

Footprint of Emergency Medicine Physicians in Disaster Medicine Publications: A Bibliometric Analysis

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Abbreviations:

A CEP: American College of Emergency Physicians
COVID-19: coronavirus disease 2019
EMP: emergency medicine physician
WoS: Web of Science

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Abstract

Introduction: Investigating the developments in the ever-growing field of disaster medicine and revealing the scientific trends will make an important contribution to researchers in related fields. This study aims to identify the contributions of emergency medicine physicians (EMPs) and trends in disaster medicine publications.

Methods: The expressions “disaster medicine” or “disaster*” and “medicine*” were searched in the Web of Science (WoS) database. Research and review papers produced by EMPs from 2001 through 2021 were included in the study. Basic descriptive information was assessed such as the number of publications, authors, citations, most active authors, institutions, countries, and journals. In addition, conceptual, intellectual, and social structures were analyzed.

Results: The study included a total of 346 papers written by 1,500 authors. The mean citation rate per publication was 13.2. *Prehospital and Disaster Medicine*, *Disaster Medicine and Public Health Preparedness*, and *Academic Emergency Medicine* were the journals with the highest number of publications and the highest number of citations. The most common keywords used by the authors were “disaster medicine,” “emergency medicine,” and “disaster/disasters.” According to the distribution of the corresponding authors by country, the United States (n = 175), Japan (n = 23), Italy (n = 20), Australia (n = 17), and Canada (n = 17) had the highest number of publications. The institutions that produced the most publications were John Hopkins University (n = 37), Brigham and Women’s Hospital (n = 27), George Washington University (n = 25), University Piemonte Orientale (n = 24), and Brown University (n = 22).

Conclusion: Increasingly, EMPs have contributed to disaster medicine publications over the years. This study can be used as a guide for EMPs and other researchers who want to contribute to the disaster medicine literature.

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Introduction

Gradually increasing population growth world-wide, greater interconnection of global systems, rapid unplanned urbanization, climatic changes, technological events, violent conflicts, major terrorist attacks, and technological events that occur in conjunction with natural hazards— natural hazards triggering technological accidents (NaTech)— or alone cause the effects of disasters to increase in today’s societies.^{1–4} According to the 2022 Global Natural Disaster Report (United Nations Office for Disaster Risk Reduction; Geneva, Switzerland), the number of people killed and affected by disasters has been higher in the last five years than in the previous five years.⁵

Increases in the number of disasters and people affected have necessarily led the medical community to pay more attention to disasters and medical responses to disasters.⁴ This trend and the need for unique management of medical cases in disasters has led to the development of the discipline called “disaster medicine.” Disaster medicine is defined as: “the science for analysis and development of the methodology requested to handle situations where available resources are insufficient in relation to the immediate need of medical care.”⁶ Some studies define disaster medicine as: “a discipline that emerged from the marriage of emergency medicine and disaster management” or “a system of study and medical practice primarily associated with the disciplines of emergency medicine and public health.”^{7,8} The science of disaster medicine not only emphasizes providing medical intervention to survivors



after a disaster, but also contributes to the medical topics of planning, preparation, evacuation, and recovery phases for the medical management of potential disasters.⁹ Therefore, disaster medicine is a multidisciplinary field of science that examines the relationship between disasters and human health.¹⁰

Emergency medicine is a field of practice based on the knowledge and skills required for the prevention, diagnosis, and management of the acute and emergent aspects of illness and injury, with a full spectrum of undifferentiated physical and behavioral disorders that affect patients of all age groups.¹¹ Emergency medicine physicians (EMPs) practice intensively in rapid assessment, basic treatment of emergency medical conditions, and triage in their daily clinical practice, so in disasters, they are expected more than any other medical professional to alleviate suffering, allocate resources, and bring order to the chaotic environment that inevitably ensues.¹² The policy statement of “Disaster Medical Services” that the American College of Emergency Physicians (ACEP; Irving, Texas USA) first endorsed in 1985 and finally revised in 2018 addresses this situation: “ACEP believes that emergency physicians should undertake a primary role in preparedness for disasters and response at all stages of the disaster life cycle” and “the advancement of disaster medicine requires the integration of data obtained from research and experience. Emergency physicians should use their research, education, and organizational skills to incorporate and disseminate new concepts and technologies as they emerge.” These expressions call on EMPs for their role in the practice and development of disaster medicine.¹³

