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Mapping the role of financial management in healthcare: Bibliometric analysis of Middle Eastern region

تحديد دور الإدارة المالية في الرعاية الصحية: تحليل بيبليومتري لمنطقة الشرق الأوسط

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Abstract

خلاصة:

The study aims to emphasize the importance of financial management within the healthcare sector using bibliometric analysis techniques like influential authors, countries, journals, and publications. The researcher used the Scopus database for the extraction of required data. For this purpose, several relevant keywords and synonyms related to financial management in healthcare were used as advanced search options in the Scopus database. The bibliometric keyword cluster analysis indicated that financial management plays a significant role in health insurance, funding, cost, expenses, financing, and insurance related to healthcare units in Middle Eastern regions. The most influential top 5 countries for research in the financial management of healthcare units in the Middle Eastern region are Iran, Lebanon, Egypt, UAE, and Saudi Arabia respectively. Similarly, the most influential journal in this domain is "Eastern Mediterranean Health Journal published by World Health Organization". Additionally, the most influential authors in this research domain are Ammar, Walid S from Lebanon, and Rashidian, Arash from Iran. The findings of this bibliometric study are specifically important for practitioners, administrators, and policymakers in the healthcare sector of the Middle East region for making valuable decisions regarding financial management practices.

تهدف الدراسة إلى التأكيد على أهمية الإدارة المالية في قطاع الرعاية الصحية باستخدام تقنيات تحليل البيبليومتري، مثل المؤلفين المؤثرين، والدول، والمجلات، والمنشورات. استخدم الباحث قاعدة بيانات سكوبس لاستخراج البيانات المطلوبة. ولتحقيق هذا الهدف، تم استخدام العديد من الكلمات الرئيسية والمرادفات المتعلقة بالإدارة المالية في الرعاية الصحية كخيارات بحث متقدمة في قاعدة بيانات سكوبس. وأشارت تحليلات تجمع الكلمات الرئيسية البيبليومترية إلى أن الإدارة المالية تلعب دورًا كبيرًا في التأمين الصحي، والتمويل، والتكاليف، والنفقات، والتمويل، والتأمين المتعلق بوحدة الرعاية الصحية في مناطق الشرق الأوسط. كانت أكثر الدول تأثيرًا في البحث حول الإدارة المالية لوحدة الرعاية الصحية في منطقة الشرق الأوسط هي إيران ولبنان ومصر والإمارات العربية المتحدة والمملكة العربية السعودية على التوالي. وبالمثل، كانت المجلة الأكثر تأثيرًا في هذا المجال هي "مجلة الصحة لشرق المتوسط" التي تنشرها منظمة الصحة العالمية. بالإضافة إلى ذلك، كان المؤلفون الأكثر تأثيرًا في هذا المجال البحثي هم عمار و وليد من لبنان، رشيدان و آرش من إيران. إن نتائج هذه الدراسة البيبليومترية مهمة بشكل خاص للممارسين، والإداريين، وصناع القرار في قطاع الرعاية الصحية في منطقة الشرق الأوسط لاتخاذ قرارات قيمة تتعلق بممارسات الإدارة المالية.

الكلمات المفتاحية: الإدارة المالية، الرعاية الصحية، التحليل البيبليومتري، منطقة الشرق الأوسط

Keywords: Financial Management, Healthcare, Bibliometric Analysis, Middle Eastern Region.

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Introduction

The term financial management denotes an organized method of planning, organizing, supervising, and regulating an organizational financial resource to effectively achieve its objectives. (Block et al., 2014). To achieve the optimal level of resource allocation within an organization, it is important to implement efficient practices of financial management there (Ehrhardt, 2011). It helps to improve the process of decision-making, decrease financial risk, adhere to financial regulations, boost the financial performance of an organization (Brigham & Houston, 2013). Similarly, to achieve profit optimization, decrease inefficient practices, it is vital for organizations to consider the most efficient financial management practices. (Rahimpour et al., 2020).

The management in healthcare sector has to make decisions about their resource allocation, cost controlling, and revenue management, therefore, they depend upon efficient financial management practices (Cashin et al., 2017; Cleverley et al., 2023; Henson, 2023). Similarly, a healthcare facility needs to adequately plan and budget through financial management to allocate their limited financial resources in an ideal manner to satisfy the demands of their patients (Tsofa et al., 2017). Furthermore, in order to ensure the compliance in accountability, and transparency in the financial reporting as well as facilitating the long-term investment and financing decision within a healthcare unit, the implementation of best practices of financial management is crucial (McKinney, 2015). Moreover, the healthcare units need to give priority to implement the practices of efficient financial management to achieve the aim of sustainability and providing high quality care (Dion & Evans, 2024).

It is evident from several studies that financial management practices in Middle Eastern regions' healthcare facilities vary markedly from those found elsewhere in the world and other sectors (Akhmat et al., 2014; Alzarea et al., 2022; Mumghamba et al., 2015). Recently, the healthcare sector has undergone a significant transition and development in the Middle Eastern region. This development and transition in the healthcare units is required due to medical advancements, evolving patterns in illness, and the growing population of Middle Eastern region (Abyad, 2021; Baker et al., 2022; Danaei et al., 2019; Jakovljevic et al., 2017).

