Analysis of Articles Titled Prostate Cancer. A Review of 40 Years of Literature

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Abstract: In the realm of oncology, prostate cancer holds a significant position, particularly within the male population. At its core, science mapping leverages advanced data analysis techniques and visual representation tools to construct maps of scientific fields. This study aims to analyze the 40-year dynamics of prostate cancer with the science mapping method. Our study covers the period 1983-2022. Our study uses the Web of Science database for literature reviews and bibliometric analyses. The obtained data were filtered and classified. Ultimately, a 40-year analysis was conducted with 8,692 articles. The articles were examined in two sections. The first section involved performance analysis, and the second encompassed structural analysis—a comprehensive analysis encompassing 8,692 documents. The apex of article publication was achieved in 2021 with 519 articles, while the zenith of citation frequency was attained in 2017. The United States possesses the highest total number of publications. Scardino PT ranks first in both h and g indices. In Prostate Cancer research, the prominent journal is the Journal of Urology.

Keywords: Prostate Cancer, Science Mapping, Scientific Literature, Database Web of Science.

INTRODUCTION

Prostate cancer, a malignancy originating in the prostate gland, is a pivotal concern in the realm of oncological disorders affecting the male population (Leslie, S. W. *et al*., 2023). Prostate cancer, a prevalent malignancy in males, exhibits significant epidemiological variations across different geographic regions and ethnic groups. Its etiology, though multifactorial, is influenced by age, genetics, environmental factors, and lifestyle choices (Sekhoacha, M. *et al*., 2022). Western countries report higher incidences, potentially attributable to dietary factors like high-fat intake and a sedentary lifestyle. Conversely, Asian countries, particularly those with traditional soy-based diets and low in animal fat, report lower incidences, hinting at the potential protective effects of specific dietary components (Zhang, W. *et al*., 2023). In the United States alone, the year 2023 is projected to witness approximately 288,300 new diagnoses of prostate cancer. This malignancy is not confined to the United States; globally, the year 2020 saw an estimated 1,414,259 individuals diagnosed with prostate cancer (www.cancer.org).

Science mapping, a pivotal methodology in bibliometrics and scientometrics, is employed to visually and quantitatively analyze scientific disciplines' structural and dynamic aspects. This approach facilitates the discernment of intricate patterns and trends within the vast corpus of scientific literature, thereby enabling scholars and policymakers to glean insights into the evolution of various scientific domains (Chen, C, 2017). At its core, science mapping leverages advanced data analysis techniques and visual representation tools to construct maps of scientific fields. Often manifested as network diagrams or clustering models, these maps illustrate the relationships between research areas, key concepts, publications, or authors. By scrutinizing these interconnections, one can ascertain the emergent themes, influential works, and pivotal contributors within a specific field (Lafia, S. *et al*., 2021). The utility of science mapping extends beyond mere academic curiosity. It is an indispensable tool for identifying emerging trends and research frontiers, thus guiding future research directions. Moreover, it aids in assessing the impact and relevance of research at individual and institutional levels. In policy-making, science mapping provides a robust empirical basis for informed decision-making regarding research funding, resource allocation, and strategic planning. Methodologically, science mapping encompasses various techniques, including co-citation analysis, bibliographic coupling, co-word analysis, and social network analysis. Each technique offers unique insights into the structure and dynamics of scientific knowledge, thereby enriching our understanding of the scientific landscape (Radhakrishnan, S. *et al*., 2017).

This study aims to analyze the 40-year dynamics of prostate cancer with the science mapping method.

MATERIAL AND METHOD

Our study's data collection stages are presented in Figure 1.
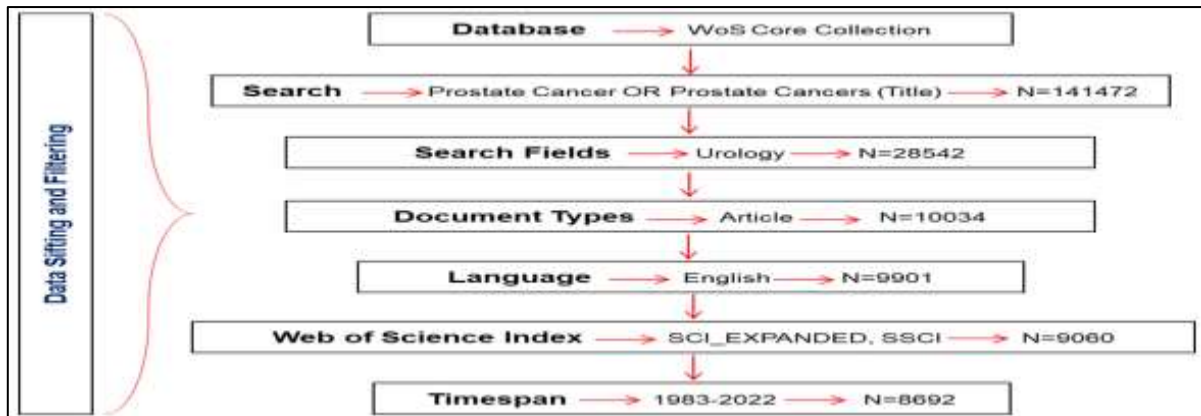
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Figure 1: Data Sifting and Filtering

Our data was analyzed on November 28, 2023, in the Web of Science (WoS) database. Subsequently, the data were categorized. Articles titled "Prostate Cancer" or "Prostate Cancers" were scanned in the WoS database. A total of 28,542 articles were identified. The number of articles was refined to 9,060 based on the following criteria: article type as "Article," language as "English," and WoS indices as "SCI_EXPANDED, SSCI." Articles from 1980-1982 were excluded due to their limited number, and those from 2023 were also excluded as the year had not yet concluded. Ultimately, a 40-year analysis was conducted with 8,692 articles. The Bibliometrix software was utilized for the analyses. The articles were examined in two sections. The first section involved performance analysis, and the second encompassed structural analysis. No word concatenation was employed in these analyses.

