ORIGINAL ARTICLE

Obesity researches in youth: A scientometrics study in Middle East countries

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Background: The alarming trends of obesity/overweight in youth have been interested policy makers and other stakeholders to exact follow and analysis of related scientific evidence. The present paper quantify the trends of outputs of youth obesity/overweight researches in Middle East countries. **Materials and Methods:** The Scopus database systematically searched as the most comprehensive multidisciplinary database, for all related obesity/overweight that focused on youth age groups concerns, from 2000 to 2017. These scientometrics analysis included the trends of scientific products, citations, and other scientometric index in Middle East countries. **Results:** During 2000–2017, in the field of youth obesity, 2350 papers published (0.40% of total 591,105 indexed paper of this region) by Middle East countries. In this regard, Iran with 574 publication (24.43%) had the first rank. After that Turkey and Saudi Arabia, respectively, with 489 (20.81%) and 313 (13.32%) papers, had the next ranks. Over 18-year period, based on the findings all of Eastern Mediterranean countries follow the progressive plans for topics related to youth obesity. Between them, Iran and Turkey have significant growth rates (0.77% and 0.40%, respectively). Scientometric indicators such as "number of published papers," "number of citations" confirmed that during the 2000–2017 the P-trends of total number of related published papers and the correspond citations, in region countries, were significant (2168 papers and 34,132 citations, $P < 0.001$). **Conclusion:** Most of countries at global and regional levels follow ascending trends in publications and citations in obesity/overweight fields. Iran's position has grown significantly among them. Maintaining and promoting this position requires careful planning and special attention. The findings also could be used for better health policy and complementary researches.

Keywords: Body mass index, body weight, Iran, obesity, middle east, scientometrics, youth, young adult

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INTRODUCTION

The increasing trends of obesity and overweight become an alarming health priority all over the world.[1-3] Because of related adverse health outcomes, these problems calls for more attention especially in adolescents and young adults.[1,4,5] Numerous studies have identified typical cardio metabolic risk factors of youth. More than early complications, exceed weight in the 1st years of life discussed as predictor of adult obesity and associated health complications, including Type 2 Diabetes, coronary heart diseases, and premature death.[6-8] Undoubtedly, these concerns required specific attention for treatment and prevention.

These warnings have interested policy makers and other stakeholders in monitoring and analysis scientific evidence that help for better planning.[9-11] Production and access to updated reliable reports on prevalence and trends of risk factors and diseases provide the best conditions for the prevention and control of diseases

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and health problems.[2,3,11,12] Even in many cases, a direct association seen between the quality of health services and the use of up-to-date scientific documents. This information, mostly, extracted from the publication and distributed results of investigations.[9,11]

Investigations reveal that worldwide, 603.7 million adults (12.0%) were obese in 2015 and this prevalence Compared to 1980, has doubled in at least 73 countries.[13] Considering the important health risks, several studies focused on obesity trends of obesity/overweight based on global and national levels by different sex, age target groups.[14,15]

Aim to assessment of scientific trends, scientometrics approaches provide reliable practical methods through which specific indicators are used to determine the status of each expected goal.[16] In these regards, using qualitative, quantitative and computational approaches, different indicators are increasingly employed to show the pattern of researches performed by researchers, universities, institutes, and countries.[16,17] One of the main indices is the number of published papers or science reports in a specific field of sciences.[18,19] In addition, citations of papers is another index that mostly used as a proxy of quality and application of papers.[20]

Considering above, the aim of present paper is scientometrics analysis of knowledge productions related to youth obesity/overweight among Middle East countries. The trends in published papers, citations, and other components of knowledge production, reviewed, during the 2000–2017. We specifically focused on Iran and assessed its contribution in youth obesity/overweight researches by more details.

MATERIALS AND METHODS

Present study is a cross sectional scientometric analysis of more than one-decade contribution of obesity/overweight scientific papers in youth topics among Middle East countries (from 2000 to 2017). Reviewing the publication number, publication trends, citations and Subject area, Iran has been compared with other countries of the region and also with global indices.

