Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6, 424-440
2025
Publisher: Learning Gate
DOI: 10.55214/25768484.v9i6.7819

Mapping the evolution of myocardial infarction research in communication studies: A comprehensive bibliometric analysis

Emrah BOZKURT[1*], Bahar URHAN[2], Hülya Anakız ERTÜRK[3], Sema SERTKAYA[4]
[1]Afyon Kocatepe University, Vocational School, Department of Marketing and Advertising at Sandıklı, Afyonkarahisar, Türkiye; emrahbozkurt37@gmail.com (E.B.)
[2]Akdeniz University, Faculty of Communication, Department of Public Relations and Publicity, Antalya, Türkiye; baharurhan15@gmail.com (B.U.)
[3]Niğde Ömer Halisdemir University, Faculty of Communication, Department of Public Relations and Advertising, Niğde, Türkiye; hulyanakiz@gmail.com (H.A.E.)
[4]Çanakkale Onsekiz Mart University, Faculty of Humanities and Social Sciences, Department of Sociology, Çanakkale, Türkiye; semasertkaya017@gmail.com (S.S.)

Abstract: This study aimed to systematically delineate and map the evolution of myocardial infarction research within the communication domain through a comprehensive bibliometric analysis. A total of 210 English-language articles, retrieved from the Scopus database spanning from 1967 to 2022, were analyzed using the Bibliometrix R software library and the VOSviewer visualization tool. The analysis revealed a marked surge in scholarly discourse on myocardial infarction within the communication field beginning in 2015. Geographically, the majority of contributions originated from developed regions, particularly North America and Europe, with the United States emerging as the most prolific contributor—accounting for 325 publications and 13,222 citations. The dataset comprised work from 819 distinct authors, with Kristiansen Is. identified as the most influential author and Davis Br. receiving the highest co-citation recognition. Among journals, Academic Medicine led in publication volume, whereas the American Journal of Emergency Medicine demonstrated the greatest influence. This study provides a panoramic overview of the myocardial infarction research landscape within the communication domain, highlighting key trends, influential contributors, and impactful publications. The findings underscore the critical intersection of interpersonal communication, risk management, and communication technologies in the context of myocardial infarction, offering valuable insights and a strategic roadmap for future research in this interdisciplinary field. This bibliometric analysis did not involve direct patient or public contributions.

Keywords: *Bibliometric analysis, Community health, Communication, Coronary artery disease, Myocardial infarction, Public health.*

1. Background

Myocardial infarction remains one of the most critical cardiovascular conditions and a leading cause of mortality worldwide. Traditionally, research in this area has concentrated on clinical, physiological, and epidemiological risk factors [1, 2]. However, an increasing body of evidence now highlights that effective communication—whether in the form of interpersonal interactions, risk management strategies, or crisis communication—is equally essential in influencing patient outcomes and optimizing healthcare delivery [3]. Unlike conventional clinical risk factors, the role of communication in the context of myocardial infarction is complex and multifaceted [4]. Communication encompasses various dimensions, including verbal, non-verbal, and digital interactions, each of which contributes differently to patient care. As a result, quantifying and analyzing the impact of communication on myocardial infarction outcomes presents unique challenges. Despite these difficulties, recent studies have

History: Received: 25 March 2025; Revised: 23 May 2025; Accepted: 27 May 2025; Published: 4 June 2025
* Correspondence: emrahbozkurt37@gmail.com

demonstrated that improved communication practices can enhance patient adherence to treatment, reduce the incidence of adverse events, and improve overall clinical outcomes [5, 6]. While several bibliometric analyses have been conducted to map the evolution of myocardial infarction research from a clinical perspective, there is a notable gap in the literature concerning its intersection with communication studies. Given the interdisciplinary nature of this research area, it is imperative to systematically delineate the development, trends, and collaborative networks that have shaped the scholarly discourse on this topic.

This study aims to map the trajectory of myocardial infarction research within the communication domain, identify key contributors and influential publications, and highlight emerging themes that may provide valuable insights for future investigations.

2. Methods

2.1. Research Objectives and Questions

In alignment with the study's overarching objective, this section systematically addresses the identified gaps in the literature by conducting a comprehensive bibliometric analysis of myocardial infarction (MI) research within the context of communication. To guide this investigation, the following research questions (RQs) were formulated:

- RQ1: What is the annual scientific production and thematic orientation of myocardial infarction research in the context of communication?
- RQ2: Which authors, journals, articles, and countries have made the most significant contributions to and influenced this field of research?
- RQ3: What are the conceptual, intellectual, and social structures of myocardial infarction research in the context of communication?

2.2. Bibliometric Analysis Framework

To systematically map the field, a bibliometric analysis was employed. This quantitative research methodology facilitates the examination and visualization of descriptive statistics pertaining to a specific body of knowledge. Bibliometric analysis is particularly effective for uncovering cumulative scientific knowledge and tracing the evolutionary trajectory of a research domain through the rigorous analysis of large volumes of unstructured data [7]. The primary objective of this approach is to delineate the structural components of the research landscape, including articles, authors, journals, countries, citations, keywords, and subtopics. This is achieved through systematic grouping and mapping techniques [8]. Given the exponential growth of scientific publications, bibliometric techniques are instrumental in synthesizing vast datasets, identifying emerging trends, and delineating the historical development of a field [9].

2.3. Data Collection Process

The initial stage of the bibliometric analysis involved dataset definition and raw data collection. The Scopus database was selected for its extensive coverage of peer-reviewed publications, inclusion of diverse publishing houses, and multidisciplinary scope [10, 11]. The search strategy was meticulously designed to capture literature intersecting the topics of "communication" and "myocardial infarction" (or "heart attack"). The screening process included titles, abstracts, and keywords. An initial search conducted without time restrictions yielded 331 documents. Following a rigorous filtering process, non-research outputs such as letters to the editor, books, and book chapters were excluded, leaving only research and review articles [12]. This decision was based on the premise that research and review articles represent "certified knowledge," which has undergone critical peer scrutiny and gained scholarly approval [13]. Subsequently, articles not written in English were excluded, reducing the

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

dataset to 221 publications. Duplicate entries were identified and removed, resulting in a final dataset of 210 articles (see Figure 1).

