Original Research

The Articles Published in Web of Science by Middle Eastern Researchers in Waterpipe/Cigarette Smoking: An Altmetrics Study

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Abstract

Policymakers and experts should trust health studies. On the other hand, it should be considered by the general public. Altmetrics, as a new method, seeks to examine the social effects of researchers' scientific outputs along with citation analysis indices. The present study aims to investigate the effectiveness of the articles published by researchers in the field of waterpipe/cigarette smoking on the Web of Science database during 2010-2019. This paper is a descriptive-analytical study with a correlational approach in the citation analyses using the Altmetrics index. The statistical population consists of papers on waterpipe/cigarette smoking by Middle Eastern researchers during 2010-2019 published on the Web of Science. The data is extracted using the Altmetrics Bookmarklet and analyzed it by excel and SPSS.From the total number of scientific articles in the field of waterpipe/cigarette smoking by

Middle Eastern researchers during the research period, 1,086 articles were indexed on the Web of Science, and only 2% of them had no Digital Object Identifiers (DOI) or PubMed Identifiers (PMID); on the contrary, 50% of the articles had Altmetrics scores. Among the social networks cited by the researchers of the Middle Eastern countries in the field of waterpipe/cigarette smoking, the shares of social networks, namely Dimensions, Mendeley, and Twitter, were the most. The most significant number of citations of the articles on Mendeley and Twitter belonged to U.S. and U.K. users. Also, medicine and dentistry had the highest number of Mendeley citations. The correlation coefficient between the altmetrics score and citation index was poor but significant (R=0.32, P <0.05). The publication of research papers on the social web (i.e., social networks) increases the visibility of the documents and makes them visible to a broad audience. This is effective in the future of citations of articles on citation databases. This further increases the qualitative performance indices of the papers by receiving more citations.

Keywords: Mendeley, Twitter, Web of Science, Altmetrics, the Middle East, Smoking.

Introduction

The researchers need to share their studies with others and probably take advantage of the scientific progression (Willinsky, 2006). The research article assessment is performed using citations by other researchers (Eyre-Walker & Stoletzki, 2013). Due to the tremendous development of the Internet and mass media, science dissemination has been increasingly widespread (Trueger, Thoma, Hsu, Sullivan, Peters & Lin, 2015). However, the traditional citation analysis has its criticisms due to spending a long time indicating the effects of articles for scientists who study the same field. Since such research has limitations, the term "Altmetrics", which refers to alternatives to the metrics of an article, was introduced in 2010 for evaluating the social and scientific effects of articles according to their number of citations (Citrome, 2015). "Altmetrics" also assesses and measures the scientific results according to overall performance in online tools and their spaces. Such media and tools include shares, adaptations, social scholar networks, online reference managers, conference organization websites, Saves, social usage statistics, reviews, article comments, Facebook comments, and blog posts (Priem, Groth & Taraborelli, 2012, Konkiel, 2013). The altmetrics score can be found online and at the end of the articles. It is displayed in a colorful wreath number indicating quick feedback from the public and scientific individuals.

Waterpipe tobacco smoking (WTS) is a global health problem among adults in various countries such as Eastern Europe, East Mediterranean, the Middle East, and Western countries like the USA. The spread of waterpipe tobacco smoking in 68 countries indicated its highest prevalence among East Mediterranean adults; however, the majority was almost equal to the European countries (Jawad, Charide, Waziry, Darzi, Ballout & Akl, 2018, Maziak, 2011, Masjedi et al., 2019). According to a U.S. study, 13.5% of adults aged 15-17 years had a history of waterpipe tobacco smoking, and 3% were smoking during the last thirty days. Furthermore, 44.5% of the adults 18-24 years of age had a history of waterpipe tobacco smoking, and 18% were waterpipe tobacco smokers (Kasza et al., 2017). A waterpipe device is applied for the waterpipe tobacco smoking so that the tobacco smoke passes water. The consumer inhales the smoke from the pipe. Consumers often prefer fruit-flavored tobacco (Heydari et al., 2019),

which is called Maassel, Mu'assel, or Moassel. It is a mixture of about 30% of tobacco, humectants (e.g., propylene glycol), sweeteners (e.g., honey, sugars, and molasses), and natural or artificial flavorings (Schubert, Heinke, Bewersdorff, Luch & Schulz, 2012, Maziak et al., 2015). The increasing popularity of the waterpipe enhances the number of its consumers, its health risks, and environmental pollution (Novotny, Hardin, Hovda, Novotny, Mclean & Khan, 2011). There are significant concerns about the production of about720000 tons of cigarette butts per year worldwide and their entry as toxic waste into the environment (Novotny et al., 2011, Novotny & Slaughter, 2014). Given the cases mentioned earlier, the availability and view of findings of studies on waterpipe/cigarette smoking and its health effects on social media and cyberspace are essential to increase public awareness and reduce tobacco use's prevalence.