Under the scope of performance analysis, the following aspects have been examined:
- Main Information: This pertains to the core data and foundational details relevant to the subject of study.
- Annual Scientific Production and Average Citation per Year: This involves an assessment of the yearly scholarly output and the mean frequency of citations received per annum.
- Corresponding Author's Country: Identification of the geographical origin of the primary author.
- Author Impact: Evaluation of the influence or significance of the author within the scientific community.
- Top-Authors' Production over Time: Analysis of the scholarly contributions of leading authors over a specified period.

- Source Local Impact: Examination of the influence or impact of the source within a localized or specific academic context.
- Most Local Cited Documents: Identification of the documents that have received the highest number of citations within a specific locality or context.
- Word Cloud and Keywords Frequency: Visual representation of the most prevalent terms and the frequency of keywords in the corpus.
- Word Cloud and Abstracts Frequency: Creation of a visual representation depicting the frequency of words used in abstracts.
- Trend Topics Analyses: Investigation into the current and emerging topics of interest or 'trend topics' in the field.

In the context of structural analysis, the following components have been analyzed:
- Authors' Keywords Co-Occurrence Network: A network analysis depicting the relationships and connections between keywords used by different authors.
- Papers Co-Citation Network: Examining how various papers are co-cited or referenced in other scholarly works.
- Authors Co-Citation Network: Analysis of how frequently different authors are cited together in various academic publications.
- Sources Co-Citation Network: Investigation into the co-citation relationships among different sources.
- Thematic Map: A graphical representation that illustrates the major themes or topics within the study area.
- Historiograph: A visual representation or timeline showing the historical development and progression of research in the field.
- Institutions Collaboration Network Analyses: Examination of the collaborative networks and

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relationships among different institutions involved in the research.

The total number of publications (TNP), single and multiple-country publications (SCP & MCP), and the multiple-country publication ratio (MCP Ratio) have been calculated. The tables and figures in the analyses are constructed based on the h, g, and m index values. Year of Publication (YP), YYP= Year 2023-Year of Publication, Global Citations (GC), Local Citations (LC), the ratio of LC to GC (LC/GC), annual local citations (LC/YYP), and annual global citations (GC/YYP) have been calculated. LC represents the number of local citations, while GC represents citations from articles indexed in WoS.

Thematic analysis was conducted with keywords. Thematic groups were clustered using the most repeated keywords. The two most frequently repeated words form each cluster. The size of the circles is proportional to the frequency of use of the keywords they represent. The thematic map is divided into four quadrants. Each quadrant was analyzed for centrality and density. The four quadrants of the thematic diagram are Engine Themes, Niche Themes, Rising or Falling Themes, and Core Themes.

Author, Institution, and Country Collaboration Network analyses were made. A circle represents each author, Institution, or country. The size of the circle and the thickness of the lines connecting the circles are proportional to the intensity of collaboration of the author, Institution, or country.

RESULTS
Performance Analysis
A comprehensive analysis encompassing 8,692 documents, sourced from 409 distinct origins and published between the years 1983 and 2022, has been conducted. Each article, on average, garners 39.86 citations, denoting widespread recognition and referencing across extensive demographics. A total of 29,348 authors have been subjected to this analysis, highlighting prevalent collaboration among researchers. International cooperation among authors is quantified at 22.14%. Additional details are furnished in Table 1.

Table 1: Main Information.

DESCRIPTION	RESULTS	DESCRIPTION	RESULTS
MAIN INFORMATION		**AUTHORS**	
Timespan	1983:2022	Authors	29348
Sources (Journals, Books, etc)	409	Authors of single-authored docs	252
Documents	8692	**AUTHORS COLLABORATION**	
Annual Growth Rate %	10.57	Single-authored docs	366
Document Average Age	13.2	Co-Authors per Doc	7.93
Average citations per doc	39.86	International co-authorships %	22.14
References	95179	**DOCUMENT TYPES**	
DOCUMENT CONTENTS		Article	8203
Keywords Plus (ID)	7183	Article; early access	8
Author's Keywords (DE)	7489	Article; proceedings paper	479
		Article; retracted publication	2

Figure 2 represents the annual counts of articles and citations. A trend of increasing numbers is observed. A marked escalation is noted in the late 1990s and onwards from the 2010s. The years 2011 and 2017 are particularly distinguished for their average citation counts. The apex of article publication was achieved in 2021 with 519 articles, while the zenith of citation frequency was attained in 2017, with an average of 6.8 citations per article.
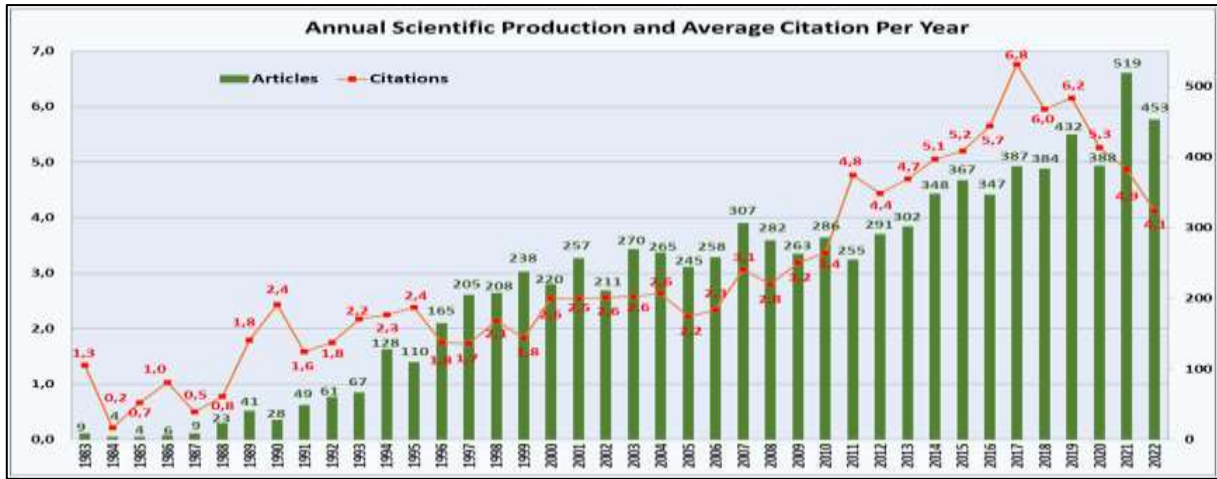
Figure 2: Annual Scientific Production and Average Citation Per Year.

