



Original research

Middle East Authors' Contribution to the *Journal of Arthroplasty's* Publications in the Past 20 years (2000–2020)

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ABSTRACT

Background: This study aimed to evaluate the Middle East (ME) countries' contribution to the *Journal of Arthroplasty* (JOA)'s publications in the past 20 years.

Methods: All articles published in JOA from 2000 to 2020 were evaluated for the contribution prevalence of ME countries' authors, which were divided into category I, if all the authors were affiliated to ME institutions, and category II, if at least one coauthor affiliated to ME institutions was listed in the articles with other international authors.

Results: A total of 7837 original articles were evaluated. Authors affiliated with ME institutions contributed to 144 (1.8%) articles (148 individual country contributions) from ten (62.5%) out of a total of 16 ME countries. Sixty-eight articles (47.2%) were classified as category I; cooperation between different ME institutes (The authors were from two different ME countries.) was reported in two (1.4%) articles. The top five contributing countries were Egypt, Iran, Israel, Saudi Arabia, and Turkey, contributing 89.2% of the total articles published by ME institutions. Out of the 144 articles, 80 (55.6%) articles were published between 2016 and 2020, 37 (25.7%) articles between 2011 and 2015, and 29 (20.1%) articles between 2000 and 2010. There was a 15.7% mean annual growth in the percentage of ME articles.

Conclusion: Although there was an increasing trend in the contributions of ME countries' authors to JOA publications over the past 20 years, the overall contribution is still low; moreover, the cooperation between ME institutions is minimal.

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Introduction

Joint replacement surgery (primary hip and knee arthroplasties) is considered one of the significant orthopedic surgery subspecialties that are showing a rising trend in the number of procedures performed annually [1–3]; Kurtz et al. reported that an estimated number of 1.5 million primary total knee arthroplasties

and 384,000 primary total hip arthroplasties were performed in the United States by 2020, and these numbers are predicted to rise to 3.48 million and over a half a million by the year 2030 for primary total knee and total hip arthroplasties, respectively [4,5]. The same increasing trend was noticed in scientific publications handling arthroplasty issues, with a five-fold increase in the number of publications observed in 2018 when compared to 1988 [6].

The need for scientific publications and research productivity for career advancement and achieving promotion is mandatory for orthopedic researchers, with no exception for arthroplasty surgeons [7,8]. Studies are preferably published in high-ranking peer-reviewed journals [9,10]; however, most of these journals,

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including *the Journal of Arthroplasty* (JOA), have low acceptance rates of approximately 15%–40% [11–13].

One way to measure scientific productivity is performing bibliometric studies, which are popularized in all scientific fields in general and the medical field in particular [14–16]. Previous studies reported a profound deficiency in publications on joint arthroplasty from Africa, while publications from Asian countries, although increasing in number, still lag behind those from North America and Europe [6,17,18].

To the best of our knowledge, no specific report of arthroplasty article production from the Middle East (ME) has been published yet. Hence, the present study aimed to document the ME countries' contribution to publications in JOA (as one of the leading journals specialized in arthroplasty) over 20 years.

Material and methods

After accessing the journal's archives, two of the authors reviewed and evaluated all articles published in the JOA from 2000 to 2020. The following types of articles were excluded from the analysis (brief communications, short communications, erratum, technical notes, abstracts of papers, announcements, letters to editors and replies, essays, retraction notices, corrigenda, and commentaries). We included original articles (reviews [narrative or systematic], case reports, and full-length articles [studies including data analysis and results]). For each article, we examined the affiliation of the authors, and to detect authors affiliated to the ME institutions, the status of ME authors' contribution was divided into two categories: category I if all the authors were affiliated to ME institutions (which means that the article is entirely published from the ME), which was further subdivided into category IA if all the authors were from the same ME country and category IB if the authors were from different ME countries (assessing the cooperation between ME countries), and category II if one or more of the article coauthors were affiliated to ME institutions while the other authors were not (This could occur in two forms; first, when a fellow originally affiliated to the ME is contributing to a publication with another research team; second, if there is collaboration between ME institutions and international research teams.). The types and subjects of the articles were reported.

