

2024
Bibliometric
Toolkit



How to Use Scopus[®], Biblioshiny & VOSviewer

Dr. Nour El Huda Abd Rahim
Dr. Siti Norain Mat Rasid
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Published by:

Malaysian Integrated Medical Professionals Association (MIMPA)
No. 15, 1st Floor, Block H, Ruang Singgahmata 4, Asia City. P.O. Box
16125, 88869 Kota Kinabalu, Sabah

e ISBN 978-629-96678-8-9



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PREFACE

The module originates from the insights and materials presented during a Bibliometric Analysis Workshop conducted on the 24th of February and the 5th of March, 2024, at the Department of Pathology and Laboratory Medicine Sultan Ahmad Shah Medical Centre @IIUM. The main objective of this module is to provide researchers with a comprehensive guide on how to effectively navigate and analyse scientific literature across different disciplines using bibliometric tools such as Scopus, Biblioshiny and VOSviewer. The guide also introduces the idea of a "Journal Bank" to assist researchers in preparing and submitting their manuscripts for publication.

ACKNOWLEDGEMENTS

We are grateful to the Department of Pathology and Laboratory Medicine, Sultan Ahmad Shah Medical Centre @IIUM, for inviting us to contribute to the Bibliometric Analysis Workshop 2024. This work is a result of research conducted with the support provided by the Ministry of Higher Education Malaysia through the Fundamental Research Grant Scheme (FRGS/1/2022/SKK05/UIAM/03/1). The authors take full responsibility for the findings, interpretations, and conclusions presented in this document. It is important to note that the views expressed do not necessarily represent the views of the Ministry of Higher Education Malaysia.

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From left: Dr. Siti Norain Mat Rasid, Dr. Nour El Huda Abd Rahim, Norainin Sofiya Azman

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NO. 1: HOW TO USE SCOPUS SEARCH

Pre-Workshop Preparation

- 1.** Register with IIUM Library for SCOPUS access using Library Membership: Dar al-Hikmah Library, IIUM (google.com).
- 2.** Login via “off-campus access” using 5 Steps to access online databases via EzProxy (Remote access) – YouTube.

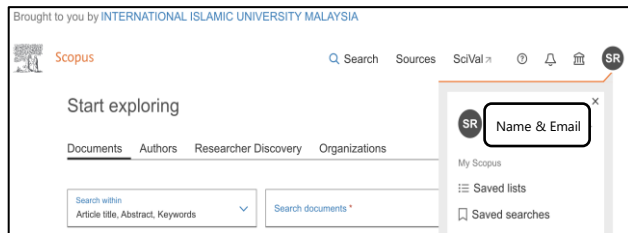
Literature Search

- 1.** Go to Google Scholar.
- 2.** Type in search: “allintitle: bibliometric OR bibliometrics “your topic””.
- 3.** Identify the number of results and the relevant articles that may help for literature review/discussion.

Login IIUM Scopus Account

- 1.** Go to the Scopus website.

2. The left upper corner should write” Brought to you by INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA.
3. Click on the black circle with 2 alphabets on the right upper corner. Your name and email should appear.



Keywords Search

1. Enter your keywords in the search box.
2. Use Boolean operators such as:
 - AND: Narrows the documents that contain all keywords. Example: 'genetics AND schizophrenia' will return the documents that contain both "genetic" and "schizophrenia"
 - OR: Broadens your search to include documents that contain any of the keywords. Example: genetics OR epigenetics will find documents containing "genetics", "epigenetics", or both.

- **NOT:** This option excludes documents that contain the specified keyword. For example, schizophrenia, NOT depression, will return documents that mention "schizophrenia" but exclude those that also mention "depression."

The screenshot shows a search interface with the following elements:

- Advanced query** toggle (turned on).
- Search within:** Article title, Abstract, Keywords (dropdown).
- Search documents *:** genetics AND schizophrenia (input field with clear and delete icons).
- Logical operators dropdown:**
 - ✓ AND (selected)
 - OR
 - AND NOT
- Search within:** Article title, Abstract, Keywords (dropdown).
- Search documents:** "antipsychotic induced weight gain" (input field with clear and delete icons).
- + Add search field** button.
- Reset** and **Search Q** buttons.

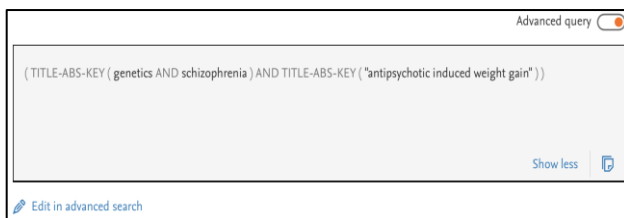
3. Search A Phrase

- Use quotation marks to search for exact phrases. Example: "antipsychotic-induced weight gain" will only return documents that contain the phrase "antipsychotic-induced weight gain " exactly as typed.

4. Use Parentheses for Complex Queries:

- Parentheses can be used to group parts of your search to control the search logic. Example: (schizophrenia OR SZ) AND (treatment OR therapy).

