Journal of Architectural Sciences and Applications
JASA 2023, 8 (Special Issue), 183-197
Research article
e-ISSN: 2548-0170
https://dergipark.org.tr/en/pub/mbud

Analysis of Publications on Earthquake Research in Architecture Category and Analysis with R Studio-Biblioshiny Software

Murat DAL [1*], Emine Banu BURKUT [2] Lale KARATAŞ [3]

ORCID 1: 0000-0001-5330-1868 **ORCID 2:** 0000-0003-0252-4054 **ORCID 3:** 0000-0001-8582-4612

[1] *Munzur University, Faculty of Fine Arts, Design and Architecture, Department of Architecture, 62100, Tunceli, Türkiye.*
[2] *Konya Technical University, Faculty of Architecture, Department of Architecture, 42300, Konya, Türkiye.*
[3]*Bursa Technical University, Faculty of Architecture and Design, Department of Architecture, 16330, Bursa, Türkiye.*
**** e-mail**: muratdal1122@gmail.com*

Abstract

The purpose of this research is to examine the publications focusing on earthquakes in the category of architecture (web of science). The data of the research was analyzed with the Biblioshiny software program. This software program makes a bibliometric analysis on which topics and concepts earthquake research focuses. In addition, images and frequencies of publications related to architecture and earthquakes were revealed. The data of the research was collected between 1-15 July 2023. Results for Architecture (WoS Categories) AND earthquake (Topic) OR earthquake AND architecture (Topic) OR earthquake AND house (Topic) OR earthquake AND structure (Topic) OR earthquake AND damage (Topic) OR earthquake AND city (Topic) OR earthquake AND urban (Topic) and Türkiye (Countries/Regions). Data were collected with keywords in the Web of Science database. According to the research findings, there are 1033 publications and in the country/region category (Türkiye), 83 publications are accessed. The most used words in the publications are earthquake, urban transformation, Istanbul, seismic, retrofit, assessment, structural, urban, damage, buildings and performance.*

Keywords: *Architecture, earthquake, web of science, R-Studio, biblioshiny.*

Mimarlık Kategorisindeki Deprem Araştırmaları Üzerine Yayınların İncelemesi ve R Studio-Biblioshiny Yazılım Programıyla Analizi

Öz

Bu araştırmanın amacı mimarlık kategorisindeki (web of science) deprem konusunda odaklanan yayınların incelemesidir. Araştırmanın verileri R Studio-Biblioshiny yazılım programıyla analizi yapılmıştır. Bu yazılım programıyla deprem araştırmalarının hangi konulara, kavramlara odaklandığı konusunda bibliyometrik bir analiz yapılmıştır. Ayrıca mimarlık ve depremle ilgili yayınlara ait görseller ve frekanslar ortaya koyulmuştur. Araştırmanın verileri 1-15 Temmuz 2023 tarihleri arasında toplanmıştır. Mimarlık (Web of Science Kategorileri) VE deprem (Konu) VEYA deprem VE mimarlık (Konu) VEYA deprem VE ev (Konu) VEYA deprem VE yapı (Konu) VEYA deprem VE hasar (Konu) VEYA deprem VE şehir (Konu) için sonuçlar VEYA deprem VE kentsel (Konu) ve Mimarlık (Web of Science Kategorileri) ve TÜRKİYE (Ülkeler/Bölgeler). Web of Science veri tabanında anahtar kelimeleriyle veriler toplanmıştır. Araştırma bulgularına göre mimarlık kategorisinde 1033 yayın bulunmaktadır. Web of Science veri tabanında ülke/bölge kategorisi Türkiye seçildiğinde 83 yayına erişilmektedir. Yayınlarda en çok kullanılan kelimeler deprem, kentsel dönüşüm, İstanbul, sismik, güçlendirme, değerlendirme, yapısal, kentsel, hasar, binalar ve performanstır.*

Anahtar kelimeler: *Mimarlık, deprem, web of science, R-Studio, biblioshiny.*

Citation: Dal, M., Burkut, E. B. & Karataş, L. (2023). Analysis of publications on earthquake research in architecture category and analysis with R studio-biblioshiny software. *Journal of Architectural Sciences and Applications*, 8 (Special Issue), 183-197.
DOI: https://doi.org/10.30785/mbud.1333876

Received: *28/07/2023 –* ***Accepted:*** *11/09/2023*

1. Introduction

Earthquakes are one of the natural disasters in which living things have been most affected and lost their lives since the existence of the world. Since the existence of the world, tectonic earthquakes of different intensities have occurred in various regions and at different times. The earthquakes caused by these tectonic movements create earthquake belts in certain parts of the world and there are big cities with many settlements in these areas. These earthquakes caused loss of life and property, and even caused the destruction of settlements (Küçük, 2006; Metin, 2018).

Türkiye is located in the Alpine-Himalayan seismic belt. 95% of our population lives in earthquake-hazardous areas. Since 98% of the structural density in our country, especially the industry is in earthquake zones; the subject is of great importance in terms of architecture as well as in every aspect. Minimizing the structural damages that may occur due to earthquakes is one of the main issues of architects and engineers for design and implementation. By evaluating the load-bearing system and infill wall materials of the buildings in our country numerically, the problems and responsibilities of the architect in terms of earthquake are also important in the illegal construction, which lacks the services of architects and engineers, is concentrated in areas with high earthquake risk, and has poor quality building stock (Akıncıtürk, 2003; Kepenek & Gençel, 2016; Yardımlı et al., 2018, Dal & Ayhan, 2020; Karataş et al., 2023). Academic studies on earthquake awareness from the perspective of architecture have been examined with a detailed perspective.

When the previous publications about earthquakes are examined in the literature research in architecture, the publications related to the subject of earthquake; housing and sustainable building design (Erdogan et al., 2002), “design of industrial structures and infra-structures” (Chowdhury, & Dasgupta, 2019), multidisciplinary approach (Ouzounov et al., 2018), rural settlement houses (Parsa, 2015), urban planning (Orhan, 2016), urban heritage, map and codes (Corradi & Gritti, 2018), risk in housing purchases (Shi & Naylor, 2023) are accessed.