ME countries' contributions were ordered alphabetically (to avoid political, cultural, and religious conflicts, as was done in a previous study in cardiothoracic surgery literature [19]). To ensure the accuracy of the collected data, after finalizing the data

collection, two of the authors revised the data of a randomly selected issue for each year and compared it with the data included for analysis.

To ensure data analysis and assessment transparency, the assessor was blinded to the country's name. Continuous data were presented as means and standard deviations while categorical data were presented as frequencies and percentages, n (%).

Results

Of the 9139 articles published between January 2000 and December 2020 in JOA, 1276 were excluded, while 7837 articles were included. Out of those, authors affiliated with ME institutions contributed to a total of 144 (1.8%) articles (148 individual country contributions) from ten (62.5%) out of a total of 16 ME countries. In 68 (47.2%) articles, all the authors were affiliated with an ME country representing category I. In two (1.4%) articles, the authors were from two different ME countries, representing category IB; the top five contributing countries were Egypt, Iran, Israel, Saudi Arabia, and Turkey, which contributed 132 (89.2%) of the published articles. Turkey had the largest number of articles in category I while Israel had the largest number of total contributions. Details are shown in Table 1 and Figure 1. The types of published articles were 131 (91%) full-length articles, eight (5.6%) case reports, and five (3.4%) reviews. Regarding the subjects discussed in the articles, 97 (67.4%) were on primary hip and knee arthroplasties, 17 (11.8%) on periprosthetic joint infection, 16 (11.1%) on revision hip and knee arthroplasties, five (3.5%) on basic science, three (2.1%) on joint preservation surgery, three (2.1%) on unicompartmental knee arthroplasty, and three (2.1%) on periprosthetic fractures. Out of 144 ME articles, 80 (55.6%) were published between 2016 and 2020, 37 (25.7%) between 2011 and 2015, and 29 (20.1%) between 2000 and 2010. There was a 15.7% mean annual growth in the percentage of ME articles published between 2000 and 2020 (Table 2, Fig. 2).

Discussion

Bibliometric studies are crucial for monitoring research societies' production, focusing not only on the quantity but also on the quality of their respective scientific shares [20–22]. In a recent study by Sun et al. evaluating orthopedic publications from 2020 to June 2021, JOA was the third most contributing journal for publications, fourth among the most frequently cited orthopedic journals, and one of its articles was among the ten most cited articles [23].

Table 1
The number of contributions from Middle Eastern countries in *the Journal of Arthroplasty* between 2000 and 2020.

ME countries (alphabetical)	Total contributions in 144 (100%) articles	Contribution categories, articles (n)		
		Category I (all authors from ME) 68 (47.2%) articles		Category II (≥ 1 author from ME) 76 (52.8%) articles
		IA	IB	
Egypt	15 (10.1%)	5	1	9
Iran	15 (10.1%)	2	0	13
Israel	54 (36.5)	19	0	35
Jordan	1 (0.7%)	0	0	1
Lebanon	3 (2%)	2	0	1
Qatar	1 (0.7%)	0	1	0
Saudi Arabia	12 (8.1%)	6	0	6
Sudan	2 (1.4%)	0	1	1
Turkey	36 (24.3%)	30	0	6
UAE	9 (6.1%)	2	1	6
Total	148 (100%)	66	4	78 (52.7%)
		70 (47.3%)		

ME, Middle East; UAE, United Arab Emirates.