Despite significantly acknowledging the role of financial management practices in the healthcare sector, the trends and present state of research is still lacking and unclear in this domain for the Middle Eastern region. Additionally, there is a significant lack of knowledge regarding the most influential authors, countries, journals, and articles regarding the role and practices of financial management in healthcare units of Middle Eastern region (Mattout et al., 2024). Therefore, it is vital to consider a detailed bibliometric study to identify the current trends for the role of financial management in healthcare industry of the Middle Eastern region by identifying the future research avenue and providing implications for policymakers, partitions, and administration in this sector.

The objective of this study is to emphasize the importance of financial management within the healthcare sector by determining the most influential journals, authors, articles, and countries in the Middle Eastern as the bibliometric analysis techniques. Additionally, the study aims to address the potential directions for future research on the role of financial management practices in healthcare units of Middle Eastern regions. Therefore, the following are the specific research aims of the study:

- 1) To find out the most influential journals publishing articles in the domain of financial management in the health care sector of Middle East regions.
- 2) To identify the leading authors that significantly contributed for the research studies in financial management of healthcare in Middle East regions.
- 3) To determine the highly cited top articles for the research in the domain of financial management of healthcare.
- 4) To examine the leading countries in the Middle Eastern regions where the authors are collaborating and publishing their research work for financial management in healthcare.

The present research is important for the healthcare sector of the Middle Eastern region for a detailed bibliometric analysis of their role in financial management practices. The study provides valuable insights regarding the role of financial management for the policymakers, practitioners, administrators, and decision-makers in the healthcare sector of the Middle Eastern region. Additionally, the study helps to

improve the practices and role of financial management within the healthcare sector of the Middle Eastern region by providing valuable suggestions for future research. Furthermore, the study significantly contributes towards sustainable, efficient, and effective healthcare systems in the target region by considering the role of financial management practices. Finally, the study contributes significantly in terms of improvement in the healthcare financial practices in the target region by identifying the area of greater concern in this domain.

Literature review

The research aims to examine the recent research trends for the practices of financial management in the healthcare of the Middle Eastern region using bibliometric analysis. The literature from developed nations provide extensive evidence of healthcare sector regarding their financial management practices. It considered the financial management' role for improving the standardized care and cost control in healthcare units. Using systematic literature review as well quantitative secondary data analysis, a number of studies found that the healthcare units' operational performance can be enhanced with limited resource allocation along with cost control, and efficient system of financial management (Moons et al., 2019; Portine, 2023). Similarly, studies based on time series regression as well as structural analysis found a positive role of financial management effective practices on patient's satisfactions and healthcare unit' performance (Boamah et al., 2017; Zehir & Zehir, 2023). Additionally, a review study indicated that a number of initiatives like employing competent health professionals, technologies, and latest health related infrastructure reflect efficient financial management practices that significantly improves the care experience of their patients (Owolabi et al., 2024). The existing literature from developed region also provides some systematic and bibliometric analysis relating to different roles of financial management in public/private sector healthcare units. For example, Cobelli and Blasi (2024) examined the usage of digitalization in healthcare industry during Covid-19 using bibliometric analysis. Similarly, GÜngör Göksu (2023) addressed budgeting and financial management practices in the public organizations.

Additionally, the literature lacking the evidence in the form of systematic as well as bibliometric analysis for the role of financial management in the public healthcare sector of Middle Eastern

region. However, the literature has highlighted a limited number of empirical studies from Middle Eastern region regarding the practices of financial management and their role in healthcare sector. Most of these studies claim that the healthcare provisions in this region significantly require efficient financial management practices. For example, a qualitative study from Middle East region showed that healthcare units in this region face the problems of limited resources for which efficient financial management practices are lacking (Moradi et al., 2023). Furthermore, the prior researchers using a systematic literature review and a qualitative study contended on the role of robust financial management practices to tackle the growing population's needs, and achieve organizational objectives for the healthcare sector in this region (AlJohani & Bugis, 2024; Ezzati et al., 2023). The literature on developed region provide a limited number of evidence for the bibliometric analysis on the role of financial management practices in healthcare units. However, the empirical evidence from the developing region showed that there is a dire need to unfold the trends in financial management practices in the healthcare sector using bibliometric analysis specifically for the countries related to the Middle Eastern region. Therefore, the study provides evidence for influential countries, authors, articles, and journals from this region doing research in the domain of healthcare financial management.

Methodology

The study aims to explore the trends, patterns, and relationships addressing the role of financial management in healthcare sector of Middle Eastern region. Therefore, it is an exploratory study. This study uses data for bibliometric analysis using Scopus. It is considered high quality database as compared to similar alternatives like Web of Science, Google Scholar, etc., (Singh et al., 2021). Using the Elsevier Scopus database provides a detailed dataset as the most suitable option for conducting bibliometric analysis (Parlina et al., 2020). The Scopus database was accessed on March 5, 2024, employing titles, abstracts, and keywords as the initial criteria for extracting the target dataset. The initial phase includes the major keywords like "financial management", and "healthcare". However, the researcher used 6 alternative keywords for financial management, and 7 synonyms for healthcare to consider optimized search query. The query string produced 63551 documents; articles, review papers, conference papers, books, etc. Furthermore, the query string produced 60555 documents containing 95%

subject coverage in the healthcare domain as the next limitation. In addition, the researcher used another limit “articles” as the type of documents, which produced 45500 published articles in the target domain. Additionally, another restriction of affiliated countries from Middle Eastern region was used. It produced 438 articles published discussing financial management practices in their healthcare setting. Finally, the researcher considered the top 15 journals as the final restriction for the query string for the Scopus database. It generated a total number of 110 published articles. The study used bibliometric analysis using the Scopus database and VOS-Viewer 1.6.20 version. This part of the analysis performed by Scopus database includes; yearly publication trends, documents by target countries, top journals, top articles, and top authors for the target domain of financial management in healthcare. The remaining analysis was performed using VOS-Viewer, which includes; co-author analysis, and keyword analysis.

