

Social Innovation: A Scientometric Analysis of Research Output by the Gulf Cooperation Council (GCC) Countries

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Abstract

The concept of Social Innovation has been receiving growing interest recently due to global challenges such as water scarcity, the COVID-19 pandemic, climate change, economic turmoil, and wars. Yet, regardless of the rising interest in this area of study, literature on Social Innovation is still scarce and fragmented. Thus, to fill this gap, this paper aims to contribute to the systematization of the scientific knowledge on Social Innovation disseminated by authors in the GCC during the period between 2017 and 2022. The research data was downloaded from the Scopus database and represented using Microsoft Excel, SocNet V software, and Data wrapper Tool. The study focused on different scientometric tools like most prolific authors, annual research growth, subject-wise publication, international collaboration, authorship pattern, etc. The study revealed that the GCC produced two hundred and eighty-three (283) research publications on Social Innovation during the period between 2017 and 2022. Saudi Arabia tops the list with a total of one hundred and thirteen relevant publications each. Kuwait, on the other hand, ranked lowest with one (5) manuscript during the same period. GCC authors generated the highest number of publications in 2022, while the lowest was in 2018. The productivity trend had been slightly fluctuating for all GCC states except Saudi Arabia, which exhibited a consistent upward trend over the years. The majority of GCC publications focus on the environmental side of Social Innovation rather than societal challenges (71%). Most of the research authored on Social Innovation by researchers in the GCC was conducted jointly (89%) in the form of journal articles (58%).

Keywords: Social Innovation, GCC Countries; Environmental Innovation; Green Innovation; Eco Innovation

I. Introduction

In today's modern world, innovation has become a necessity for growth, competitiveness, and productivity [1]-[2]-[3]-[4]. Innovation takes many forms, including but not limited to, technological, business model, organizational, and social [5]. The latter type, Social Innovation, helps achieve sustainability by contributing to the economic, social, and environmental facets of countries [6]. Thus, it has been attracting increasing attention as compared to technological innovation recently [2]. The growing frustration with the emphasis on the technological element in the innovation literature has contributed to the growing Social Innovation momentum [7]. Yet, regardless of the rising interest in Social Innovation and the recognition of its role in bettering society, several issues surrounding its

conceptualization remain unorganized. According to [8]-[9], extant literature on this topic is still scarce and scattered.

Thus, the motivation of this research effort is based on the observation that interest on Social Innovation has been receiving growing interest. This is evident by the growth in the number of publications over the past decade. For instance, the number of Social Innovation manuscripts indexed on Scopus database jumped by more than 2.5 folds from 2,863 in 2012 to 7,498 in 2022. While the extant research landscape demonstrates new levels of research interest in this area, there is evidence of inconsistency and fragmentation in the literature [10]. Consequently, this leads to misunderstanding the true meaning of this concept and the value that it can add. Although the value from Social Innovation may not be financial, its returns have been acknowledged recently as it plays an imperative role to mitigate the risks associated with the world's major challenges such as water scarcity, COVID-19, climate change, economic turmoil, and war [11]-[12].

Hence, to address this gap, this paper aims to systematize the scientific knowledge of this field of study by conducting a systematic literature review (SLR) on Social Innovation research published by authors based in the Gulf Cooperation Council (GCC) countries, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). In this paper, a quantitative approach was followed to screen and analyze the publications data following the PRISMA method to answer the following questions regarding Social Innovation publications generated by authors based in the GCC region:

1. When were the largest volumes of articles in the given area published?
2. What are the most studied subjects?
3. What periodicals publish most articles in the area studied?
4. Which are the most productive institutes?
5. Which are the most occurring collaboration networks?

This paper attempts to contribute to the Social Innovation literature by systemizing the knowledge produced in the subject matter by authors based in the GCC. This study will help GCC and international researchers, scientists, entrepreneurs and policymakers who are directly and indirectly engaged in the research work in the field of Social Innovation.

The remainder of this paper is structured as follows: first, we explain the research methodology. After that, we shed some light on Social Innovation and its scene in the GCC region. Approaching the end, we discuss the analysis and results. Finally, the paper ends with the conclusions in Section 6.

II. Research Methodology

The research data was retrieved from the Scopus database, which is an internationally published online bibliographic database of 240 disciplines with the most comprehensive overview of the world's research. Scopus was selected since it is trusted by the most important organizations across the sphere. It is the data source for the main university rankings, which are published annually, such as the Times Higher Education and QS rankings; it is also used by over 84% of the top one hundred universities [13].

To meet the objectives of this paper, the following search terms were searched in the database: Social Innovation, Green Innovation, Sustainable Innovation, Environmental Innovation, and Societal Innovation for each of the Gulf Council Countries for retrieving articles during 2017-2022. Using the advanced search option, the query string used to extract relevant data is: "AFFILCOUNTRY(Kuwait)KEY(Social Innovation) AND (LIMIT-TO (PUBYEAR,2021) OR LIMIT-TO (PUBYEAR,2020) OR LIMIT-TO (PUBYEAR,2019) OR LIMIT-TO (PUBYEAR,2018) OR LIMIT-TO (PUBYEAR,2017))".

It is worth noting that the AFFIL COUNTRY and KEY would change for each search entry to cover all the search terms mentioned above for each GCC country. The generated publications include

English language citations with detailed bibliographic information such as year, author, author's affiliation, country, name of publications, etc.

With these efforts, a total of 593 research publications were indexed in Scopus for the years 2017 to 2022. To meet the research objectives of this study, the collected data was downloaded and analysed using Microsoft Excel, SocNetV software, and Datawrapper Tool. The study data was retrieved in January 2023.

III. Social Innovation Background

Social innovation is critical for social development. It enables communities to realize unmet societal needs and delivers social welfare [14]-[15]. The growing interest of academics, practitioners and scholars in social innovation during the past decade [7], leads to the belief that social innovation is a recent phenomenon. Yet, it goes as far back as the 18th century when Benjamin Franklin proposed changes to the social organizations within communities and Emile Durkheim draw attention to the social regulations of divisions of labour [16].

