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A bibiliometric analysis of the Journal of Infection and Public Health: 2008–2016

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ABSTRACT

Background: The Journal of Infection and Public Health published its first issue in 2008. The fact that the journal has been published uninterruptedly as well as its editorial content and the application of a peer-review process to select manuscripts, made the journal eligible to be indexed by databases such as Scopus. This study presents a general overview of the journal from 2008 until 2016 using bibliometric indicators to assess its performance.
Methods: The data for this study, dating between 2008 and 2016, was extracted from Scopus database. All the information was exported in CSV format to the Sequel Pro software for data analysis. Additionally, collaboration and word co-occurrence networks were generated using VOSviewer.
Results: The total number of documents published between 2008–2016 was 586, of which local authorship (Saudi Arabia) constituted a small share, accounting only for 19.3% (113 documents). Those with foreign authorship (other countries excluding Saudi Arabia) represented 80.7% (473) of the total. Furthermore, the three countries that co-author documents with researchers from Saudi Arabia are Egypt, the United States and the United Kingdom. Likewise, these three countries serve as nodes connecting researchers from other countries located in Asia, Africa, Europe and Latin America. An analysis of the top-five journals that cited the research published revealed that that 90.2% of them belonged to the first and second quartiles confirms the quality of the research being published. Word co-occurrence analysis established a slight shift of focus in the research topics published during the last four years studied, as a new cluster was formed with terms related to "education", "intervention" and "implementation".
Conclusion: The journal has managed, in very few years, to be considered by researchers worldwide. Furthermore, throughout the years, the journal showed an evolution in the main topics covered, providing a contemporary overview of public health.

Introduction

The Journal of Infection and Public Health (JIPH) was founded in 2008 by the Saudi Arabian National Guard Health Affairs, King Saud Bin Abdulaziz University for Health Sciences and the Saudi Association for Public Health, which at the time was envisioned as a scientific journal that covered topics regarding infection prevention and control, microbiology, infectious diseases, public health and the application of healthcare epidemiology to the evaluation of health outcomes. Since then, the journal has been published uninterruptedly. This timeliness, as well as its editorial content and the application of a peer-review process to select manuscripts, made the journal eligible to be indexed by databases such as Scopus and Web of Science. Undoubtedly, the inclusion of any journal into one of these databases increases exponentially the citation rate of the authors as their research is exposed to a wide-ranging audience.

Bibliometrics can be defined as a qualitative and quantitative analysis of research that is often used to assess the impact of an individual researcher, research groups, institutions, countries or journals. The bibliometric analysis of a specific journal is important as it provides insight that goes far beyond the scope of the journal [1–4]. Frequently researchers study some of the more commonly known bibliometric parameters (impact factor, h-index) before submitting a manuscript to a journal. Likewise, libraries evaluate the bibliometric characteristic of journals before deciding whether to include as part of their collection.

Hence, this study presents a general bibliometric overview of JIPH since it began being indexed by SCOPUS in 2008.

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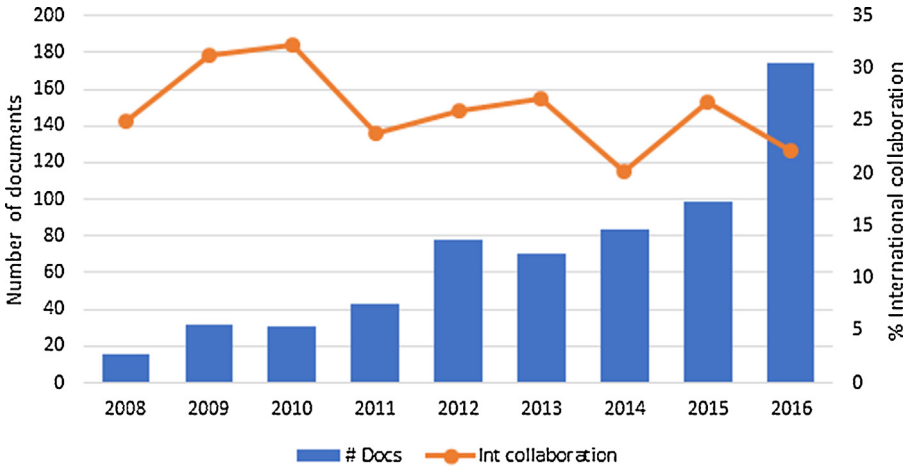

Fig. 1. Trends in the number of documents published annually by JIPH and the ratio of documents that were generated due to the collaboration of researchers from more than one country.