However, there are some potential biases that can affect the findings of this study. For example, there may be database coverage bias due to the exclusive use of Scopus database only. The other databases may include some important information that may be missing in the Scopus

database. Additionally, the Scopus database significantly comprise of the information for Articles written in English language, which may create language bias. Therefore, it may overlook the potential contribution in the literature by the articles written in other languages.

The study may also include some limitations in terms of data availability, and methodology. For example, data availability is confined to period from 2000-2024. The Scopus database does not include the data before this period for this particular domain. Furthermore, the subsequent changes after 2024 may also not reflected in this study. Additionally, the limitations regarding methodology may include the exclusive use of VOS viewer as bibliometric analysis software as well as the specific analysis methods like co-author analysis, co-occurrence analysis, etc., which may not capture the further dimension required in such studies.

Resultas and discusión

Figure 1 indicates a yearly trend of publications in the domain of financial management in the Healthcare sector of Middle Eastern region during 2000-2024. The figures show multiple phases due to multiple peaks in the publication trend.

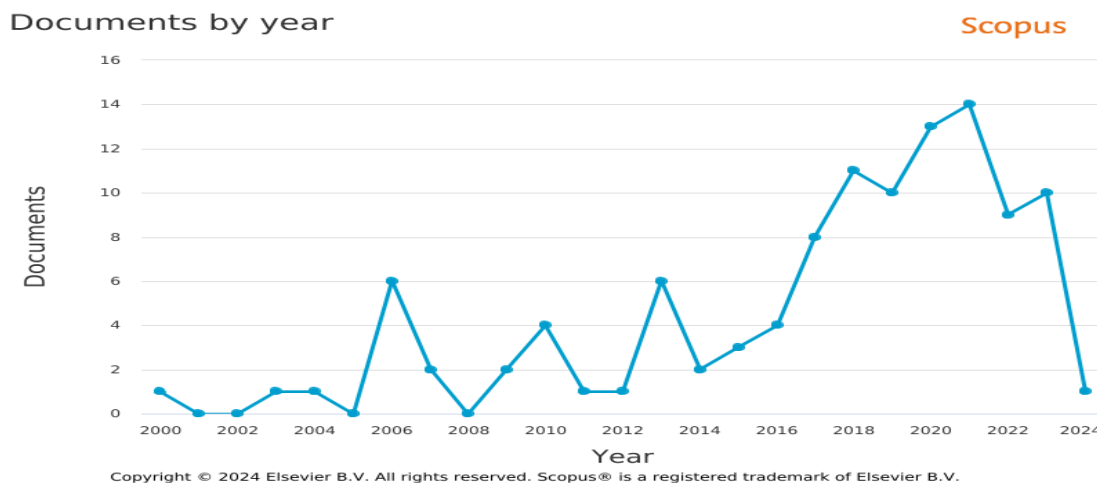


Figure 1. Publication Trend
(Source: Scopus Database)

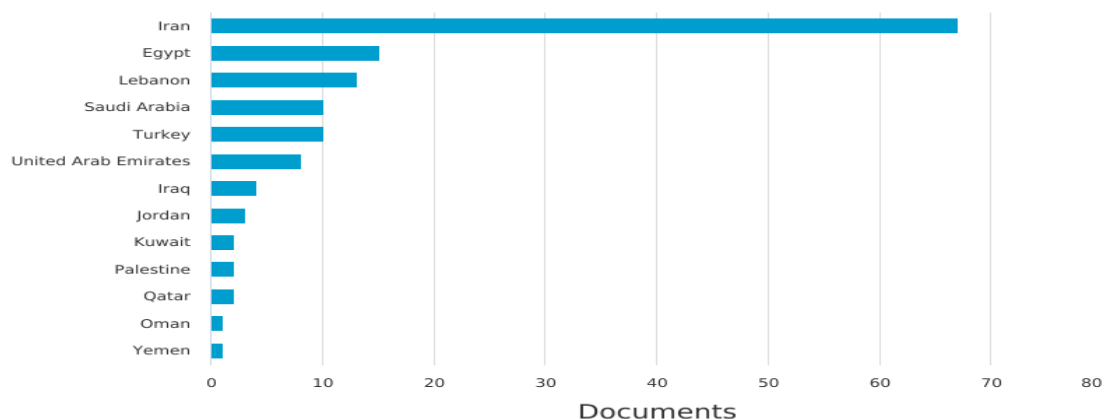
During 2000-2024, some economies from the Middle East region conducted some research studies addressing financial management practices in healthcare. According to Figure 2, Iran ranks first by producing more than 65 publications for addressing financial

management in healthcare. Similarly, Egypt, Lebanon, Saudi Arabia, Turkey, UAE, Iraq, Jordan, Kuwait, Palestine, Qatar, Oman, and Yemen contributed many publications respectively in consecutive order.