Bibliometrics can be defined as the statistical analysis of publications.¹⁴ Bibliometrics uses various quantitative tools such as the number of publications, number of citations, h-index, impact factor, Eigenfactor, and paper impact score to evaluate academic productivity and to analyze and map the obtained data (Supplementary Table 1; available online only).¹⁵ The results contribute to the qualitative and quantitative evaluation of a disciplinary field.¹⁰ Various bibliometric studies have been conducted in the field of disaster medicine.^{10,16–18} No study could be found in the literature on the productivity and contributions of EMPs, who are important components of disaster medicine practices and research, in disaster medicine publications. This study aims to examine the contributions of EMPs and trends in publications produced in the field of disaster medicine, which is a multidisciplinary field of science.

Materials and Methods

All papers included in this study were retrieved from the Web of Science Core Collection (WoSCC) in Clarivate Analytics Web of Science (WoS; London, United Kingdom) on December 15, 2022.¹⁹ Papers found using the following search strategy were included in the study after they were checked for eligibility by the authors of the present study: (((TS=(“disaster medicine”)) OR TS=(disaster* AND medicine*)) AND PY=(2001-2020)) AND AD=(emerge* OR urgencias OR notfall* OR urgenc* OR urgenc* OR notartz* OR notärz* OR urgences Or emergencias OR urgenc* OR urgencies OR urgencies OR d’urgenza OR emergenza OR urgencies)) AND DT=(Paper OR Review).

The phrases “disaster medicine” or “disaster*” and “medicine*” were used in the title search (title, abstract, author keywords, and keywords plus) to access disaster medicine publications. Publications from January 1, 2001 through January 1, 2021 were included in the study.

The search strategy that Kokulu, et al used in their study was utilized to identify scientific publications produced by emergency

physicians in this study.²⁰ First, publications were evaluated on the basis of the institutional addresses of the authors and then on the basis of the first or corresponding authors.²⁰ The institutional addresses of the authors are listed in the WoS database in English or local languages. Therefore, because “emergency department” or “emergency service” can be expressed differently in the local languages of different countries, the phrases “emergency service” and “emergency department” were searched in different languages in the address tab searches.²⁰ In addition, if the first or corresponding author of the studies was an EMP, the study was considered to be a publication produced by an EMP. Publications including EMPs among the study authors that were not the first or corresponding authors were not included in the study. In terms of publication type, original research papers and reviews were included in the study, and no language limitations were imposed for the publications.

Basic descriptive information such as the number of publications, number of authors, number of citations, most productive authors, institutions, countries, and journals was evaluated, and afterward, conceptual, intellectual, and social structures were analyzed, and finally, the data were mapped within the scope of the bibliometric analyses.²¹

Counts of citations, being cited, and WoS categories were obtained from WoS. The Bibliometrix package in R on the R-Studio Server (R version 4.2.2 [2022-10-31 ucrt]; Vienna, Austria) running on the virtual machine infrastructure from Google Cloud Platform (Google, Inc.; Mountain View, California USA) was used for other statistical analyses.²²

Results

A total of 346 papers accessed using the search strategy were included in the study. These papers were found in 101 different sources: 300 (86.705%) were research papers and 46 (13.295%) were review papers. Most of the publications ($n = 320$; 92.48%) were in English. The total number of authors was 1,500, the number of single-author publications was 19, the number of authors who produced single-authored publications was 16, the mean number of co-authors per paper was 5.34, and international co-authorship was 25.14%. The number of author keywords was 811 and the number of references used was 7,062. The mean number of citations per document was 13.2. In 2001, only one paper on disaster medicine was written by an EMP; however, the number increased to 43 by 2020. These publications cited a total of 3,639 sources and were cited 4,556 times. The top three WoS categories with the highest number of publications were Emergency Medicine ($n = 211$; 60.98%), Public Environmental Occupational Health ($n = 68$; 19.65%), and Medicine General Internal ($n = 33$; 9.54%).