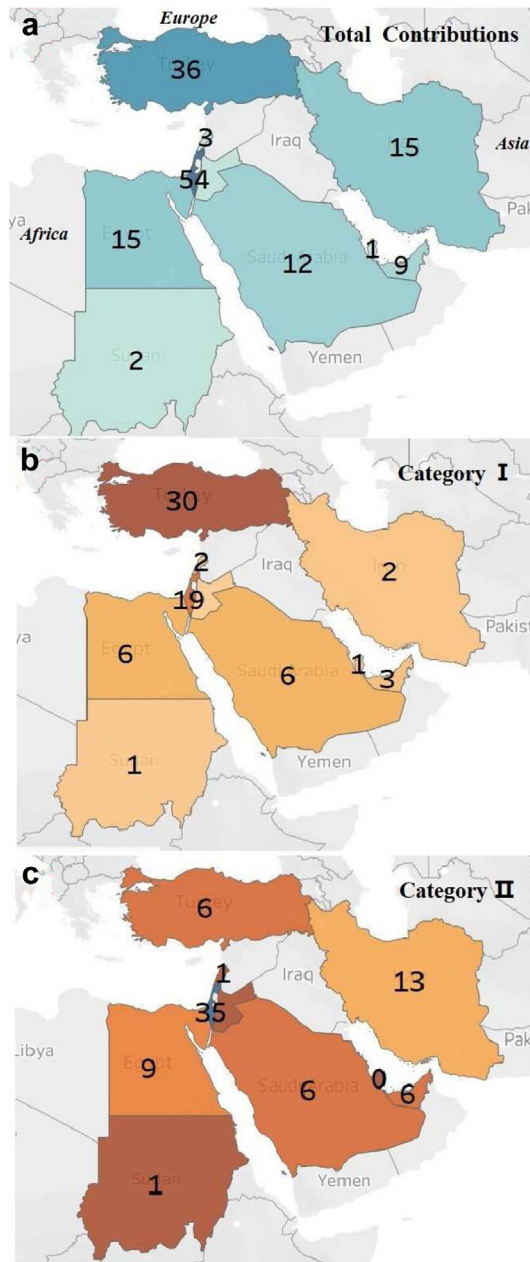


Figure 1. A map chart showing the number and distribution of Middle Eastern (ME) countries' contributions to JOA publications. (a) Total number of contributions from each country; (b) category I (contribution is purely from ME countries); and (c) category II (at least one author from ME contributed to the publications).

The main findings of the present study are the profound deficiency in ME authors' contributions to JOA publications, amounting to only 1.8% of publications over the past 20 years; moreover, the pure contribution by authors from ME countries is even less than half of the total number of articles. Only ten countries out of 16 contributed to the publications, with minimal cooperation between countries (only two articles). However, a promising point is an increasing trend in the number of publications during the study period.

The present study's findings were not explicitly evaluated in previous studies; however, in the study by Lehman et al. where the authors looked at the countries' contributions to JOA publications over 30 years, after evaluating 1343 original articles, the authors

Table 2

The number of publications from the ME in the *Journal of Arthroplasty* between 2000 and 2020.

Publication year	Total articles (n)	ME articles (n)	Percentage
2000–2005	1262	13	1.03
2006–2010	1265	14	1.1
2011–2015	2086	37	1.8
2016–2020	3260	80	2.5
Total	7873	144	1.8

ME, Middle East.

reported that the United States dominated as being the major contributor to the publications (90% of publications in 1986, which decreased to approximately 60% in 2015), while the combined contribution of the United Kingdom and Europe was averaging approximately 20%–40% during the study period; however, the authors reported that an increasing trend in the number of publications was reported from what they referred to as "The Far East" (mainly China, Korea, Taiwan, and Japan), which is considered part of Asia [18]. No contribution from Africa or ME countries was identified in the study [18]. In another study by Xu et al. evaluating the disparities among authors in the top 12 journals publishing on arthroplasty research between 2002 and 2019, the authors examined 14,692 articles, with approximately 50% of the articles being published from North America, 30% from Europe, and 16.4% from Asia [17]. The authors did not mention any publications from the ME; however, publications from Asia and Africa accounted for 16.4% and 0.2%, respectively, which is low compared to other parts of the world [17].