Due to the coverage of papers references and citations specifications and because of the possibility of analyzing them, the Scopus database selected for systematic searches.[19,21,22]

We focus on papers as the main index of scientific products. The trends of citations of papers used as the proxy of papers' application. We also addressed top institutions and journals in the field of obesity/overweight in youth topics.

Using methods of reviews and considering Emtree, terms of "obesity," "overweight," and "anthropometric indexes," search strategy has designed by two independent research experts and validated in the related topics.

The list of Middle East countries searched according to free encyclopedia of Wikipedia including; Bahrain, Cyprus, Egypt, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, and Yemen (in alphabetical order).[22,23] The bibliographic fields for searches were Title, abstract and key words for Subject domains. Geographical domains in addition to these items were searched. The time period of study was 2000–2017, and there was no limitation for language. Search strategy presents in Table 1.

Refining of all fields' results is followed through limitation of source types to journals and subject areas to medicine, biochemistry, genetics and molecular biology, dentistry, health professions, and nursing as the main related fields that cover health research. After running the search strategy, results as exported sheets of data based and data analyzed based of targeted aims.

The frequency, percent Pearson Chi-square and P-trends, used for comparing analysis. Estimations run by STATA package Corp. 2011 (Stata Statistical Software: Release 12. College Station, TX: Stata Corp LP. Package).

RESULTS

Publications

Given Scopus data, globally, during 2000 up to the time of study (2017); totally 77,071 papers have been published in the fields of youth obesity/overweight concerns. From them, 2350 papers were affiliated to the Middle East countries, (0.40% of total 591,105 indexed paper of this region). Comparing the results; Iran with 574 publication (24.43%) had the most proportion of papers. After that Turkey and Saudi Arabia, respectively with 489 (20.81%) and 313 (13.32%) papers, had the next ranks.

Table 1: The search strategy

Search domains	Search strategy
Subject domains	Obesity OR overweight OR "body mass index" OR "BMI" OR "exceed weight" OR adiposity OR "body size" OR "body fat distribution" OR "waist circumference" OR "waisthip ratio" OR "waist to hip ratio" OR "waist hip ratio"
Geographical domains	Bahrain, Cyprus, Egypt, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen and Middle East
Time period	20002017

Trends of publications

Analyzing the data over time to look for trends and change of publications, time trends of published papers have been extracted [Figure 1].

Pearson Chi-square test confirmed a significant time trends of published papers between region countries' ($P < 0.001$). Accordingly, in evaluating the trends of scientific productions, Iran and Turkey have had significant growth [Table 2].

Citations

As shown in Table 2, based on the Pearson Chi-square test results, all of region countries' have significant time trends in their youth obesity/overweight publications' citations ($P < 0.001$). After Turkey (with 7132 total citation) Iran with 6494 citations has the second position. The citations' of obesity/overweight publications are presented in Figure 2.

Table 2: *P* trends of total number of papers and total number of citations of MiddleEast's countries youth obesity/overweight related papers (20002017)

Country	Total number of papers	*P**	Total number of citations	*P**
Bahrain	23	Significant	487	Significant
Cyprus	23	Significant	744	Significant
Egypt	116	Significant	2001	Significant
Iraq	50	Significant	631	Significant
Iran	574	Significant	6494	Significant
Israel	269	Significant	5359	Significant
Jordan	103	Significant	1317	Significant
Kuwait	91	Significant	1179	Significant
Lebanon	87	Significant	1196	Significant
Oman	43	Significant	1060	Significant
Palestine	20	Significant	244	Significant
Qatar	50	Significant	816	Significant
Saudi Arabia	313	Significant	4117	Significant
Syria	15	Significant	114	Significant
Turkey	489	Significant	7132	Significant
United Arab Emirates	76	Significant	1142	Significant
Yemen	8	Significant	99	Significant