As a result of the growing interest in Social Innovation, scholars from various arenas proposed definitions from different perspectives. Taylor was one of the first to define it in the 1970s. He stated that Social Innovation is “a new way of doing things with the specific interest of attending to the needs of society, such as poverty or crime” [17].

A more recent definition was proposed by [7], it states that Social Innovation is the “new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, Social Innovations are both good for society and enhance society's capacity to act.”

Similarly, the OECD Forum on Social Innovation defines Social Innovation as “new strategies, concepts, ideas and organizations that meet social needs of all kinds- from working conditions and education to community development and health- and that extend and strengthen civil society” [18].

Moreover, Stanford University professor Sarah Soule and her colleagues Neil Malhotra and Bernadette Clavier define Social Innovation as “the process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress” [19].

Considering the above, to put it simply, Social Innovation can be defined as a type of innovation that involves the generation and implementation of a new idea in society to add value by solving social and/or environmental challenges (see Figure 1 below).

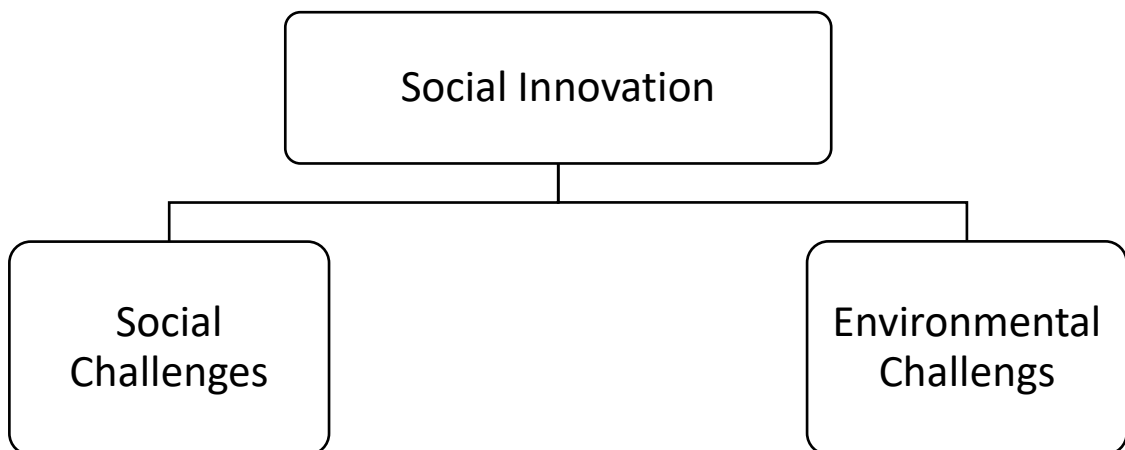


Figure 1 – Challenges Solved through Social Innovation

IV. GCC and Social Innovation

The GCC is an alliance of six countries - Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates established in 1981, uniting regional, intergovernmental, political, and economic affairs. With the dependency on Oil, innovation is crucial to diversifying the GCC economy [20]. Thus, it is significant for the GCC to enhance efforts toward its social innovation practices as it is key to facing global challenges. In the GCC, social innovation is not new, it has always been a part of culture and traditions. However, in the post-oil era, social innovation in the GCC has faced challenges for different reasons, mainly government policies and funding constraints [21]-[22].

As a response, various initiatives have been introduced aiming to develop greener, more diversified economies [23]. These initiatives include the UAE’s Masdar City, Saudi’s AlNama Smart City, Lusail City in Doha, Kuwait’s South Saad Al Abdullah Smart City, the Healthy Communities Initiative in Oman, Green IT Initiative in Bahrain, and the Green Saudi Initiative.

V. Data Analysis and Interpretation

5.1 Screened Publications

The total number of publications on Social Innovation by authors in the GCC during the six-year period from 2017 to 2022, as indexed in Scopus, is five hundred and ninety-three (593). The initial selection criteria were based on searching the following keywords: social, environmental, green, societal, and sustainable, linked with the word “innovation” of both the title and abstract.

Figure 2 shows that the preliminary search revealed that Saudi Arabia is the leading country within the GCC regarding Social Innovation research, with a total of two hundred and eighty-three (283) publications. Kuwait, on the other hand, generated the least number of publications with (13) manuscripts only. UAE ranks second after Saudi with one hundred and forty (140) publications. Authors in Bahrain produced ninety-seven manuscripts, while Qatar and Oman generated fifty-four (54) and forty-five (45) Social-Innovation publications, respectively.