In addition, some of the most recent publications in the field of earthquake-related architecture in Turkiye are as follows; structural damages in masonry buildings in Türkiye (2023) (Işık et al., 2023), remote sensing and urban modeling (Satir et al., 2023), structural damages (Caglar et al., 2023), reinforced concrete and masonry buildings damages (Aykanat et al., 2023), health resources after earthquake (Çiftçi & Sakallı, 2023) “post-earthquake temporary housing unit” (Avlar, Limoncu & Tizman, 2022) are accessed.

In this study, the publications on earthquakes were examined. Bibliometric analysis was performed as a literature review tool on WoS and Scopus databases. Bibliometric analysis, “combines mathematical and statistical methods to quantitatively analyze the number of literatures in a particular field to discover development trends in this scientific field” (Haustein & Lariviere, 2015). By integrating numerical data and statistics, bibliometric analysis offers a comprehensive and measurable information evaluation. With the results of the bibliometric analysis, a more understandable framework on the subject is presented by creating a document on the information of effective publications related to the research area and general trends on the subject (Merigo & Yang, 2017). Although studies are using the bibliometric analysis method on earthquakes, bibliographic maps of the bibliometric analysis data of publications in two different databases were created through the VOSviewer program in this study. It is aimed to contribute to future research by making visualizations of the publications, authors, citations, publishing institutions, the sources covered in the studies, and the words that the authors use most in their studies.

There are publications with detailed information about the R Studio-Biblioshiny software (Aria & Cuccurullo, 2017). However, this method, which is widely used in social sciences, is few in the field of architecture (Ansari, 2021; Park & Lee, 2022; Michelle & Gemilang, 2022; Burkut, 2023). The original aspect of this article is the analysis of the field of architecture using a software program. The purpose of this article is to present the bibliometric analysis of publications on earthquakes in the field of architecture and the findings and visuals of the analyses with R Studio-Biblioshiny Software. The research questions of this article are;

1) What are the results of the bibliometric analysis of publications on earthquake and architecture?
2) How many publications on earthquakes and architecture can be accessed? (in Web of Science categories, document types, publication titles, countries/regions, and Web of Science indexes
3) How have the publications and citations of earthquake researchers changed over the years?
4) Earthquake research in Türkiye, source, what are the results of the analysis of the most used words by publications and authors?
5) What are the analysis results of earthquake-focused publications with R Studio-Biblioshiny software?

2. Research Methodology

The research methodology of this article was prepared using two methods. The first is the bibliometric analysis method and the second is the analysis of bibliographic maps and images with the R Studio-Biblioshiny software program (Table 1). In the bibliometric analysis, the publications of 1975 and 2023 were accessed from the Web of Science database. The keywords used to search for these publications are Results for *Architecture (Web of Science Categories) AND "earthquake AND architecture" (Topic) OR "earthquake AND structure" (Topic) OR "earthquake AND damage" (Topic) OR "earthquake AND city" (Topic) OR "earthquake AND urban" (Topic) OR "earthquake AND house" (Topic) and Architecture (Web of Science Categories)* (Table 1).

Table 1. Research methodology

The focus of the research
Earthquake and Architecture
Collection of research data
Web of Science
Category of research
Web of Science Categories / Architecture
Years of publications
1975-2023
Research Keywords
Architecture (Web of Science Categories) AND earthquake AND architecture (Topic) OR earthquake AND structure (Topic) OR earthquake AND damage (Topic) OR earthquake AND city (Topic) OR earthquake AND urban (Topic) OR earthquake AND house (Topic) and Architecture (Web of Science Categories)
Analysis of research data
R Studio-Biblioshiny software program
Findings and Discussion
Conclusion and Suggestions

3. Findings and Discussion

3.1. Bibliometric Analysis Findings

This research is quantitative research. Quantitative research is a type of research that objectifies facts and events and presents them in an observable, measurable and quantifiable way. Today, "there are many databases that can be used to obtain data and conduct bibliographic or bibliometric research. WoS, Scopus, Google Scholar, PubMed, MEDLINE, etc. are the most important of these databases" (Chen, 2017).

Table 2 shows the bibliometric analysis findings of publications focused on earthquakes and architecture. Accordingly, there are 1,033 publications in the Web of Science "Architecture" category. There are 558 publications in the "Construction Building Technology" category, 416 publications in the

"Engineering Civil" category, 69 publications in the "Urban Studies" category, 38 publications in the "Environmental Studies" category and 30 publications in the "Regional Urban Planning" category (Table 2). According to Table 1, there are the highest numbers of articles published as document type. Accordingly, the highest number of "Article" publications was 552 publications, followed by "Proceeding Paper" 465 publications, "Early Access" 27 publications, "Review Article" 9 publications, "Book Chapters" 7 publications, "News Item" 6 publications, "Book Review" 5 publications, "Editorial Material" 3 publications, an equal number of "Art Exhibit" publications. There are 2 publications such as "Review" 2 publications, "Book" 2 publications and "Note" document types (Table 2).

According to Table 2, the number of publications according to publisher titles is as follows; "International Journal of Architectural Heritage" 205 publications, "12th International Conference On Structural Analysis of Historical Construction" 186 publications, "Journal of Asian Architecture And Building Engineering" 54 publications, "Brick And Block Masonry Challenges" 43 publications and "Japan Architectural Review" has 33 publications (Table 1). Web of Science database refine by Countries/Regions results are as follows; "Italy" has 361 publications, "Japan" 100 publications, "Türkiye" 83 publications, "Peoples Republic of China" 69 publications, and an equal number of "Portugal" 56 publications and "USA" publications (Table 1). Finally, according to Table 1, Refine by web of science indexes, "Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH)" 465 publications, "Conference Proceedings Citation Index – Science (CPCI-S)" 409 publications, "Arts & Humanities Citation Index (A&HCI)" 395 publications, "Science Citation Index Expanded (SCI-EXPANDED)" 249 publications. "Emerging Sources Citation Index (ESCI)" 177 publications, there are "Social Sciences Citation Index (SSCI)" 28 publications, "Book Citation Index – Social Sciences & Humanities (BKCI-SSH)" 9 publications and "Book Citation Index – Science (BKCI-S)" 3 publications (Table 2).