The countries of the corresponding authors of the articles are displayed in Table 2. The United States possesses the highest total number of publications. Japan, Germany, and Canada follow this nation in succession. Switzerland holds the distinction of having the highest MCP-Ratio value.

Table 2: Corresponding Author's Country

Country	TCP	SCP	MCP	MCP_Ratio
USA	3654	3063	591	0,162
JAPAN	605	575	30	0,05
GERMANY	492	321	171	0,348
CANADA	419	260	159	0,379
CHINA	384	338	46	0,12
UNITED KINGDOM	361	227	134	0,371
NETHERLANDS	340	216	124	0,365
ITALY	335	203	132	0,394
SWEDEN	270	174	96	0,356
FRANCE	255	178	77	0,302
KOREA	148	139	9	0,061
AUSTRALIA	146	85	61	0,418
BELGIUM	105	56	49	0,467
DENMARK	98	73	25	0,255
SPAIN	93	83	10	0,108
AUSTRIA	91	52	39	0,429
FINLAND	80	58	22	0,275
TURKEY	72	69	3	0,042
NORWAY	71	54	17	0,239
SWITZERLAND	61	27	34	0,557

TCP = Total number of publications by the corresponding author's country, SCP = Single country publications, MCP = Multiple country publications, MCP_Ratio=MCP/TCP

The statistics of the top 20 most effective authors are presented in Table 3. The ranking is based on the h-index value. Scardino PT ranks first in both h and g indices. His publishing career commenced in 1983. Briganti A holds the foremost position in terms of the m index value, with his entry into the publishing world dating back to 2005. The h index values of Scardino PT, Briganti A, and Partin AW are observed to be on a comparable level. Compared to others, they appear to be more influential and productive.

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Table 3: Author Impact

AUTHOR	h-index	g-index	m-index	TC	NP	PY-start
SCARDINO PT	57	101	1,39	10255	110	1983
BRIGANTI A	55	89	2,895	9037	174	2005
PARTIN AW	55	101	1,571	10417	112	1989
CARROLL PR	54	96	1,742	10166	158	1993
MONTORSI F	52	87	1,625	8428	158	1992
CATALONA WJ	49	90	1,361	8232	94	1988
SCHRÖDER FH	48	87	1,846	7646	93	1998
EPSTEIN JI	46	96	1,278	9666	96	1988
WALSH PC	44	73	1,222	8822	73	1988
GRAEFEN M	43	74	1,654	6345	145	1998
KARAKIEWICZ PI	41	74	1,464	6036	128	1996
KATTAN MW	41	70	1,367	6319	70	1994
ROOBOL MJ	41	78	1,864	6376	109	2002
KLEIN EA	39	74	1,345	5641	92	1995
CARTER HB	37	67	1,057	6420	67	1989
FREEDLAND SJ	37	70	1,542	5207	112	2000
EASTHAM JA	35	67	1,167	5442	67	1994
HULAND H	35	63	1,094	4116	74	1992
KARNES RJ	34	55	2	3333	89	2007
BANGMA CH	33	52	1,222	4907	52	1997

Figure 3 displays the performance of the authors. The writer who has sustained productivity for the longest duration is Scardino PT. His publication career, which commenced in 1983, is still ongoing. Gandaglia G, who began publishing in 2017, has achieved significant success in a short period.
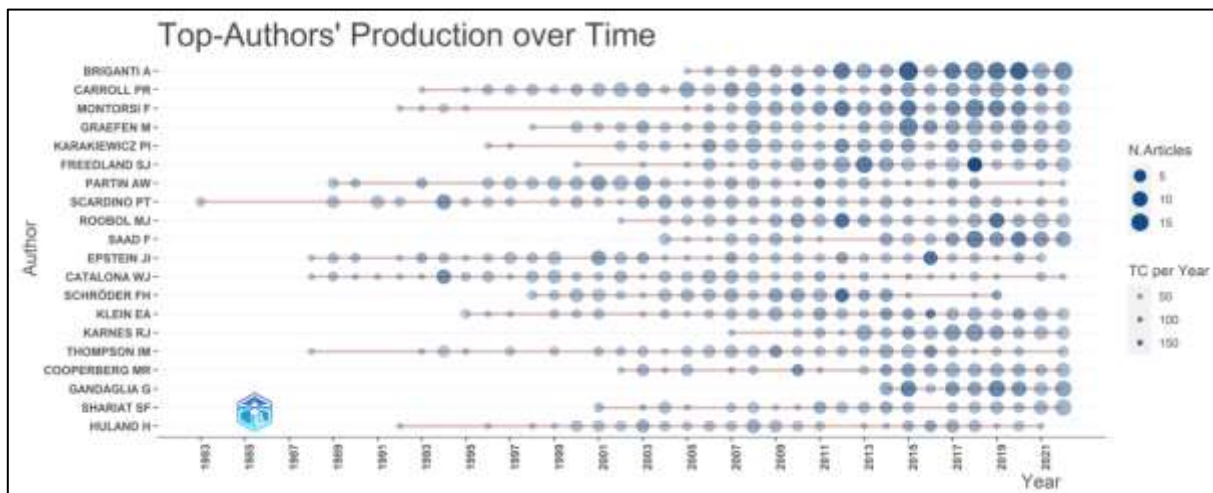

Figure 3: Top-Authors' Production over Time

Table 4 displays the top 20 journals according to the h-index value. A significant 84.65% of the articles have been published in these journals. The source with the highest h-index value is the Journal of Urology, closely followed by European Urology.