The present study applied the altmetrics dataset for reporting the relationship of altmetrics index in the articles about the waterpipe/cigarette smoking published from 2010 to 2019 on the Web of Science with the number of their traditional bibliometric citations.

Literature Review

Maleki (2014) explored tweets to Web of Science indexed articles by Iranian authors during 2011-2012. The results indicated that the educational values of tweets linking to articles should be cautiously used for research evaluation, although it may reflect the social influence of research. Haustein and Costas (2014) focused on the geolocation and number of followers on Twitter as captured by Altmetric.com and discussed their reliability and potential use to determine the location of users as well as the size of audiences of tweets. Erfanmanesh (2017) studied the presence of Iranian Information Science & Library Science articles on social media websites and tools. He concluded that altmetric indicators, indices based on activity in social media environments, have the potential to measure the scientific impact of researchers besides other scientometric indicators.

Vainio and Holmberg (2017) examined who tweeted academic articles with at least one Finnish author or co-author affiliation and high altmetric counts on Twitter. They found that scientific articles were tweeted to promote ideological views, mainly when representing a topic that divides general opinion. Erfanmanesh (2018) investigated the relationship between altmetric activity and the quality of the LIS journals indexed by Scopus in 2015. His findings showed that papers published in higher quality journals are more likely to be shared in social media tools and get more altmetric attention.

Wang, Glänzel and Chen (2020) explored the impact of preprints in scholarly and broader scientific communication. They concluded that, unlike citations, information derived from statistics on users, readers and social media needs further exploration and proper context analysis in the case of social media. Dixon and Baker (2020) determined the short-term impact of a higher AAS on citation count for articles published in top-tier pharmacy journals. They found no short-term correlation between the AAS and the number of citations for articles published in significant pharmacy journals in 2017.

To our knowledge, there was no study on the view of waterpipe/cigarette smoking articles by Middle Eastern researchers on social media and its possible association with the number of citations on the Web of Science.

Materials and Methods

The present study is applied, and descriptive-analytical used a correlational approach in scientometric studies and the Altmetrics index. We used the Altmetrics Bookmarklet to evaluate the effectiveness of articles on waterpipe/cigarette smoking due to its credibility and importance from the various studies on Altmetrics, indicating this tool's reputation and validity. The instrument measures the download of the articles, rate of interest in the articles, their citation on social media, news media, and blogs, and generally on Web-based services. Altmetrics Bookmarklet collects data on magazines, news, blogs, tweets, and posts about the research papers that gives a score based on data provided by each data source. We used the Altmetrics Bookmarklet to examine all cited articles by Middle Eastern researchers on waterpipe/cigarette smoking or sharing the videos, text, or relevant bookmarks on each website and the references mentioned above from 2010 to 2019, and we obtained different scores of the articles. We considered all the scores to reflect the overall Altmetrics score indicating the rates of sharing, interest, and use of articles on social media. The score assigned to Altmetrics represents the quality and quantity of interest a document receives in the media.

It should be noted that only articles with Digital Object Identifiers (DOI), PubMed Identifier (PMID), or other standard identifiers could be examined by the Altmetrics Bookmarklet. The statistical population consisted of scientific articles by Middle Eastern researchers in the field of waterpipe/cigarette smoking from 2010 to 2019 indexed on the Web of Science database. We used the Web of Science database to collect data because of its importance for researchers in different fields.

To this end, we selected the important and practical keywords in the field of smoking by consulting with an expert and searched them in the Topic field on the Web of Science. We also searched waterpipe OR Shisha * OR Sheesha * OR Hookah * OR narghile OR qalyan OR "hubble-bubble" OR Ghalyun OR Narghiles OR Kreteks OR Pipe OR Nicotiana OR tabacum OR Cigar * OR tobacco OR Bidis OR Smoking to retrieve the articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking. The results were then limited to the subject of PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH in the Middle Eastern countries from 2010 to 2019. Accordingly, 1086 articles were obtained from the Web of Science on the July 15, 2020. At the next stage, we checked 1086 articles in the field of waterpipe/cigarette smoking by the researchers from the Middle East indexed on the Web of Science on «doi.org» website, and then click on the «altmetric it» option, which was previously added to «bookmarks» of the browser, after approving the DOIs of articles and retrieving the articles from the website.