An interesting finding in the present study is an increasing trend in the number of publications and contributions from ME authors to JOA articles over the study period; this is considered usual with the overall increase in scientific production among various specialties during the past decades, as well as the increase in the number of researchers traveling to other centers. In their study, Lehman et al. suggested that some of the possible reasons for the increased number of contributions to JOA publications from institutions outside North America are advancements in technology and communication that have made international collaboration easier and granted international researchers easier access to journals and their submission systems [18].

For the past decades, scientific production from the ME has evolved rapidly, increasing its share of the global scientific production in spite of the various regional conflicts [24–26]. In a study by Siddiqi et al. estimating the ME and North African contribution to global publications in 2013 (The authors investigated ME countries except Iran, Israel, and Turkey.), although they found a growth in scientific production over time (an increase from 0.63% in 1981 to 1.83% in 2013), they found that among the 13 studied ME countries, Saudi Arabia and Egypt ranked the top two countries contributing to the global production of publications by 0.54% and 0.48%, respectively, which is minimal when compared to that of the United States that ranks first, contributing 19.2% of the total global production [25]. The authors calculated productivity (publications normalized by population) among countries and compared the results with those of Turkey. They found that the production for the 13 countries increased by 10.6%, improving from 11 to 111 publications per million; this was still lagging behind Turkey's production, which increased by 18.7%, from 6 to 312 papers/million in 2013. It is worth noting that Qatar showed the highest productivity with 377 papers/million in 2013 [25].

In the present study, we found that the top five contributing countries to JOA publications were Egypt, Iran, Israel, Saudi Arabia, and Turkey; similar findings were reported in a study by Antonio Cavacini evaluating the trend in scientific publications from ME