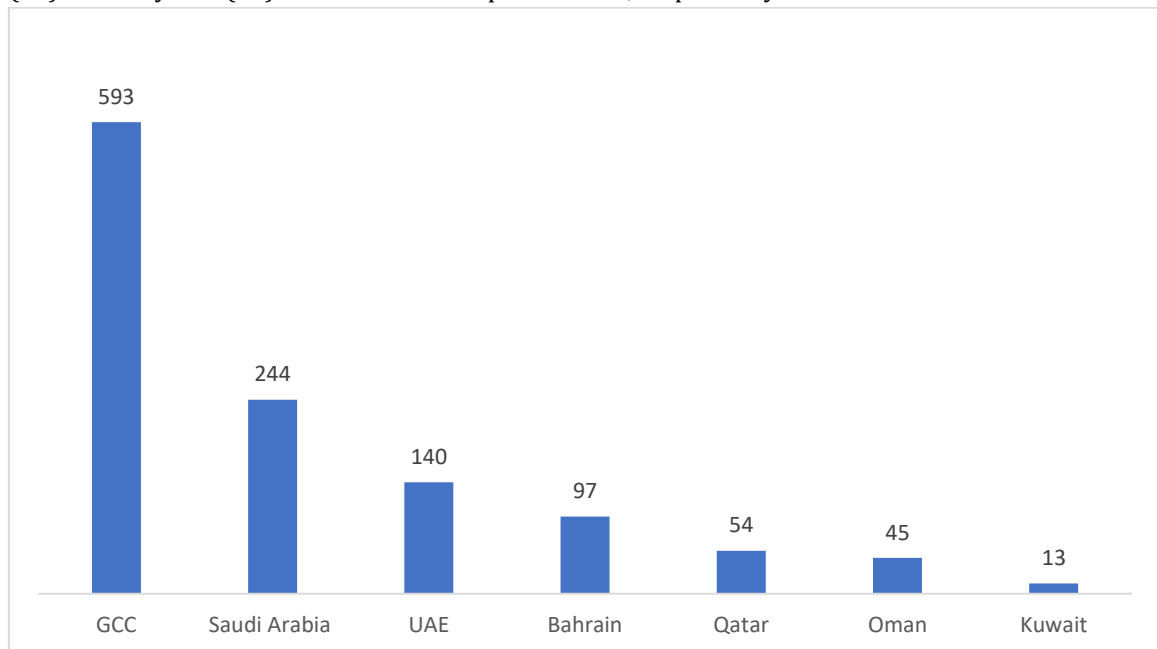


Figure 2 - Social Innovation Publications in the GCC (2017-2022) based on Initial Search

Later, a thorough reading of the articles was carried over to ensure subject relevancy. After careful screening, a total of two hundred and eighty-three (283) publications were found relevant, constituting 48% of the total publications on Social Innovation produced by the GCC. Relevant

articles discussed novel solutions which improve the welfare and well-being of societies. The remaining three hundred and ten (310) publications were identified as repetitive (270) or irrelevant to the subject matter (40) as showcased in the PRISMA flow chart in the figure below. The studies excluded due to irrelevancy had no direct focus on Social Innovation. Instead, their emphasis was on technology, creativity, technological innovation, and/or sustainable profitability.

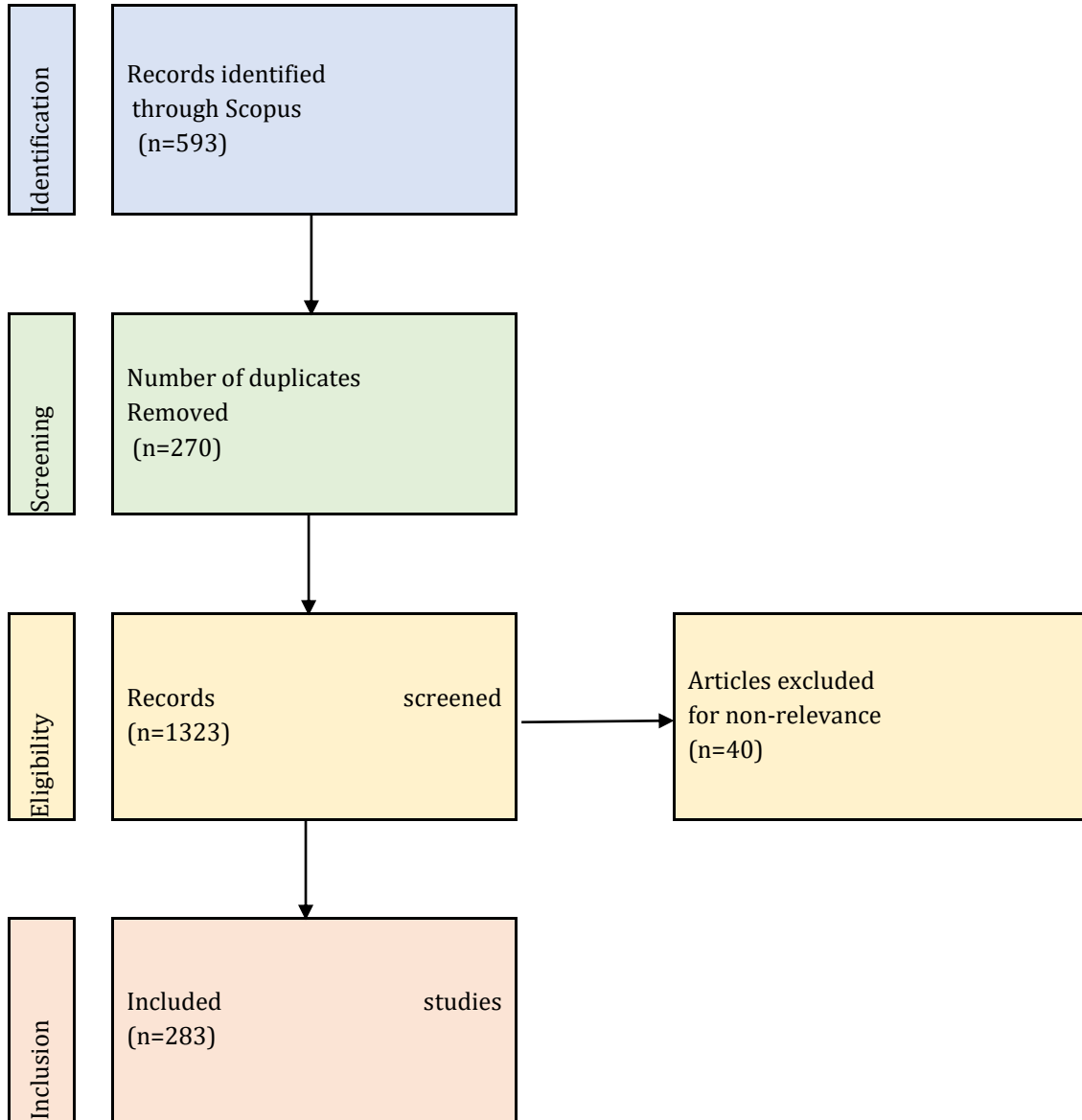


Figure 3 Studies Selection Flow Diagram

As shown in the graph below (Figure 4), Saudi Arabia is by far leading in terms of social innovation publications (113) followed by the UAE, with a total of eighty-one (81) manuscripts. Kuwait, on the other hand, generated the least number of relevant publications since only five (5) out of the thirteen (13) manuscripts were found relevant. Bahrain ranked third with thirty-seven (37) related publications. Qatar contributed a total of twenty (20) publications. Finally, Oman came second to last with a total of twenty (20) relevant manuscripts.