Table 2. Bibliometric analysis of earthquake and architecture-focused publications

Refine by Web of Science Categories	**Publications**
Architecture	1,033
Construction Building Technology	558
Engineering Civil	416
Urban Studies	69
Environmental Studies	38
Regional Urban Planning	30
Refine by Document Types	**Publications**
Article	552
Proceeding Paper	465
Early Access	27
Review Article	9
Book Chapters	7
News Item	6
Book Review	5
Editorial Material	3
Art Exhibit Review	2
Book	2
Note	2
Refine by Publication Titles	**Publications**
"International Journal Of Architectural Heritage"	205
"12th International Conference On Structural Analysis of Historical Constructions"	186
"Journal of Asian Architecture and Building Engineering"	54
"Brick And Block Masonry Trends Innovations and Challenges"	43

"Japan Architectural Review"	33
Refine by Countries/Regions	**Publications**
Italy	361
Japan	100
Türkiye	83
Peoples R Chına	60
Portugal	56
USA	56
Refine by Web of Science Index	**Publications**
"Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH)"	465
"Conference Proceedings Citation Index – Science (CPCI-S)"	409
"Arts & Humanities Citation Index (A&HCI)"	395
"Science Citation Index Expanded (SCI-EXPANDED)"	249
"Emerging Sources Citation Index (ESCI)"	177
"Social Sciences Citation Index (SSCI)"	28
"Book Citation Index – Social Sciences & Humanities (BKCI-SSH)"	9
"Book Citation Index – Science (BKCI-S)"	3

Figure 1. Full report publication and citation

In Figure 1, the Web of Science citation reports of publications focused on earthquake and architecture can be seen. Accordingly, 1,033 publications could be accessed in the Web of Science database between 1975 and 2023. The total number of citations between these years is 3,008 (Figure 1). According to Figure 2, times cited and publications over time of earthquake and architecture focused publications can be seen in the Web of Science database. Figure 2, the number of publications and citations of these publications is at its peak in 2021. The most earthquake-focused publications are in 2021 with 139 publications and 891 citations (Figure 2).

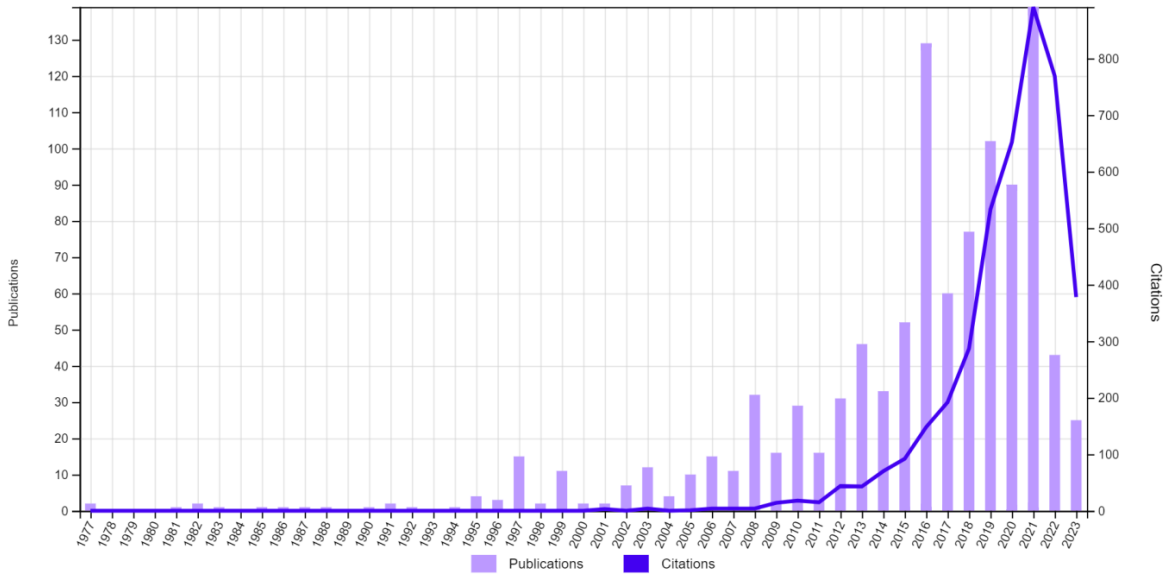

Figure 2. Times cited and publications over time (Web of Science, 2023)

3.2. R Studio-Biblioshiny Software Analysis Findings

The analysis of the publications was made in the R Studio-Biblioshiny software program, which is the second method of this research. In these analyzes, only the country/region category Türkiye was selected, earthquake-focused publications in Türkiye were included, and these publications were analyzed.

The Web of Science database was searched with keywords. Results of these keywords analyze results: Architecture (Web of Science Categories) AND “earthquake AND architecture” (Topic) OR “earthquake AND structure” (Topic) OR “earthquake AND damage” (Topic) OR “earthquake AND city” (Topic) OR “earthquake AND house” (Topic) and Architecture (Web of Science Categories) and TURKİYE (Countries/Regions). The main information of the obtained data according to the analysis of the Rstudio-Bibliosihny software is shown in Figure 3.

Figure 3. Main information of the data

Table 3 shows analysis of the main information of the data of earthquake-related publications using biblioshiny software; timespan, document contents, authors, authors’ collaboration, and document types.

Table 3. Analysis of the main information of the data of earthquake-related publications using biblioshiny software

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2002:2023
Sources (Journals, Books, etc)	23
Documents	83
Annual Growth Rate %	1,07
Document Average Age	7,05
Average citations per doc	2,012
References	2139
DOCUMENT CONTENTS	
Keywords Plus (ID)	87
Author's Keywords (DE)	299
AUTHORS	
Authors	200
Authors of single-authored docs	20
AUTHORS COLLABORATION	
Single-authored docs	20
Co-Authors per Doc	2,71
International co-authorships %	14,46
DOCUMENT TYPES	
article	55
article; early access	3
proceedings paper	25

Figure 4 shows sources' production over time between 2002 and 2023. Figure 4 shows the graph of sources cumulated occurrence and years. These sources are as follows, in order of publication numbers. “International Journal of Architectural Heritage”,” Megaron”, “ICONARP International Journal of Architecture And Planning”, “METU Journal of the Faculty of Architecture”, “Open House International”, “Structures And Architecture”, “Journal of Architectural Conservation”, “Structural Analysis of Historical Constructions Anamnesis, Diagnosis, Therapy”, “Xxx IAHS World Congress On Housing”, “Housing Construction: An Interdisciplinary Task”, “SAHC 2021- 12th International Conference On Structural Analysis of Historical Constructions” (Figure 4).