Table 4: Source Local Impact

SOURCE	H-Index	G-Index	TC	NP	TC/NP	PY_start
JOURNAL OF UROLOGY	156	228	127033	2119	59,9	1983
EUROPEAN UROLOGY	140	221	84589	1194	70,8	1988
UROLOGY	113	161	65229	1637	39,8	1983
WORLD JOURNAL OF UROLOGY	41	62	9572	578	16,6	1986
BRITISH JOURNAL OF UROLOGY	37	59	4387	127	34,5	1987
INTERNATIONAL JOURNAL OF UROLOGY	35	52	6288	408	15,4	1999
EUROPEAN UROLOGY ONCOLOGY	29	39	2542	127	20,0	2018
PROSTATE	28	46	2238	55	40,7	1996
BJU INTERNATIONAL	27	47	2500	74	33,8	1999
EUROPEAN UROLOGY FOCUS	25	37	1991	124	16,1	2015
SCANDINAVIAN J. OF UROLOGY AND NEPHR.	25	37	1953	125	15,6	1991
BMC UROLOGY	23	36	2044	174	11,7	2010
INTERNATIONAL UROLOGY AND NEPHROLOGY	22	30	1927	168	11,5	2003
CURRENT UROLOGY REPORTS	20	28	1140	73	15,6	2012
CANCER	18	28	1261	28	45,0	1999
SCANDINAVIAN JOURNAL OF UROLOGY	18	27	1343	134	10,0	2013
CANADIAN JOURNAL OF UROLOGY	16	31	1281	106	12,1	2008
NATURE REVIEWS UROLOGY	16	27	841	27	31,1	2009
MOLECULAR UROLOGY	15	25	705	50	14,1	1998
PROSTATE CANCER AND PROSTATIC DISEASES	15	24	633	30	21,1	1999
NP = Number of publications, TC = Total citations, TC/NP = Citations per paper, PY_start = Publication year starting						

"An analysis of citations has been conducted to identify inter-article quotations. The top 20 articles with the highest number of citations are presented in Table 5, arranged according to their LC (Local Citation) values.

Table 5: Most Local Cited Documents

DOCUMENT	YP	LC	LC/YYP	GC	GC/YYP	LC/GC Ratio%
MOTTET N, 2017, EUR UROL	2017	255	42,500	2233	372,167	11,42
CATALONA WJ, 1994, J UROLOGY-a	1994	160	5,517	1170	40,345	13,68
HEIDENREICH A, 2014, EUR UROL	2014	135	15,000	1548	172,000	8,72
PARTIN AW, 1993, J UROLOGY	1993	131	4,367	938	31,267	13,97
HEIDENREICH A, 2011, EUR UROL	2011	121	10,083	1170	97,500	10,34
THOMPSON I, 2007, J UROLOGY	2007	113	7,063	821	51,313	13,76
HEIDENREICH A, 2008, EUR UROL	2008	111	7,400	936	62,400	11,86
COONER WH, 1990, J UROLOGY	1990	109	3,303	619	18,758	17,61
WEI JT, 2000, UROLOGY	2000	103	4,478	1187	51,609	8,68
COOPERBERG MR, 2010, J CLIN ONCOL	2010	101	7,769	777	59,769	13,00
EPSTEIN JI, 2016, EUR UROL	2016	97	13,857	895	127,857	10,84
SCHRÖDER FH, 2012, NEW ENGL J MED	2012	96	8,727	945	85,909	10,16
CARTER HB, 2013, J UROLOGY	2013	91	9,100	776	77,600	11,73
CORNFORD P, 2017, EUR UROL	2017	90	15,000	1071	178,500	8,40
HEIDENREICH A, 2014, EUR UROL-a	2014	89	9,889	1061	117,889	8,39
PARTIN AW, 1990, J UROLOGY	1990	87	2,636	525	15,909	16,57
CHRISTENSSON A, 1993, J UROLOGY	1993	85	2,833	580	19,333	14,66
THOMPSON IM, 2009, J UROLOGY	2009	84	6,000	991	70,786	8,48
CENTER MM, 2012, EUR UROL	2012	84	7,636	1141	103,727	7,36
PARTIN AW, 2001, UROLOGY	2001	82	3,727	755	34,318	10,86
Year of Publication (YP), YYP= Year 2023-Year of Publication, Global Citations (GC), Local Citations (LC),						

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The top 50 most frequently occurring key words, as identified by the authors of the article, are presented in a word cloud format, and the top 15 are displayed in a frequency table in Figure 4. As observed in both the word cloud and the frequency table, the most recurrent abstract words are Prostate, Cancer, Patients, PSA, Results, and Treatment.
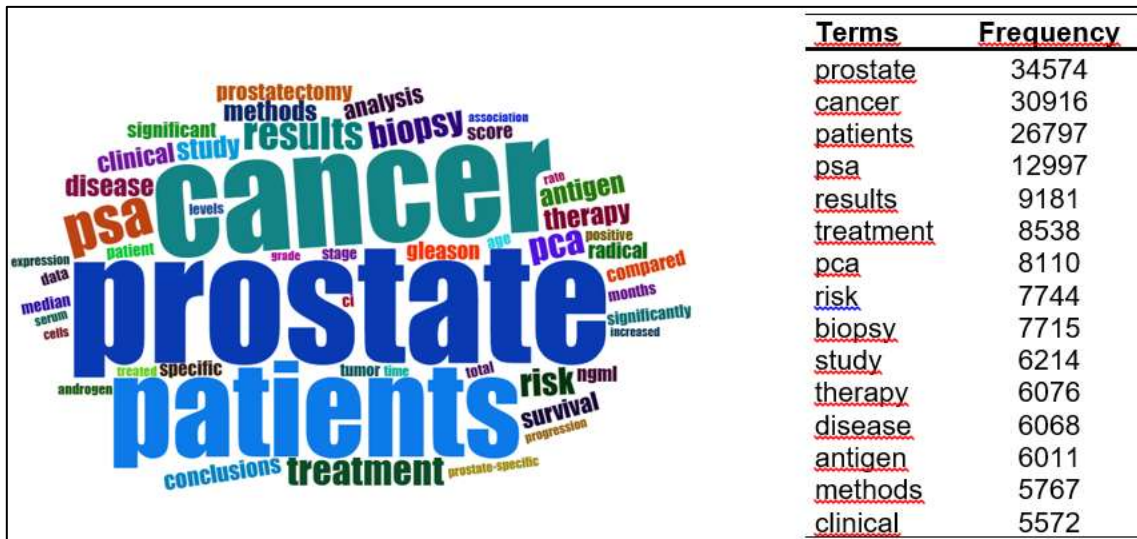

Terms	Frequency
prostate	34574
cancer	30916
patients	26797
psa	12997
results	9181
treatment	8538
pca	8110
risk	7744
biopsy	7715
study	6214
therapy	6076
disease	6068
antigen	6011
methods	5767
clinical	5572