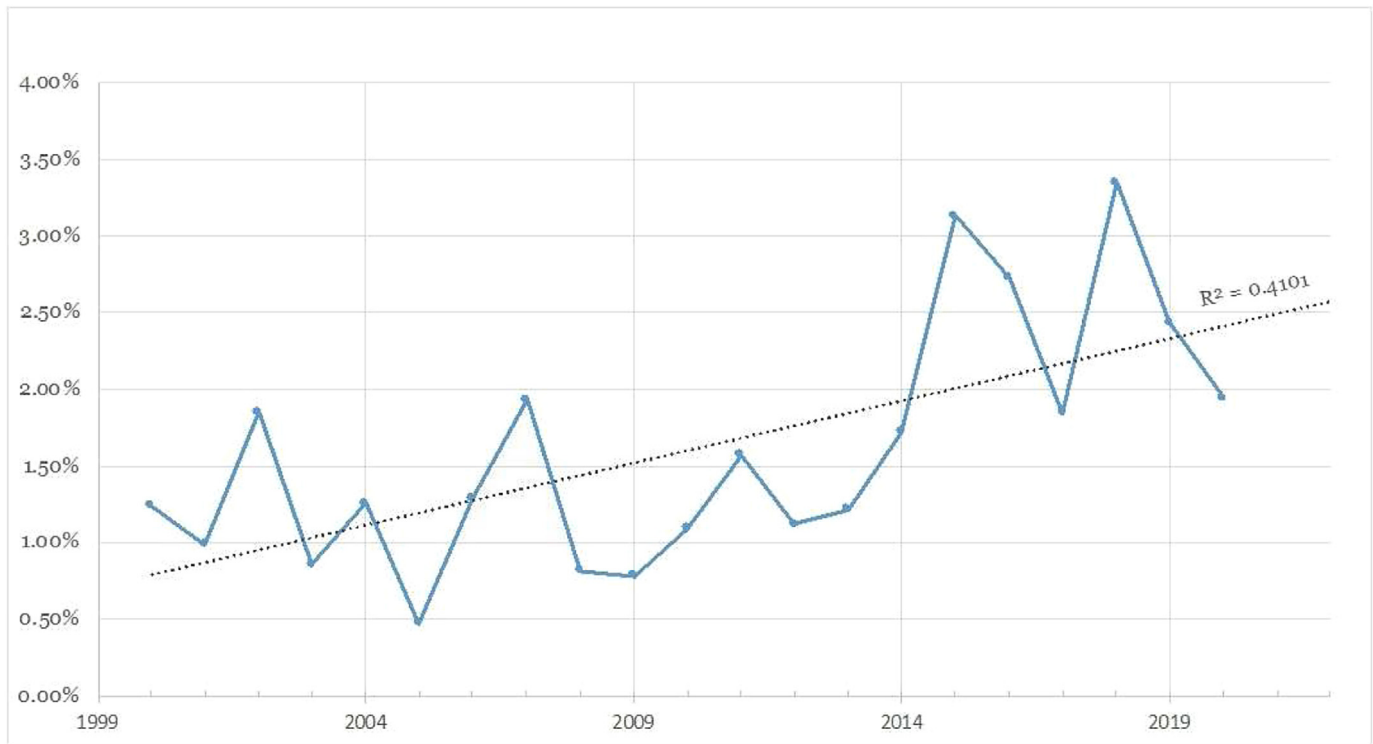


Figure 2. Yearly percentage and logarithmic trend in the number of Middle Eastern articles in *the Journal of Arthroplasty* between 2000 and 2020.

countries in the period between 1996 and 2014 [24]. He found that the countries were rated top five in producing scientific documents according to Elsevier and Web of Science [24]. Meanwhile, according to the recent update (August 2021) of the SCImago Journal & Country Rank database, which uses Scopus raw data provided by Elsevier to calculate the metrics [27,28], Qatar replaced Saudi Arabia in fifth place among the top 5 ME countries producing orthopedics-related scientific documents.

In a study by Sinclair et al., where the authors evaluated 6160 hip and knee arthroplasty PubMed publications from seven major orthopedic journals between 1988 and 2018, a total of 48 countries contributed, with the major contribution being reported from North America (51.9%), followed by Europe (32.5%), and then Asian countries (12.4%) [6]. Seven ME countries were identified in the study (Egypt, Iran, Israel, Lebanon, Saudi Arabia, Turkey, and United Arab Emirates), during the 30-year study period, and Turkey contributed the most among the seven countries, with 17 (0.3%) articles [6].

The advancement in scientific production from Israel and Turkey was attributed mainly to the increasing number of educational institutions, the provision of more financial support for research, and easier communication and cooperation with international research teams mainly from European countries [24,26,29].

The recent trend toward the increase in cooperation between research teams from various institutions, both nationally and internationally [20,30,31], was partially attributed to improved communication technology and the emergence of new health problems [32–34]. However, in the present study, although the incidence of involvement of an author from the ME with an international research team was 52.7%, which could be attributed to the improvement in the rate of fellowships and scholarships offered in ME countries from other areas of the world [24–26], the cooperation between ME countries is minimal, as only two articles (1.4%)

were published by authors who cooperated from different ME countries, which was allegedly aggravated by the long history of conflicts (political, military, and religious) between ME countries [24,26].

There are possible reasons for ME countries' poor contribution to JOA publications; however, a significant part of the burden of the reported deficiency documented in the present study lies on the shoulders of many ME countries, who have insufficient research support (financially and technically), deficiency in research infrastructure, insufficient communication and cooperation between the various research teams, flawed documentation system and paucity of registry data, and long-lasting regional political and military conflicts [35–37].