*P<0.001 was considered as statistically significant

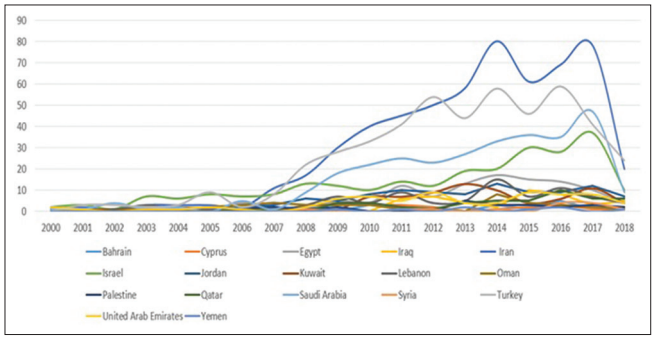

Figure 1: The time trend of youth obesity/overweight publication by Middle East countries, 2000–2017

Subject area of publications

In overall, at global level, most of youth obesity/overweight papers published in fields of Medicine (55.45%), after that, the highest proportion of publications belonged to, biochemistry (12.71%), and nursing sciences (9.76%), respectively. At regional level; medicine (62.56%), biochemistry (11.67%) and nursing (9.06%) were the most interested field. The Iran affiliated publications approximately follow the global pattern. Considering the results, 63.84% of Iranian papers were completely related to medicine, 10.85% were published in the fields of nursing, and 10.22% were aligned to the fields of biochemistry, genetics, and molecular biology sciences. Figure 3 compares the distribution of publications' subject area of youth obesity/overweight publications at national, regional, and global levels.

Institutions/journals

Considering the role of universities or other scientific institutes in publication of youth obesity/overweight papers; the most publications were assigned to; Harvard Medical School (1196 papers; 1.55%), The University of North Carolina at Chapel Hill (1061 papers; 1.38%) and Karolinska Institute (854 papers; 1.11%).

Around the region; Tehran University of Medical Sciences (159; 6.77%) Shahid Beheshti University of Medical Sciences (143; 6.09) and Tel Aviv University (115; 4.89%) had the most contribution in publications of obesity researches in youth target groups.

In Iran, Tehran University of Medical Sciences was responsible for 154 related publications (26.83%). After that, Shahid Beheshti University of Medical Sciences and Isfahan University of Medical sciences had 145 (25.26%) and 79 (13.76%) collaborative papers, respectively.

Articles type

During this time period, the most prevalent type of youth obesity publications' was original articles that consist more than 90% of all knowledge products. Figure 4 shows the distribution of subject area of obesity/overweight publication at national, regional, and global levels.

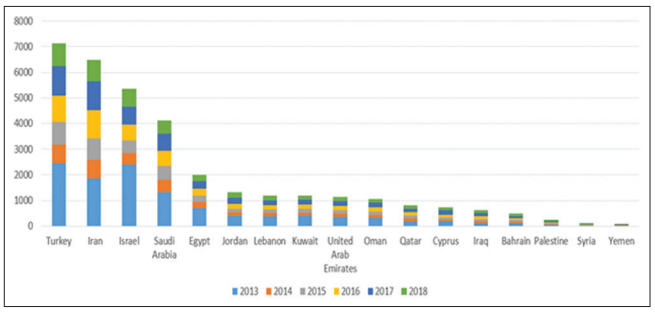

Figure 2: The citations of youth obesity/overweight publication of Middle East countries (2013–2018)