Figure 4: Word Cloud and Frequency from Author's Keywords

The temporal ascendance in popularity of the key terms is depicted in Figure 5. Presently, 'Amp Escpection,' 'Prostate Cancer', and 'Multiparametric Magnetic Resonance Imaging' have emerged as trending keywords.
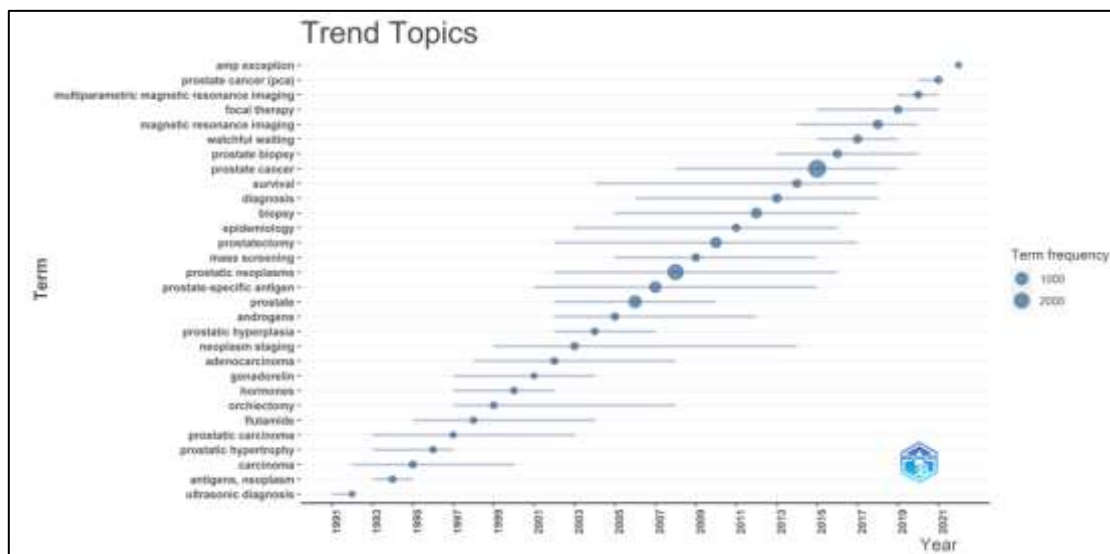
Figure 5: Trend Topics.

Structural Analisys

The co-occurrence network pertaining to the first 40 principal keywords is presented in Figure 6. This network has been thoroughly examined. The key terms are clustered into three distinct groups, each denoted by colors: red, blue, and green. The red cluster is represented by the keyword 'Prostate Cancer', the blue by 'Prostatic Neoplasm', and the green signifies 'Radiotherap.
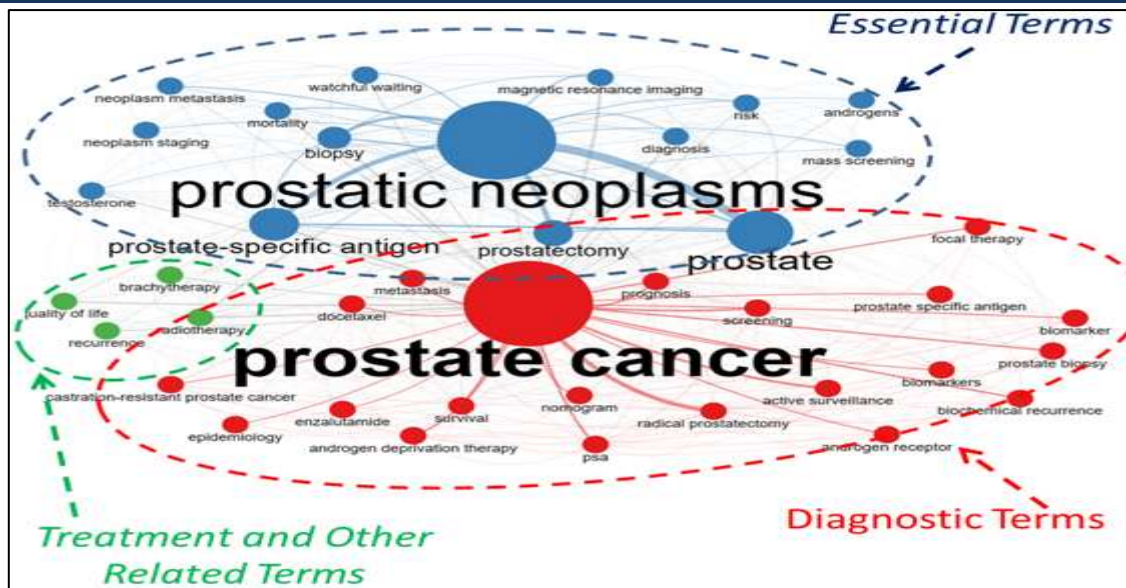
Figure 6: Authors' Keywords Co-Occurence Network

The Paper Co-citation Network, constructed using the Louvain algorithm, is depicted in Figure 7. In the illustration, four clusters of nodes are visible, each represented by circles in red, blue, green, and purple. Each circle within these clusters symbolizes an individual research paper.
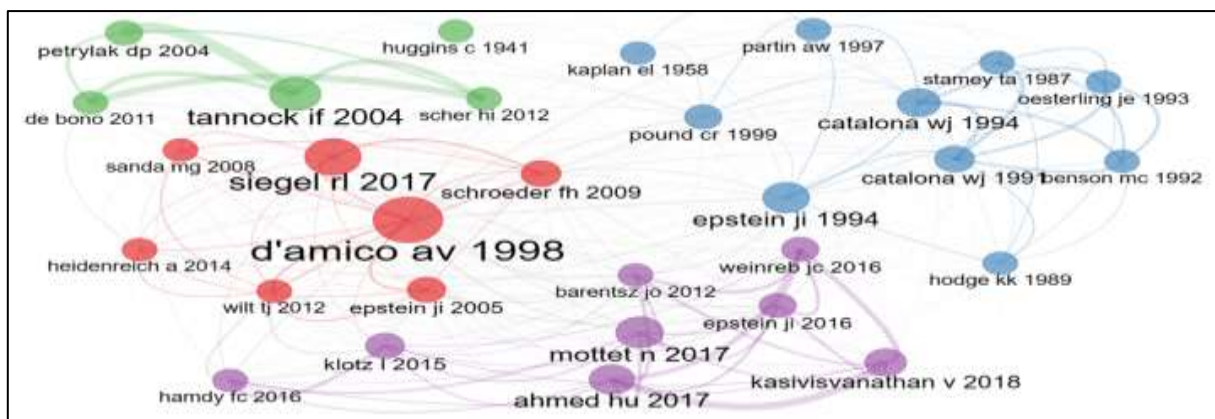