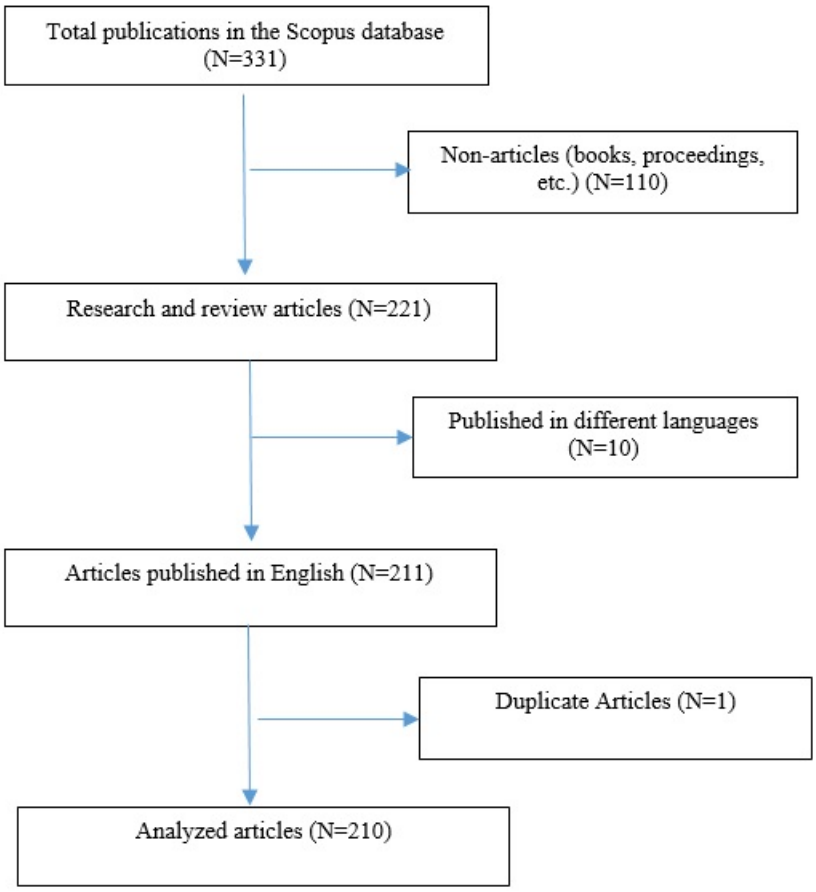

Figure 1.
Article Selection Procedures.

2.4. Data Analysis Process

The analysis was conducted in two stages: performance analysis and scientific mapping. Performance analysis involved the use of descriptive metrics to evaluate the annual scientific production, prolific authors, influential journals, contributing countries, and highly cited articles between 1967 and 2022. Scientific mapping, on the other hand, employed advanced metrics such as keyword co-occurrence analysis, co-citation analysis, and co-authorship analysis to reveal the conceptual, intellectual, and social structures of the field.

The dataset was initially downloaded in Excel format from the Scopus database and subsequently converted to a .csv file for compatibility with bibliometric analysis tools. The Biblioshiny interface of the Bibliometrix R package was utilized for both performance and scientific mapping analyses [14]. Biblioshiny is a robust tool widely used in previous studies to systematically uncover the knowledge structure of a given field [15]. Additionally, the VOSviewer software was employed to visualize co-citation networks and author collaboration patterns. VOSviewer is particularly effective for interpreting large datasets due to its user-friendly interface and ability to generate clear, interpretable bibliometric maps [16].

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

3. Results

3.1. Performance Analysis

This section provides a comprehensive performance analysis of myocardial infarction research within the context of communication. The analysis focuses on descriptive statistics of the dataset, including annual scientific production trends, prolific and influential authors, journals, countries, and key articles. Performance analysis is a standard practice in bibliometric research to evaluate the contributions and impact of various research components (e.g., authors, institutions, countries, and journals) [7].

3.2. Descriptive Statistics

Table 1 summarizes the general characteristics of the dataset retrieved from the Scopus database as of May 25, 2022. The bibliometric analysis spans from 1967—the year of the first publication—to 2022. During this period, a total of 210 articles were published, comprising 181 original research articles and 29 review articles. An examination of author distribution reveals that 819 distinct authors contributed to the field, with most publications being multi-authored. The average number of authors per article was calculated as 3.9, reflecting the collaborative nature of research in this domain.

3.3. Annual Scientific Production

To address RQ1, the temporal evolution of scientific production in myocardial infarction research within the communication context was analyzed. Figure 2 illustrates the annual distribution of publications between 1967 and 2022. The earliest publication, authored by Didio, Liberato J. A., appeared in 1967 in the Journal of Morphology with the article titled "The atrioventricular branches of the human coronary arteries."

A notable increase in research activity was observed after the year 2000, with a particularly remarkable surge beginning in 2015. The highest annual output occurred in 2021, with a total of 18 articles published. In the first six months of 2022, eight additional publications were recorded, suggesting a potential upward trend for the remainder of the year. However, further data collection is required to confirm this trajectory.

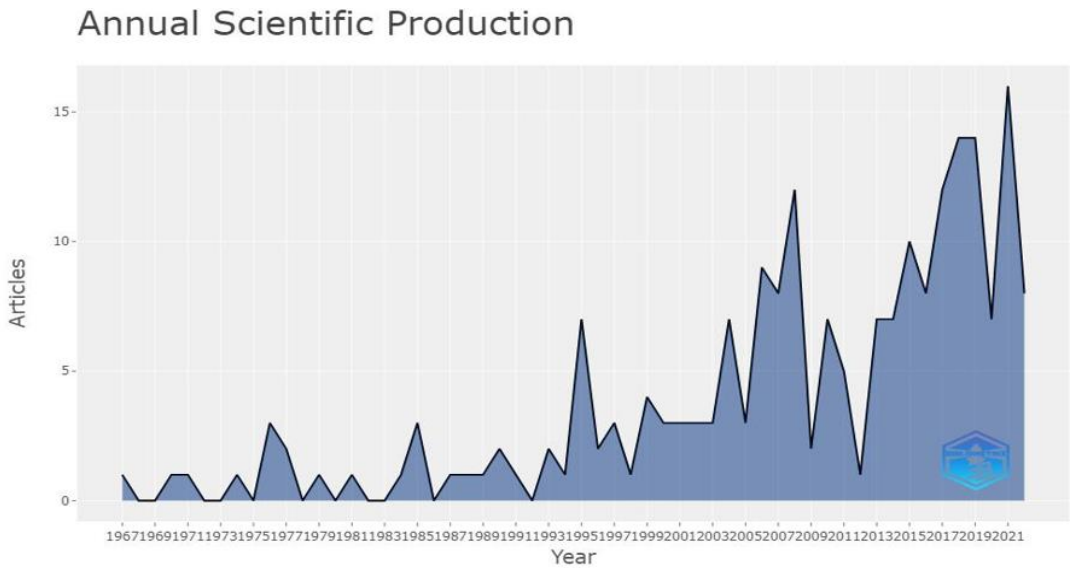

Figure 2.
Annual Number of Publications on Heart Attacks in the Context of Communication.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

3.4. The Most Prolific and Influential Authors

As presented in Table 1, a total of 819 distinct authors contributed to myocardial infarction research within the context of communication between 1967 and 2022. Among these, 788 authors collaborated on multi-authored articles, while 31 authors published single-authored works. The average number of articles per author was calculated as 0.256, with an average of 3.9 authors per article. Additionally, the co-authorship index per article was determined to be 4.15, while the collaboration index—calculated as the ratio of the total number of authors in multi-authored articles to the total number of such articles—was 4.53 [17]. Co-authorship is widely regarded as a key indicator of collaboration among researchers [18].