Various studies showed that the acceptance rate of the submitted articles could be related to the nationality of the submitting authors or their affiliated institutions; in a study by Okike et al. evaluating the manuscripts submitted to *the Journal of Bone and Joint Surgery*, they found that submissions from North America (the United States and Canada) had an acceptance rate of 28.1%, while the acceptance rate of manuscripts submitted from other countries was 14.2% [38]. The same finding was confirmed in another study by Lynch et al., where the authors found that 39% of the articles submitted to *the Journal of Bone and Joint Surgery* from the United States were accepted compared with the 22% acceptance rate for articles submitted from other countries despite the similarity in quality between the research studies submitted to the journal [39].

The present study has some limitations; first, we only concentrated on collecting quantitative data without quality evaluation (such as evidence level and citation sources). Second, we did not evaluate other countries' contributions to compare with the results obtained from the present study; however, this was evaluated in previous reports, such as the study by Lehman et al. [18]. Third, we could not correlate the number of publications with the number of active arthroplasty surgeons practicing in each of the respective

countries, as there was no available data regarding their number. Fourth, we do not have access to the number of submissions to the journal to determine if the publication deficiency from ME countries is merely a matter of high rejection rates (which indicates poor-quality studies) or due to few submissions (which indicates a research production deficit). Finally, detailed bibliometric data such as the number of citations and authors' numbers were not presented. It is worth noting that the major strength of the present study is the fact that as far as we know, it is the first study to evaluate the contribution of the ME to the JOA and the inclusion of all the articles published throughout the 20-year period instead of selecting a sample from each year.

Recommendations

The crucial point in improving arthroplasty research productivity from ME countries is to diagnose the issues contributing to this deficiency by carrying out detailed bibliometric studies investigating the factors and obstacles responsible for the poor research production. For enhancing the capabilities of the individual researchers as well as the institutions, here are some suggestions: better opportunities for research education and training, active participation in research projects, providing professional and technical support, continuous evaluation of the research activity progress, establishing joint scientific activities and societies, encouraging multicenter research activities, establishing an ME arthroplasty registry, and getting support from international expert researchers. Finally, to overcome the language barrier (as the English language is not the first language of all ME countries), authors could use the help of language editing services offered by some journals [40–44].

Conclusion

Although there is an increasing trend in ME authors' contributions to JOA publications in the present study, the overall contribution over the past 20 years is considered minimal, with only ten out of 16 countries contributing, of which five countries contributed up to 89.2% of the publications. Moreover, we found minimal cooperation among ME authors. Further studies should be initiated to evaluate the possible reasons behind the contribution deficiency and the possible ways to improve publications and cooperation between authors from ME countries.

Conflicts of interest

The authors declare there are no conflicts of interest.