Figure 7: Papers Co-Citation Network

The analysis of the Author Co-citation Network has been conducted. As depicted in Figure 8, the Author Co-citation Network has been segmented into three distinct nodal clusters. Within the red cluster, the entity known as Anonymous, representing articles from official institutions, is identified as the most frequently cited author.
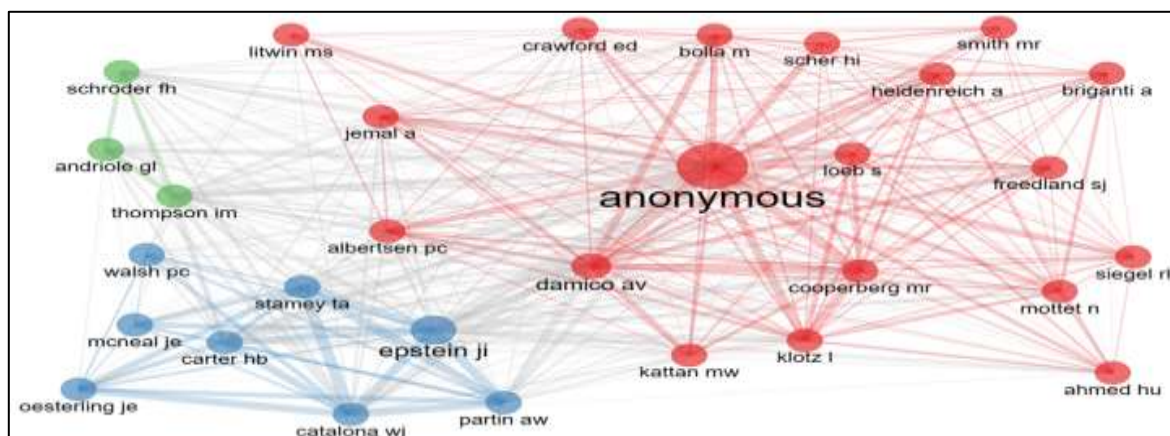
Figure 8: Authors Co-Citation Network

The analysis of the Sources Co-citation Network is depicted in Figure 9. The Sources Co-citation Network has been bifurcated into two distinct clusters of nodes. Each circle within these clusters represents an individual source.
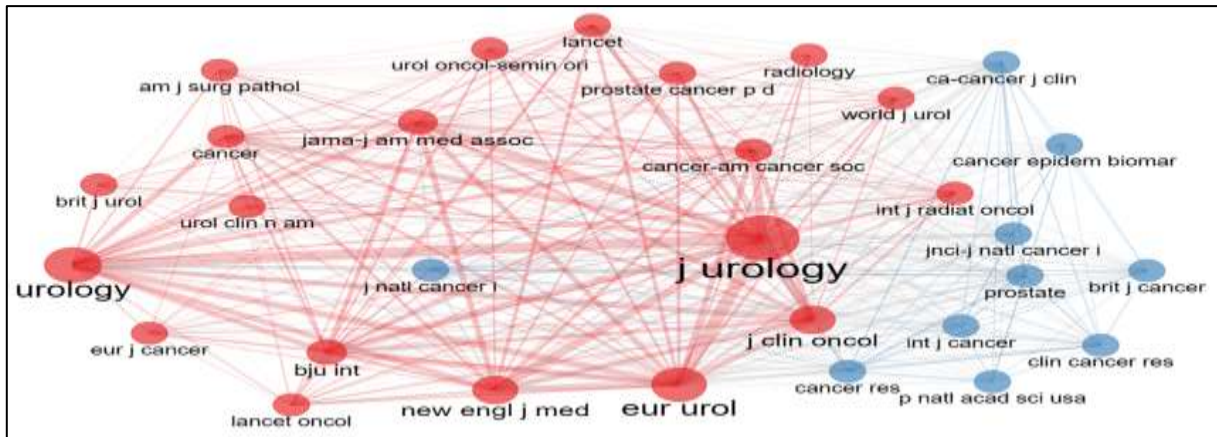

Figure 9: Sources Co-Citation Network

The thematic map, depicted in Figure 10, encompasses each sub-period of prostate cancer research, employing the top 3000 author keywords that have been reiterated at least twice. These keywords are organized into thematic clusters. Each cluster is represented by the five most frequently recurring keywords. The clustering process was executed using the Louvain clustering algorithm.

The historical citation analysis offers a comprehensive perspective on the study subject of prostate cancer. In Figure 11, the citation relationships among the top 17 most-cited articles are visualized. This highlights the evolution of the literature over time.
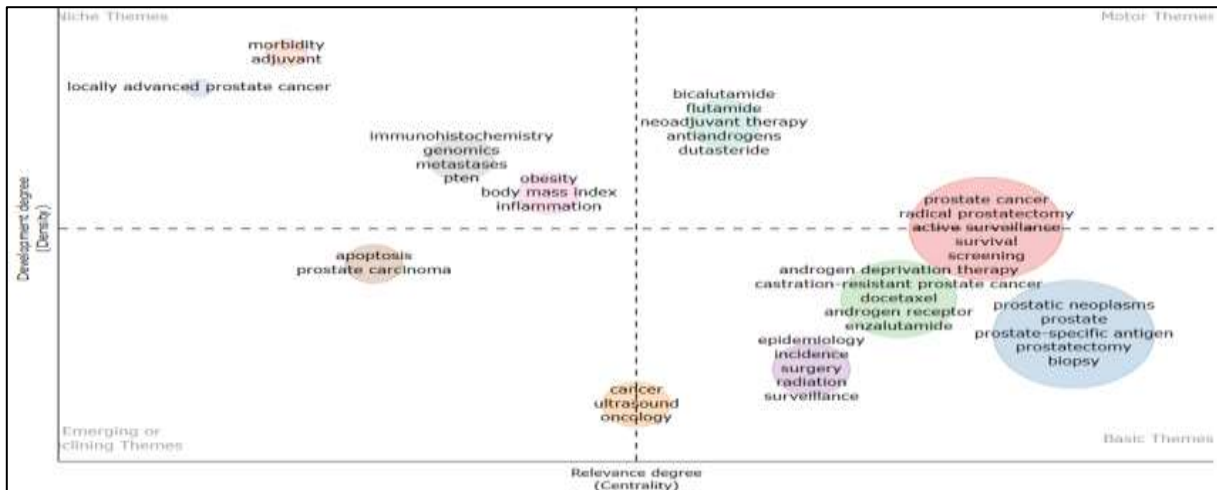