Table 1.
Descriptive Statistics.

Descriptions	**Time Span**	**Findings**
Basic information about data	Journals	174
	Articles	210
	Average Citations per Article	75.6
	Average Annual Citations per Article	4.175
	References	7.209
Type of Article	Research Article	181
	Review Article	29
Keyword	Keyword Plus	2.157
	Author(s)'s Keywords	564
Authors	Authors of Single Authored Articles	31
	Authors of Multi-authored Articles	788
Authors' Collaboration	Articles Per Author	0.256
	Authors Per Article	3.9
	Co-Authorship per Article	4.15
	Collaboration Index	4.53

To evaluate the level of engagement of authors, journals, or countries in a specific field, two key dimensions must be considered: productivity and impact. Productivity is assessed by the total number of articles published over time, while impact is measured by the frequency of citations received from other publications annually [15]. In response to RQ2, this study identified the most prolific and influential authors contributing to myocardial infarction research within the communication domain.

Table 2 provides a detailed overview of the productivity and impact metrics for the top authors in the field. The most prolific author is Koçyiğit, et al. [19] who published their first article on communication and myocardial infarction in 2002. Over the years, Koçyiğit, et al. [19] authored a total of five articles on the subject. Following closely, Han, et al. [20] published four articles in the same year.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

Table 2.
The Top Ten Prolific Writers.

Authors	Number of Publications*	h-index	g-index	m-index	Total Citation	Annual Average Citation	Year of First Publication
Koçyiğit, et al. [19]	5	5	5	0.238	191	5	2002
Ghasemzadeh, et al. [2]	4	4	4	0.19	125	4	2002
Donthu, et al. [7]	3	3	3	0.136	845	3	2001
Mumu, et al. [21]	3	3	3	0.107	74	3	1995
Nabi, et al. [22]	3	3	3	0.143	101	3	2002
Aria and Cuccurullo [14]	2	2	2	0.133	18	2	2008
Bani Hani, et al. [23]	2	2	2	0.2	10	2	2013
Batty, et al. [24]	2	2	2	0.4	32	2	2018
Bani Hani, et al. [23]	2	2	2	0.125	126	2	2007
Cushman, et al. [25]	2	2	2	0.105	16	2	2004

In terms of impact, Donthu, et al. [7] emerged as the most influential author, with a total of 845 citations. This is followed by Koçyiğit, et al. [19] who also ranks as the most prolific author, with 191 citations. The third most influential author is Batty, et al. [24] with 126 citations. These findings highlight the significant contributions of these authors to advancing knowledge in the field.

3.5. The Most Productive and Influential Journals

In response to RQ2, this study identified the most prolific and influential journals contributing to myocardial infarction research within the communication context. Between 1967 and 2022, a total of 174 distinct journals published at least one article on this topic. Table 3 presents the 15 most highly cited and impactful journals based on the total number of publications.

Table 3.
The Top Fifteen Relevant Journals.

Journal	Number of Articles	h-index	g-index	m-index	Total Citation	Annual Average Citation	Year of First Publication
Academic Emergency Medicine	4	1	1	0.058	11	1	2006
Academic Medicine	4	1	1	0.043	49	1	2000
Acm Transactions on Speech and Language Processing	4	1	1	0.1	8	1	2013
Acta Informatica Medica	3	1	1	0.125	12	1	2015
Acta Polytechnica Hungarica	3	1	1	0.25	7	1	2019
American Journal of Emergency Medicine	2	4	4	0.142	194	4	1995
American Journal of Physiology-Heart and Circulatory Physiology	2	1	1	0.5	4	1	2021
American Journal of Preventive Medicine	2	1	2	0.058	75	2	2006
Anesthesia and Intensive Care	2	1	1	0.1	7	1	2013
Annals of Behavioral Medicine	2	1	1	0.166	21	1	2017
Annals of Family Medicine	2	1	1	0.083	20	1	2011
Annals of Internal Medicine	2	1	1	0.0625	66	1	2007
Antıoxidants and Redox Signaling	2	1	1	0.058	59	1	2006
Archives of Internal Medicine	2	1	1	0.083	51	1	2011
Archives of Suicide Research	2	1	1	0.1	25	1	2013

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

The most prolific journal in terms of productivity is Academic Medicine, which published its first article on myocardial infarction in 2000 and has since contributed a total of four articles. The journal's scope encompasses practice-oriented interdisciplinary publications across all scientific fields. Another notable contributor is Academic Emergency Medicine, which published its first article on the subject in 2006 and has also contributed four publications.

In terms of impact, the most influential journal is the American Journal of Emergency Medicine, with a total of 194 citations and a four-year average citation rate. This journal published its first article on myocardial infarction in 1995. The second most influential journals are the American Journal of Preventive Medicine (first publication in 2020, 75 total citations, and an average annual citation rate of 2) and the Annals of Internal Medicine (66 total citations and an average annual citation rate of 1). Notably, the American Journal of Emergency Medicine also ranks highest in terms of H-index and g-index metrics.

3.6. The Most Influential Articles

To identify the most influential articles in myocardial infarction research within the communication context, this study analyzed both the total number of global citations and the annual average citation rate. Global citations refer to the frequency with which an article is cited both within the dataset and by external publications [26].

Table 4 highlights the top 10 most influential articles in the dataset. The most globally cited article is "Success and Predictors of Blood Pressure Control in Diverse North American Settings: The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)". This study received a total of 796 global citations and concluded that blood pressure control varies according to geographical regions, practice settings, and demographic and clinical characteristics of participants [25].

The second most influential article, in terms of global citations, is "Human Blood Vessel Organoids as a Model of Diabetic Vasculopathy" by Ramos-Rodríguez and Ruíz-Navarro [13] published in Nature in 2019, with 252 citations.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

Table 4.
The Ten Most Influential Articles.