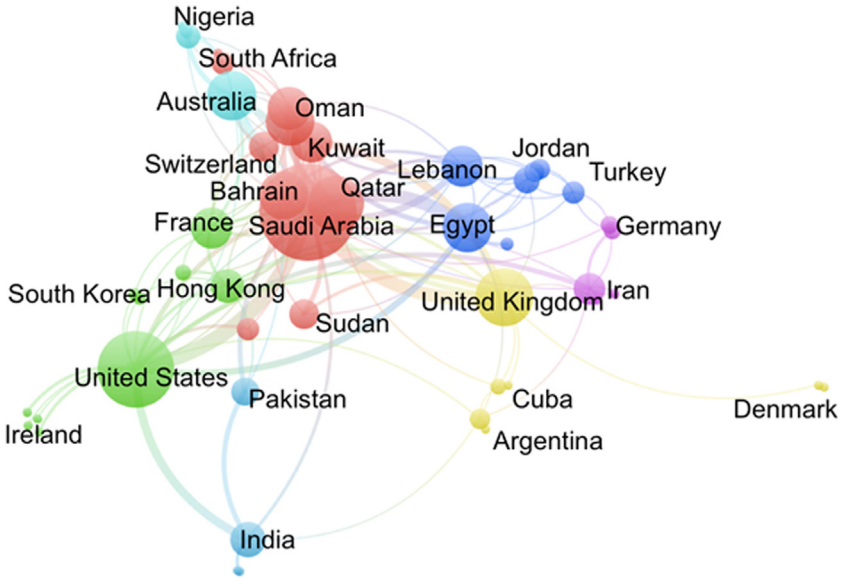

Fig. 2. Co-author collaboration network by country from documents published by JIPH between 2008–2016.

Materials and methods

The data for this study, dating between 2008 and 2016, was extracted from Scopus (October 17th, 2017). All the information was exported in CSV format to the Sequel Pro software for data analysis. Additionally, the VOSviewer software [5] was employed to generate the collaboration and word co-occurrence network.

Results

The total number of documents published between 2008–2016 was 586. However, during its first year (2008), JIPH published only 16 documents. The following years the number of annual publications increased significantly being more than ten-fold by the year 2016 (Fig. 1). Likewise, the number of issues published annually increased from two (in 2008), to four (2009–2010) and then to six (from 2011 to the present day). The most frequently published document type that was indexed by Scopus corresponded to "article" which comprised 69.8% of the total production, followed by "article in press" (10.0%), "review" (7.8%), letter (7.4%), editorial material (4.5%) and erratum (0.5%). Since the proportion of documents categorized as "article in press" was noteworthy, these were analyzed in more detail considering that this study only included papers published until 2016. The oldest record was from 2011 [6], followed by one from 2014 [7], two from 2015 [8,9] and 57 from 2016. This is an important issue as "articles in press" do not contribute citations to other documents as regular Scopus articles [10].

As far as international collaboration is concerned, approximately 26% of the documents published by JIPH were the product of an international collaboration. Fig. 1 depicts the fluctuating trend which reached a peak in 2010 (32.3%) and from then on it has gradually descended reaching its lowest in 2014 (20.2%). Fig. 2 presents the collaboration network of the documents published by JIPH during the 2008–2016 time period. Node size is proportional to the number of documents published by each country. Likewise, lines represent collaboration between the countries that are connected by them. Undoubtedly, international researchers that collaborated the most with Saudi Arabian researchers were from the United States, Egypt and the United Kingdom.

Table 1 summarizes the top ten countries in terms of relative contribution to the number of papers published by JIPH. Even though Saudi Arabian researchers are the main contributors of the journal, they only account for 19.3% of the total amount, followed by

Table 1
Top-10 countries that published papers in JIPH.

Country	Record count	Percentage
Saudi Arabia	113	19.3
United States	76	13.0
India	68	11.6
United Kingdom	41	7.0
Iran	39	6.7
Egypt	28	4.8
Turkey	27	4.6
Kuwait	23	3.9
Pakistan	19	3.2
Lebanon	18	3.1

Table 2
List of the top-ten institutions contributing manuscripts to JIPH.