Of 1086 articles by Middle Eastern researchers about waterpipe/cigarette smoking, 21 articles (2%) lacked the DOI and PMID, and thus they could not be examined using the Altmetrics Bookmarklet. If the articles had the Altmetrics score, they were displayed, and their details could be found by clicking on the score. We extracted the rates of citations to the articles in the same field from the Web of Science and finally analyzed the data after entering the SPSS. In this study, Kolmogorov–Smirnov test was used for the normal distribution of the data, and the parametric test was used to ensure the data's normality. We also used the Spearman correlation test due to the data abnormality.

Results
- The interest in Middle Eastern articles on waterpipe/cigarette smoking on social networks

Among the articles with the DOIs, 538 articles (50%) were cited in social networks, but 527 articles (48%) were not mentioned in any social networks.

Table 1 presents the rates of the existence of Middle Eastern articles in the field of waterpipe/cigarette smoking in social networks from 2010 to 2019. Table 1 shows that there were 538 articles with Altmetrics scores, among which 22 papers belonged in 2010, 28 articles in 2011, 37 articles in 2012, 59 articles in 2013, 50 articles in 2014, 74 articles in 2015, 82 articles in 2016, 62 articles to 2017, 77 articles to 2018, and finally 47 articles to 2019. According to Table 1, the presence of Middle Eastern articles in the waterpipe/cigarette smoking increased on social networks from 2010 to 2019, but it also fluctuated. The mean score of Altmetrics was 11.97 per year.

Table 1
Articles with altmetric scores published by Middle Eastern researchers in the field of tobacco by period

N	Year	Number of Articles	Average of Citations	Number of Articles With the Altmetrics Score	Sum of the Altmetrics Score	Average of the Altmetrics Score of Articles Which the Altmetrics Score
1	2010	72	21.40	22	136	6.18
2	2011	60	19.39	28	100	3.57
3	2012	69	15.48	37	352	9.51
4	2013	100	14.03	59	238	4.03
5	2014	98	12.46	50	258	5.16
6	2015	152	14.16	74	677	9.15
7	2016	131	10.22	82	1669	20.35
8	2017	114	4.67	62	1408	22.71
9	2018	159	2.30	77	842	10.93
10	2019	131	0.4	47	756	16.08
	2010-2019	1086	11.45	538	6436	11.97

- Social networks publishing articles by Middle Eastern researchers in the field of waterpipe/cigarette smoking