Documents by country or territory

Compare the document counts for up to 15 countries/territories.

Scopus



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Figure 2. Number of Documents by Middle Eastern Countries
(Source: Scopus Database)

Journal productivity is measured by publication count and cite score (Roldan-Valadez et al., 2019). Table 1 indicates the top 15 journals publishing their articles for financial management in healthcare with a focus on the Middle Eastern region. According to this table, it is obvious that “Eastern Mediterranean Health

Journal as published by the World health organization” stood first in the top journal ranking while Saudi Medical Journal ranked 15 in this list. These journals show the impact of financial management practices on healthcare units’ research in the Middle Eastern region.

Table 1.
Top 15 Journals

Rank	SOURCE TITLE	Number of Documents	Cite Score (2023)	Publisher
1	Eastern Mediterranean Health Journal	19	3.3	World Health Organization
2	International Journal Of Health Planning And Management	14	4.4	Wiley-Blackwell
3	BMC Health Services Research	11	4.4	Springer Nature
4	Archives Of Iranian Medicine	8	4.2	Academy of Medical Sciences of I.R. Iran
5	International Journal Of Environmental Research And Public Health	8	7.2	Multidisciplinary Digital Publishing Institute (MDPI)
6	Journal Of Mazandaran University Of Medical Sciences	7	0.6	Mazandaran University of Medical Sciences
7	Globalization And Health	6	18.2	Springer Nature
8	Health Care Manager	6	1.7	Wolters Kluwer Health
9	Health Research Policy And Systems	5	7.4	Springer Nature
10	Health Science Reports	5	1.8	Wiley-Blackwell
11	Lancet	5	146.7	Elsevier
12	Health Policy And Technology	4	9.2	Elsevier
13	International Journal Of Health Policy And Management	4	5.4	Kerman University of Medical Sciences
14	Iranian Journal Of Epidemiology	4	0.6	Tehran University of Medical Sciences
15	Saudi Medical Journal	4	2.2	Saudi Arabian Armed Forces Hospital

Source: Scopus Database

Table 2 indicates the top 15 articles with the research focus on financial management in healthcare. These journals were ranked based on their number of citations. The article ranked first in this list entitled “Past, present, and future of global health financing: A review of development assistance, government, out-of-pocket, and other private spending on health for

195 countries, 1995-2050.” was published in 2019 by “The Lancet” and was cited 259 times. Table 2 further indicates the first 4 highly cited and ranked articles from the same publisher. The other influential articles for the domain of financial management in healthcare are listed along with their ranks, titles, year of publications, time cited, and source documents/journals.

Table 2.
Top 15 Articles based on Citations.

Rank	Article Title	Year of Publication	Time Cited	Source
1	Past, present, and future of global health financing: A review of development assistance, government, out-of-pocket, and other private spending on health for 195 countries, 1995-2050	2019	259	The Lancet
2	Evolution and patterns of global health financing 1995-2014: Development assistance for health, and government, prepaid private, and out-of-pocket health spending in 184 countries	2017	196	The Lancet
3	Future and potential spending on health 2015-40: Development assistance for health, and government, prepaid private, and out-of-pocket health spending in 184 countries	2017	148	The Lancet
4	Spending on health and HIV/AIDS: domestic health spending and development assistance in 188 countries, 1995–2015	2018	117	The Lancet
5	Progress towards early detection services for infants with hearing loss in developing countries	2007	70	BMC Health Services Research
6	Catastrophic health expenditure after the implementation of health sector evolution plan: A case study in the west of Iran	2016	70	International Journal of Health Policy and Management
7	Tracking development assistance for health and for COVID-19: a review of development assistance, government, out-of-pocket, and other private spending on health for 204 countries and territories, 1990–2050	2021	67	The Lancet
8	Out-of-pocket and informal payment before and after the health transformation plan in Iran: Evidence from hospitals located in Kurdistan, Iran	2017	57	International Journal of Health Policy and Management
9	Rebuilding of the Lebanese health care system: Health sector reforms	2006	45	Eastern Mediterranean Health Journal
10	Healthcare workers experience in dealing with Coronavirus (COVID-19) pandemic	2020	45	Saudi Medical Journal
11	A new costing model in hospital management: Time-driven activity-based costing system	2013	43	Health Care Manager
12	Accreditation of hospitals in Lebanon: A challenging experience	2007	27	Eastern Mediterranean Health Journal
13	Technical efficiency of teaching hospitals in Iran: The use of stochastic frontier analysis, 1999–2011	2014	24	International Journal of Health Policy and Management
14	The impact of health reform in Iran on catastrophic health expenditures: Equity and policy implications	2019	23	International Journal of Health Planning and Management
15	Understanding the implications of the Sustainable Development Goals for health policy and systems research: Results of a research priority setting exercise	2020	23	Globalization and Health

Source: Scopus Database

Figure 3 shows the leading authors for target domain and region. The most influential authors in these are Ammar, Walid S, from Lebanon, and Rashidian, Arash from Iran with 7 publications related to financial management in healthcare

from Middle East Region. The minimum number of articles published are 3 by Alizadeh-Navaei, Reza, and Anjomshoa, Mina both from Iran. Most of these influential authors are from Iran.