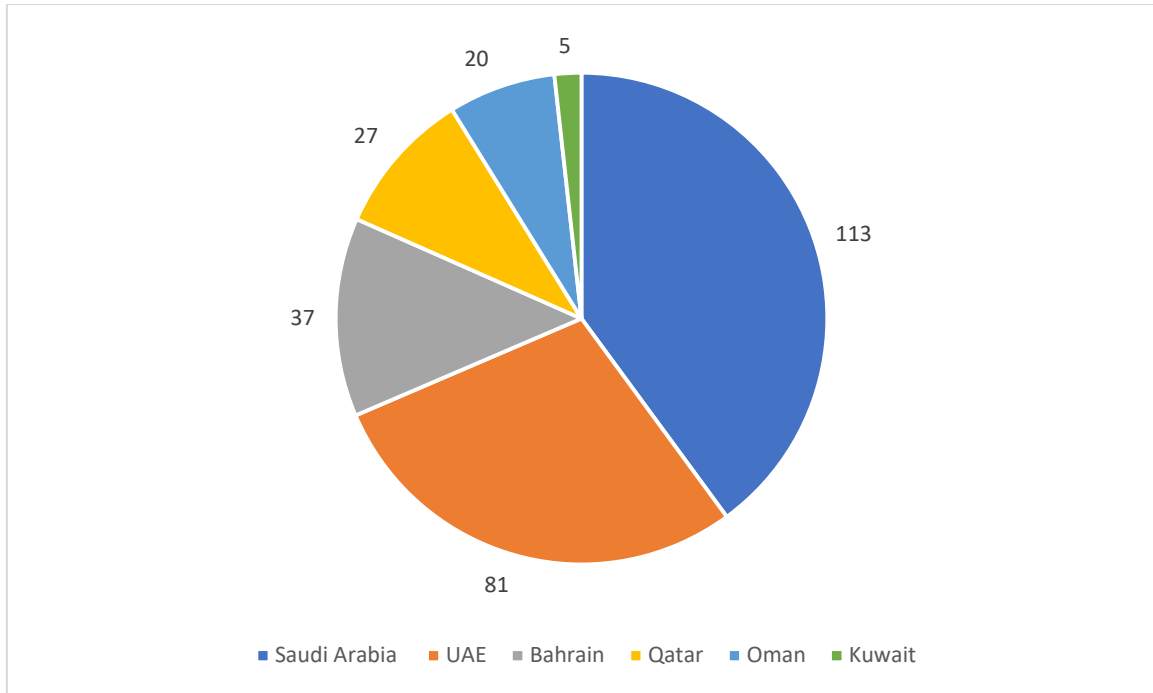


Figure 4 Social Innovation Publications after Screening (2017-2022)

5.2 Annual Growth Rate of Publication

The GCC produced two hundred and eighty-three (283) research papers during the period between 2017 and 2022. Therefore, the average annual productivity was forty-seven research papers. The year 2022 had the highest number of research papers, 158 (56%), while the lowest was in 2018, with 7 (6%) publications. It can also be noted from Table 1 that the highest annual growth rate of research publication on social innovation was recorded in the year 2019 (214.29%) followed by the year 2022 (182%), and a negative average growth rate (AGR) was recorded in 2018 (-50%).

Table 1 Publication Annual Growth Rate (2017-2022)

| Year | GCC | Percentage | AGR |
|--------------|------------|-------------|------|
| 2017 | 14 | 5% | 0% |
| 2018 | 7 | 6% | -50% |
| 2019 | 23 | 18% | 229% |
| 2020 | 25 | 20% | 9% |
| 2021 | 56 | 44% | 124% |
| 2022 | 158 | 56% | 182% |
| Total | 283 | 100% | |

Figure 5 shows the number of publications generated by the GCC in general and each country separately throughout the examined period. It can be captured that productivity has been fluctuating for most countries. Saudi Arabia is the only country among the GCC states with a consistent upward trend, with 0% of its publications issued in 2017 and 68% in 2022. The trend for the rest had been

swinging up and down throughout the years. For instance, 20% of Kuwait’s publications were generated in 2018 while the remaining 80% were produced in 2022. Oman, UAE, Bahrain, and Qatar, on the other hand, share the same low publication trends with 0%, 6%, 7%, and 0% in 2018, respectively.