Figure 1 presents the outcome of investigating the social networks publishing Middle Eastern researchers' articles on waterpipe/cigarette smoking indexed on the Web of Science.
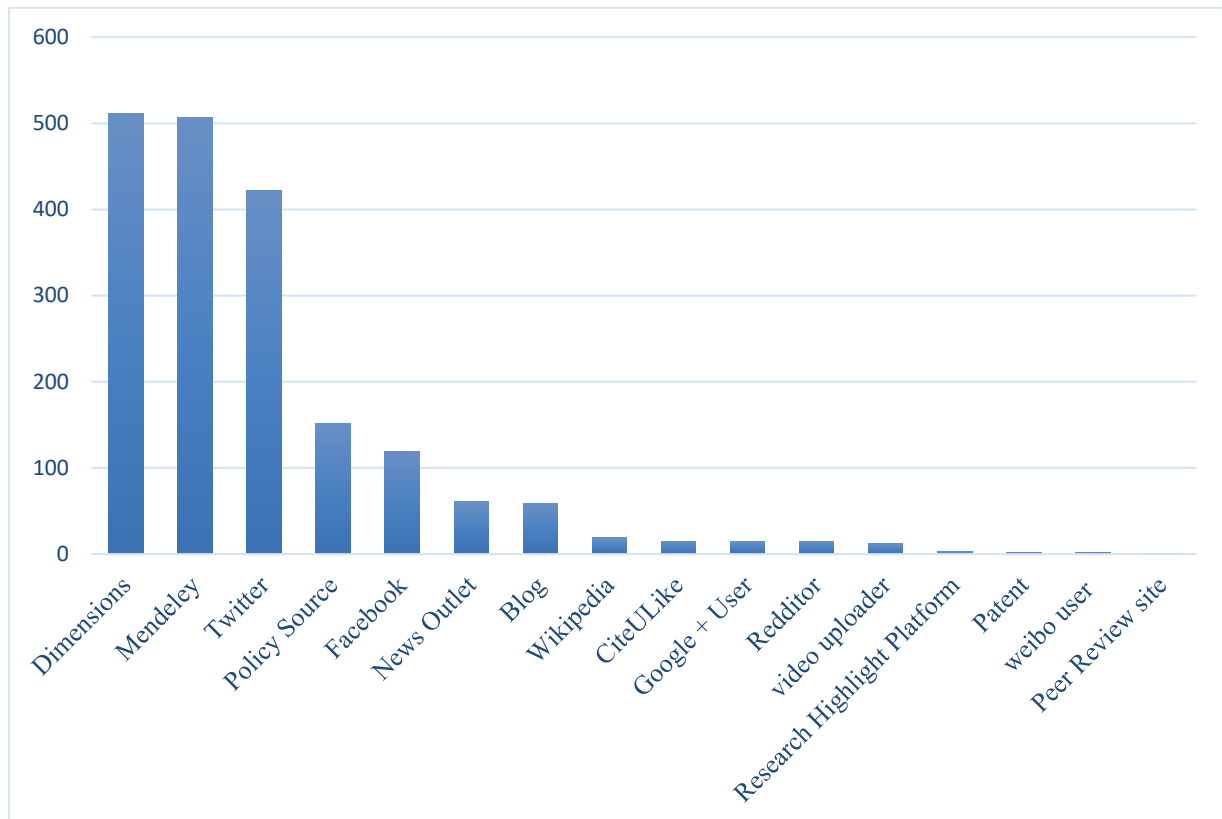
Figure 1: Distribution of social media sharing articles with Altmetric scores by Middle Eastern researchers in the field of tobacco

According to Figure 1, among the social networks, which shared the articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking, the proportion of the "Dimensions" social network was maximum, so that 511 articles (94.98%) of the Middle Eastern researchers about the waterpipe/cigarette smoking were shared for 9622 times in "Dimensions". After "Dimensions", Mendeley reference management shared 507 articles in the field of waterpipe/cigarette smoking by the Middle Eastern researchers 23219(94.24%) times. After Mendeley, the Twitter network shared 422 articles in the field of waterpipe/cigarette smoking by Middle Eastern researchers (78.44%) 3100 times. It is noteworthy that Twitter has a total of 17,588,100 followers.

- Distribution of tweets by Middle Eastern researchers in the field of waterpipe/cigarette smoking according to the tweeting countries and the roles of senders in society

The findings indicated that 14.82 % of all tweeters of Middle Eastern researchers were in the field of waterpipe/cigarette smoking in the United States. Therefore, the United States has the highest percentage of tweets for articles in this field. After the United States, the United Kingdom, with 11.48 percent, and Saudi Arabia, with 5.22 percent, were respectively in the following ranks in terms of the number of tweets by Middle Eastern researchers in the waterpipe/cigarette smoking. Iran ranks 23rd with four tweets (0.12%) among tweeting countries and six other countries. It should be noted that access to Twitter is denied in Iran due to Internet censorship, and its use requires proxy servers. Also, 44.13 % of tweets are posted due to the senders' incomplete information in their profiles to identify the geographic locations of Tweets.

Also, the findings show that a total of 73.24% of the total tweeters of Middle Eastern researchers' articles in the field of waterpipe/cigarette smoking are by the public. Therefore, ordinary people have the largest share in tweeting the articles of these researchers. Then, Science communicators (journalists, bloggers, editors) with 11.80%, Practitioners (healthcare professionals, doctors, others) with 10.62 %, and Scientists with 4.34% are in the next ranks in terms of tweeting the articles by the Middle Eastern researchers in the field of waterpipe/cigarette smoking.