Author	Year	Title	Journal	Total Citation	Annual Average Total Citations
Batty, et al. [24]	2000	Medical communication: Do our patients understand ?	The American Journal of Emergency Medicine	93	4.035
Cushman, et al. [25]	2002	Original Papers. Success and Predictors of Blood Pressure Control in Diverse North American Settings: The Antihypertensive and lipid-Lowering Treatment to Prevent Heart Attack Trial (All HAT)	The Journal Of Clinical Hypertension	796	37.9048
Tunç and Atıcı [27]	2011	Nano\wed three-Dimensional cardiac patches	Nature Nanotechnology	516	43
Aria and Cuccurullo [14]	2006	Effect of Language on Heart Attack and! Stroke Awareness Among U.S. Hispanics	Journal of the American College of Cardiology	74	4.3529
Raza, et al. [11]	2019	Human blood vessel organoids as a model of diabetic maculopathy	History of the Journal Nature	252	63
Mumu, et al. [21]	2004	Stop-smoking medications: Who uses them, who misuses them, and who is misinformed about them?	Oxford Academic Nicotine & Tobacco Research	193	10.1579
Zolnierek and DiMatteo [6]	1990	The structure of readjustment after heart attack	Social Science & Medicine	70	2.1212
Han, et al. [20]	1995	Communicating the Benefits of Chronic Preventive Therapy: Does the Format of Efficacy Data Determine Patients' Acceptance of Treatment?	Medical Decision Making	174	6.2143
Miller, et al. [28]	2016	Smartphone-Based Conversational Agents and Responses. to Questions About Mental Health, interpersonal Violence, and Physical Health	Jama Internal Medicine	148	21.1429
Ramos-Rodríguez and Ruíz-Navarro [13]	2018	The spread of medical fake news in social media -The pilot quantitative study	Health Policy and Technology	144	288

3.7. The Most Productive and Influential Countries

RQ2 also sought to identify the most productive and influential countries in the field. A total of 36 countries contributed to scientific production on myocardial infarction within the communication context, reflecting a global interest in this research area. Figure 3 illustrates the geographical distribution of these contributions. Regional analysis reveals that studies are predominantly concentrated in developed regions, particularly North America and Europe.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

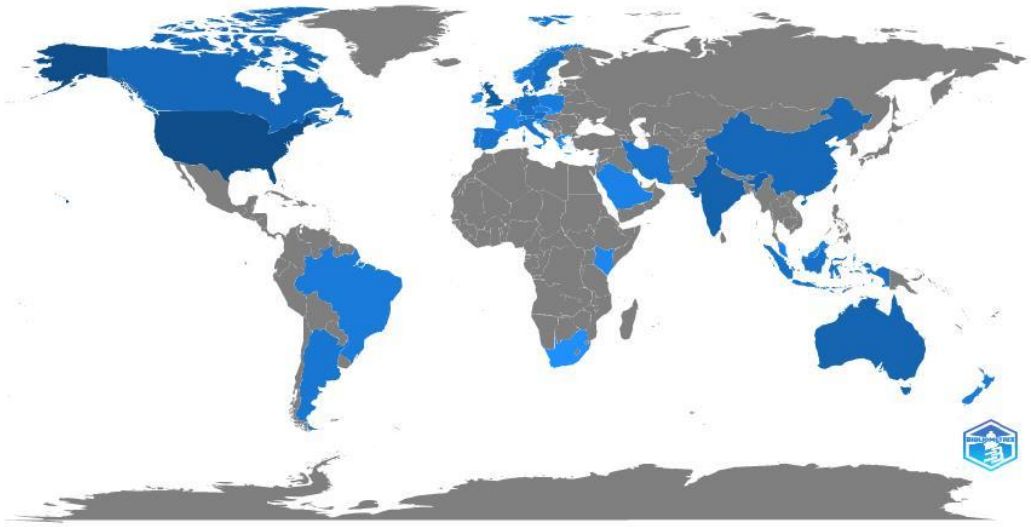

Figure 3.
Geographical Location of Countries Contributing to the Field.

Table 5 presents the productivity and impact metrics for the top-contributing countries. The United States (USA) emerged as the most productive country, with 325 publications—nearly three times more than the next most productive country. The United Kingdom ranked second with 82 publications, followed by India with 50 publications. Other productive countries include Australia (N=42), Canada (N=29), and China (N=29). Sweden, Germany, and Austria contributed the fewest articles on the topic.

Table 5.
Most Productive and Influential Countries.

Countries	Publication Number*	Countries	Total Citation**
Usa	325	Usa	13222
Uk	82	Austria	252
India	50	United Kingdom	241
Australia	42	Australia	200
Canada	29	Canada	187
China	29	Poland	144
Denmark	22	Denmark	137
Austria	15	Netherlands	104
Germany	15	India	87
Sweden	15	Norway	81

In terms of impact, the USA also ranked highest, with a total of 13,222 citations. Austria (N=252), the United Kingdom (N=241), and Canada (N=187) were the next most influential countries. Interestingly, India, which ranked third in productivity, dropped to ninth place in terms of impact (N=87). Conversely, the Netherlands, which did not rank among the top 10 in productivity, secured a place in the top 10 for impact (N=104).

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

3.8. Scientific Mapping

To address RQ3, this section delineates the conceptual, intellectual, and social structure of myocardial infarction research within the communication context through scientific mapping. This process involved three key analyses: co-word analysis to examine the conceptual structure, co-citation analysis to explore intellectual development, and co-authorship analysis to assess the social structure of the field.

3.9. Keywords

Keywords serve as critical indicators of the thematic focus and evolution of a research domain, offering insights into the variables, concepts, or subtopics that have garnered significant attention [17]. In this study, author-provided keywords were utilized to identify the most researched themes and emerging trends within the literature [8]. Additionally, a "trending topics" analysis was conducted to map the recent evolution of the field [21].

As presented in Table 1, a total of 2,157 author-provided keywords were identified in the dataset. Notably, 564 of these keywords appeared only once, reflecting the diversity of the research area [26]. Figure 4 illustrates the most frequently used keywords. The predominant keyword is "human," which aligns with the central focus of the study and accounts for 514 instances in the dataset. Other frequently used keywords include "cardiac infarction" (N=97), "interpersonal communication" (N=40), "risk management" (N=40), "communication" (N=34), "heart" (N=15), and "mass communication" (N=8). These keywords highlight the most studied subtopics within the field.