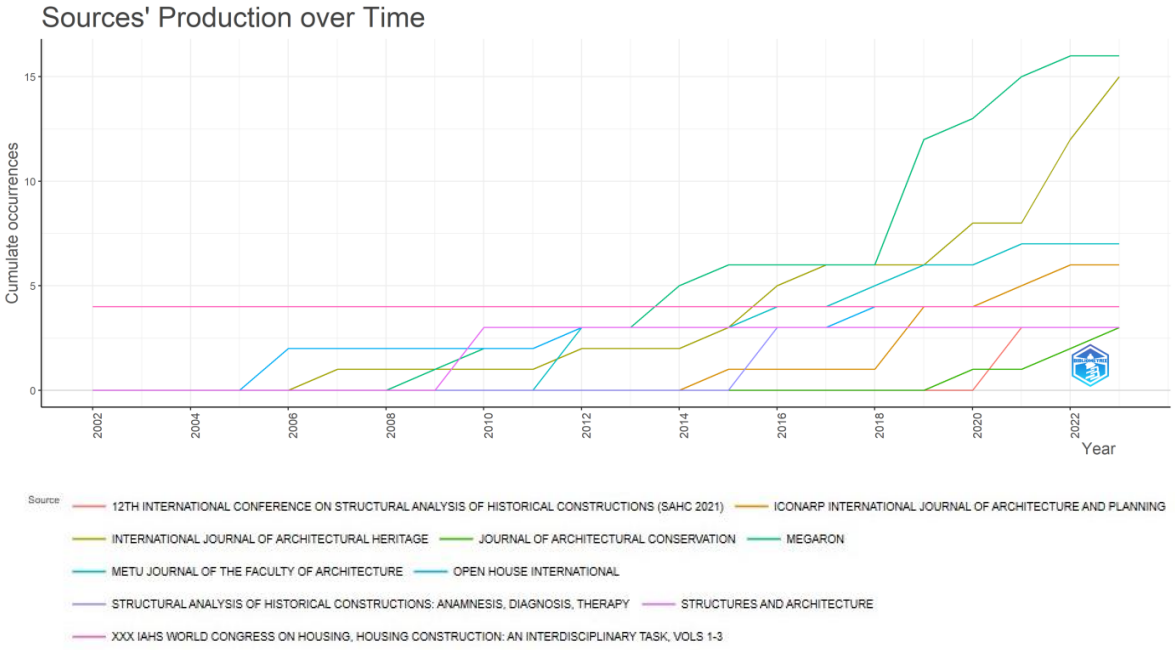

Figure 4. Sources' production over time

Figure 5 is the thematic map of the words used by the authors in their publications. In this thematic map, Development degree (density) and Relevance degree (centrality) are seen in the theme consisting of four parts. The names of these themes are respectively; 1) “Niche themes”, 2) “Motor themes”, 3) “Emerging of declining themes” and 4) “Basic themes" (Figure 5).

1) Niche themes prominent words; İstanbul, disaster, modern architecture adobe, damage assessment, timber structures, urban transformation.

2) Motor themes are the prominent words; masonry, seismic, retrofits.

3) Emerging declining themes are the prominent words earthquake resistant building design, and seismic.

4) Basic themes are the prominent words; earthquake, damage, and disaster management (Figure 5).