- Distribution of citations of articles in the field of waterpipe/cigarette smoking on Mendeley by the Middle Eastern researchers based on the citing country and roles of citations in society

As shown in Table 2, the results indicate that 0.57 % of all citations to Middle Eastern researchers' articles in the field of Mendeley are from the United States; hence, the United States has the highest percentage of citations to articles in this field on Mendeley. After the United States, the United Kingdom with 0.28 percent and Spain with 0.12 percent are respectively in the next ranks in terms of the number of citations of Middle Eastern researchers in the field of waterpipe/cigarette smoking on Mendeley. Iran ranks 12th with 0.025%, along with six other countries. Also, in 97.83% of the citations of the articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking, it was impossible to identify the exact geographical locations of Mendeley citations due to incomplete information in the citers' profiles.

Table 2
Geographical distribution of citations of scientific articles by Middle Eastern researchers in the field of tobacco according to sending countries

Rank	Country	Number of Reads	Percentage of Reads	Rank	Country	Number of Reads	Percentage of Reads
1	Unknown	23130	97.83	15	Turkey	3	0.013
2	US	135	0.57		Nigeria		0.013
3	UK	66	0.28		Romania		0.013
4	Spain	28	0.12		Korea, Republic of		0.013
5	Netherlands	21	0.09		Norway		0.013
	Canada		0.09	16	Rwanda	2	0.009
6	India	17	0.072		Chile		0.009
7	Brazil	16	0.068		Sweden		0.009
8	Germany	14	0.059		Japan		0.009
	Malaysia		0.059		New Zealand		0.009
9	Australia	12	0.051		Finland		0.009
10	Denmark	11	0.046		Poland		0.009
	Indonesia		0.046	17	Ghana	1	0.004
11	New Zealand	7	0.029		Cameroon		0.004
12	Portugal	6	0.025		Iceland		0.004
	Pakistan		0.025		Bangladesh		0.004
	South Africa		0.025		Russia		0.004
	France		0.025		Czech		0.004
	Egypt		0.025		Ireland		0.004
	Switzerland		0.025		Colombia		0.004
	Iran		0.025		Paraguay		0.004
	Peru		0.025		Guatemala		0.004
13	Italy	5	0.021		Costa Rica		0.004
	Mexico		0.021		Papua New Guinea		0.004

Rank	Country	Number of Reads	Percentage of Reads	Rank	Country	Number of Reads	Percentage of Reads
	Tanzania, United Republic of		0.021		Croatia		0.004
	Belgium		0.021		Singapore		0.004
14	Israel	4	0.017		Iraq		0.004
	Jordan		0.017		Hong Kong		0.004
	Saudi Arabia		0.017		Slovenia		0.004
	Japan		0.017		Estonia		0.004
	Egypt		0.017		Qatar		0.004
	Greece		0.017				0.004

- Distribution of citations to articles by Middle Eastern researchers in the field of waterpipe/cigarette smoking according to their subjects

Results of Table 3 indicate that 28.09% of the total subject of citations to articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking on Mendeley are about Medical & dentistry subject. Therefore, the researchers and individuals working in this field play the most prominent roles in citing Middle Eastern researchers' articles on the area of waterpipe/cigarette smoking on Mendeley.

Table 3
Distribution of citations of scientific articles of Middle Eastern researchers in the field of tobacco in Mendeley according to the subject

Rank	Readers by discipline	Number of Readers	Percentage of Readers	Rank	Readers by discipline	Number of Readers	Percentage of Readers
1	Unknown/Unspecified/Other	8341	35.81	15	Chemistry	85	0.37
2	Medical & dentistry	6543	28.09	16	Arts and Humanities	45	0.20
3	Nursing & Health Professions	2009	8.62	17	Neurosciences	38	0.163
4	Social Sci.	1774	7.61	18	Mathematics	31	0.134
5	Psychology	1737	7.46	19	Immunology and Microbiology	30	0.130
6	Agricultural & Biological Sci.	750	3.22	20	Earth & Planetary Sci.	12	0.051
7	Environmental Sci.	530	2.27	21	Decision Sci.	11	0.047
8	Biochemistry, Genetics & Molecular Biology	387	1.66	22	Physics & Astronomy	6	0.026
9	Business, Management & Accounting	213	0.91		Veterinary Sci. & Veterinary Medicine	6	0.026
10	Engineering	188	0.81	23	Material Sci.	3	0.01
11	Pharmacology, Toxicology & Pharmaceutical Sci.	172	0.74	24	Energy	2	0.008
12	Sports & Recreations	144	0.62		Philosophy	2	0.008
13	Economics, Econometrics &	142	0.61		Linguistics	2	0.008