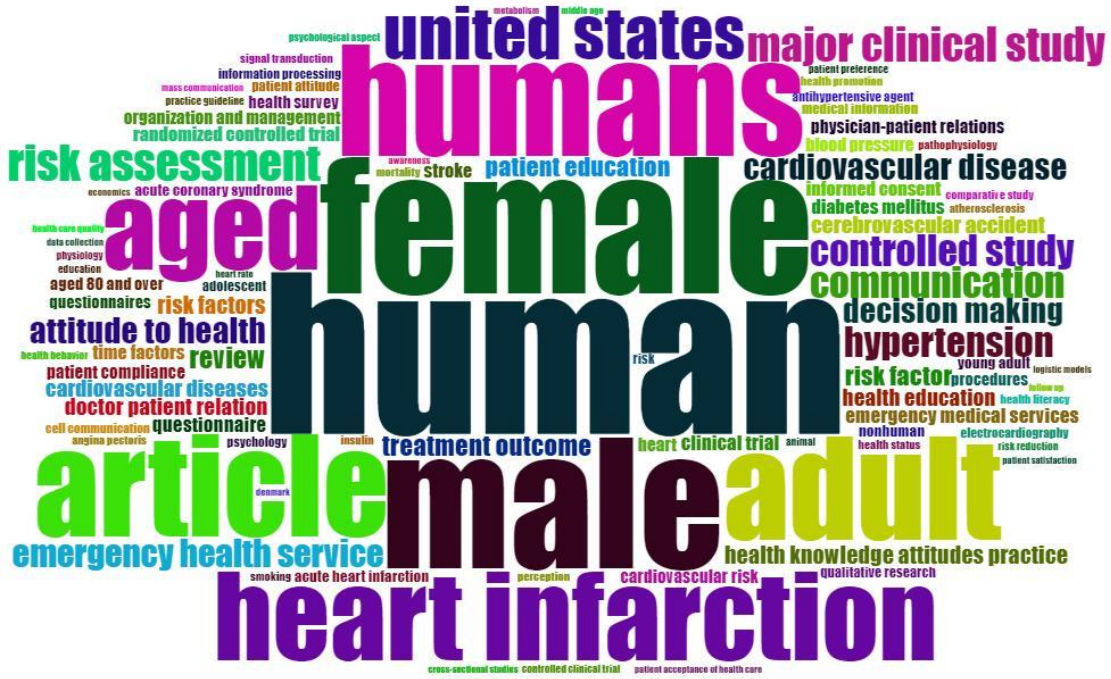

Figure 4.
Keyword Cloud.

The prevalence of "human" as the most frequently used keyword underscores the centrality of demographic characteristics, such as gender and age, in the analysis of myocardial infarction research. This suggests that studies often explore the impact of these factors on communication dynamics.

In addition to keyword frequency, trending topics in myocardial infarction research were analyzed over time. According to Figure 5, since 2004, there has been a growing emphasis on themes such as communication and interpersonal communication. Particularly since 2015, publications have increasingly focused on intercellular communication and psychological dimensions.

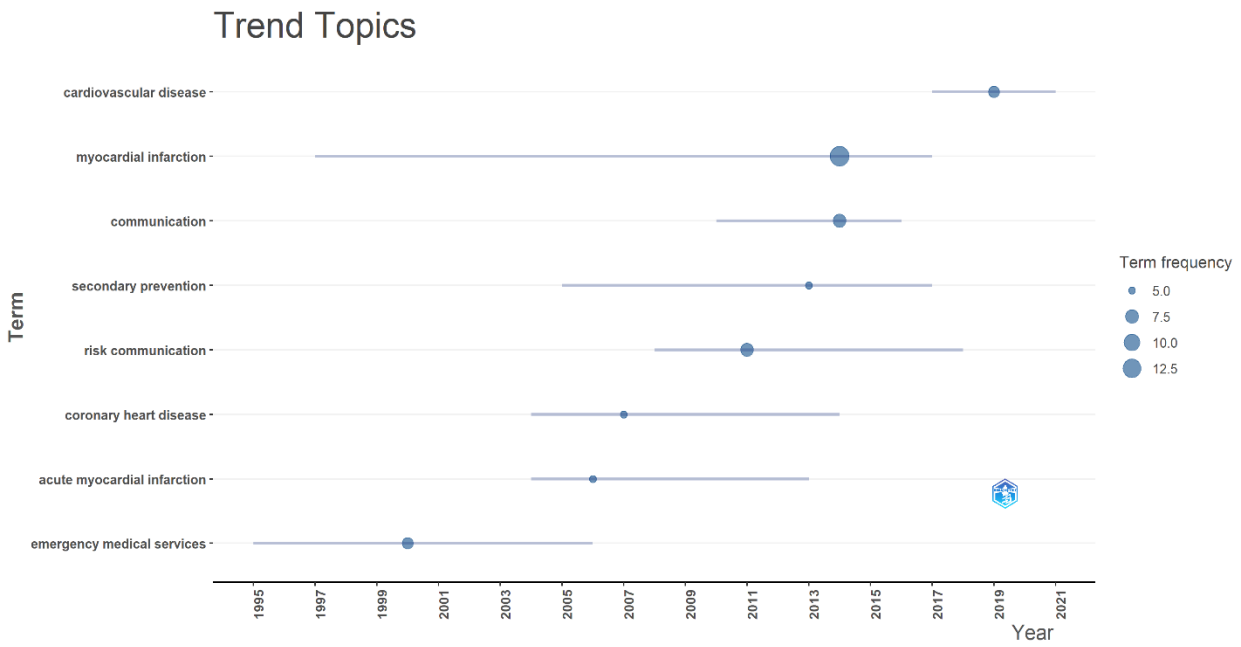

Figure 5.
Trending Topic Keywords.

3.10. Co-Word Analysis

Co-word analysis was conducted to capture the conceptual structure of the field by examining relationships between keywords [15]. This approach enables the visualization of clusters that reveal connections between key concepts, thereby facilitating a deeper understanding of the research landscape [11].

As illustrated in Figure 6, the co-word analysis identified three distinct clusters based on the 50 most prominent keywords.

- Cluster 1 (Blue): This cluster, characterized by central nodes, includes concepts such as gender, age, control studies, risk assessments, and clinical trials. The prominence of these terms suggests that the impact of myocardial infarction varies significantly based on demographic factors and communication management strategies.
- Cluster 2 (Red): Centered around the human factor, this cluster focuses on themes such as communication, interpersonal communication, and cardiac infarction. These keywords reflect the interdisciplinary nature of the research, emphasizing the role of communication in addressing cardiovascular risks.
- Cluster 3 (Green): Unlike the other clusters, this group lacks a central node and highlights concepts such as cardiovascular risks, hypertension, and risk factors. These terms underscore the importance of preventive measures and health communication in managing myocardial infarction.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

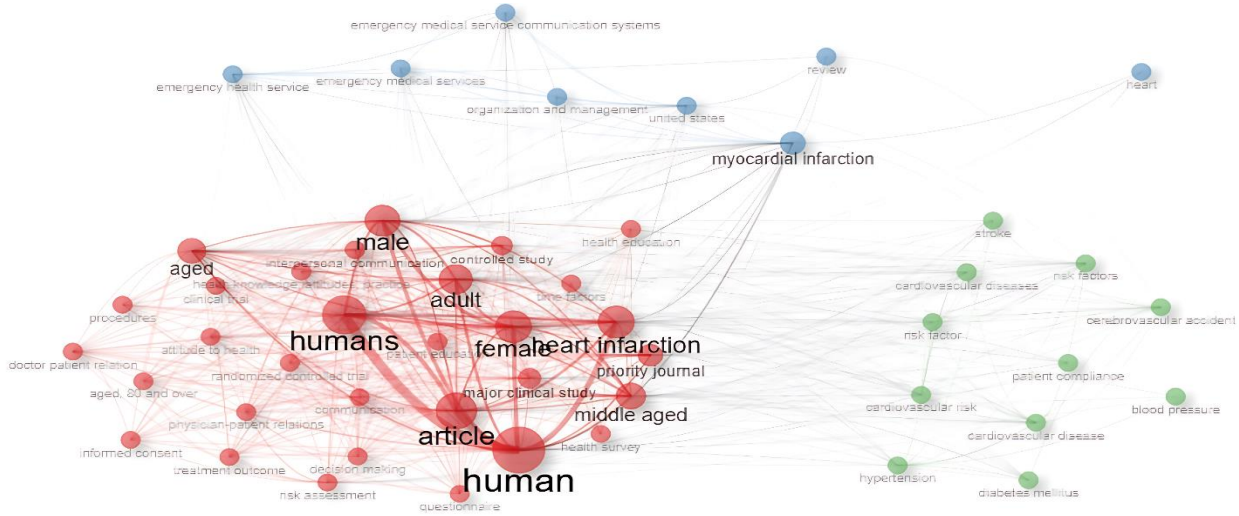

Figure 6.
Common Word Analysis.

