoS database.

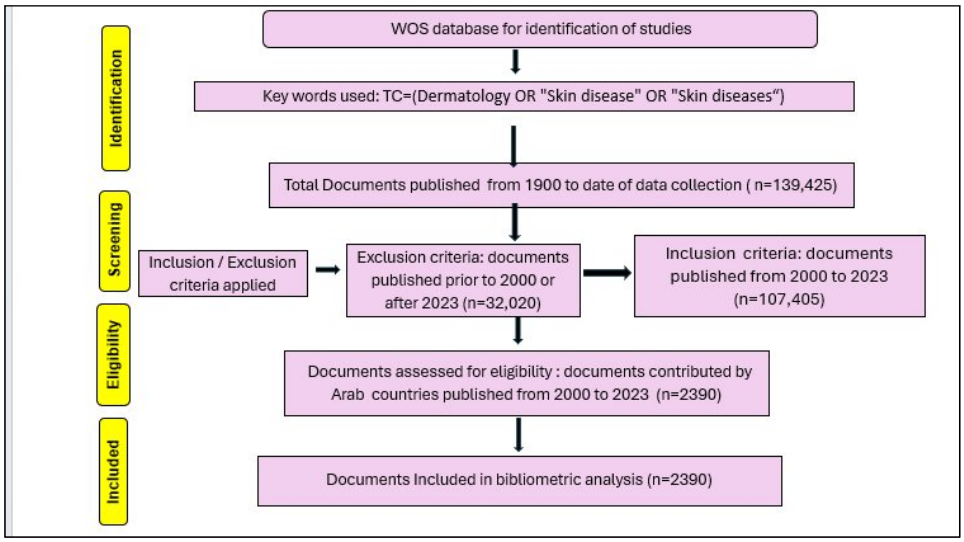


Table 1. Breakdown of dermatology research by total citations and citation impact from Arab countries from 2000 to 2023.

Serial No.	Country	Total publications	Total citations	Citation impact
1	Saudi Arabia	833	14,000	16.81
2	Egypt	639	11,366	17.79
3	Tunisia	177	3,084	17.42
4	Morocco	151	1,331	8.81
5	Iraq	139	2,180	15.68
6	United Arab Emirates	139	4,767	34.29
7	Qatar	99	4,335	43.79
8	Lebanon	95	2,375	25.00
9	Jordan	88	1,820	20.68
10	Kuwait	68	1,584	23.29
11	Sudan	49	942	19.22
12	Algeria	46	838	18.22
13	Bahrain	31	584	18.84
14	Oman	28	693	24.75
15	Syria	23	839	36.48
16	Yemen	24	193	8.04
17	Libya	21	251	11.95
18	Palestine	12	155	12.92
19	Mauritania	4	29	7.25
20	Somalia	3	1	0.33
21	Comoros	0	0	0
22	Djibouti	0	0	0

Figure 2. Bar graph showing the breakdown of different types of published articles.

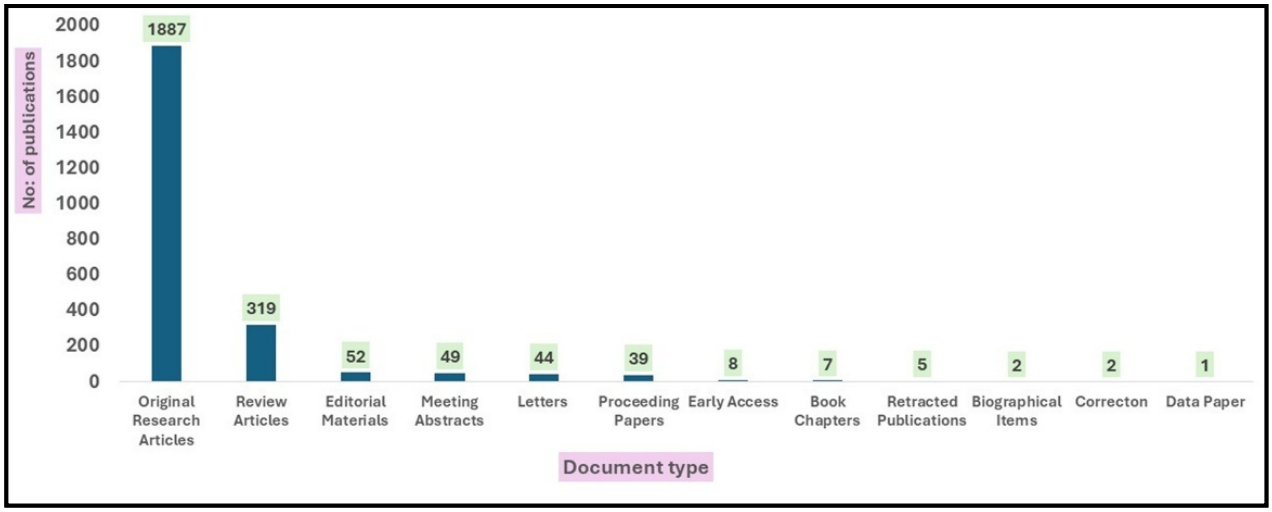


Table 2. Growth and impact of dermatology research in Arab countries by year.