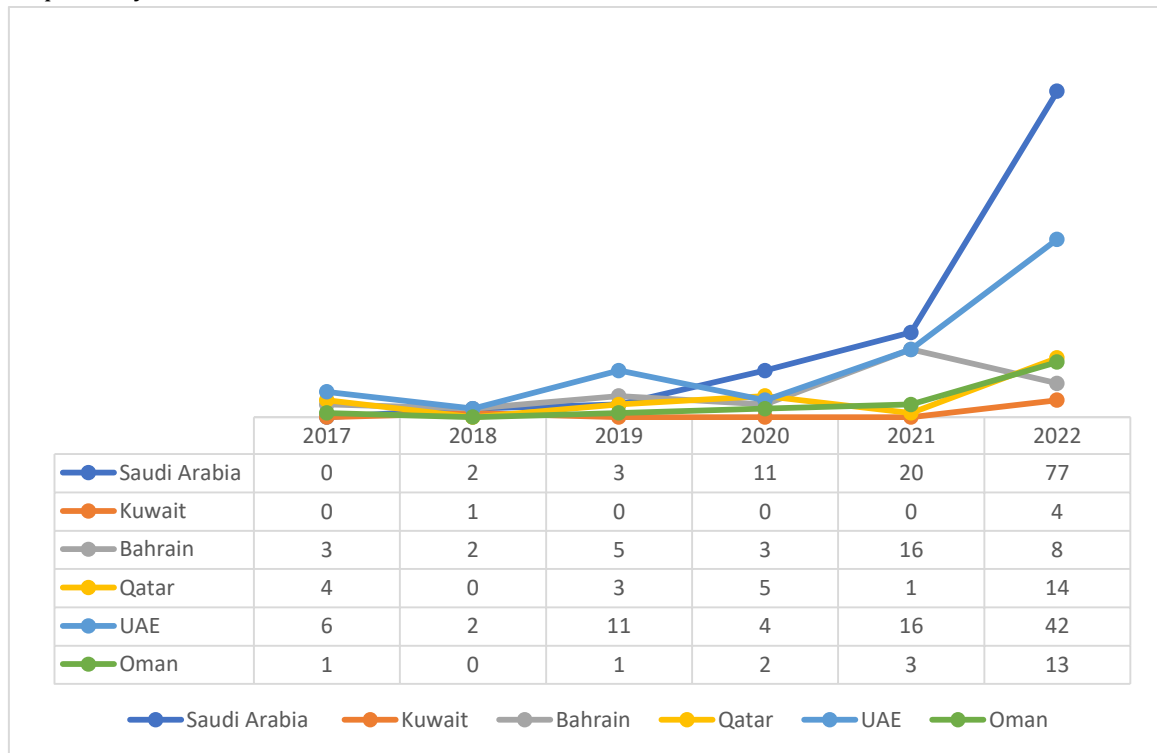


Figure 5 Yearly Publication in the GCC – After Screening (2017-2022)

5.3 Focus Area

According to the reviewed literature on Social Innovation, the focus areas in this subject can be categorized into two main categories, these are innovations for environmental issues and innovations to combat societal challenges. The studies conducted by authors based in the GCC were made in various industries including healthcare, construction, tourism, food, and energy. The focus was on environmental challenges as the relevant publications accounted for 73% of the total Social-Innovation publication generated by the GCC. This is in response to the GCC region’s sense of social responsibility towards environmental sustainability as oil-dependent economies. As shown in figure 6, the percentage of environmental-related publications out of the Social-Innovation research conducted by Saudi Arabia, Kuwait, Bahrain, Qatar, UAE, and Oman is 81%, 80%, 78%, 63%, 59%, and 90%, respectively. The studies [24]- [25]-[26]-[27] mostly discussed topics related to innovation in relation to waste management, renewable energy, carbon footprint, and green technology. Studies focusing on societal challenges make up twenty-seven percent (27%) of the produced research manuscripts. These highlighted innovative corporate social responsibility, green entrepreneurship, digital technologies to face Covid19, poverty and other social challenges [28]-[29]-[30]-[31].

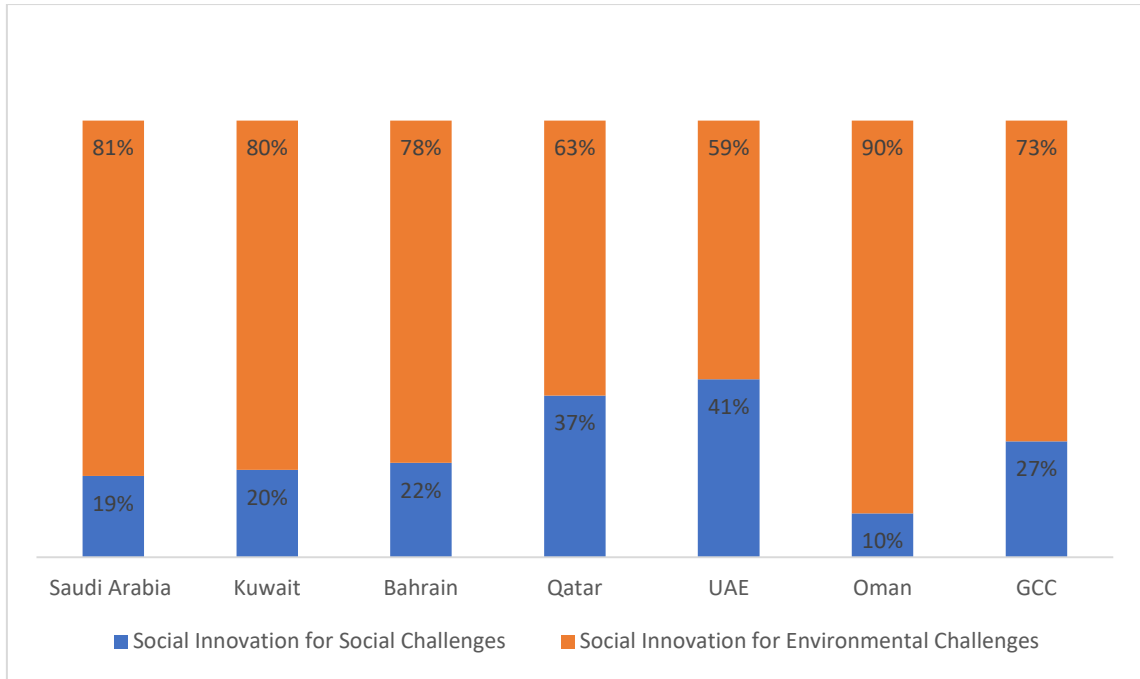


Figure 6 Research Focus Area

5.4 Types of Published Research

A total of two hundred and eighty-three (283) publications were collected in various forms, these include journal articles, reviews, conference papers, book chapters, and editorials as shown in figure 7. The highest number of publications was in the form of articles (220) which constitute 78% of the generated documents, followed by thirty-four (34) conference papers, twenty-five (25) reviews, and two (2) editorials. There was only one (1) count of book chapters and another undefined type of publication.

Reviewing the publications by country revealed that Saudi Arabia’s publications were mostly articles (one hundred) followed by reviews (7). Bahrain’s publications came in three forms. Seventeen (25) articles, ten (10) conference papers, and one (2) review. For Qatar, the authors published eight (20) articles, three (4) conference papers, and two (3) reviews. Authors based in the UAE counted for fifty-seven (57) published articles, fourteen (14) conference papers, eight (8) reviews, one (1) book chapter, and one (1) editorial. Oman had a total of twenty (20) relevant publications with fourteen (14) articles, five (5) reviews, and one (1) conference paper. As stated earlier, Kuwait had only five (5) publications that were published in the form of an article except for one (1) conference paper.