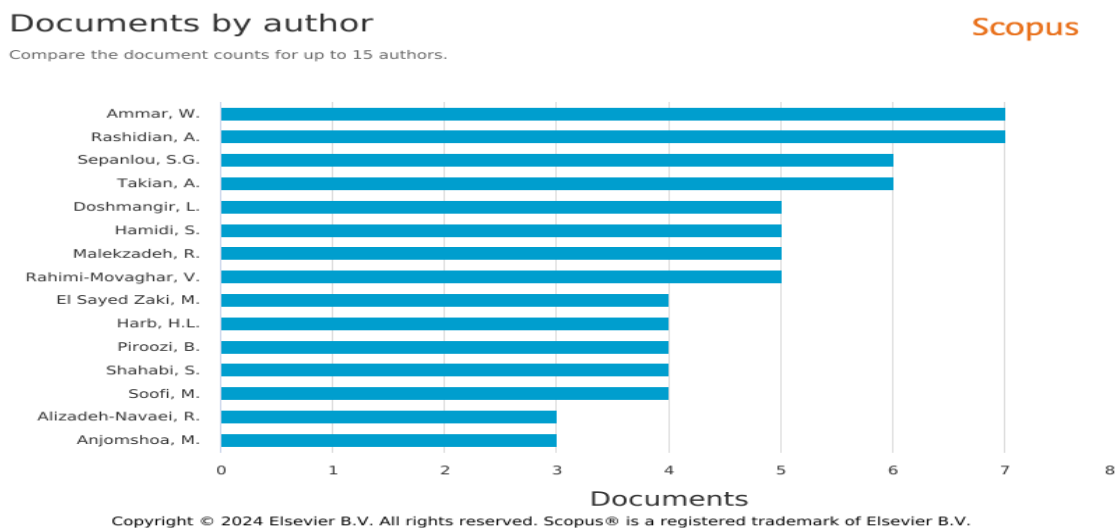


Figure 3. Documents by Top 15 Authors in Middle Eastern Region (Source: Scopus Database)

Table 3 indicates the influential author's further details. According to the table, the most influential author “Ammar, Walid S” is affiliated with Faculte de Medecine, Beirut, Lebanon. The author made the first publication in 1997, and to date there are 123 documents authored by him. His H-Index is 43, while he is cited in 71856 documents to date. Similarly, 2nd most influential author “Rashidian, Arash” is affiliated

with the Tehran University of Medical Sciences, Tehran, Iran. The author made the first publication in 2003, and to date there 451 documents authored by him. His H-index is 45, and he is cited in 8242 documents to date. The majority of these top 15 influential authors are from Iran except Hamidi, Samer A. from UAE, Zaki, Maysaa El S from Egypt, and Harb, Hilda L. from Lebanon.

Table 3. Top 15 Authors from Middle Eastern Region

Rank	Author Name	Scopus Author Id	1st Publication	Total Publication	H-Index	Total Citation	Current Affiliation	Country
1	Ammar, Walid S	57208159281	1997	123	43	71856	Faculté de Médecine, Beirut,	Lebanon
2	Rashidian, Arash	23095291800	2003	451	45	8242	Tehran University of Medical Sciences, Tehran	Iran
3	Sepanlou, Sadaf G	36248136000	2008	245	94	130943	Digestive Diseases Research Institute, Tehran,	Iran
4	Takian, Amirhossein	36483640400	2010	166	26	2116	School of Public Health, Tehran	Iran
5	Doshmangir, Leila	44261140600	2010	121	29	12526	Social Determinants of Health Research Center, Tabriz	Iran
6	Hamidi, Samer A.	24366336000	2008	139	73	74179	Hamdan Bin Mohammed Smart University, Dubai	UAE
7	Malekzadeh, Reza	7005197760	1988	935	132	164624	Tehran University of Medical Sciences, Tehran	Iran

8	Rahimi-Movaghar, Vafa	6507646446	2003	442	80	77517	Tehran University of Medical Sciences, Tehran	Iran
9	Zaki, Maysaa El S.	57203666922	1995	230	72	87396	Faculty of Medicine, Mansoura	Egypt
10	Harb, Hilda L.	57221443122	1999	62	41	62336	Ministry of Public Health, Lebanon, Beirut	Lebanon
11	Piroozi, Bakhtiar	57188976684	2012	77	17	1359	Kurdistan University of Medical Sciences, Sanandaj	Iran
12	Shahabi, Saeed	57211581903	2019	104	31	18396	Shiraz University of Medical Sciences, Shiraz	Iran
13	Soofi, Moslem	56373891000	2015	81	36	36629	Kermanshah University of Medical Sciences, Kermanshah	Iran
14	Alizadeh-Navaei, Reza	36024974700	2008	232	36	32728	Gastrointestinal Cancer Research Center, Sari	Iran
15	Anjomshoa, Mina	57204563282	2014	51	35	36450	Tehran University of Medical Sciences, Tehran	Iran

Source: Scopus Database

Table 4 indicates collaboration b/w authors from 10 Middle Eastern countries for research in financial management in healthcare. It shows that Iran ranks 1st in this list with 21 collaborations and substantial influence with 35 links, published 62 documents with 509 citations. Similarly, Lebanon ranked 2nd with 16 collaborations, substantial influence of 18, 9 publications, and

155 citations. Furthermore, Egypt ranked 3rd in this list with 13 collaborations, 19 strengths, 10 publications, and 68 citations. Moreover, UAE ranked 4th with 13 collaborations, 13 link strength, 3 document publications, and 18 citations. Additionally, Saudi Arabia ranked 5th with 9 collaborations, 9 link strengths, 8 publications, and 136 citations.