Year	Total documents	Total citations	Citation impact	Annual growth rate
2000	12	164	13.67	
2001	10	140	14.00	−16.67
2002	20	346	17.30	100.00
2003	18	600	33.33	−10.00
2004	19	329	17.32	5.56
2005	27	531	19.67	42.11
2006	31	574	18.52	14.81
2007	36	818	22.72	16.13
2008	42	1,275	30.36	16.67
2009	43	1,852	43.07	2.38
2010	44	1,463	33.25	2.33
2011	57	1,565	27.46	29.55
2012	67	1,313	19.60	17.54
2013	71	2,377	33.48	5.97
2014	68	2,028	29.82	−4.23
2015	85	2,773	32.62	25.00
2016	104	3,237	31.13	22.35
2017	116	2,849	24.56	11.54
2018	130	2,502	19.25	12.07
2019	171	2,952	17.26	31.54
2020	261	4,177	16.00	52.63
2021	266	4,832	18.17	1.92
2022	366	2,866	7.83	37.59
2023	326	1,050	3.22	−10.93
Average			17.83	17.95

Figure 3. Growth and impact of dermatology research in Arab countries by year.

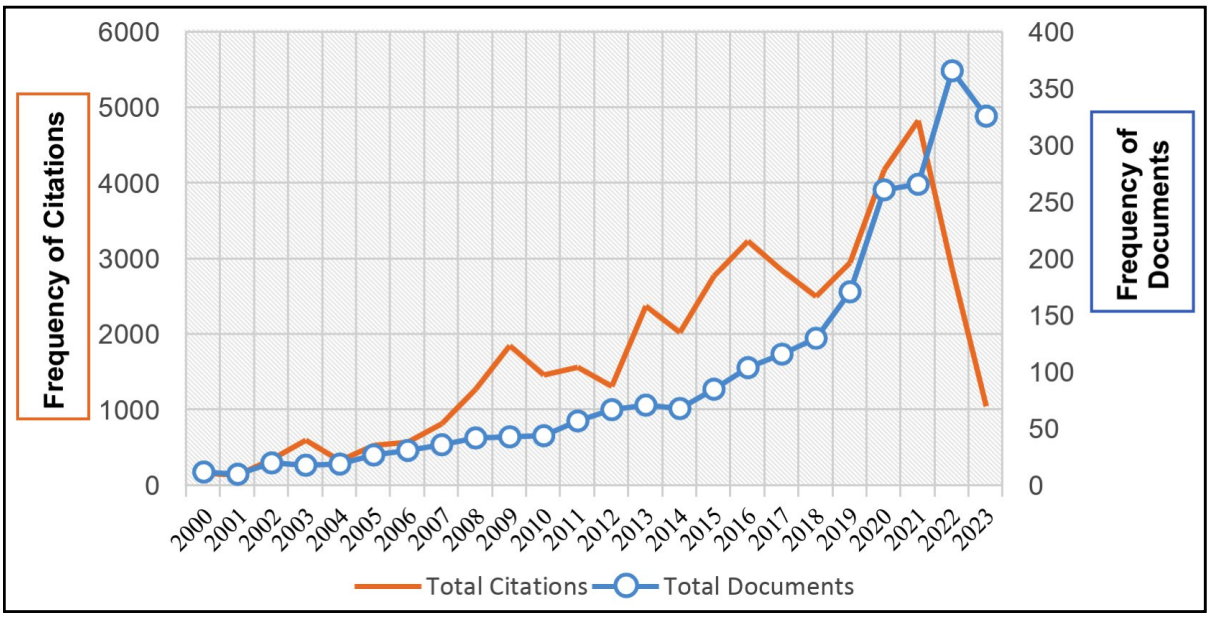


Table 3. Top collaborating countries in dermatological research with Arab countries.