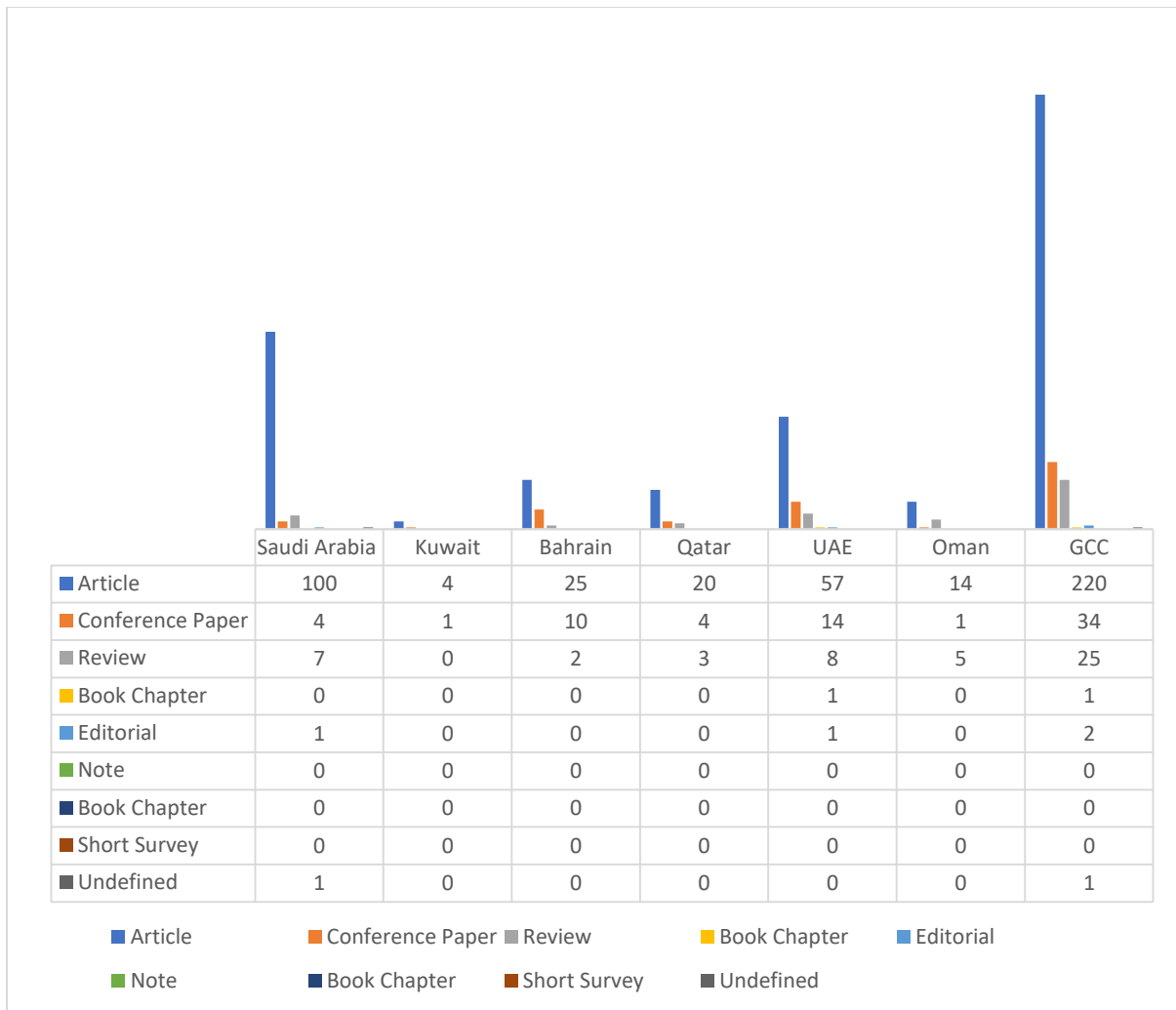


Figure 7 Type of Published Research

5.5 Highly Productive Sources

The following table reveals the repetitive sources of publication in the GCC in general. Within the GCC, Sustainability has generated the highest number of Social Innovation research publications in the GCC followed by Technological Forecasting and Social Change. Also, the Environmental Science and Pollution Research journal was among the top sources to publish Social Innovation research by authors based in the GCC along with the Journal of Cleaner Production. Frontiers in Environmental Science and the Economic Research-Ekonomiska Istrazivanja are other examples of preferred journals for the GCC's Social Innovation researchers. For conference proceedings, the 2019 International Conference on Digitization: Landscaping Artificial Intelligence, ICD 2019 (%) was the top platform as shown in table 2.

Table 2 Source of Publication

| Source of Publication | Publication Count | Percentage % |
|--|-------------------|--------------|
| Sustainability (Switzerland) | 20 | 7% |
| Technological Forecasting and Social Change | 14 | 5% |
| Environmental Science and Pollution Research | 12 | 4% |
| Journal of Cleaner Production | 11 | 4% |
| Frontiers in Environmental Science | 9 | 3% |
| Economic Research-Ekonomiska Istrazivanja | 9 | 3% |
| Proceeding of 2019 International Conference on Digitization: Landscaping Artificial Intelligence, ICD 2019 | 5 | 2% |

5.6 Institutions Distribution

The following table examines the top ten institutions in Social Innovation research in the GCC from 2017 until 2022. The table shows (table 3) that the top institutes all belonged to academia, there was no presence of research institutes nor entities from the industry in the list. The University of Sharjah, Qatar University, Abu Dhabi University, and King Abdulaziz University rank highest in Social-Innovation research with 18, 16, 15, and 12 publications, respectively. The Higher College of Technology and Prince Sultan University also showed interest in the subject area since they have participated in publishing eleven (11) documents each during the examined period. King Saud University contributed to ten (10) publications and, therefore, secured the sixth position among the GCC institutes. The University of Bahrain and Qassim University each recorded eight participations in Social-Innovation research. Finally, the University of Hail and Sharjah Men’s College participated with four (4) Social-Innovation manuscripts each.