Table 4.
Co-Author Country rankings (Middle Eastern countries)

Ranks	Countries	Links	Total Link Strength	Documents	Citations
1	Iran	21	35	62	509
2	Lebanon	16	18	9	155
3	Egypt	13	19	10	68
4	UAE	13	13	3	18
5	Saudi Arabia	9	9	8	136
6	Iraq	5	5	2	5
7	Palestine	2	2	2	5
8	Qatar	2	2	1	15
9	Israel	1	1	1	3
10	Jordon	1	1	2	2

Source: VOS Viewer co-author analysis.

Figure 4 (a) indicates research collaboration between authors from different countries for research related to financial management in the healthcare of Middle East region. The figures identified the following nodes; Iran, Lebanon, Egypt, UAE, and Saudi Arabia. The largest node in this figure is Iran with 21 collaborations with the following countries; United Kingdom, Italy, Japan, Norway, Caphri, Australia, Switzerland, Netherlands, Cambodia, India, Ghana, Brazil, and Lebanon. It means from the Middle Eastern region, Iran is connected with Lebanon with one link strength.

The 2nd largest node is Lebanon with 16 collaborations with the following countries; Iran, USA, Netherlands, Switzerland, India, Cambodia, Ghana, Argentina, South Africa, and Brazil. Lebanon is only connected with Iran from the Middle Eastern region. The 3rd largest node is Egypt with 13 collaborations with the following countries; Jordon, the UK, the USA, Australia, Afghanistan, India, Pakistan, Switzerland, and Canada. From the Middle Eastern region, Egypt is only connected with Jordon for collaborative research in the target domain.

The 4th largest node is UAE with 13 research collaborations with following countries; Canada, Pakistan, Belgium, Bangladesh, Ghana, Poland, UK, South Africa, Philippines, Netherlands, and USA. UAE is not connected with any other Middle Eastern country. Finally, the 5th largest node is Saudi Arabia with 9 research

collaborations with the following countries; Mexico, Nigeria, Hong Kong, Malaysia, Philippines, Brazil, South Africa, and Ghana. Saudi Arabia is also not collaborated with any other Middle Eastern country for the target domain.

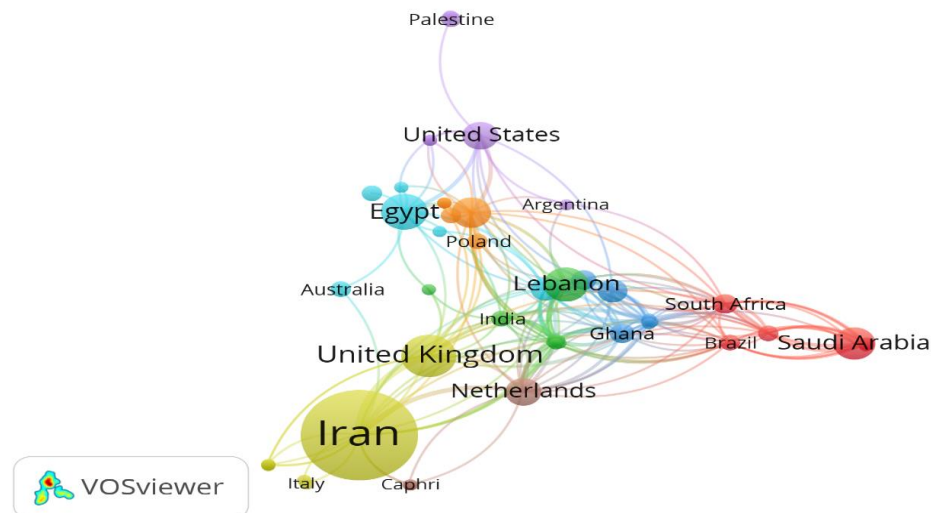


Figure 4 (a). Co-author network visualization (Source: VOS Viewer)

Figure 4 (b) indicates co-authorship overlay visualization. It shows that some dark nodes, and some light nodes. The dark nodes like Lebanon, Brazil, Saudi Arabia, and Palestine represent co-authorship with more citations due to

collaborative research in target domain. Similarly, the light nodes like Iran, UK, Egypt, USA, Poland, etc., represent research collaborations with lower citations in the target domain.