Serial No.	Country	Total documents	Total citations	Citation impact
1	United States	447	20,336	45.49
2	England	148	9,250	62.50
3	France	146	8,006	54.84
4	Germany	142	7,594	53.48
5	India	130	4,350	34.25
6	Italy	100	5,939	59.39
7	Canada	99	7,948	80.28
8	Pakistan	72	782	10.86
9	China	64	4,791	74.86
10	Netherlands	59	6,502	110.20

Table 4. Frequently used journals.

Serial No.	Name of journal	Impact Factor JCR 2023	Total publications	Total citations	Citation impact
1	Cureus Journal of Medical Science	1.0	110	265	2.41
2	International Journal of Dermatology	3.5	75	1,339	17.85
3	Journal of Cosmetic Dermatology	2.3	54	391	7.24
4	Saudi Medical Journal	1.7	52	644	12.38
5	Journal of the European Academy of Dermatology and Venereology	8.5	45	887	19.71
6	Journal of Dermatology Dermatologic Surgery	0.2	44	196	4.45
7	Annales de Dermatologie et de Venereologie	3.2	40	225	5.63
8	Dermatologic Therapy	3.7	30	357	11.9
9	Egyptian Journal of Dermatology and Venereology	0.2	29	52	1.79
10	Clinical Cosmetic and Investigational Dermatology	1.9	25	173	6.92

JCR, Journal Citation Reports.

Figure 4. Authorship patterns in publications and citations.

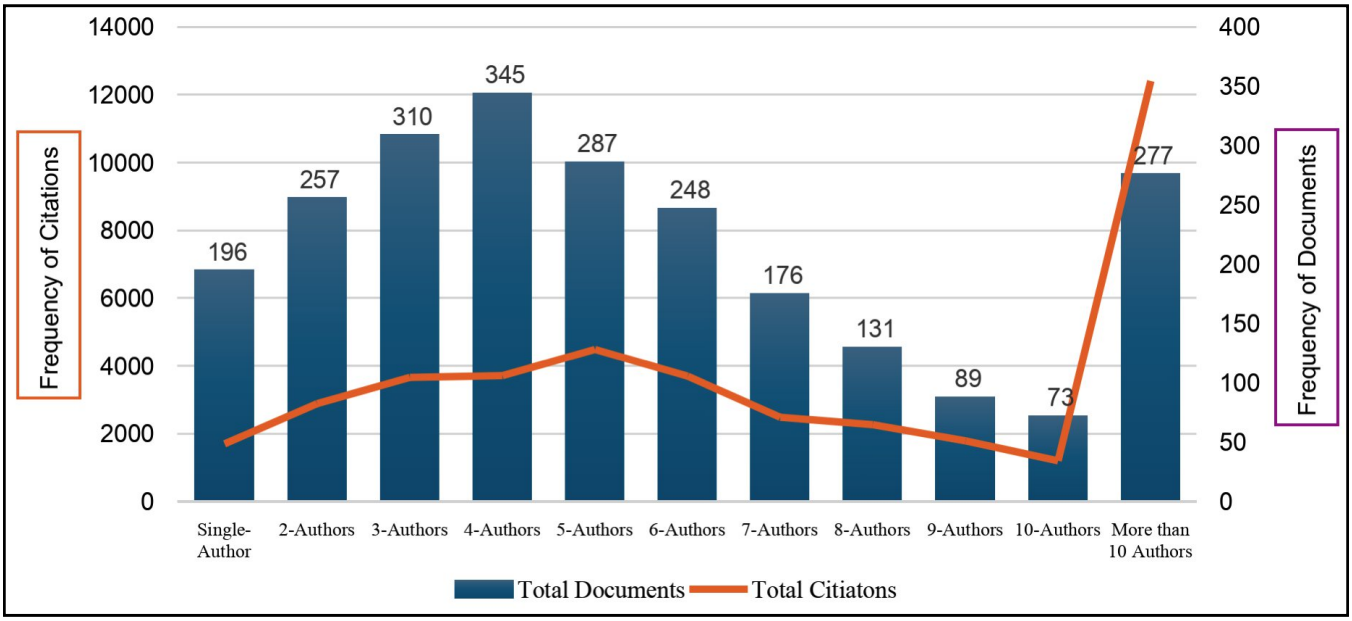


Table 5. Top 10 authors.