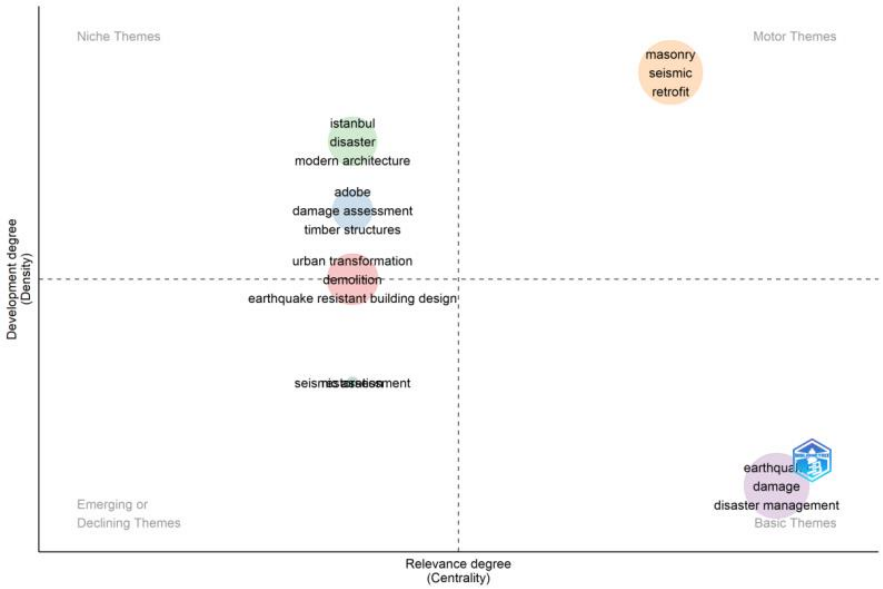

Figure 5. Thematic map

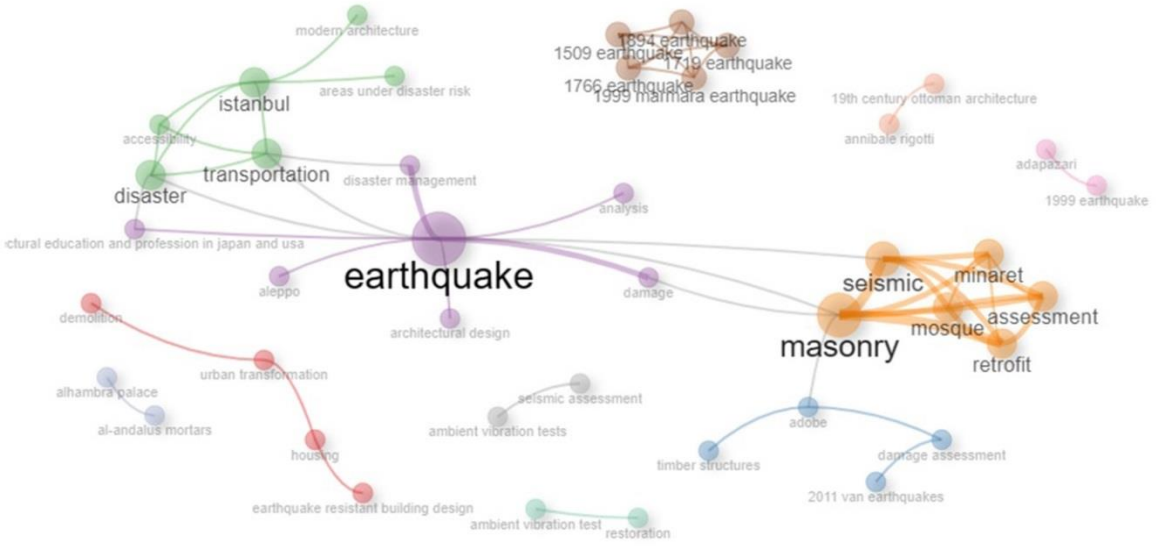

Figure 6. Network map

In Figure 6, the network map of the words most used by the authors in their publications was created with the R Studio-Biblioshiny software program. The size of the circles in this image is directly proportional to the frequency of the word. That is, the more the word is used, the larger the circle becomes. In Figure 6, the biggest circle is the word "earthquake". Then the most used words; masonry, seismic, urban transformation, retrofit, Istanbul, disaster and transportation (Figure 6). In Figure 7, there are occurrences, cluster, cluster label and numerical values of the words (Table 4).

Table 4. Network map analysis table

Occurrences	Words	Cluster	Cluster_Label	btw_centrality	clos_centrality	pagerank_centrality
5	urban transformation	1	urban transformation	2	0,25	0,0309106
2	demolition	1	urban transformation	0	0,166667	0,0167084
2	earthquake resistant building design	1	urban transformation	0	0,166667	0,0167084
2	housing	1	urban transformation	2	0,25	0,0309106
3	adobe	2	adobe	59	0,015385	0,0244872
2	damage assessment	2	adobe	21	0,011905	0,0212058
2	timber structures	2	adobe	0	0,011628	0,0105095
4	Istanbul	3	Istanbul	41	0,014286	0,0363521
2	disaster	3	Istanbul	34,833333	0,017857	0,0310687
2	modern architecture	3	Istanbul	0	0,010989	0,0097513
2	transportation	3	Istanbul	43,166667	0,017857	0,0305385
16	**earthquake**	**4**	**earthquake**	**155,16667**	**0,021739**	**0,065714**
2	damage	4	earthquake	0	0,014085	0,0158512
2	disaster management	4	earthquake	0	0,012987	0,0180725

6	masonry	5	masonry	100,5	0,02	0,052417
4	seismic	5	masonry	30	0,016949	0,0389372
3	retrofit	5	masonry	0	0,011364	0,0316163
2	assessment	5	masonry	0	0,012195	0,0286156
2	minaret	5	masonry	4,5	0,0125	0,0231207
2	mosque	5	masonry	0	0,012195	0,0286156
2	seismic assessment	6	seismic assessment	0	1	0,0238095
2	restoration	7	restoration	0	1	0,0238095

In Figure 7, there are the most relevant words frequencies used by the authors in their publications. Most relevant words of the authors in earthquake-focused publications “earthquake” 16 frequency, “masonry” 6 frequency, “urban transformation” 5 frequency, “Istanbul” and “seismic” 4 frequency, “adobe” and “retrofit” 3 frequency. Also, words of equal frequency; “assessment”, “damage”, “damage assessment”, “demolition”, “disaster”, “disaster management”, “earthquake resistant building design”, “earthquakes”, “housing”, “minaret”, “modern architecture”, “mosque”, “restoration”, “seismic assessment”, “seismic performance”, “timber structures”, “transportation” 2 frequency and “1509 earthquake” 1 frequency (Figure 7).