Table 3 Top Ten GCC Institutions

| No. | Institute | Country | Number of Participations |
|-----|-------------------------------|--------------|--------------------------|
| 1 | University of Sharjah | UAE | 18 |
| 2 | Qatar University | Qatar | 16 |
| 3 | Abu Dhabi University | UAE | 15 |
| 4 | King Abdulaziz University | Saudi Arabia | 12 |
| 5 | Higher Colleges of Technology | UAE | 11 |
| 6 | Prince Sultan University | KSA | 11 |
| 7 | King Saud University | Saudi Arabia | 10 |
| 8 | University of Bahrain | Bahrain | 8 |
| 9 | Qassim University | Saudi Arabia | 8 |
| 10 | University of Hail | Saudi Arabia | 4 |
| 11 | Sharjah Men's College | UAE | 4 |

5.7 Collaborations

Figure 8 below showcases collaboration in Social-Innovation research among GCC institutes from 2017 to 2022. It was established that when it comes to collaborations in Social-Innovation research at the GCC level, partnerships were preferred between entities located in the same GCC state. Yet, despite Kuwait, collaborations among different GCC nations were found, as shown in the figure below.

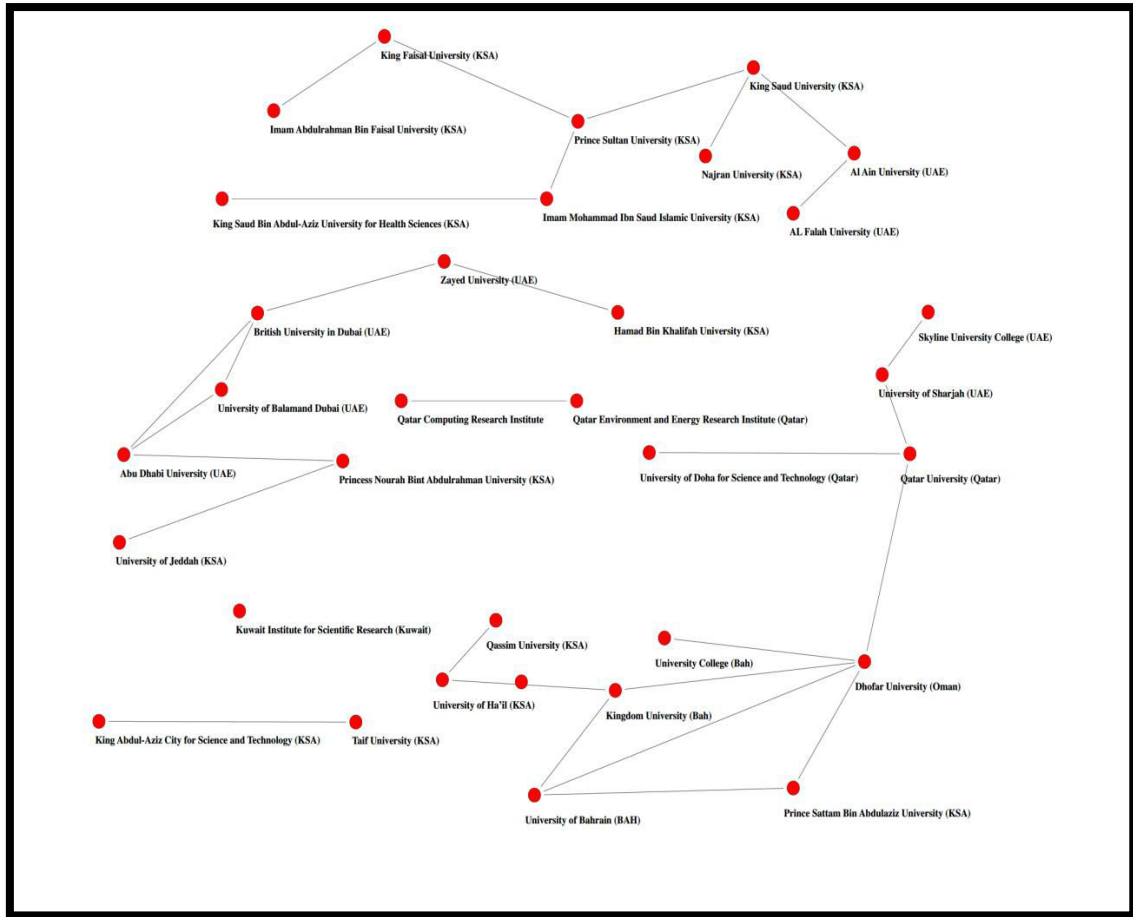


Figure 8 Collaboration on Social Innovation Publications among GCC Entities

Figure 9, on the other hand, reflects international collaborations on Social-Innovation research with GCC authors during the same period. The analysis revealed that researchers of the GCC collaborated with researchers affiliated with institutes from China, Pakistan, the United Kingdom Malaysia, the United States of America, India, Viet Nam., Greece, and others. The maximum research collaboration of GCC authors has been found with Chinese institutes (75) followed by Pakistani entities (71). Collaborations with authors affiliated with entities in the UK and Malaysia contributed to (41) and (40) publications respectively while authors from the United States and India participated in (22) GCC Social-Innovation publications each.