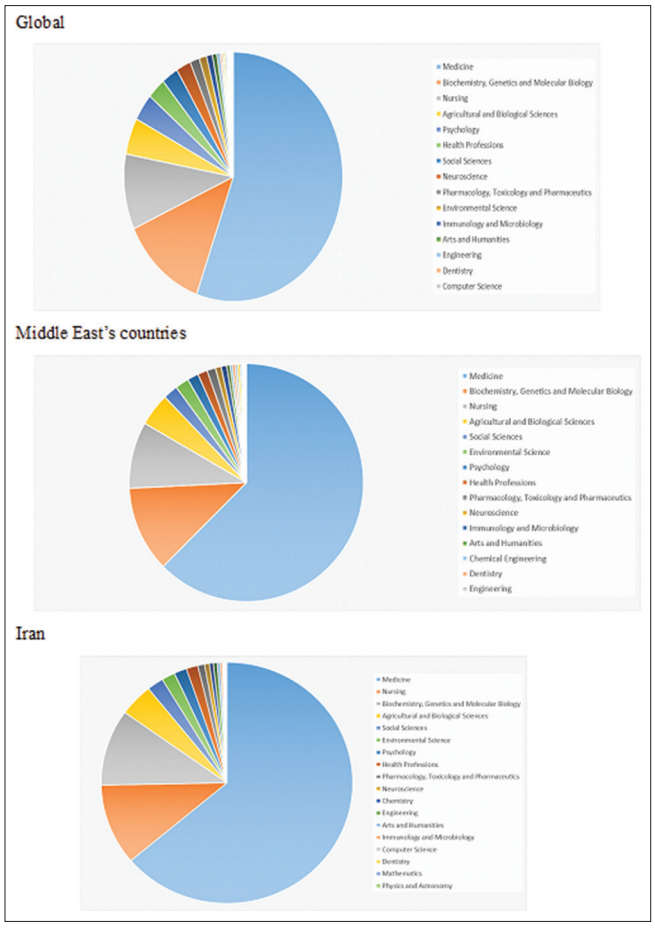

Figure 3: The distribution of publications' subject area of youth obesity/overweight publications at national, regional and global levels

DISCUSSION

The results of the present study reveal the contribution of obesity/overweight scientific papers in youth topics among Middle East countries (from 2000 to 2017). Based on findings, globally, during 2000–2017; 77,071 papers have been published in the fields of youth obesity/overweight concerns. From them, 2350 papers affiliated to Middle East countries. Between region countries, Iran with 574 publication (24.43%) had the most proportion of published papers. After that Turkey and Saudi Arabia, respectively with 489 (20.81%) and 313 (13.32%) papers, had the next ranks. As another considerable point; in most of region countries, total citation to youth obesity related papers has ascending pattern.

Such analysis can be useful to identify the current situation of related fields of researches. Scientific evidence emphasizes on increasing trends in levels and burden of overweight and obesity. Considering that these important research interests need to special attention and quick response.[2,22]