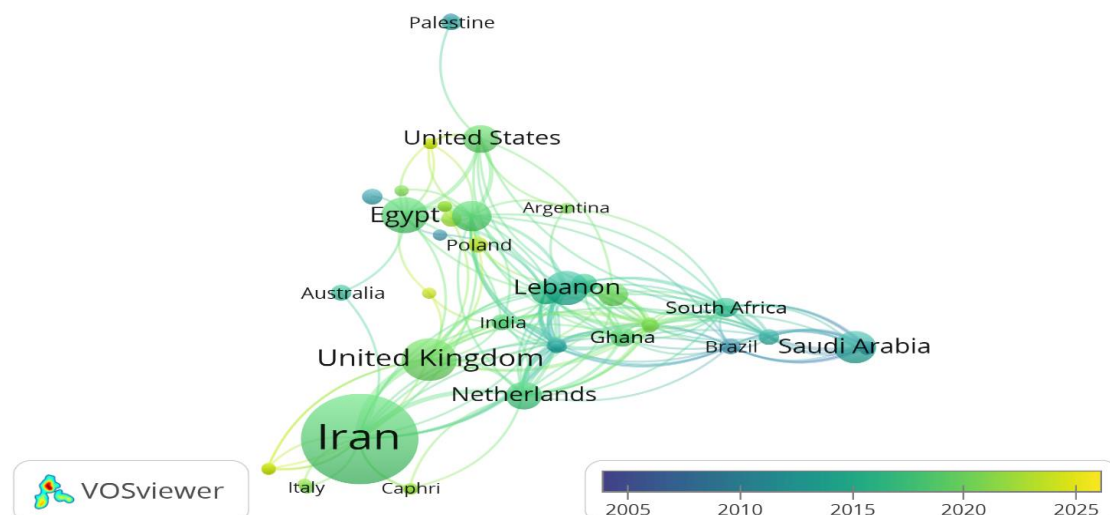


Figure 4 (b). Co-author overlay visualization (Source: VOS Viewer)

Figure 5 (a) indicates top nodes as per their size showing the co-occurrences of significant keywords. It indicates that financial management as the largest node which is co-occurred 108 times with the following 16 words; health insurance (6 times), health expenditure,

healthcare financing (2 times), Govt Financing, financial management in hospital, hospital cost, funding, healthcare financing (2 times), public hospitals. In this case, financial management co-occurred with the healthcare sector 9 times as per the Scopus database.

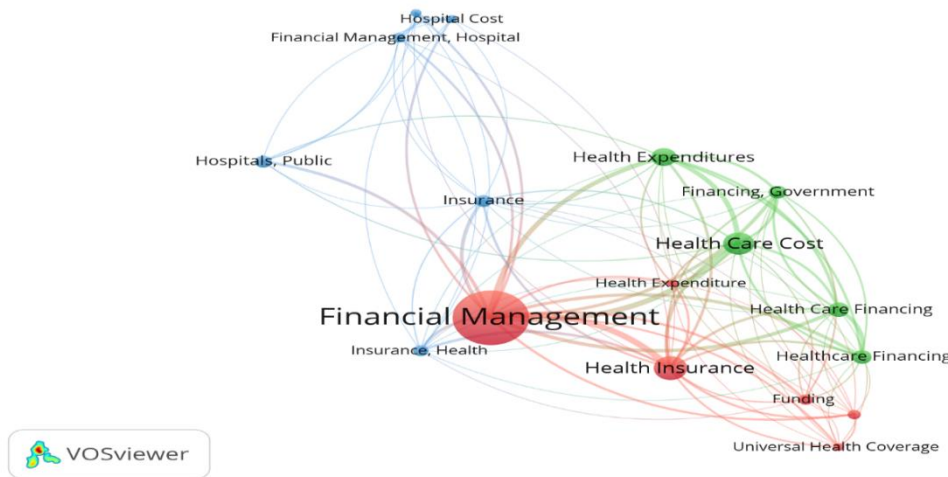


Figure 5 (a). Keyword Co-occurrence Network Visualization (Source: VOS Viewer)

Figure 5 (b) indicates keyword co-occurrences overlay visualization. It shows that some dark nodes, and some light nodes. The dark nodes like Hospital cost, financial management in Hospitals, public hospitals, and Govt funding represent co-occurrences with more citations, therefore, these keywords are highly

concentrated in this region. Similarly, the nodes with light colors like healthcare findings, funding, health expenditure, and universal health insurance represents co-occurrences with lower citations are less concentrated keywords in this region.

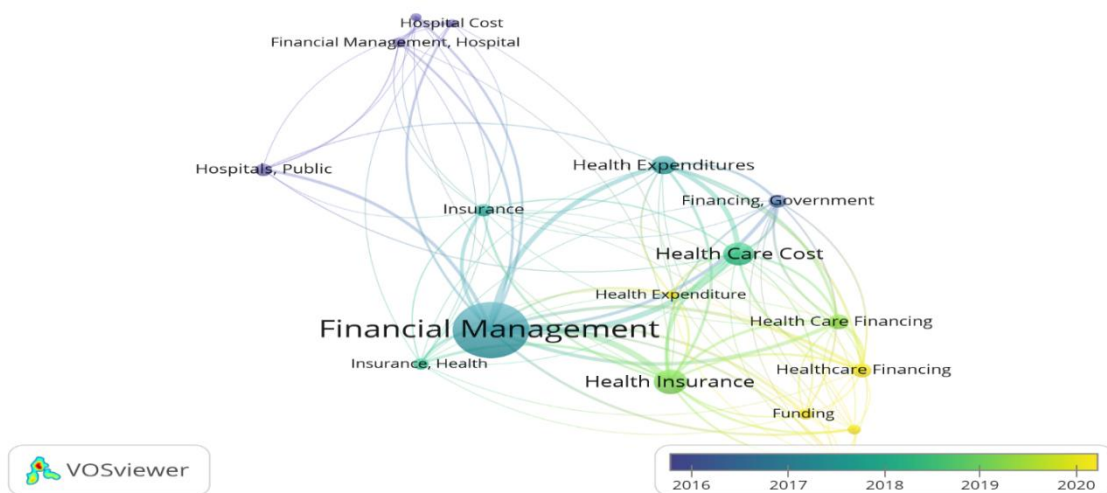


Figure 5 (b). Keyword Co-Occurrence overlay visualization (Source: VOS Viewer)