Bradford’s Law zones, citation counts, and h-indexes were examined for the analysis of the references. According to Bradford’s Law, a significant proportion (one-third) of the papers in a given field are found in a core group of a small number of journals (Zone 1). This group is followed by a group of journals comprising a larger number of journals including the next one-third of the papers (Zone 2) and a group of journals comprising a larger number of journals containing the remaining one-third of the publications (Zone 3).²³ In the present study, the first zone of Bradford’s Law included the journals *Prehospital and Disaster Medicine* (World Association for Disaster and Emergency Medicine; Madison, Wisconsin USA) and *Disaster Medicine and Public Health Preparedness* (Society for Disaster Medicine and Public Health; Queen Creek, Arizona USA). The top three journals with the

| Bradford's Law Zones | Journals | Papers | | Citations | | |
|---------------------------------------|---|--------|------|-----------------|-----------------|----------|
| | | N | Rank | Total Citations | Local Citations | H- Index |
| Zone 1 | Prehospital and Disaster Medicine | 77 | 1 | 863 | 457 | 16 |
| | Disaster Medicine and Public Health Preparedness | 45 | 2 | 441 | 135 | 13 |
| Zone 2 | Academic Emergency Medicine | 25 | 3 | 597 | 350 | 14 |
| | Journal of Emergency Medicine | 16 | 4 | 229 | 85 | 9 |
| | Emergency Medicine Australasia | 10 | 5 | 70 | 38 | 5 |
| | International Journal of Emergency Medicine | 10 | 6 | 135 | 32 | 6 |
| | European Journal of Emergency Medicine | 9 | 7 | 164 | 56 | 7 |
| | Prehospital Emergency Care | 7 | 8 | 70 | 96 | 3 |
| | Journal of the Korean Medical Association | 6 | 9 | 12 | 3 | 2 |
| | Western Journal of Emergency Medicine | 5 | 10 | 17 | 7 | 3 |
| | Acute Medicine & Surgery | 4 | 11 | 28 | 3 | 2 |
| | Annals of Emergency Medicine | 4 | 12 | 107 | 439 | 4 |
| | Turkish Journal of Emergency Medicine | 4 | 13 | 45 | 7 | 3 |
| | Anesthetist | 3 | 14 | 26 | 10 | 3 |
| | Canadian Journal of Emergency Medicine | 3 | 15 | 65 | 20 | 3 |
| Zone 3 | Clinical Pediatric Emergency Medicine | 3 | 16 | 24 | 4 | 3 |
| | Emergency Medicine Clinics of North America | 3 | 17 | 113 | 16 | 3 |
| | Emergency Medicine Journal | 3 | 18 | 104 | 71 | 3 |
| | Eurasian Journal of Emergency Medicine | 3 | 19 | 5 | 1 | 1 |
| | Frontiers in Public Health | 3 | 20 | 35 | 11 | 3 |
| | Journal of Acute Medicine | 3 | 21 | 11 | 2 | 2 |
| | Notfall + Rettungsmedizin | 3 | 22 | 8 | 16 | 2 |
| | Scandinavian Journal of Trauma, Resuscitation, and Emergency Medicine | 3 | 23 | 16 | 21 | 3 |
| Southern Medical Journal | 3 | 24 | 23 | 7 | 2 | |
| African Journal of Emergency Medicine | 2 | 25 | 12 | 10 | 1 | |

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Table 1. Bradford Law Regions, Publication-Citation Numbers, and H-Indexes of the Top 25 Most Impactful Journals

highest number of publications (*Prehospital and Disaster Medicine*, *Disaster Medicine and Public Health Preparedness*, and *Academic Emergency Medicine* [Society for Academic Emergency Medicine; Des Plaines, Illinois USA]) were also the top three journals with the highest total citations (Table 1).