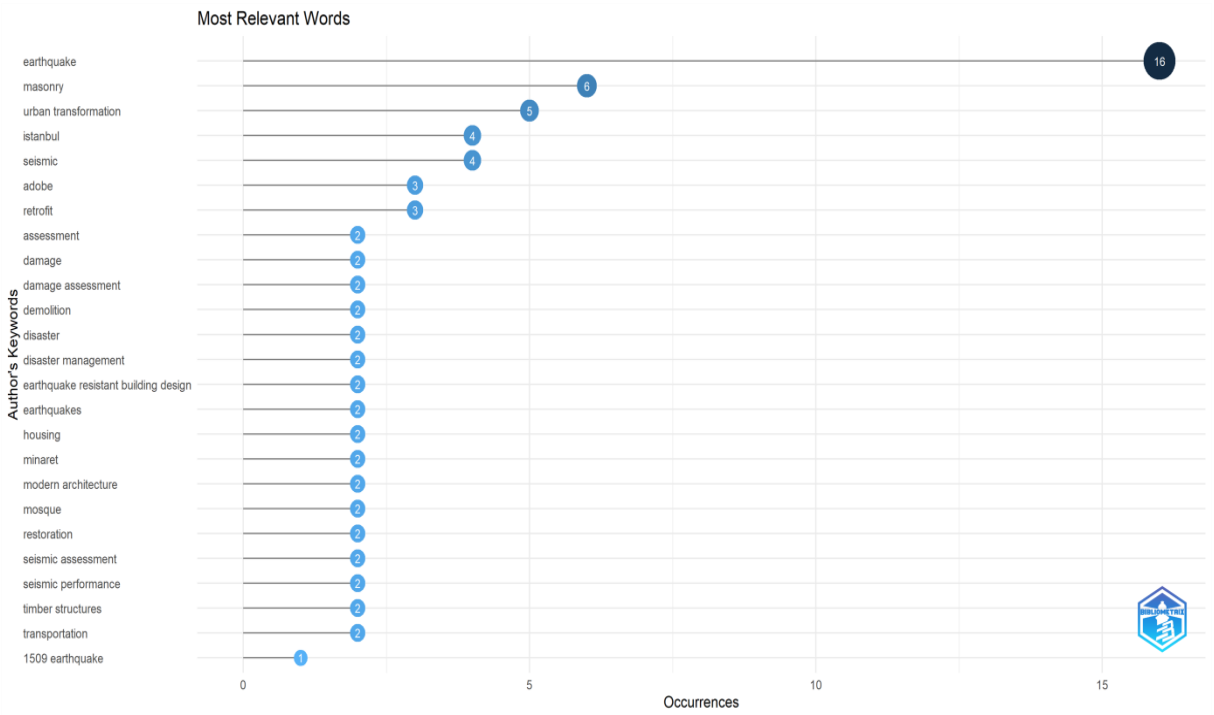

Figure 7. Most relevant words of the authors in earthquake-focused publications

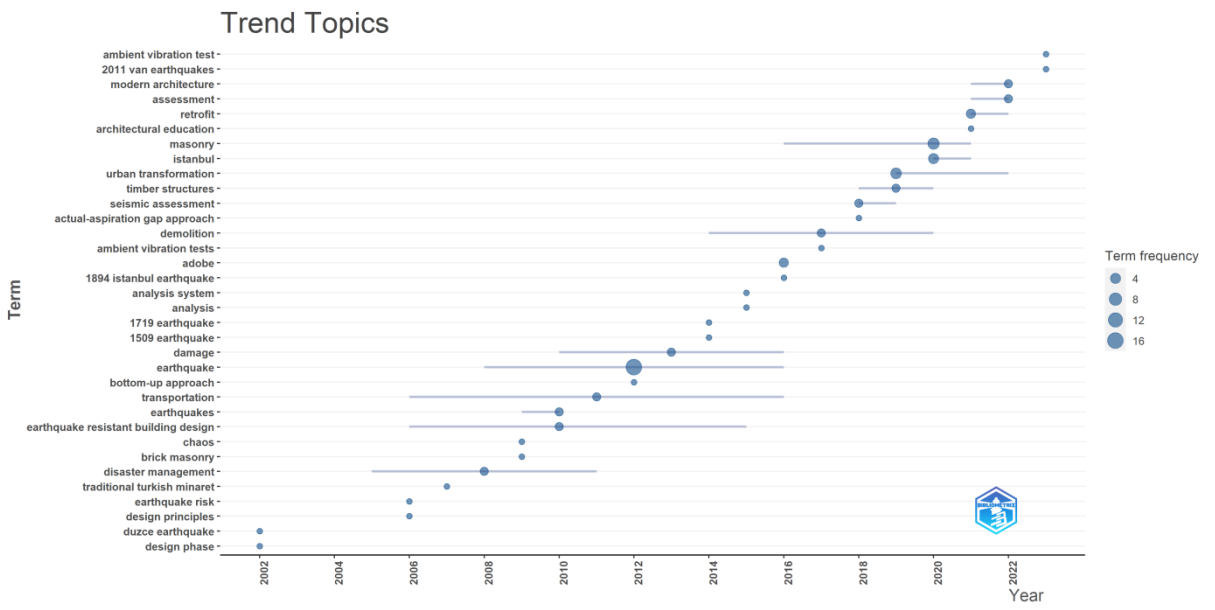

Figure 8. Trend topics words

In Figure 8, the term and year graphs of the trend topics words used by the authors in their publications are seen. With this graph, as the number of frequencies increases, the circle on the graph grows proportionally. So the bigger the circle, the higher the frequency. In Figure 8, the distribution of the words that the authors focused on in their publications by years is clearly seen. Table 6 shows the average frequency statistical analysis of Trend Topics words by year.

Table 5. Trend topics

Item	freq	year_q1	year_med	year_q3
design phase	1	2002	2002	2002
Duzce earthquake	1	2002	2002	2002
design principles	1	2006	2006	2006
earthquake risk	1	2006	2006	2006
traditional Turkish minaret	1	2007	2007	2007
disaster management	2	2005	2008	2011
brick masonry	1	2009	2009	2009
chaos	1	2009	2009	2009
earthquake resistant building design	2	2006	2010	2015
earthquakes	2	2009	2010	2010
transportation	2	2006	2011	2016
earthquake	16	2008	2012	2016
bottom-up approach	1	2012	2012	2012
damage	2	2010	2013	2016
1509 Earthquake	1	2014	2014	2014
1719 Earthquake	1	2014	2014	2014
analysis	1	2015	2015	2015
analysis system	1	2015	2015	2015
adobe	3	2016	2016	2016
1894 Istanbul Earthquake	1	2016	2016	2016
demolition	2	2014	2017	2020
ambient vibration tests	1	2017	2017	2017
seismic assessment	2	2018	2018	2019
actual-aspiration gap approach	1	2018	2018	2018

urban transformation	5	2019	2019	2022
timber structures	2	2018	2019	2020
masonry	6	2016	2020	2021
Istanbul	4	2020	2020	2021
retrofit	3	2021	2021	2022
architectural education	1	2021	2021	2021
assessment	2	2021	2022	2022
modern architecture	2	2021	2022	2022
2011 Van Earthquakes	1	2023	2023	2023
ambient vibration test	1	2023	2023	2023

Finally, WordCloud analysis visualization with R Studio-Biblioshiny software is seen in Figure 9. WordCloud analysis visualizes the authors in different colors and text sizes according to the frequency size of the words they focus most on their publications. In the center of the image, there are “earthquakes”, “Istanbul”, “Türkiye”, “masonry”, “seismic”. The words that attract attention later are “structural”, “traditional”, “historical”, “architectural”, “urban”, “building”, “housing” and etc. (Figure 9).