Table 5 indicates the keywords co-occurrences in different clusters and their focus. For example, the focus of the first cluster (Red) indicates the role of financial management related to some common expenditures like health insurance, funding, and health expenditure for the healthcare units in the Middle Eastern region. It indicates that financial management played a very important role in these types of expenditures. Similarly, the focus of 2nd cluster (Green) indicates the role of financial management in healthcare financing and their relevant costs in the target region. It means that

the 2nd most important role played by financial management in healthcare units of Middle Eastern region is to influence healthcare financing, and its related cost. Furthermore, the focus of 3rd cluster (sky blue) indicates the role of financial management in healthcare insurance and their related costs in the target region. It means that 3rd most important role played by financial management in healthcare units of Middle Eastern region is to influence the health insurance coverage and its related costs, especially in public hospitals.

Table 5.
Co-Occurrence Analysis of Keywords

Cluster & Color	Keywords	Links	Total Link Strength	Occurrences
1. Red	Financial Management	17	179	108
	Health Insurance	16	97	28
	Funding	10	23	7
	Universal Health Insurance	11	23	6
	Health Expenditure	9	22	5
	Universal Health Coverage	10	19	5
2. Green	Health Care Cost	14	86	25
	Health Expenditures	13	73	17
	Health Care Financing	11	55	13
	Healthcare Financing	11	47	11
	Financing, Government	12	43	10
3. Sky Blue	Insurance	15	32	9
	Insurance, Health	14	29	8
	Hospitals, Public	8	19	9
	Financial Management, Hospital	7	18	6
	Hospital Cost	7	18	5
	Hospital Costs	7	18	5

(Source: VOS Viewer)

Conclusions

The study contributes the current knowledge on the research trends for financial management practices in the healthcare sector of the Middle Eastern region. It includes the identification of top authors, journals, countries, and articles from the Middle Eastern region for target domain and region of the study. The researcher used the Scopus database to extract data on 5 March 2024 using the major key term financial management in healthcare. The researcher applied several restrictions to achieve its objective affiliated countries were Middle Eastern region, the document type was an article, subject area was healthcare and medical, etc. The researcher was able to extract 110 documents after applying all the necessary restrictions for bibliometric analysis. The initial analysis using Scopus indicates the most influential journals, authors, countries, and articles for target research

domains like financial management in the healthcare units of the Middle Eastern region. It include Eastern Mediterranean Health Journal, Ammar, Walid S (from Lebanon), Iran, and “Past, present, and future of global health financing: A review of development assistance, government, out-of-pocket, and other private spending on health for 195 countries, 1995-2050” (published by “The Lancet”) respectively.

However, the bibliometric analysis using VOS-Viewer software indicates co-author country analysis, and keyword co-occurrence analysis using network visualization, and overlay visualization. The findings for co-author network visualization indicated that Iran collaborated with Lebanon, and Egypt collaborated with Jordan for research related to financial management in healthcare in Middle Eastern region. However, Saudi Arabia did not collaborate with any other Middle Eastern

country for the target domain of research. Similarly, the findings for co-author overlay visualization indicated that Lebanon, Saudi Arabia, and Palestine represent higher citations while Iran and Egypt indicate lower citations through research collaboration for financial management in the healthcare sector of the Middle Eastern region. Moreover, the keyword co-occurrence analysis using network visualization indicated that financial management in the healthcare sector of the Middle Eastern region co-occurred with the following keywords; health expenditures, healthcare financing, hospital financial management, hospital costing, hospital funding, and public hospitals. Furthermore, the keyword co-occurrences using overlay visualization indicated that hospital cost, financial management in hospitals, public hospitals, and Govt funding are the keywords that were highly concentrated in this region. However, healthcare financing, funding, health expenditure, and universal health insurance were less concentrated keywords in this region. Finally, the keyword cluster analysis indicated that financial management plays a significant role in health insurance, funding, health-related expenses, healthcare financing, healthcare cost, and healthcare insurance in Middle Eastern region.

Some limitations can influence the findings of this study. The limitations include the specific focus on Middle East region, and exclusive use of Scopus database. The specific focus of this study was the financial management practices in the healthcare industry of Middle East. Therefore, the findings cannot be generalized to other regions, and sectors. Furthermore, the use of Scopus as the database for bibliometric analysis may also restrict data. There might be more data on other databases that could be utilized in combination of Scopus database to explore much better trends, and patterns related to the target domain.

The findings of this study is important for a number of stakeholders. For example, it can guide the practitioners, policymakers, and administration in the healthcare sector of the Middle Eastern region about how they can efficiently use their financial management practices in their healthcare sector by managing their healthcare expenses, cost, financing, funding, and insurance-related cost. The future researcher can plan their studies based on keywords with fewer concentrations relating to the healthcare sector in the Middle Eastern region.

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