The number of publications, number of citations, h-index, g-index, and m-index of the most influential authors from the publications are presented in Table 2. Most of the most influential authors in the publications made wide-spread contributions to the field after 2010. In the ranking according to h-index values, Della Corte, the author with the most publications, was also the author with the most citations. The productivity of the authors was analyzed using Lotka's Law and 87.5% ($n = 1,312$) of the authors contributed to only one paper, 7.2% ($n = 108$) to two papers, 2.9% ($n = 44$) to three papers, and 0.1% ($n = 1$) to more than 13 papers.

The flows between authors, sources, and keywords in publications are presented with the Three-Field Diagram. The keyword that most authors publishing in the most impactful journals used was "disaster medicine" (incoming flow count = 16); however, the use of the keyword "emergency preparedness" did not have a common flow (incoming flow count = 1).

According to the results of the study, John Hopkins University (Baltimore, Maryland USA) was the most productive institution with 37 publications, followed by Brigham and Women's Hospital (Boston, Massachusetts USA; $n = 27$), George Washington University (Washington, DC USA; $n = 25$), University Pontre Orientale (Piedmont, Italy; $n = 24$), and Brown University (Providence, Rhode Island USA; $n = 22$). When the countries of the corresponding authors were examined, the countries with the highest number of publications were the United States ($n = 175$), Japan ($n = 23$), Italy ($n = 20$), Australia ($n = 17$), and Canada ($n = 17$). The top 15 countries according to the total number of publications and citations are shown in Table 3. The most cited publication was the review study titled "Mental Health Response to Community Disasters: A Systematic Review" published by North CS and Pfefferbaum B in the *Journal of the American Medical Association/JAMA* (American Medical Association; Chicago, Illinois USA) in 2013 with 315 citations. The most cited local publication was the research paper "A Disaster Medicine Curriculum for Medical Students" published by Kaji AH, Coates W, and Fung CC in *Teaching and Learning in Medicine* (Southern Illinois University; Illinois USA) in 2010 (Supplementary Table 2; available online only).

| Author | Papers | Papers Fractionalized | Citation Count | H-Index | G-Index | M-Index | PY Start |
|---------------|--------|-----------------------|----------------|---------|---------|---------|----------|
| Della Corte F | 13 | 2.37 | 248 | 9 | 13 | 0.643 | 2010 |
| Levine AC | 10 | 0.98 | 118 | 9 | 10 | 0.529 | 2007 |
| Ingrassia PL | 10 | 1.86 | 193 | 8 | 10 | 0.571 | 2010 |
| Bartels S | 6 | 0.62 | 77 | 6 | 6 | 0.429 | 2010 |
| Becker TK | 6 | 0.56 | 67 | 6 | 6 | 0.545 | 2013 |
| Ciottoni GR | 5 | 1.07 | 47 | 5 | 5 | 0.714 | 2017 |
| Jacquet GA | 6 | 1.02 | 61 | 5 | 6 | 0.455 | 2013 |
| Koido Y | 7 | 0.85 | 59 | 5 | 7 | 0.455 | 2013 |
| Ragazzoni L | 9 | 1.69 | 147 | 5 | 9 | 0.357 | 2014 |
| Arquilla B | 5 | 0.77 | 92 | 4 | 5 | 0.25 | 2010 |
| Burkle FM | 5 | 1.44 | 109 | 4 | 5 | 0.182 | 2008 |
| Carenzo L | 4 | 0.73 | 82 | 4 | 4 | 0.444 | 2002 |
| Carr BG | 4 | 0.65 | 72 | 4 | 4 | 0.444 | 2015 |
| Goldfrank LR | 4 | 0.69 | 69 | 4 | 4 | 0.444 | 2015 |
| Hansoti B | 4 | 0.36 | 44 | 4 | 4 | 0.444 | 2015 |