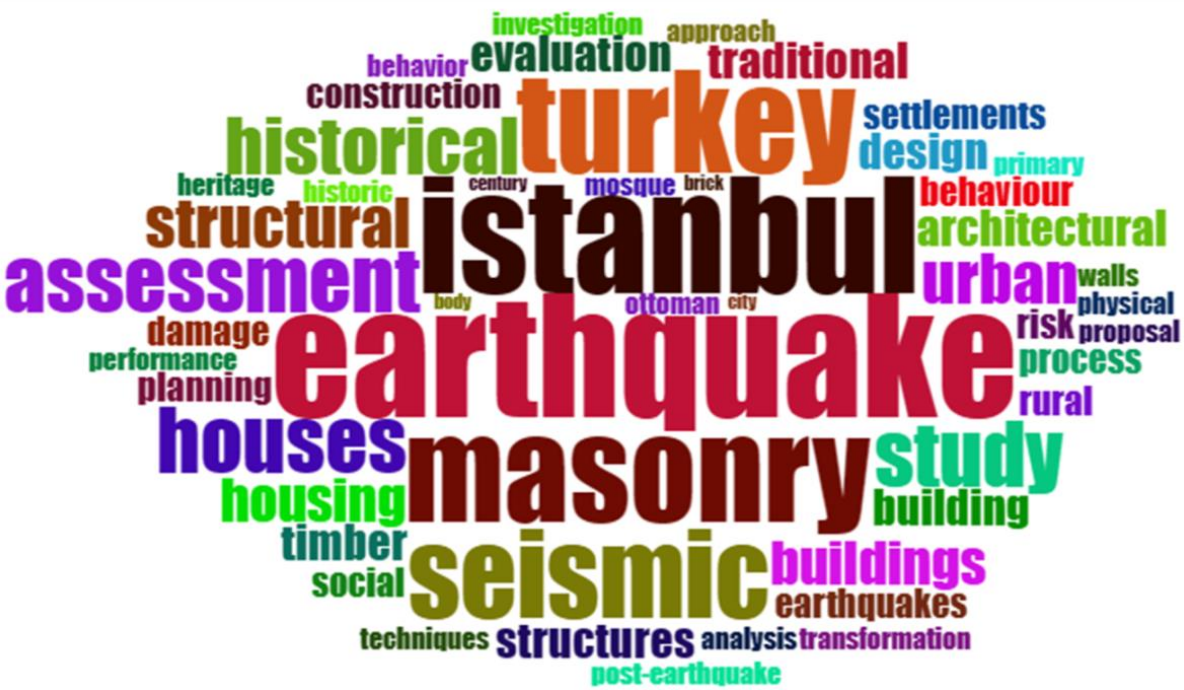

Figure 9 WordCloud of earthquake-related publications

4. Conclusion and Suggestions

In this article, publications related to earthquakes in the architecture category on the Web of Science database were examined. The graphics and tables of these publications, which were examined by the bibliometric analysis method, were made using the R Studio-Biblioshiny software program.

In this article, the publications related to the earthquake were examined. When searching keywords results for Architecture (Web of Science Categories) AND “earthquake AND architecture” (Topic) OR “earthquake AND structure” (Topic) OR “earthquake AND damage” (Topic) OR “earthquake AND city” (Topic) OR “earthquake” AND urban” (Topic) OR “earthquake AND house” (Topic) and Architecture (Web of Science Categories), there are 1033 publications in the Architecture category. Among these publications, the bibliometric analysis of the publications in Türkiye was made with the R Studio-Biblioshiny software program. In the application of R Studio-Biblioshiny software program, analyzes such as network map, thematic map, World Cloud, most relevant words, Trend Topics words were

made, and numerical data were obtained. It gives information about the authors and publications. In addition, it offers an objective point of view since analyzes are made with the software program.

There are the highest numbers of articles published as document type. Accordingly, the highest number of "Article" a publication was 552 publications, the number of publications according to publisher titles is as follows: "International Journal of Architectural Heritage" 205 publications. Web of Science database refine by Countries/Regions results are as follows; "Italy" has 361 publications, "Japan" 100 publications, "Türkiye" 83 publications. Also refined by Web of Science indexes, "Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH)" 465 publications. The number of publications and citations of these publications is at its peak in 2021. The most earthquake-focused publications are in 2021 with 139 publications and 891 citations.

As a result, bibliometric scanning and software analyzes were made in this article. You can search with different keywords as suggestions. In addition, publications between certain dates can be examined or bibliometric analysis of publications belonging to an institution can be made. In this research, the web of scanning core collection was examined as a database, and future researchers can analyze data sets in a different database. In summary, this study will give a different perspective on earthquakes and architecture.

Acknowledgements and Information Note

The article complies with national and international research and publication ethics. Ethics Committee approval was not required for the study.

Author Contribution and Conflict of Interest Declaration Information

The first author contributed 25%, the second author contributed 50% and the third author contributed 25%. There is no conflict of interest.

References

Akıncıtürk, N. (2003). Yapı tasarımında mimarın deprem bilinci, *Uludağ Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi,* 8(1). Access Address (08.08.2023): https://dergipark.org.tr/en/download/article-file/202885

Ansari, K. M. (2021). Scientometric review of Archnet-IJAR: International Journal of Architectural Research: A study of Scopus-based evidence. Access Address (08.08.2023): https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=10869&context=libphilprac.

Aria, M. & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of informetrics*, 11(4), 959-975. Access Address (07.08.2023): https://www.sciencedirect.com/science/article/abs/pii/S1751157717300500

Avlar, E., Limoncu, S. & Tizman, D. (2022). Post-earthquake temporary housing unit: CLT E-BOX. Journal of the Faculty of Engineering and Architecture of Gazi University, 38(1). Access Address (06.08.2023): https://www.researchgate.net/profile/Erkan-Avlar/publication/361455480_Deprem_sonrasi_gecici_barinma_birimi_CLT_E-BOX/links/641ea437a1b72772e426cf35/Deprem-sonrasi-gecici-barinma-birimi-CLT-E-BOX.pdf

Aykanat, B., Ertürk, E., Altunışık, A. C. & Aslan, M. E. (2023). Field investigation on reinforced concrete and masonry buildings damages after November 23, 2022 Gölyaka (Düzce) Earthquake. *Journal of Earthquake and Tsunami*, 2350010.