References

- [1] Sloan M, Premkumar A, Sheth NP. Projected volume of primary total joint arthroplasty in the U.S., 2014 to 2030. *J Bone Jt Surg Am Volume* 2018;100(17):1455.
- [2] Price AJ, Alvand A, Troelsen A, et al. Knee replacement. *Lancet (London, England)* 2018;392(10158):1672.
- [3] Ferguson RJ, Palmer AJ, Taylor A, Porter ML, Malchau H, Glyn-Jones S. Hip replacement. *Lancet (London, England)* 2018;392(10158):1662.
- [4] Kurtz S, Ong K, Lau E, Mowat F, Halpern M. Projections of primary and revision hip and knee arthroplasty in the United States from 2005 to 2030. *J Bone Jt Surg Am Volume* 2007;89(4):780.
- [5] Kurtz SM, Ong KL, Lau E, Bozic KJ. Impact of the economic downturn on total joint replacement demand in the United States: updated projections to 2021. *J Bone Jt Surg Am Volume* 2014;96(8):624.
- [6] Sinclair ST, Emara AK, Orr MN, Klika AK, Piuze NS. The influence of Geographic region on hip and knee arthroplasty literature from 1988 to 2018. *J Am Acad Orthopaedic Surgeons Glob Res Rev* 2021;5(6):e20.00260.
- [7] Fayaz HC, Haas N, Kellam J, et al. Improvement of research quality in the fields of orthopaedics and trauma: a global perspective. *Int Orthopaedics* 2013;37(7):1205.
- [8] Juyal D, Thawani V, Thaledi S, Prakash A. The fruits of authorship. *Education Health (Abingdon, England)* 2014;27(2):217.
- [9] Ekeroma AJ, Shulruf B, McCowan L, Hill AG, Kenealy T. Development and use of a research productivity assessment tool for clinicians in low-resource settings in the Pacific Islands: a Delphi study. *Health Res Policy Syst* 2016;14:9.
- [10] Campbell ST, Gupta R, Avedian RS. The Effect of Applicant publication Volume on the orthopaedic Residency Match. *J Surg Educ* 2016;73(3):490.
- [11] Kibbe MR. JAMA surgery—the Year in review, 2019. *JAMA Surg* 2020;155(5):377.
- [12] Björk BC. Acceptance rates of scholarly peer-reviewed journals: a literature survey. *El profesional de la información* 2018;28:e280407.
- [13] Sugimoto CR, Larivière V, Ni C, Cronin B. Journal acceptance rates: a cross-disciplinary analysis of variability and relationships with journal measures. *J Informetrics* 2013;7(4):897.
- [14] Loder RT, Kacena MA, Ogbemudia B, et al. Bibliometric analysis of the English musculoskeletal literature over the Last 30 Years. *TheScientificWorldJournal* 2021;2021:5548481.
- [15] Squire ME, Schultz K, McDonald D, et al. Trends in gender authorship and collaborations: a 30-year comparative bibliometric analysis of manuscripts from the journal of bone and joint surgery and the bone and joint journal. *Scientifica* 2020;2020:5019607.
- [16] Russell AF, Loder RT, Gudeman AS, et al. A bibliometric study of authorship and collaboration trends over the past 30 years in Four major musculoskeletal science journals. *Calcified Tissue Int* 2019;104(3):239.
- [17] Xu RF, Varad NH, Chen AF. Disparities among leading publishers of arthroplasty research. *J Arthroplasty* 2021;36(5):1804.
- [18] Lehman JD, Schairer WW, Gu A, Blevins JL, Sculco PK. Authorship trends in 30 years of the journal of arthroplasty. *J Arthroplasty* 2017;32(5):1684.
- [19] Al-Kindi S, Al-Juhaishi T, Haddad F, Taheri S, Abi Khalil C. Cardiovascular disease research activity in the Middle East: a bibliometric analysis. *Ther Adv Cardiovasc Dis* 2015;9(3):70.
- [20] Dynako J, Owens GW, Loder RT, et al. Bibliometric and authorship trends over a 30 year publication history in two representative US sports medicine journals. *Heliyon* 2020;6(3):e03698.
- [21] Chow DS, Ha R, Filippi CG. Increased rates of authorship in radiology publications: a bibliometric analysis of 142,576 articles published worldwide by radiologists between 1991 and 2012. *AJR Am J Roentgenol* 2015;204(1):W52.
- [22] Tilak G, Prasad V, Jena AB. Authorship Inflation in medical publications. *Inq J Med Care Organ Provision Financ* 2015:52.
- [23] Sun J, Mavrogenis AF, Scarlat MM. The growth of scientific publications in 2020: a bibliometric analysis based on the number of publications, keywords, and citations in orthopaedic surgery. *Int Orthopaedics* 2021;45(8):1905.
- [24] Cavacini A. Recent trends in Middle Eastern scientific production. *Scientometrics* 2016;109(1):423.
- [25] Siddiqi A, Stoppani J, Anadon LD, Narayanamurti V. Scientific Wealth in Middle East and North Africa: productivity, Indigeneity, and speciality in 1981-2013. *PLoS One* 2016;11(11):e0164500.
- [26] Gul S, Nisa NT, Shah TA, Gupta S, Jan A, Ahmad S. Middle East: research productivity and performance across nations. *Scientometrics* 2015;105(2):1157.
- [27] Colledge L, de Moya-Anegón F, Guerrero-Bote VP, López-Illescas C, Moed HF. SJR and SNIP: two new journal metrics in Elsevier's Scopus. *Insights* 2010;23(3):215.
- [28] <https://www.scimagojr.com/countryrank.php?area=2700®ion=Middle%20East&category=2732> [accessed 15.08.20].
- [29] Gurbuz Y, Sugun TS, Ozaksar K. A bibliometric analysis of orthopedic publications originating from Turkey. *Acta Orthopaedica et Traumatologica Turcica* 2015;49(1):57.
- [30] Seetharam A, Ali MT, Wang CY, et al. Authorship trends in the Journal of Orthopaedic Research: a bibliometric analysis. *J Orthopaedic Res* 2018;36(11):3071.
- [31] Pinter A. Changing authorship Patterns and publishing Habits in the European journal of Pediatric surgery: a 10-year analysis. *Eur J Pediatr Surg* 2015;25(4):353.
- [32] Parker M, Kingori P. Good and Bad research collaborations: Researchers' Views on science and Ethics in global health research. *PLoS one* 2016;11(10):e0163579.
- [33] Zeng XH, Duch J, Sales-Pardo M, et al. Differences in collaboration Patterns across Discipline, career stage, and Gender. *PLoS Biol* 2016;14(11):e1002573.
- [34] Cvetanovich GL, Fillingham YA, Harris JD, Erickson BJ, Verma NN, Bach Jr BR. Publication and level of evidence trends in the American journal of sports medicine from 1996 to 2011. *Am J Sports Med* 2015;43(1):220.
- [35] El Rassi R, Meho LI, Nahlawi A, Salameh JS, Bazarbachi A, Akl EA. Medical research productivity in the Arab countries: 2007-2016 bibliometric analysis. *J Glob Health* 2018;8(2):020411.
- [36] El-Azami-El-Idrissi M, Lakhdar-Idrissi M, Ouldin K, et al. Improving medical research in the Arab world. *Lancet (London, England)* 2013;382(9910):2066.
- [37] Khalifa AA, Ahmed AM. Scarcity of publications from Arab countries in one of the q1 orthopedic journals, is it us or the journal? *J Musculoskelet Surg Res* 2020;4:9–13.
- [38] Okike K, Kocher MS, Mehlman CT, Heckman JD, Bhandari M. Nonscientific factors associated with acceptance for publication in the Journal of Bone and joint surgery (American Volume). *J Bone Jt Surg Am Volume* 2008;90(11):2432.