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Table 2. Publication, Citation Numbers, and H-, G-, and M-Index Values of the 15 Most Productive Authors
Abbreviation: PY, publication year.

| Total Publication Count | | Total Citations | | | |
|-------------------------|-----|-----------------|------|-------------------------|-------------|
| Country | N | Country | N | Average Paper Citations | 95% CI |
| United States | 175 | United States | 2695 | 15.40 | 11.27-19.52 |
| Japan | 23 | Italy | 295 | 14.80 | 8.49-21.00 |
| Italy | 20 | Canada | 265 | 15.60 | 11.10-20.07 |
| Australia | 17 | Australia | 248 | 14.60 | 8.36-20.80 |
| Canada | 17 | Japan | 171 | 7.40 | 4.39-10.47 |
| Korea | 14 | Germany | 155 | 11.90 | 4.32-19.51 |
| Germany | 13 | Israel | 138 | 23.00 | 5.00-40.99 |
| China | 10 | Turkey | 120 | 13.30 | -5.89-32.55 |
| Turkey | 9 | China | 86 | 8.60 | 3.01-14.18 |
| Israel | 6 | France | 71 | 17.80 | 9.61-25.88 |
| France | 4 | Belgium | 52 | 17.30 | 0.76-33.89 |
| Switzerland | 4 | Korea | 50 | 3.60 | 2.10-5.03 |
| United Kingdom | 4 | United Kingdom | 35 | 8.80 | 0.89-16.60 |
| Belgium | 3 | Qatar | 33 | 33.00 | - |
| Malaysia | 3 | Iran | 20 | 10.00 | 4.12-15.87 |

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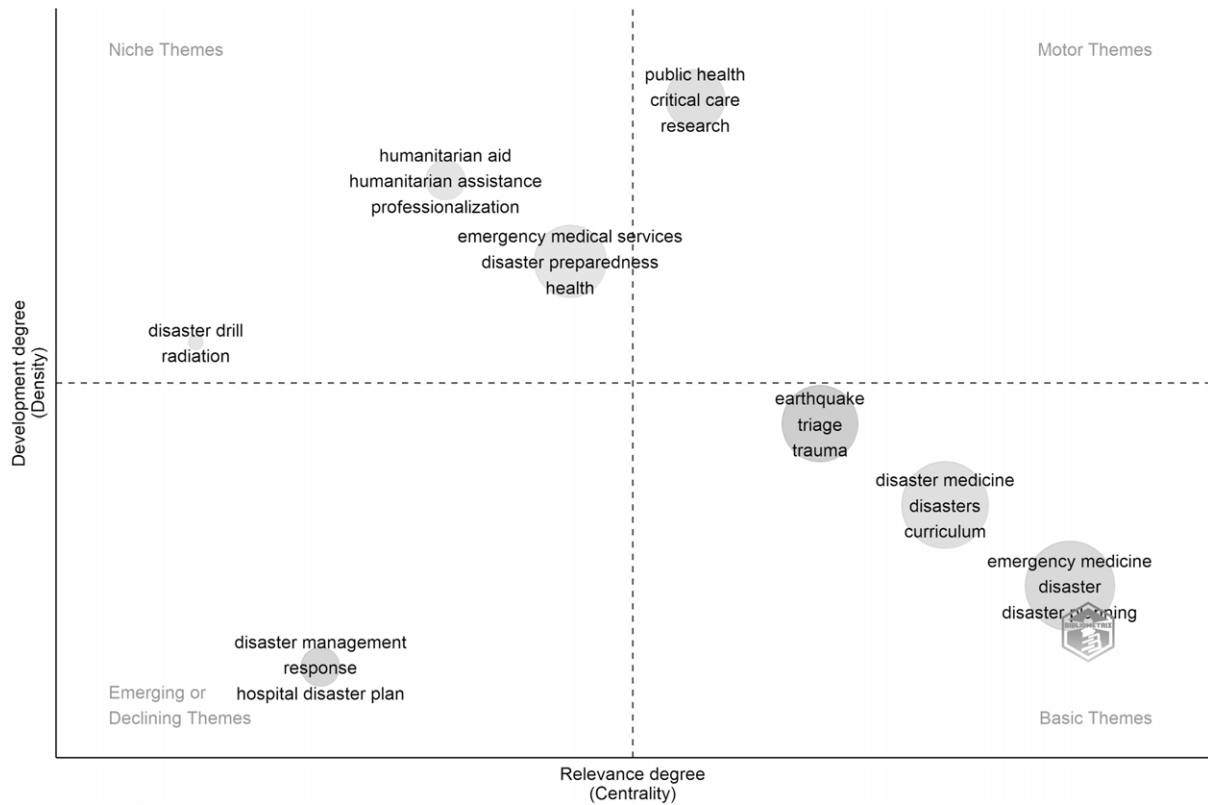
Table 3. Publications, Citations, and Mean Paper Citation Numbers of the Top 15 Countries with the Highest Number of Publications and Citations