Institution	Country	Record count	% from total
King Saud bin Abdulaziz University for Health Sciences	Saudi Arabia	41	7.0
King Abdulaziz Medical City-Riyadh	Saudi Arabia	29	4.9
Health Sciences Center Kuwait Faculty of Medicine	Kuwait	19	3.2
King Faisal Specialist Hospital and Research Centre	Saudi Arabia	18	3.1
King Saud University	Saudi Arabia	17	2.9
Johns Hopkins Aramco Healthcare	Saudi Arabia	16	2.7
University of Kuwait	Kuwait	15	2.6
Ministry of Health Saudi Arabia	Saudi Arabia	14	2.4
National Guard Health Affairs	Saudi Arabia	12	2.0
Universidad Tecnologica de Pereira	Colombia	12	2.0

the United States (13.0%) and India (11.6%). Interestingly, the fact that eight out of the 10 countries listed are geographically close to Saudi Arabia, would support the idea that this journal provides an important communication platform for researchers from nearby countries.

When the records from JIPH were analyzed by institutions affiliated to the authors of the papers, an interesting result emerged. As Table 2 shows, King Saud bin Abdulaziz University for Health Sciences turned out as the top contributor as indicated by the retrieved data, followed by other institutions from Saudi Arabia and Kuwait. Nevertheless, a closer look at Table 2 revealed that tying at ninth place is a Colombian university that published its first paper in 2013, thus confirming that the journal has gone global.

In order to evaluate the impact of JIPH, it was of interest to identify the most frequently cited papers and the citations generated by the journal as a whole. The number of citations a particular paper or journal receives is a measure of its visibility to other researchers. The top five cited papers and their citation frequency are listed on Table 3. The most high-ranking article on the journal was written by Mittal et al. [11] (seventy-nine citations), followed by a paper authored by Hanson et al. [12] (sixty-four citations) and three other articles, two with fifty-nine citations [13,14] and one with 49 citations [15].

Table 3
Top-five highly cited papers that were published between 2008–2016.

Title	Year	Volume	Issue	Pages	Times cited
Urinary tract infections caused by *Pseudomonas aeruginosa*: a minireview	2009	2	3	101–111	79
Prevalence of *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* (MRSA) on retail meat in Iowa	2011	4	4	169–174	64
Dengue, chikungunya and Zika co-infection in a patient from Colombia	2016	9	5	684–686	59
The impact of U.S. policies to protect healthcare workers from bloodborne pathogens: the critical role of safety-engineered devices	2008	1	2	62–71	59
Hajj: health lessons for mass gatherings	2008	1	1	27–32	49

Table 4
Ranking of the top-five journals citing articles published by JIPH, based on the total number of cited articles per year. Quartile distribution was estimated using SCImago [16].

2008	2009	2010	2011	2012	2013	2014	2015	2016
The Lancet (Q1)	AORN Journal (Q2)	Infection Control and Hospital Epidemiology (Q2)	BMC Infections Diseases (Q1)	PLoS One (Q1)	PLoS One (Q1)	Journal of Infection and Public Health (Q2)	PLoS One (Q1)	American Journal of Infection Control (Q1)
	American Journal of Infection Control (Q1)	Journal of Travel Medicine (Q2)	Journal of Infection and Public Health (Q2)	Clinical Microbiology and Infection (Q1)	Journal of Infection and Public Health (Q2)	PLoS One (Q1)	Journal of Infection and Public Health (Q2)	PLoS One (Q1)
	Journal of the Chilean Chemical Society (Q3)	AIDS Care—Physiological and Socio-Medical Aspects of AIDS (Q1)	AORN Journal (Q2)	Journal of Infection and Public Health (Q2)	American Journal of Infection Control (Q1)	Saudi Medical Journal (Q2)	BMC Infections Diseases (Q1)	Journal of Infection and Public Health (Q2)
	Reviews in Medical Microbiology (Q4)	American Journal of Infection Control (Q1)	American Journal of Infection Control (Q1)	European Review for Medical and Pharmacological Sciences (Q2)	Jundishapur Journal of Microbiology (Q3)	American Journal of Infection Control (Q1)	American Journal of Infection Control (Q1)	BMC Infections Diseases (Q1)
	Ecohealth (Q2)	Canadian Journal of Microbiology (Q2)	Jundishapur Journal of Microbiology (Q3)	PLoS Neglected Tropical Diseases (Q1)	BMC Public Health (Q1)	BioMed Research International (Q2)	BMC Public Health (Q1)	PLoS Neglected Tropical Diseases (Q1)