Figure 10: Thematic Map
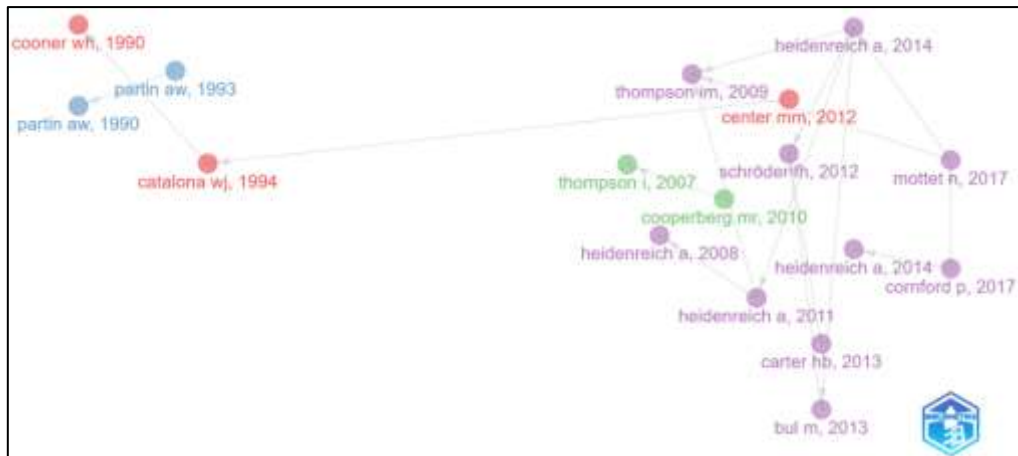
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Figure 11: Historiograph

The Network of Institutional Collaboration is depicted in Figure 12. The analysis incorporated 30 nodes, employing the Louvain Algorithm. Each node represents an institution. It is observed that the institutions are clustered into four distinct groups.
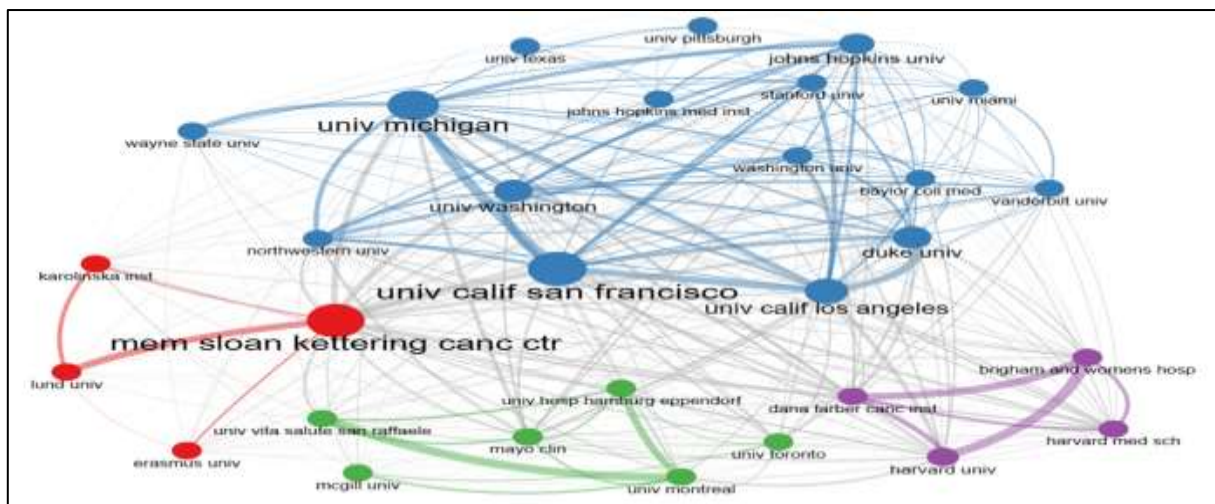

Figure 12: Institutions Collaboration Network

DISCUSSION

Science mapping constitutes a multifaceted analytical technique pivotal in bibliometrics and scientometrics. It offers an intricate portrayal of scientific disciplines' structural and dynamic aspects, facilitating the elucidation of the evolution, interconnection, and patterns of influence within diverse research fields. This methodology enables scholars and policymakers to discern prevailing trends, emergent themes, and pivotal knowledge nodes within the vast expanse of scientific literature (Skov, F, 2021).

Science mapping leverages data-driven approaches, utilizing sophisticated algorithms and visualization tools to construct representations of scientific landscapes. These mappings often manifest as network diagrams, where nodes symbolize entities such as publications, authors, or concepts, and links represent relationships like co-authorship, citation, or thematic similarity. Examining these networks allows one to gauge the centrality of specific research areas, identify key contributors, and observe the flow of ideas and influence through time and across disciplines (Sahlin, K. *et al*., 2023).

This technique is not merely a static representation of data but a dynamic tool that adapts to the evolving nature of science. It can be tailored to various scales, from macro-level analyses of global scientific output to micro-level studies of specific research niches. The insights from science mapping are instrumental in shaping research agendas, informing funding decisions, and guiding academic discourse. The utility of science mapping extends beyond mere academic curiosity; it is a beacon in navigating the complex topography of scientific knowledge, shedding light on the intricate web of intellectual endeavor and fostering

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a deeper understanding of the forces shaping the evolution of science (Pessin, V. Z. *et al*., 2023).