The most common keywords that the authors used were “disaster medicine” ($n = 123$; 19%), “emergency medicine” ($n = 60$; 9%), “disaster/disasters” ($n = 50$; 8%/ $n = 26$; 4%), “emergency health services” ($n = 27$; 4%), “disaster planning” ($n = 21$; 3%), “earthquake” ($n = 20$; 3%), “education” ($n = 19$; 3%), “simulation” ($n = 17$; 3%), and “triage” ($n = 17$; 3%); however, the words “care” ($n = 28$; 7%), “management” ($n = 26$; 7%), and “medicine” ($n = 23$; 6%) came to the fore in keyword plus. The most frequent words in the titles were “disaster” ($n = 144$; 12%), “emergency” ($n = 136$; 11%), and “medicine” ($n = 109$; 9%). The trends of disaster medicine studies were determined using trend topic analysis that

included three keywords used at least three times each year from 2001 through 2021. Among these words, “pandemics,” “COVID-19 [coronavirus disease 2019],” “mass casualty,” “telemedicine,” and “disaster education” had come to the forefront in recent years (Supplementary Figure 1; available online only). However, the terms “disaster medicine,” “public health,” “triage,” “emergency medicine,” and “training” were still popular.

Conceptual Structure Analysis

For thematic mapping based on author keywords, a word count of 250 and “Fast Greedy” was preferred for the clustering algorithm.



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Figure 1. Thematic Mapping for Author Keywords.

As a result of the analysis, three niche, one motor, one emerging or disappearing, and three basic theme clusters were observed. The first niche cluster included “disaster drill” and “radiation;” the second niche cluster included “humanitarian aid,” “humanitarian assistance,” and “professionalization;” and the third niche cluster consisted of “emergency medical services,” “disaster preparedness,” and “health.” The only motor cluster was represented by “public health,” “critical care,” and “research.” The only cluster of a newly emerging or disappearing theme included “disaster management,” “response,” and “hospital disaster plan.” The first cluster of core themes included “earthquake,” “triage,” and “trauma;” the second cluster included “disaster medicine,” “disasters,” and “curriculum;” and the third cluster included “emergency medicine,” “disaster,” and “disaster planning” (Figure 1).

Intellectual Structure Analysis

The intellectual structure of the publications was examined using co-citation network analysis on sources. The analysis showed that two co-citation analysis clusters played a prominent role in this area. Sources with important positions on the network were represented with nodes in the same color and close to each other, reflecting their co-occurrence in the bibliographies of other publications. In the first cluster: *The Journal of American Medical Association/JAMA*, *Emergency Medicine Clinics of North America*, and *British Medical Journal* (British Medical Association; London, United Kingdom) sources; in the second cluster: *Annals of Emergency Medicine* (American College of Emergency Physicians), *Academic Emergency Medicine*, and *Prehospital and Disaster Medicine* sources were leading actors in the intellectual field.