Rank	Readers by discipline	Number of Readers	Percentage of Readers	Rank	Readers by discipline	Number of Readers	Percentage of Readers
	Financ						
14	Computer Sci.	89	0.38	25	Design	1	0.004

- The relationship between the effectiveness of articles by Middle Eastern researchers in the field of waterpipe/cigarette smoking in social networks (based on Altmetrics index) and the quality of articles (based on citation index)

We used the Spearman correlation test due to the data abnormality to measure the correlation between articles' altmetrics scores and their citations' rates. The z-values are not significant for the altmetrics score and citation index in the Kolmogorov-Smirnov test (P> 0.05); hence, the altmetrics score and citation index have no normal distribution, and there is a need for non-parametric analyses (Spearman correlation coefficient) to evaluate the correlation between the two variables.

According to Table 4, the correlation coefficient between the altmetrics score and citation index was poor but significant (R=0.32, P <0.05).

Table 4
Association between the effectiveness of articles by Middle Eastern researchers in the field of tobacco on social networks (based on Altmetric score) and the quality of articles (based on citation index)

Indices	N	R	P
Altmetric Score & Citation Index	1065	0.32	0.0001

Discussion

According to the Altmetrics Institute data, the review of articles by Middle Eastern researchers in the field of waterpipe/cigarette smoking from 2010 to 2019 published on the Web of Science indicated that among 1086 articles, only 21 articles (2%) lacked the DOIs or PMIDs. Thus it was impossible to examine them using the Altmetrics Bookmarklet. The results from statistical analysis in the present study were better than similar topics in other studies. Erfanmanesh (2017) mentioned researchers' low use of network society potential. It was also due to the authors' lack of attention to creating scientific profiles in social networks, consequently increasing the amount of attention to their articles. Another reason for this can be found in the lack of proper understanding of these researchers on the subject of knowledge translation (expression of specialized science in simple and easy language for the public) in social networks. In addition to the above reasons, journals, especially in developing countries, do not attempt to receive and allocate Digital Object Identifiers (DOI) to their articles.

On the other hand, Costas, Zahedi, and Wouter (2015) concluded that different Altmetrics tools, including tools in the present study (Altmetrics Institute), only covered a specific part of the web; it was also confirmed by Erfanmanesh (2017). Therefore, the above factors could be mentioned as reasons for insufficient attention to the articles of researchers in the waterpipe/cigarette smoking in social networks (Erfanmanesh, 2017). However, a definitive view on this issue needs more study.

Examining different types of social networks indicated that networks such as Dimensions, Mendeley, Twitter, Policy Source, Facebook, News Outlet, Blogs, Wikipedia, Citeulike,

Google Plus, Redditor, Video Uploader, Research Highlight Platform, Patent, Weibo User, and Peer Review Site were tools that shared the articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking. In this regard, Dimensions, Mendeley, and Twitter had the highest number of statistics and were more popular than other social media. The importance of the two social networks, Mendeley and Twitter, was mentioned in previous studies (Costas et al., 2015, Erfanmanesh, 2017, Robinson-García, Torres-Salinas, Zahedi & Costas, 2014, Kolahi & Khazaei, 2016, Haustein & Costas, 2014, Barthel, Tönnies, Köhncke, Siehndel & Balke, 2015, Nuredini & Peters, 2016, Asadi, Naghshineh, Nazary, 2016, Asemi, Basirian & Seyyed, 2018, Dixon & Baker, 2020), but what was different from previous studies was the high shares of articles by the Middle Eastern researchers in the field of waterpipe/cigarette smoking on the Dimensions media. It was probably due to the higher reputation and popularity of the social networks among the audience.

The investigation of the number of articles with Altmetrics indices by the Middle Eastern researchers in the field of waterpipe/cigarette smoking from 2010 to 2019 indicated the improvement of familiarity and application of social networks by the researchers; however, we have seen many fluctuations in this process over the recent years. Costas, Zahedi, and Wouter (2015) research confirmed the issue in other scientific productions. Among the journals, NICOTINE & TOBACCO RESEARCH, TOBACCO CONTROL, and BMC PUBLIC HEALTH journals had the most significant proportion in obtaining the Altmetrics scores of articles about the waterpipe/cigarette smoking by Middle Eastern researchers.