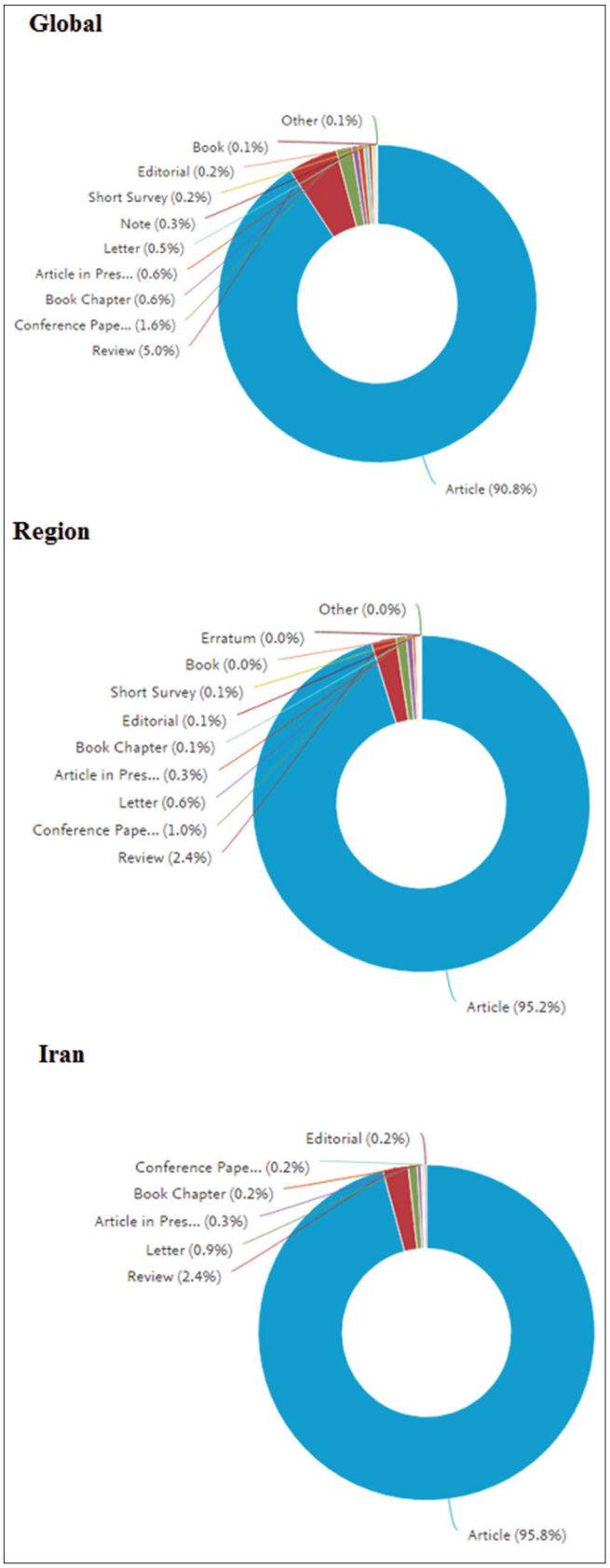

Figure 4: The distribution of publications' type of youth obesity/overweight publications at national, regional and global levels

Considering the importance of problem, dealing with increasing trends of problems, there is a progressive need to evidence based preventive or controlling programs.[1] Policy making and health managers must rely to accurate information that help them for scientific planning. Such results mostly provided through scientific papers and reports that published in valid databases.[22,24-26]

Following the national vision that supports evidence-based policy making, among the world countries, Iran achieved to one of the fastest growth rates in scientific productions. Over the past two decade, Iran has significant success in medical sciences and for the first time in 2015, between region and among all Islamic countries, Iran received to the first rank of the number of published scientific papers and number of citations.[27]

Comparing with other countries in the regions, after Turkey, Iran has a considerable growth in youth obesity/overweight publications. More over the growth in publication, the growth of citations is also very important. Citation as indicators of paper's usage and quality helps researchers to verify the quality of new studies and assess to the strength of its conclusions.

As possible causes of ascending trends in publishing and citations of scientific documents; attention to research partnership as well as more scientific approaches in drafting and distributing the findings of researches, selecting the appropriate title and keyword, and publishing in the valid sources could be affected on the visibility of papers and the rise of the citation scores.[26]

In a more detailed review, composed index of citation per paper indicate that more attention should be paid to the main components of application, quality and visibility of published studies.

Together with increasing interest of researchers to metabolic risk factors as the leader causes of burden diseases, recent progressive trends in research outputs can be rotted in the attention, provided facilities, and greater resources of national commitment in health researches through better.[2,10]

In addition to the quantitative growth of research products, the quality of applied research and their application in controlling and preventing the health risks is an undeniable priority.

As implication approach; considering the complex settings of predisposing factors and risks of obesity and its complications, individual and population interventions, must be designed.[7,11,28-31] On the other hand, individual and social preferences of weight loss programs should be more detailed.[32,33]

As a practical evidence, the reasons of changes in metabolic risk factors along with the epidemiological transition and individual and social changes in smoking, alcohol intake, physical inactivity, and psychosocial problems should be more analysis through further researches.[5,34-38]

Moreover, researchers should be committed for practical interventions for enhance of food health.[7,33] Moreover, in youth age groups, solutions for the prevention of overconsumption of unhealthy foods especially processed carbohydrates is a priority.[7,39,40]

Our study has many strength points. First, we focused on analyzing the research in specific practical field of obesity/overweight in youth. Second, to assess all available related data, we used the most comprehensive international database. Third, we compared the research activities of Middle East countries in related research fields; and fourth, we provide many fields for complementary researches. We also faced with some limitation in setting of multidisciplinary subject category.

CONCLUSION

To the best of our knowledge, this is the first scientometrics analyses of obesity/overweight knowledge productions in the Middle East region countries that provide practical information for better research planning in related multidisciplinary fields. Most of countries in this region follow ascending trends in publications and citations in obesity/overweight fields. Iran's position has grown significantly among them. Maintaining and promoting this position require careful planning and special attention. These results also could be useful for better health policy and more planned studies in this field.

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Conflicts of interest

There are no conflicts of interest.

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