Social Structure Analysis

The collaboration analysis showed that many authors and institutions collaborated in the field of disaster medicine. Koido Y, Della Corte F, and Levine AC played key roles in the collaborative networks between authors; the United States hosted the institutions with the most collaborative links (John Hopkins University, Brown University, Brigham and Women’s Hospital, and George Washington University).

The country with the highest number of collaborations in publications world-wide was the United States ($n = 90$). Authors in the United States collaborated most with authors in Canada ($n = 10$), Italy ($n = 7$), the United Kingdom ($n = 6$), Australia ($n = 6$), and Ghana ($n = 6$). Other countries with the most collaborating authors were Canada ($n = 31$), Australia ($n = 20$), Italy ($n = 17$), and Germany ($n = 14$). Other countries where publications were produced were less likely to participate in international collaborations.

Discussion

The increasing number of scientific publications can create an increasingly challenging environment for the appropriate analysis and effective use of literature sources on a subject, and for academics and experts on the subject matter to stay up-to-date. Experts in a field of science can use different qualitative and quantitative literature review approaches, including bibliometrics, to understand and organize previous findings in the relevant field.²¹ Bibliometric analysis provides a broad perspective for academics to make sense of large, unstructured data, map the scientific field, and contribute to the strong development of the relevant field. To the best of the authors’ knowledge, the present study is the first to focus

on investigating the contributions of EMPs to the field of disaster medicine.

The primary or corresponding authors of 346 articles examined in this study were EMPs. More than one reason may be related to why EMPs have increasingly contributed to disaster medicine publications over the years. First, disasters such as the United States September 11 attacks in 2001; the Indian Ocean earthquake and tsunami in 2004; Hurricane Katrina in the Gulf Coast in 2005; the Haiti earthquake in 2010; the earthquake, tsunami, and Fukushima Nuclear Power Plant Accident in Japan in 2011; hurricanes in the Atlantic in 2017; and the COVID-19 pandemic from 2019 through 2021 occurred within the paper publication timeframe determined for review in this study and have led to an increased need for unique medical management across the world.²⁴ In addition, the increasing importance and awareness of the field of disaster medicine world-wide has led to increased interest and support for disaster medicine from the academic community and health authorities.²⁵ The effects of disasters on health and the well-defined, vital, and often central role of EMPs in health responses during disasters may have led to increased interest in and contributions to this multidisciplinary field over time. In addition, technological developments and social networks may have led to increased productivity of EMPs by facilitating sharing scientific research, national and international collaborations, and access to publications by larger audience on disaster medicine, which are less common than routine health practices. Finally, the increasing academic and institutional support in the field of disaster medicine may have allowed EMPs to conduct more studies in this field and publish their results.^{26,27}

Collaboration in academic publications can be used for purposes such as transferring experience and knowledge in a field, increasing productivity, conducting training and research programs, expanding studies on under-researched topics, allowing more interdisciplinary research, and improving academic careers.²⁸ Most of the publications in the present study were produced by more than one author. This indicates that the disaster medicine literature, which is based on practices that are not planned according to routine clinical practices, may be rare because it is shaped by environmental opportunities, which allow wide-spread academic collaborations incorporating different experiences.