In co-word analysis, the proximity of keywords to the center indicates their prominence within the research field. Concepts such as "human," "communication," "demographic characteristics," "myocardial infarction," and "cardiac infarction" occupy central positions, reflecting their significance. Additionally, emerging concepts such as risk factors, organizational management, health services, and medical systems suggest potential avenues for future research at the intersection of health communication and myocardial infarction.

3.11. Co-Author Analysis

Collaborative networks among authors provide valuable insights into the relational dynamics within the research field, offering a window into its social structure [26]. Co-authorship analysis not only highlights clustered research efforts but also serves as a foundation for justifying and fostering future research initiatives, particularly in regions with limited scholarly output [7]. In this study, co-authorship analysis was conducted to explore the social structure of myocardial infarction research within the communication context, focusing on both author-level and country-level collaborations.

In Figure 7, the colors represent distinct clusters formed by researchers, indicating groups of authors who collaborate closely. The size of the nodes reflects the number of co-authored articles published by each author, while the thickness of the links between nodes signifies the strength of collaboration between specific authors [26].

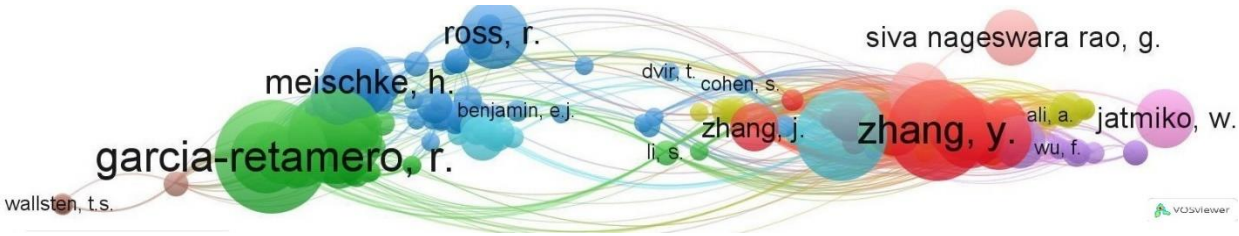

Figure 7.
Co-Author Analysis at the Author Level.
Source: Mumu, et al. [21]; Guttman, et al. [29]; Libby [1]; Koçyiğit, et al. [19] and Lazarus [4].

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

3.12. Author-Level Collaboration

As illustrated in Figure 7, ten distinct clusters—each represented by a unique color—emerged from the analysis, highlighting close collaborations among authors. Notably, Xu, et al. [30] emerged as the most collaborative authors. The strongest collaboration was observed between Yılmaz [18] with Van Eck and Waltman [16] cluster encompassing a larger number of authors. Conversely, researchers such as Donthu, et al. [7] exhibited minimal collaborative engagement.

The limited presence of co-authorship networks among many authors publishing on myocardial infarction within the communication context underscores an opportunity for researchers to expand collaborative efforts and strengthen the field's social structure.

3.13. Country-Level Collaboration

Figure 8 highlights the co-authorship relationships established among 23 out of 48 countries contributing to myocardial infarction research within the communication domain. Seven distinct clusters emerged from these relationships, reflecting regional and international collaboration patterns. According to Table 5, the United States (USA), which ranks highest in productivity and impact, also leads in terms of author collaboration. US-based researchers predominantly collaborate with their Canadian counterparts, followed by frequent collaborations involving the United Kingdom, Croatia, Sweden, and Poland.

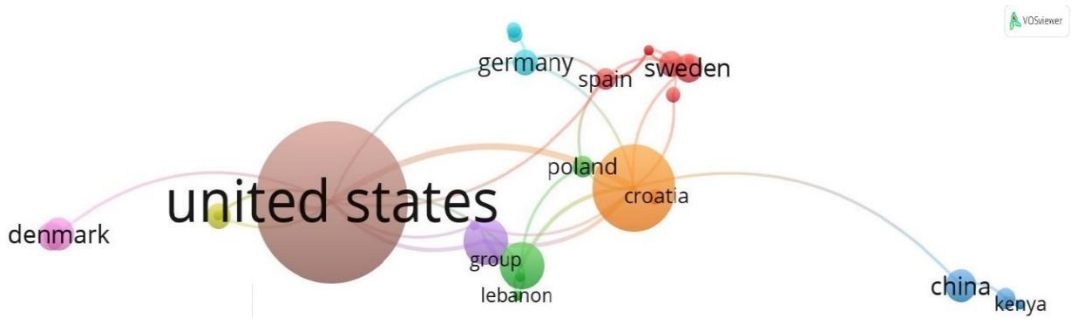

Figure 8.
Co-Author Analysis at Country Level.

However, countries such as Germany, Russia, China, and Denmark exhibit relatively low levels of co-authorship. This suggests that academic institutions in these regions could play a pivotal role in facilitating international collaborations, thereby enhancing the global visibility and impact of their research contributions.

4. Discussion

Our bibliometric analysis reveals a marked surge in myocardial infarction (MI) research within the communication domain in recent years, reflecting an increasing recognition of the interplay between clinical outcomes and communicative practices. This study has systematically mapped the evolution of this interdisciplinary field, identifying key contributors, influential publications, and emerging thematic clusters that highlight the integral role of communication in MI management.

A primary finding of our analysis is the significant growth in scholarly output since 2015. This trend suggests that researchers are increasingly acknowledging that effective communication—spanning interpersonal interactions, risk management strategies, and digital platforms—is not merely an adjunct to clinical care but a pivotal determinant of patient outcomes. This observation aligns with previous bibliometric investigations in cardiovascular research, such as those by Xu, et al. [30] and

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

Bani Hani, et al. [23] which documented rising research activity in related areas. However, our study uniquely bridges the gap by focusing on the nexus between MI and communication, thereby extending the traditional clinical focus to incorporate a broader, more integrative perspective.

Effective communication is fundamental to healthcare delivery and patient safety. Our findings echo the work of Guttman, et al. [29] who demonstrated that suboptimal information exchange is implicated in up to 70% of adverse events. The complexity of communication—encompassing verbal, non-verbal, and digital interactions—necessitates a granular approach that dissects these components to identify specific barriers and opportunities for improvement. By revealing the critical role of targeted communication strategies, our study supports the notion that optimizing patient-provider interactions can lead to enhanced adherence, reduced adverse events, and ultimately, improved clinical outcomes in MI care.