Serial No.	Author	Affiliation	Total documents	Total citations	Citation impact
1	Hamida Turki	University of Sfax, Tunisia	31	558	18.00
2	Martin Steinhoff	Hamad Medical Corporation, Qatar	24	591	24.63
3	Ossama Abbas	American University Beirut, Lebanon	23	724	31.48
4	Khalifa E. Sharquie	University of Baghdad, Iraq	22	321	14.59
5	F. Hali	Ibn Rochd University Hospital Center of Casablanca, Morocco	20	36	1.8
6	Mazen Kurban	American University Beirut, Lebanon	19	456	24.00
7	Khalid M. AlGhamdi	King Saud University, Saudi Arabia	15	230	15.33
8	Nawaf Al-Mutairi	Kuwait University, Kuwait	14	322	23.00
9	Mourad Mokni	Hopital La Rabta, Tunisia	14	205	14.64
10	Karima Senouci	Ibn Sina University Hospital Center of Rabat, Morocco	14	46	3.29

Figure 5. VOSviewer showing the key word co-occurrence network.

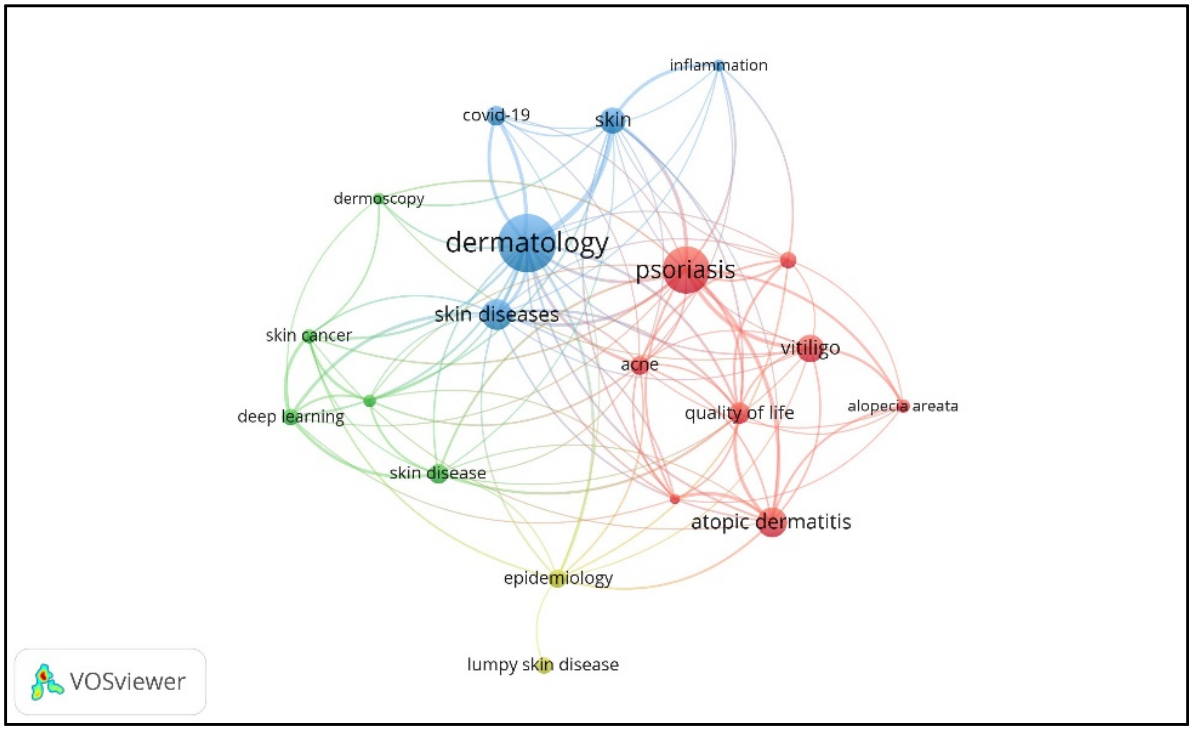


Table 6. Top 20 key words.

Serial No.	Key word	Occurrences	Total link strength	Serial No.	Key word	Occurrences	Total link strength
1	Dermatology	177	74	11	Epidemiology	38	20
2	Psoriasis	134	66	12	Lumpy skin disease	35	1
3	Skin diseases	77	44	13	Acne vulgaris	34	19
4	Atopic dermatitis	74	40	14	Deep learning	34	27
5	Vitiligo	67	26	15	Skin cancer	29	25
6	Skin	62	48	16	Alopecia areata	26	15
7	Quality of Life	48	36	17	Melanoma	24	20
8	Covid-19	42	21	18	Dermoscopy	23	10
9	Skin disease	42	24	19	Inflammation	23	16
10	Acne	40	29	20	Eczema	19	23