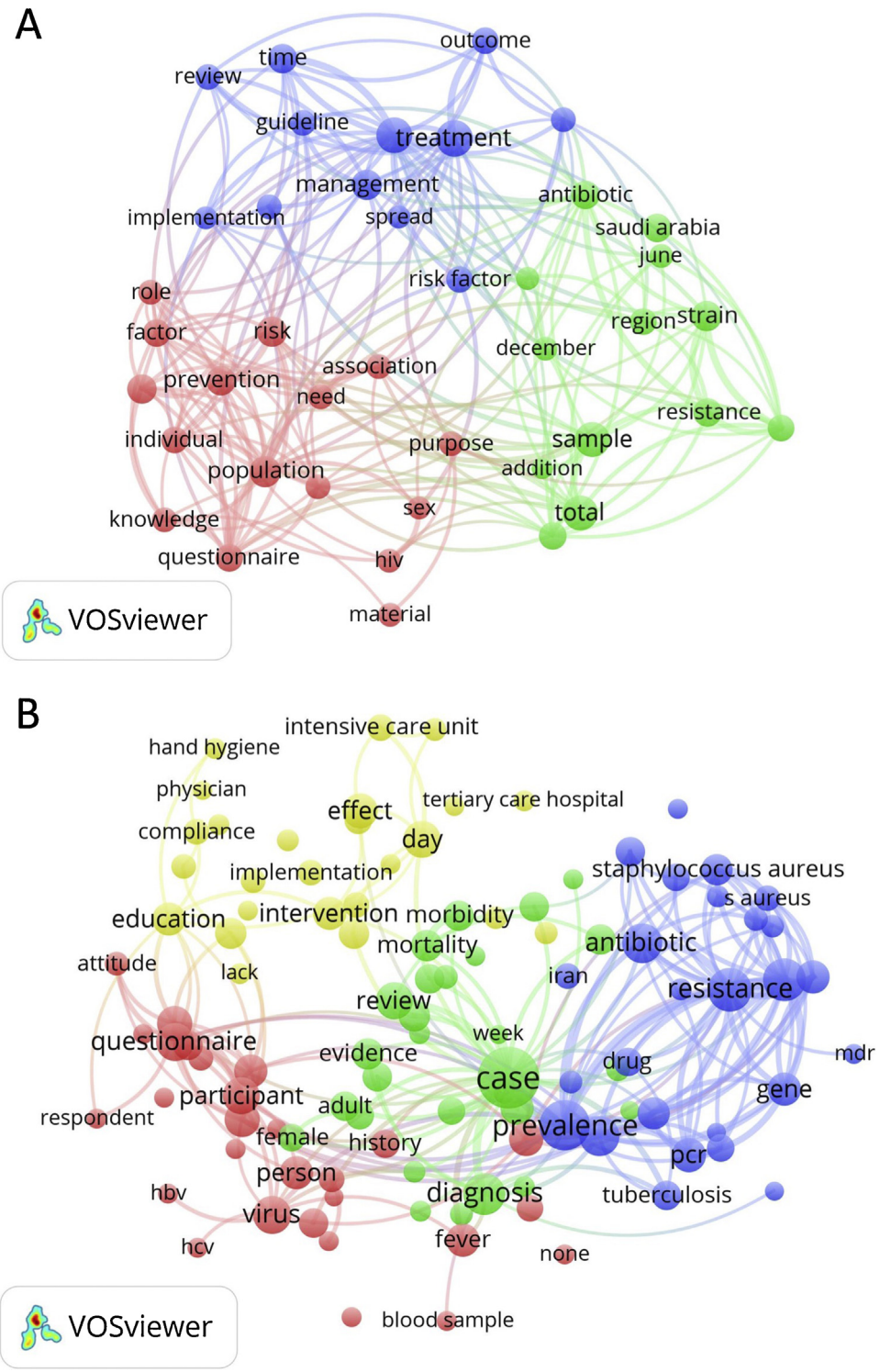

Fig. 3. Word co-occurrence network built using words present in titles and abstracts of (A) documents published between 2008–2012. (B) Documents published between 2013–2016.

But which journals are using JIPH as a source of information? To avoid any bias, we assessed this information using quartile rankings. Based on impact factor data, each journal is sorted in each of its subject categories, generating a ranking. Therefore, Q1 represents the top 25% of the impact factor distribution for a specific subject category, Q2 between top 25% and 50%, Q3 between top 50% and 75% and Q4 denotes the bottom 25% of the list. The top-five citing journals for each year are shown in Table 4. The fact that 90.2% of these journals belong to the first and second quartiles confirms the quality of the research being published by JIPH.