The tweets by other interested researchers, scientific journals, and educational institutions (in addition to the authors of research outputs) were confirmed according to reviews of the tweets of scientific articles about the waterpipe/cigarette smoking by Middle Eastern researchers (Haustein & Costas, 2014, Vainio and Holmberg, 2017). A study on the geographical distribution of tweets by Middle Eastern researchers in the field of waterpipe/cigarette smoking indicated that 14.82% of all tweets of scientific articles in the area belonged to the United States, 11.48 % to the United Kingdom, and 5.22 % to Saudi Arabia. Erfanmanesh, Hosseini, and Habibi (2018) had previously acknowledged the greater proportions of the United States and England in tweeting scientific articles (Khosravi, BasirianJahromi, Amuri & SeyyedHosseini, 2019). The findings also indicated that Iran was ranked 23rd with only four tweets (equivalent to 0.12%) and six other countries. Perhaps the most important reason for this issue was the low access of Iranian researchers to Twitter due to the filtering of this social network. Maleki (2014) and Erfanmanesh, Hosseini, and Habibi (2018) conducted separate studies on the everyday use of Twitter to share Iranian research (Khosravi et al., 2019, Maleki, 2014). The findings also indicated that the public (73.24%) had the largest proportion of tweets of articles about the waterpipe/cigarette smoking by Middle Eastern researchers. It was probably due to the significant presence of users, who introduced themselves as ordinary users in their profile on Twitter with any education level, and also the interest of ordinary people to follow up the research on the waterpipe/cigarette smoking.

The findings also indicated that the Researchers, Master Students, and Ph.D. Students had the most considerable proportions in citing articles by researchers about the above field on Mendeley. The result might be due to the students' interest, in addition to researchers themselves, in investigating and sharing the scientific articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking.

The review of articles by Middle Eastern researchers in the field of waterpipe/cigarette

smoking with the highest number of citations on Mendeley indicated that the Medical and dentistry subjects had the highest citations to research output on Mendeley. Some researchers have considered the Medical & dentistry field with the most increased presence in social media in their separate studies (Andersen & Haustein, 2015, Rowlands et al., 2011, Khosravi et al., 2019, Costas et al., 2015, Kolahi & Khazaei, 2016). Erfanmanesh, Hosseini, and Habibi (2017) believed that it was related to the short half-life of articles in this field (Khosravi et al., 2019). Therefore, given that Medical and dentistry researchers were constantly looking for new ways and methods of treatment, they were more interested in publishing their research via social media. In this way, the research in this field would be made public.

Based on the results of the present study, there was a significant relationship between Altmetrics scores and the mean number of citations to articles of Middle Eastern researchers in the field of waterpipe/cigarette smoking. Some of the previous studies also reported a significant correlation between the Altmetrics index and the citations from research papers (Costas et al., 2015, Dixon & Baker, 2020, Mohammadi & Thelwall, 2014, Erfanmanesh, 2018, Wang et al., 2020, Batooli & Nazari, 2014, ASIS et al., 2013, Thelwall & Nevill, 2018, Esmaeilpour et al., 2016). Therefore, social media had positive effects on introducing and establishing communication and cooperation between researchers as well as managing their scientific products. It can be argued that publishing such research papers on the social web increased their views and made them available to a larger audience. It also affected the future citations of the articles and increased the qualitative performance indices of the journals in the future by receiving more citations.

Conclusion

In general, it should be considered that the Altmetrics index acts as a new way to assess the scientific literature on the media, and its significant indices have become famous for investigating the quality of different studies. The indices can be used as supplements to traditional indices; hence, researchers seek to share their works on social networks. The Altmetrics indices lead to results in the short term. Most studies on Altmetrics have been conducted in recent years, and they have been at the early stages of their work; hence, there is a need for further research in this field. Although the number of scientific articles about the waterpipe/cigarette smoking in the Middle East showed fluctuations in the rate of article production and report of research findings on the Web of Science during the research years, the products generally had acceptable and expected growth. The Middle Eastern researchers in the above field provided excellent attention to selecting reputable journals with DOIs or PMIDs to increase the interest in their articles on social media. It is essential because the public use more social networks and media than scientific databases to acquire different information. Since there was a two-way correlation between the Altmetrics performance indices and qualitative index of scientific journals (citation index) as increasing each one could increase another, the scientific journals should have knowledge about the benefits of publishing in social media and encourage the writers to share their articles on organizational and thematic databases. They should also attend various social media and increase the views of their publications.

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