- [39] Lynch JR, Cunningham MR, Warme WJ, Schaad DC, Wolf FM, Leopold SS. Commercially funded and United States-based research is more likely to be published; good-quality studies with negative outcomes are not. *J Bone Jt Surg Am* Volume 2007;89(5):1010.
- [40] Falavigna A, Martins Filho DE, Avila JM, Guyot JP, Gonzales AS, Riew DK. Strategy to increase research in Latin America: project on education in research by AOSpine Latin America. *Eur J Orthopaedic Surg Traumatol* 2015;1(25 Suppl):S13.
- [41] Falavigna A, Botelho RV, Teles AR, et al. Twelve years of scientific production on Medline by Latin American spine surgeons. *PLoS One* 2014;9(2):e87945.
- [42] Gausden EB, Premkumar A, Bostrom MP. International collaboration in total joint arthroplasty: a Framework for establishing Meaningful international Alliances. *Orthop Clin North America* 2020;51(2):161.
- [43] Miclau T, Adachi N, Antoniou J, et al. International Combined Orthopaedic Research Societies: a model for international collaboration to promote orthopaedic and musculoskeletal research. *J Orthopaedic Translation* 2014;2(4):165.
- [44] Søreide K, Alderson D, Bergenfelz A, et al. Strategies to improve clinical research in surgery through international collaboration. *Lancet (London, England)* 2013;382(9898):1140.