Nonetheless, what topics are being published by JIPH? To address this question, a total of 11,968 different words present in the titles and abstracts of the 586 documents published between 2008–2016 were analyzed in order to establish the co-occurrence

network, generating clusters that can be associated to research topics. The colors used indicate words within a same topic cluster. As Fig. 3A shows the terms with high co-occurrence frequencies between the period 2008–2012, distinguishing three colored clusters. The red cluster contained terms related to "knowledge" and "population", while the blue cluster contained terms related to "treatments" and "managements", and the green cluster contained terms related to "antibiotic", "strain" and "resistance". Instead, Fig. 3B shows the terms with high co-occurrence frequencies between the period 2013–2016. This network clearly forms four clusters, being the red cluster related to "knowledge" and "questionnaire". The green cluster contained terms related to "case" and "diagnosis", the blue cluster contained terms related to "antibiotic", "prevalence" and "resistance", and the yellow cluster contained terms related to "education", "intervention" and "implementation".

Discussion

The aim of this study was to bibliometrically assess JIPH since it began being indexed by SCOPUS in 2008, time at which the journal only published 16 documents. The later rise in the number of issues distributed annually caused an obvious increase in the total number of published manuscripts which has not affected the quality of its work. In fact, since 2012 JIPH has been ranked among the second quartile journals in two different disciplines: "Infectious diseases" and "Public health, environmental and occupational health" [16]. This accomplishment has been achieved even though the ratio of documents that are considered citable items, that is "articles" and "reviews", is only 77,6%. A study published by Ref. [17] showed that in a 15-year period Norway's highly cited papers were based mainly on articles (81%) and reviews (12%). Later studies have shown a similar relationship between document type and citations [18–20]. All other types of documents, for instance, editorial material or letters, in general do not contain original research results, which is why these are seldom cited [21].

Papers of national authorship (Saudi Arabia) constituted a small share, accounting only for 19.3% (113) of the total documents published between 2008–2016 (Table 1). Those with foreign authorship (other countries excluding Saudi Arabia) represented 80.7% (473) of the total. However, as Fig. 1 depicts, the proportion of documents that were produced as a consequence of the collaboration of researchers from different countries averaged close to 26% throughout the assessed time period. As Fig. 2 shows, three countries that present the broader interaction links with Saudi Arabia are Egypt, the United States and the United Kingdom. Likewise, these three countries serve as nodes connecting researchers from other countries located in Asia, Africa, Europe and Latin America. As an example, 37 documents (6.3%) from countries located in South America (Argentina, Brazil, Chile, Colombia, Ecuador, Peru and Venezuela) published papers in JIPH about diseases affecting their region such as AIDS [22], Zika virus [23], Dengue [13] and Chikungunya [24].

From an institutional perspective (Table 2), nine out ten of the institutions are from Saudi Arabia and Kuwait, with the only exception of "Universidad Tecnologica de Pereira" from Colombia which published 12 documents between 2008–2016. Further analysis of their contribution to JIPH showed that nine of the documents were published by researchers from Colombia only, whereas the other three were in collaboration with Cuba, Peru and the United Kingdom. Moreover, while one of the papers was published in 2013, the rest were published in 2015 (5) and 2016 (6), which further confirms that JIPH is being considered as a potentially relevant journal. It is worth mentioning that the third most cited paper (Table 3) was written solely by Colombian researchers.

Citations are generally considered as an important parameter to judge the quality of research contributions by researchers, institutions or countries. However, not all citations are the same. For instance, there are negative citations that draw the attention to flaws found in a specific paper [25]. There are also self-citations, which may cause distortions in various bibliometric indicators [26]. In the case of five high-impact otolaryngology journals, a study revealed that self-citations represented approximately 10% of their total citations [27]. Therefore, another way to assess research impact is by establishing which journals are citing the documents published by JIPH. As Table 4 depicts, over 90% of the top-five ranking journals belong to the first and second quartiles further confirms the quality of the research being published by JIPH.

The co-occurrence networks from Fig. 3 illustrated a slight shift of focus in the research topics published by JIPH as a new cluster was formed with terms related to "education", "intervention" and "implementation". Unquestionably, observational and intervention studies such as the ones published by JIPH are necessary to establish rules to prevent disease and promote health.

Conclusion

This study presents a bibliometric overview of the leading trends that have occurred in the journal between 2008–2016, using the Scopus database to collect bibliographic information and determine various bibliometric indicators. This work also presents a collaboration and word co-occurrence networks to visualize the performance of the journal from a different perspective. In only nine years, JIPH managed to reach a very wide audience from all over the globe. Furthermore, throughout the years, an evolution on the topics covered by the journal was observed that provide a contemporary overview of public health.

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Competing interests

None declared.

Ethical approval

Not required.

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