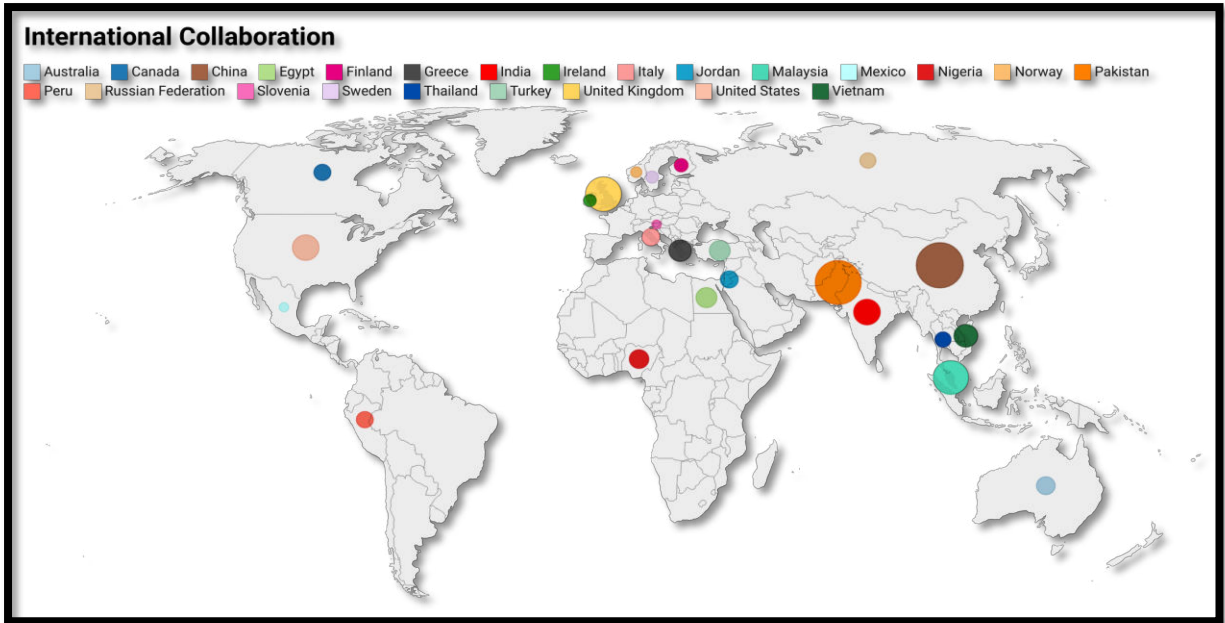


Figure 9 International Collaboration on Social Innovation Publications with GCC Authors

5.8 Authorship Pattern

Figure 10 indicates that most of the research authored on Social Innovation by researchers in the GCC was conducted jointly (94%). The percentage of joint-authorship research out of the total publications on Social Innovation generated from Saudi Arabia, Kuwait, Bahrain, Qatar, UAE, and Oman between 2017 and 2022 was 94%, 100%, 92%, 85%, 96%, and 100% respectively. This clears that scientists of the GCC in the field of Social-Innovation prefer engaging in collaborative research.

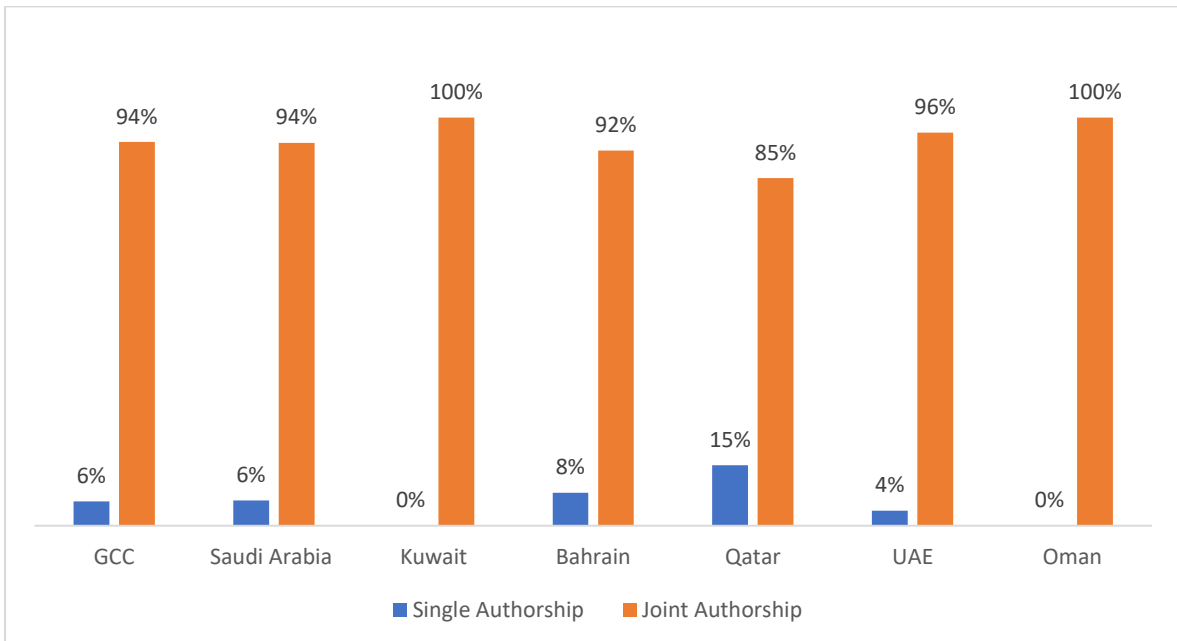


Figure 10 Authorship Pattern of GCC Authors on Social Innovation

6 Conclusion

The study revealed that the GCC produced two hundred and eighty-three (283) research publications on Social Innovation during the period between 2017 and 2022. Saudi Arabia is by far leading the GCC states with a total of one hundred and thirteen (113) relevant publications which constitutes 40% of the total publications generated by the GCC during the examined period. On the other hand, Kuwait generated the least number of relevant publications as it only produced five (5) manuscripts. The year 2022 had the highest number of research papers (56%), while the lowest was in 2018, with seven publications (6%). Productivity trend had been inconsistent for all GCC states except Saudi Arabia, which showed a consistent upward trend over the years. When the research focus areas were examined, it was established that GCC authors are highly interested in publishing articles focused on environmental challenges as the relevant publications accounted for 73% of the total Social-Innovation publication generated by the GCC. It is also probably worthwhile to declare that most of the research authored on Social Innovation by researchers in the GCC was conducted jointly (94%). Authors based in the GCC preferred publishing their manuscripts in the form of journal articles (78%) followed by conference proceedings (12%). The finding of this scientometric study will help GCC and international researchers, scientists, and policymakers who are directly and indirectly engaged in the research work in the field of Social Innovation.

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