Psychosocial stress is another pivotal factor that emerged from our analysis. A robust body of literature has consistently linked negative psychological states—such as depression, anger, and hostility—to increased cardiovascular risk [16, 28, 31]. In this regard, the work of Falagas, et al. [10] is particularly instructive, demonstrating that acute mental stress, triggered by a range of factors from interpersonal conflicts to environmental disasters, can precipitate transient myocardial ischemia. Their elucidation of the underlying neuroendocrine and immunologic mechanisms reinforces the importance of addressing emotional stress through effective communication strategies. By promoting emotional regulation, self-awareness, and empathy, enhanced communication practices may mitigate some of the deleterious cardiovascular effects associated with both acute and chronic stress [19]. Furthermore, our analysis underscores the intricate interplay between psychosocial stress, depression, and maladaptive communication patterns. Data from landmark studies such as INTERHEART have shown that stressors related to work, finance, and family can double the risk of acute MI, with chronic stress accounting for a substantial proportion of this risk [3]. Depression, a well-established risk factor for coronary artery disease, exacerbates cardiovascular risk through mechanisms such as increased inflammation and autonomic dysfunction [24]. Maladaptive communication patterns further intensify these conditions by fostering a cycle of emotional withdrawal and impaired interpersonal interactions, thereby compounding the overall burden of cardiovascular disease [22].

The influence of broader societal challenges on MI research within the communication framework is also noteworthy. Our study highlights that escalating occupational stress, workplace violence, and strained interpersonal relationships are significant contributors to the evolving research landscape. Evidence from Han, et al. [20] derived from a 13-year nationwide cohort study in South Korea, illustrates that professions characterized by high job strain—such as police officers and firefighters—exhibit markedly elevated risks for cardiovascular events. These findings not only underscore the far-reaching impact of occupational stress on both physical and mental health but also emphasize the need to integrate advanced communication strategies into risk management and preventive frameworks. Recent advances in communication technologies and self-regulation strategies, including psychological distancing and strategic distraction, further demonstrate the potential for innovative interventions to enhance recovery processes and mitigate stress-related cardiovascular risks [32].

From a broader perspective, our analysis reveals that all forms of human interaction—verbal, non-verbal, written, or digital—play a critical role in shaping healthcare outcomes. The medium through which communication occurs not only facilitates the exchange of information but also influences its interpretation, thereby affecting patient perceptions and, ultimately, physiological responses. In the context of risk management, effective communication is indispensable for accurately diagnosing and mitigating risks, as well as for developing innovative strategies that minimize the adverse impacts of MI on patients' lives [27].

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

4.1. Limitations of the Study

This study has several limitations that warrant consideration. First, the dataset was exclusively derived from the Scopus database, which may not comprehensively capture the global literature on myocardial infarction within the communication context. Future research should consider expanding the dataset by incorporating publications from additional databases such as Web of Science and PubMed to achieve a more representative overview. Second, the analysis was confined to peer-reviewed journal articles indexed in Scopus, thereby excluding other types of scholarly outputs, including conference proceedings, books, and book chapters. Consequently, the findings may not fully reflect the entire scope of relevant literature. Incorporating these additional sources in future bibliometric studies would likely yield more extensive and nuanced insights into the topic.

5. Conclusions

This bibliometric analysis offers a succinct overview of the evolution of myocardial infarction research within the communication domain. Our study reveals a marked increase in scholarly output, particularly since 2015, and identifies key contributors, influential journals, and collaborative networks that underscore the critical role of communication in patient care. Integrating clinical, psychological, and technological perspectives, our findings emphasize that effective communication is not only central to optimizing clinical outcomes but also to mitigating psychosocial risk factors associated with myocardial infarction. Furthermore, the identification of emerging themes and underexplored areas provides a strategic roadmap for future interdisciplinary research and the development of targeted communication-based interventions. Future studies incorporating additional data sources are warranted to further validate and expand upon these insights.

List of Abbreviations

AMI: Acute Myocardial Infarction
ALLHAT: Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial
CAD: Coronary Artery Disease
CHD: Coronary Heart Disease
CVD: Cardiovascular Disease
MI: Myocardial Infarction
MSIMI: Mental Stress-Induced Myocardial Ischemia
RQ: Research Question
Scopus: Elsevier's Abstract and Citation Database
VOSviewer: Visualization of Similarities Viewer (Software for bibliometric mapping)

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

References

[1] P. Libby, *Braunwald's heart disease-E-book: a textbook of cardiovascular medicine*. Elsevier Health Sciences, 2021.

[2] G. Ghasemzadeh, M. Soodmand, and M. T. Moghadamnia, "The cardiac risk factors of coronary artery disease and its relationship with Cardiopulmonary resuscitation: A retrospective study," *The Egyptian Heart Journal*, vol. 70, no. 4, pp. 389-392, 2018. https://doi.org/10.1016/j.ehj.2018.07.005

[3] A. Rosengren *et al.*, "Association of psychosocial risk factors with risk of acute myocardial infarction in 11 119 cases and 13 648 controls from 52 countries (the INTERHEART study): Case-control study," *The Lancet*, vol. 364, no. 9438, pp. 953-962, 2004. https://doi.org/10.1016/S0140-6736(04)17019-0

[4] R. Lazarus, *Psychological stress and the coping process*. New York: McGraw-Hill, 1966.

[5] M. D. Naylor, D. A. Brooten, R. L. Campbell, G. Maislin, K. M. McCauley, and J. S. Schwartz, "Transitional care of older adults hospitalized with heart failure: A randomized, controlled trial," *Journal of the American Geriatrics Society*, vol. 52, no. 5, pp. 675-684, 2004. https://doi.org/10.1111/j.1532-5415.2004.52202.x

[6] K. B. H. Zolnierek and M. R. DiMatteo, "Physician communication and patient adherence to treatment: A meta-analysis," *Medical Care*, vol. 47, no. 8, pp. 826-834, 2009. https://doi.org/10.1097/MLR.0b013e31819a5acc

[7] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *Journal of Business Research*, vol. 133, pp. 285-296, 2021. https://doi.org/10.1016/j.jbusres.2021.04.070

[8] O. Ozturk, "Bibliometric review of resource dependence theory literature: an overview," *Management Review Quarterly*, vol. 71, no. 3, pp. 525-552, 2021. https://doi.org/10.1007/s11301-020-00192-8

[9] I. Zupic and T. Čater, "Bibliometric methods in management and organization," *Organizational Research Methods*, vol. 18, no. 3, pp. 429-472, 2015. https://doi.org/10.1177/1094428114562629