In our study, the WoS database was utilized for analyses. The WoS Core Collection is a prestigious index encompassing journals, conference proceedings, books, and compilations (Li, K. *et al*., 2018).

The annual growth rate of articles on the subject of prostate cancer stands at 10.57%. The average age of these articles is 13.2 years, indicating that the information in the literature on prostate cancer is moderately outdated. Each article, on average, receives 39.86 citations, a considerably high figure. This suggests that the studies are being extensively reviewed and cited by a broad audience. 29,348 authors have been examined in this field, with an average of 7.93 authors per article, reflecting a widespread collaboration among researchers. The frequency of international collaboration has been determined at 22.14%, signifying that international cooperation is prevalent in prostate cancer research.

The number of articles is generally on an increasing trend. A noticeable rise commenced from 2010 onwards. In terms of average citation count, 2011 and 2017 stand out prominently. Articles produced recently have lower average citation numbers than those from earlier periods. This situation indicates that newly published articles must still be sufficiently recognized or are at a temporal disadvantage. Citation numbers exhibit annual fluctuations. These fluctuations may reflect significant discoveries or changes in specific years. The highest scientific output occurred in 2021, while the peak in average citations was recorded in 2017.

The United States boasts the highest total number of publications. Japan, Germany, and Canada have each contributed many articles. In publications authored by writers of a single nationality, the United States, Japan, and Germany are prominent, whereas in those by authors of diverse nationalities, Italy, the United Kingdom, and Australia stand out. Switzerland ranks at the forefront in terms of its MCP ratio value. Countries like Switzerland, Belgium, and Australia possess high MCP ratios, indicating their success in multi-country collaborations. European nations such as Germany, the United Kingdom, the Netherlands, and Italy have made substantial contributions to the field of prostate cancer.

The H-index of Scardino PT, Briganti A, and Partin AW is comparable, denoting them as efficacious and prolific authors. Briganti A's g-index is lower than that of other authors, yet the same author's m-index is higher in comparison, indicating a propensity for publishing articles that garner significant citations. Partin AW possesses the highest total citation count. Scardino PT is distinguished as an author who commenced his publishing career early. The author who started their publication journey earliest, in 2007, is Karnes RJ.

The H-index, introduced to the scientific community by Jorge E. Hirsch, offers insights into the productivity and impact of researchers (Hirsch, J. E. *et al*., 2005). In 2006, Leo Egghe contributed the G-index to the realm of science, highlighting articles that have received many citations (Ali, M. J, 2021). The M-index is employed to compare authors with varying lengths of academic tenure. It is calculated by dividing the H-index by the years the scientist has been academically active (Shah, F. A. *et al*., 2023).

In Prostate Cancer research, prominent journals include the Journal of Urology, European Urology, and Urology. These journals have forged a significant academic impact, underscored by their high h-index and g-index values. Notably, the article by Mottet N, published in 2017 in the European Urology, has garnered considerable attention, as evidenced by its LC value of 255 and GC value of 2233 (Mottet, N. *et al*., 2017). This widespread citation reflects the article's extensive influence. It encompasses guidelines related to screening, diagnosis, and local treatment of prostate cancer, as established by the European Association of Urology, the European Society for Radiotherapy & Oncology, and the International Society of Geriatric Oncology. The high citation values of this article underscore its pivotal role in advancing the field.

Local citation typically refers to citations or references within a specific document, paper, or work, while global citation pertains to the broader practice of acknowledging and citing sources across the entire academic landscape. Both are crucial for maintaining academic integrity, providing proper attribution to original authors, and facilitating the dissemination of knowledge within the scholarly community (Sajovic, I. *et al*., 2018).

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In Structural Analysis, key terms have been clustered into three groups. The red cluster comprises 21 key terms, the blue cluster 15, and the green cluster contains four key terms. The red cluster is represented by the keyword "Prostate Cancer," the blue by "Prostatic Neoplasm," and the green by "Radiotherapy."

Three clusters of nodes have been formed in the Author Co-citation Network analysis. The red cluster comprises 19 authors, the blue cluster comprises eight, and the green cluster comprises three. Within the red cluster, the most cited author, representing publications of official institutions, is Anonymous.

In the Sources Co-citation Network analysis, two clusters of nodes have emerged. The red cluster includes 20 journals, with the Journal of Urology positioned centrally. The other journals receiving the highest co-citations are Urology and European Urology.

In the Thematic Map created by Bibliometrix, the most frequently repeated keywords are grouped into clusters of themes. The Thematic Map is a static depiction of the network structure of a research field, enabling the visualization of research themes and the identification of working dynamics (Schöggl, J-P. *et al.*, 2020). The Thematic Map is divided into four quadrants, each representing different themes. To this end, two parameters have been identified to represent centrality and density. The density parameter is represented on the y-axis, while the centrality parameter is on the x-axis. The themes thus formed are Motor Themes, Niche Themes, Emerging or Declining Themes, and Basic Themes (Nasir, A. *et al.*, 2020).

Upon a detailed examination of the current themes in Prostate Cancer, it becomes evident that:

The cluster represented by the keyword "Prostatic Neoplasms" encapsulates the fundamental concepts of Prostate Cancer. This cluster encompasses key topics and terminologies related to prostate cancer. The cluster signified by "Androgen Deprivation Therapy" focuses on treatment modalities and associated therapies. A fitting title to articulate this theme could be "Advanced Prostate Cancer Treatment." This title comprehensively covers aspects of androgen deprivation therapy, castration-resistant prostate cancer, docetaxel, and treatments related to the androgen receptor. The cluster denoted by "Epidemiology" symbolizes a general theme in the context of prostate cancer. A suitable title for expressing this theme might be "Prostate Cancer Management and Surveillance." Lastly, the cluster indicated by "Prostate Cancer" represents a theme concerning prostate cancer and its treatment strategies. "Prostate Cancer Diagnosis and Treatment Strategies" could be an appropriate title to convey this theme.

Each cluster signifies a distinct facet of prostate cancer, ranging from its fundamental concepts, treatment techniques, and epidemiological aspects to the strategies for diagnosis and treatment, thereby providing a comprehensive overview of the subject matter.

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