Similar to the results of the study conducted by Zhou, et al which included studies published from 2008 through 2017, this study found that the United States was the most productive country in disaster medicine publications.¹⁸ The United States was followed by Japan, Australia, Canada, and Italy, which may be related to the frequency and severity of disasters that have occurred in these countries in recent years.^{29,30} Approximately 20 programs have implemented disaster medicine courses and the expertise garnered from this subspecialty in the United States may also play a role in this productivity.³¹ For example, subspecialty programs focusing on disaster medicine content (John Hopkins University - Johns Hopkins University Disaster Fellowship; Brown University - Brown University/Rhode Island Hospital Disaster Medicine Fellowship; Brigham and Women's Hospital - Global Emergency Medicine Fellowship; and George Washington University - George Washington University Disaster/EMS Fellowship) occur in the most collaborative institutions in the United States.³²⁻³⁵ Furthermore, Ragozzoni, one of the most productive authors in the present study, states that centers such as The Research Center in Emergency and Disaster Medicine (CRIMEDIM; Novara, Italy) in Italy serve as a unique resource for disaster medicine education, research, and

international collaborations, and they can also play a role in promoting similar initiatives globally.³⁶ The proliferation of such disaster education and research centers is extremely important for the development of disaster medicine science and collaborations.

Keywords are extremely important for the visibility, citation, and impact of academic articles in a field of science. As they provide information about important topics such as the theme of the paper, authors prefer words that best reflect the work produced. The present study found that the main keyword used by the authors was "disaster medicine." The most commonly used term in Wei, et al was "medical rescue;" in Hao, et al was "disaster;" in Zhou, et al was "practices in disasters;" and in Sweileh was "earthquake" and then "disaster medicine."^{10,16-18} In the present study, the keyword "disaster medicine," which was frequently used by the most productive authors, may have been preferred because it best reflects the conceptual infrastructure for disaster medicine, which is a multidisciplinary field of science.

According to the results of this study, the most prominent research themes of EMPs who published in the field of disaster medicine were emergency health services, preparedness for disasters, hospital disaster plans, trauma, simulation, earthquake, and triage. These topics could have arisen from the fact that the field of disaster medicine, which is not well-suited to randomized controlled trials, has turned to standardized training and exercises, measuring the effects of preparedness interventions, and evaluations of previous data sets instead.³⁷

The first two most influential journals determined in this study were consistent with those in the study of Sweileh.¹⁶ As the journal *Prehospital and Disaster Medicine* is the official publication of the World Association for Disaster and Emergency Medicine (WADDEM), one of the leading international organizations for the development, evaluation, and dissemination of scientific evidence for emergency and disaster health services, it was not surprising that the journal included the highest number of papers in this study.³⁸ The majority of the other journals in the top 25 most influential journals were emergency medicine journals. It is very important that the number of emergency medicine journals preferred by EMPs for disaster medicine publications was high and that these journals contained a significant amount of disaster medicine publications. This can be considered an indication that the specialty of emergency medicine, which is one of the most important components of the field of disaster medicine, makes important contributions to disaster medicine, not only in terms of practice and productivity, but also in terms of publishing.

Limitations

This study has some limitations from the bibliometric analysis method. First of all, although the papers in the study were checked by the authors, there may be false positive and false negative evaluations in bibliometric studies. It is possible to obtain different result sets by changing the analysis methods in the study. In addition, a single database was used to obtain the data; accordingly, some publications were in other databases but not in the database used in the study, which was another limitation of this study. The productivity of the authors and the impact levels of publications and sources were evaluated based on values such as the number of publications and citations, but their impact in the field of communication such as social media interactions were not examined. Analyzing only the studies in which EMPs were the first or corresponding authors in disaster medicine publications led to another limitation, as it did not include all contributions in this

field. Finally, since this study was limited to research and review articles, the inclusion of other types of publications (such as books, papers, or letters to the editor) in the analysis may lead to different results.

Conclusion

The contributions of EMPs to the disaster medicine literature are increasing. The United States, Japan, Australia, Canada, and Italy are home to EMPs with the highest number of contributions to the disaster medicine literature. The most commonly used keyword in

the publications was “disaster medicine” and the main themes of the publications were “emergency medicine,” “disaster medicine,” and “earthquake.” This study, which gives an idea about the concepts and infrastructure of the disaster medicine literature, can be used as a guide for EMPs and other researchers who want to contribute to the disaster medicine literature.

Supplementary Materials

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1049023X23006738>

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