[10] M. E. Falagas, E. I. Pitsouni, G. A. Malietzis, and G. Pappas, "Comparison of PubMed, scopus, web of science, and Google scholar: strengths and weaknesses," *The FASEB Journal*, vol. 22, no. 2, pp. 338-342, 2008. https://doi.org/10.1096/fj.07-9492LSF

[11] S. A. Raza, R. Ashrafi, and A. Akgunduz, "A bibliometric analysis of revenue management in airline industry," *Journal of Revenue and Pricing Management*, vol. 19, pp. 436-465, 2020. https://doi.org/10.1057/s41272-020-00247-1

[12] S. Singh, N. Walia, S. Saravanan, P. Jain, A. Singh, and J. Jain, "Mapping the scientific research on alternative momentum investing: A bibliometric analysis," *Journal of Economic and Administrative Sciences*, vol. 38, no. 4, pp. 619-636, 2022. https://doi.org/10.1108/JEAS-11-2020-0185

[13] A. R. Ramos-Rodríguez and J. Ruíz-Navarro, "Changes in the intellectual structure of strategic management research: A bibliometric study of the," *Strategic Management Journal*, vol. 25, no. 10, pp. 981-1004, 2004. https://doi.org/10.1002/smj.397

[14] M. Aria and C. Cuccurullo, "bibliometrix: An R-tool for comprehensive science mapping analysis," *Journal of Informetrics*, vol. 11, no. 4, pp. 959-975, 2017. https://doi.org/10.1016/j.joi.2017.08.007

[15] C. Forliano, P. De Bernardi, and D. Yahiaoui, "Entrepreneurial universities: A bibliometric analysis within the business and management domains," *Technological Forecasting and Social Change*, vol. 165, p. 120522, 2021. https://doi.org/10.1016/j.techfore.2020.120522

[16] N. Van Eck and L. Waltman, "Software survey: VOSviewer, a computer program for bibliometric mapping," *Scientometrics*, vol. 84, no. 2, pp. 523-538, 2009. https://doi.org/10.1007/s11192-009-0146-3

[17] S. Schöbel, M. Saqr, and A. Janson, "Two decades of game concepts in digital learning environments–A bibliometric study and research agenda," *Computers & Education*, vol. 173, p. 104296, 2021. https://doi.org/10.1016/j.compedu.2021.104296

[18] K. Yılmaz, "Sosyal bilimlerde ve eğitim bilimlerinde sistematik derleme, meta değerlendirme ve bibliyometrik analizler," *Manas Sosyal Araştırmalar Dergisi*, vol. 10, no. 2, pp. 1457-1490, 2021. https://doi.org/10.33206/mjss.791537

[19] M. Koçyiğit, A. Koçyiğit, and E. Özsoy, "Examining the relationship between individuals' communication skills and their levels of coping with stress in the context of interpersonal communication: A study on national athletes," *Türk Spor Bilimleri Dergisi*, vol. 1, no. 1, pp. 11-19, 2018.

[20] M. Han, S. Park, J. H. Park, S.-s. Hwang, and I. Kim, "Do police officers and firefighters have a higher risk of disease than other public officers? A 13-year nationwide cohort study in South Korea," *BMJ Open*, vol. 8, no. 1, p. e019987, 2018. https://doi.org/10.1136/bmjopen-2017-019987

[21] J. R. Mumu, T. Tahmid, and M. A. K. Azad, "Job satisfaction and intention to quit: A bibliometric review of work-family conflict and research agenda," *Applied Nursing Research*, vol. 59, p. 151334, 2021. https://doi.org/10.1016/j.apnr.2020.151334

[22] H. Nabi *et al.*, "Increased risk of coronary heart disease among individuals reporting adverse impact of stress on their health: The Whitehall II prospective cohort study," *European Heart Journal*, vol. 34, no. 34, pp. 2697-2705, 2013. https://doi.org/10.1093/eurheartj/eht216

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 6: 424-440, 2025
DOI: 10.55214/25768484.v9i6.7819

[23] A. Bani Hani *et al.*, "Analyzing cardiovascular disease research in the Arab region: A bibliometric review from 2012 to 2022," *International Journal of Vascular Medicine*, vol. 2024, no. 1, p. 5915132, 2024. https://doi.org/10.1155/2024/5915132

[24] G. D. Batty, T. C. Russ, E. Stamatakis, and M. Kivimäki, "Psychological distress and risk of peripheral vascular disease, abdominal aortic aneurysm, and heart failure: Pooling of sixteen cohort studies," *Atherosclerosis*, vol. 236, no. 2, pp. 385-388, 2014. https://doi.org/10.1016/j.atherosclerosis.2014.06.025

[25] W. C. Cushman *et al.*, "Original papers. success and predictors of blood pressure control in diverse North American settings: The antihypertensive and lipid-lowering treatment to prevent heart attack trial (ALLHAT)," *The Journal of Clinical Hypertension*, vol. 4, no. 6, pp. 393-404, 2002. https://doi.org/10.1111/j.1524-6175.2002.02045.x

[26] K. Shi, Y. Zhou, and Z. Zhang, "Mapping the research trends of household waste recycling: A bibliometric analysis," *Sustainability*, vol. 13, no. 11, p. 6029, 2021. https://doi.org/10.3390/su13116029

[27] A. Tunç and F. Z. Atıcı, "Fighting pandemics in the world and in Turkey: An assessment in the context of risk and crisis management," *Çanakkale Onsekiz Mart Üniversitesi Uluslararası Sosyal Bilimler Dergisi*, vol. 5, no. 2, pp. 329-362, 2020. https://doi.org/10.31454/usb.808685

[28] G. Miller, E. Chen, and S. W. Cole, "Health psychology: Developing biologically plausible models linking the social world and physical health," *Annual Review of Psychology*, vol. 60, no. 1, pp. 501-524, 2009. https://doi.org/10.1146/annurev.psych.60.110707.163551

[29] O. T. Guttman, E. H. Lazzara, J. R. Keebler, K. L. Webster, L. M. Gisick, and A. L. Baker, "Dissecting communication barriers in healthcare: A path to enhancing communication resiliency, reliability, and patient safety," *J Patient Saf*, vol. 17, no. 8, pp. e1465-e1471, 2021. https://doi.org/10.1097/PTS.0000000000000541

[30] M. Xu *et al.*, "A bibliometric analysis of acute myocardial infarction in women from 2000 to 2022," *Frontiers in Cardiovascular Medicine*, vol. 10, p. 1090220, 2023. https://doi.org/10.3389/fcvm.2023.1090220

[31] S. A. Stansfeld, R. Fuhrer, M. J. Shipley, and M. G. Marmot, "Psychological distress as a risk factor for coronary heart disease in the Whitehall II Study," *International Journal of Epidemiology*, vol. 31, no. 1, pp. 248-255, 2002. https://doi.org/10.1093/ije/31.1.248

[32] A. Demirhan and İ. Güler, "Informatics and health," *Bilişim Teknolojileri Dergisi*, vol. 4, no. 3, pp. 13-20, 2011.