Burkut, E. B. (2023). Evaluation of interior architecture education research in the web of science database: Bibliometric and science mapping analysis. *Journal of Architectural Sciences and Applications,* 8 (1), 385-405. Access Address (02.08.2023): https://dergipark.org.tr/tr/download/article-file/3002584

Burkut, E. B. (2023). Scientific Literature in the Field of Architecture (2018- 2022) in Türkiye: R Bibliometrix Biblioshiny Application and Science Mapping. Dal, M. & Karataş, L. (Eds.). Architectural Sciences and Theory, Practice and New Approaches-I. 2023, Chapter:1, 01-27.

ISBN: 978-625-367-072-6. Iksad Publications. Access Address (03.08.2023): https://www.academia.edu/102326298/Scientific_Literature_in_the_Field_of_Architecture_2018_2022_in_Turkiye_R_Bibliometrix_Biblioshiny_Application_and_Science_Mapping_Architectural_Sciences_and_Theory_Practice_and_New_Approaches_I

Caglar, N., Vural, I., Kirtel, O., Saribiyik, A. & Sumer, Y. (2023). Structural damages observed in buildings after the January 24, 2020 Elazığ-Sivrice earthquake in Türkiye. *Case Studies in Construction Materials,* 18, e01886.

Chowdhury, I. & Dasgupta, S. P. (2019). Earthquake Analysis and Design of Industrial Structures and Infra-structures. Springer International Publishing.

Çiftçi, S. & Sakallı, Ü. S. (2023). A mathematical modelling approach for planning health resources after earthquake: Kırıkkale city example. *Journal of the Faculty of Engineering and Architecture of Gazi University*, 38(2), 1203-1216.

Chen, C. (2017). Science mapping: a systematic review of the literature. *Journal of Data and Information Science*, 2(2), 1-40.

Corradi, E., & Gritti, A. (2018). The heritage of resilient communities. Maps and codes in Italy's earthquake zones. *TECHNE-Journal of Technology for Architecture and Environment*, 81-91.

Dal, M. & Ayhan, E. (2020). Depreme Dayanıklı Yapı Tasarımı / Betonarme Yapılarda Görülen Düzensizlik Uygulamaları, Geçmişten Geleceğe Mimarlıkta Malzeme ve Yapı Fiziği, Gece Yayınevi, 217-238.

Erdogan, E., Yazgan, M. E., Dilaver, Z. & Kılıc, N. (2002). The earthquake, housing & sustainable building design: Duzce case XXX IAHS World Congress On Housing, Housing Construction: An Interdisciplinary Task, Vols 1-3, 905-912.

Haustein, S. & Larivière, V. (2014). The use of bibliometrics for assessing research: Possibilities, limitations and adverse effects. In Incentives and performance: Governance of research organizations (pp. 121-139). Cham: Springer International Publishing.

Işık, E., Avcil, F., Büyüksaraç, A., İzol, R., Arslan, M. H., Aksoylu, C., Harirchian, E., Eyisüren O., Arkan E., Şakir Güngür M., Günay & Ulutaş, H. (2023). Structural damages in masonry buildings in Adıyaman during the Kahramanmaraş (Turkiye) earthquakes (Mw 7.7 and Mw 7.6) on 06 February 2023. Engineering *Failure Analysis*, 107405.

Karataş, L., Ateş, T., Alptekin, A., Dal, M. & Yakar, M. (2023). A systematic method for post-earthquake damage assessment: Case study of the Antep Castle, Türkiye. *Advanced Engineering Science*, 3, 62–71.

Kepenek, E. & Gençel, Z. (2016). Türkiye'de afet zararlarını azaltma çalışmaları: mevzuat açısından genel bir değerlendirme. *Journal of Architectural Sciences and Applications*, 1 (1), 44-50. DOI: 10.30785/mbud.282563 Access Address (08.08.2023): https://dergipark.org.tr/tr/pub/mbud/issue/26840/282563

Küçük, D. (2006). Deprem Zararlarını Azaltma Çalışmalarında Mimarlık Eğitiminin Yeri, Gazi Üniversitesi, Fen Bilimleri Enstitüsü, Ankara.

Merigó, J. M. & Yang, J. B. (2017). A bibliometric analysis of operations research and management science. *Omega,* 73, 37-48.

Metin H., (2018). Mimarlık Eğitiminde Depremin Yeri ve Depremin Eğitsel Boyutu: Van Örnekleminde Algısal Yargılara Dayalı Bir Araştırma, Gebze Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Gebze.

Michelle, B. & Gemilang, M. P. (2022). A bibliometric analysis of generative design, algorithmic design, and parametric design in architecture. *Journal of Artificial Intelligence in Architecture*, 1(1), 30-40.

Orhan, E. (2016). Reading vulnerabilities through urban planning history: An earthquake-prone city, Adapazarı case from Türkiye.

Ouzounov, D., Pulinets, S., Hattori, K. & Taylor, P. (2018). Pre-earthquake processes: a multidisciplinary approach to earthquake prediction studies (Vol. 234). John Wiley & Sons.

Park, E. J. & Lee, S. (2022). Creative thinking in the architecture design studio: Bibliometric analysis and literature review. *Buildings*, 12(6), 828.

Parsa, A. R. (2015). Workshop Study on Impact of 2011 Van Earthquake on Rural Settlement Houses. *Megaron,* 10(4), 610.

Satir, O., Kemec, S., Yeler, O., Akin, A., Bostan, P., & Mirici, M. E. (2023). Simulating the impact of natural disasters on urban development in a sample of earthquake. *Natural Hazards*, *116*(3), 3839-3855.

Shi, S., & Naylor, M. (2023). Perceived earthquake risk in housing purchases. *Journal of Housing and the Built Environment*, 1-27.

Yardımlı, S., Dal, M. & Mıhlayanlar, E. (2018). Investigation of Earthquake Behaviour of Construction System and Materials in Traditional Turkish Architecture, ITM Web of Conferences 22, 01034.