5. To view the full keyword search strings, click on the Advanced query in the search box.



- 6.** Search within Title-Abstract-Keywords
- 7.** This method focuses on the main subject of papers to pinpoint literature specifically related to your keywords.
- 8.** Search within the Article Title
- 9.** This search method includes any occurrence of your terms in the title, abstract, or keywords, making it suitable for comprehensive literature reviews and exploratory research.

Filter Search

- 1.** On the left of the Search page, there is a Refine Search
- 2.** Filter the documents by year of publication, source types, document types, language, or publication stage.
- 3.** Click “Show All”, tick items to be filtered and click “Exclude” or “Limit to”.

Saved Search & Save to List

1. To save the search and the filtered documents, click the “Save Search” on the left of the Search box. Give a name according to your preference.
2. To save the list of the search, tick “All”, click on 3 dots and choose “Save to list”. Give a name according to your preference.

The screenshot shows a Scopus search results page. At the top, there is an advanced search query: (TITLE-ABS-KEY (genetics AND schizophrenia) AND TITLE-ABS-KEY ("antipsychotic weight gain")) AND PUBYEAR > 2009 AND PUBYEAR < 2025 AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (PUBSTAGE , "final")) AND TO (LANGUAGE , "English")). Below the query, there are buttons for "Save search" (highlighted with a red box and a red arrow pointing to it) and "Set search alert".

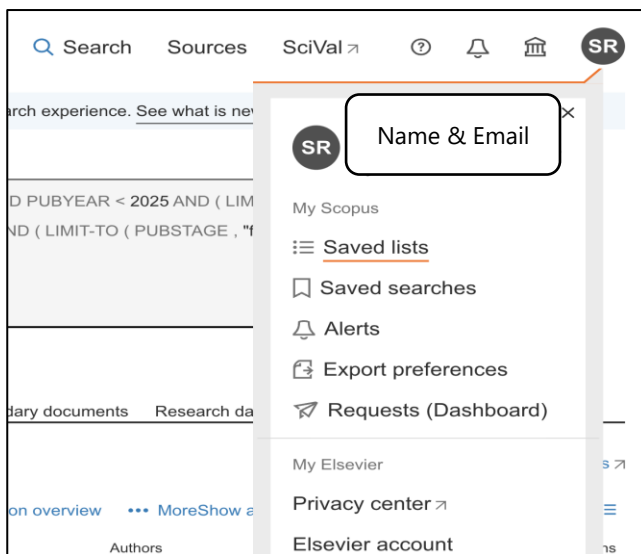
Below the search bar, there are tabs for "Documents", "Preprints", "Patents", "Secondary documents", and "Research data". The "Documents" tab is selected. Below the tabs, it says "54 documents found".

There is a "Refine search" section with a search box and a "Filters" section with "Clear all" and "Year" filters. Below the filters, there is a "Range" and "Individual" radio button.

In the "Refine search" section, there is a "All" button (highlighted with a red box) and a "More" button (highlighted with a red box). A red arrow points from the "More" button to a "Save to list" button in the document list.

The document list shows one article: "Association of clinical parameters and polygenic risk scores for body mass index, schizophrenia, and diabetes with antipsychotic-induced weight gain". Below the article title, there are buttons for "View cited by", "View references", and "Email results".

3. Go to the author profile button and click on the circle.
4. Click on the dropdown “Saved lists”. This page is in the original version of Scopus.



5. To show the abstracts, tick All and click on “Show all abstracts”.
6. To delete particular articles, tick the specific title and click “Delete”.



7. To make all documents available on the Search page (new version of Scopus),

- Tick the “All” box.
- Click the dropdown button from the “CSV export.”
- From the pop-up window, select “CSV”, tick “EID” and click “Export”.

Export document settings ⓘ

You have chosen to export 1072 documents

Select your method of export

Mendeley ExLibris RefWorks RIS Format (EndNote, Reference Manager) CSV (Excel) BibTeX Plain Text (ASCII in HTML)

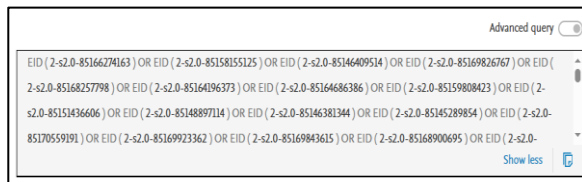
What information do you want to export?

<input type="checkbox"/> Citation information	<input type="checkbox"/> Bibliographical information
<input type="checkbox"/> Author(s)	<input type="checkbox"/> Affiliations
<input type="checkbox"/> Author(s) ID	<input type="checkbox"/> Serial identifiers (e.g. ISSN)
<input type="checkbox"/> Document title	<input type="checkbox"/> PubMed ID
<input type="checkbox"/> Year	<input type="checkbox"/> Publisher
<input checked="" type="checkbox"/> EID	<input type="checkbox"/> Editor(s)
<input type="checkbox"/> Source title	<input type="checkbox"/> Language of original document
<input type="checkbox"/> volume, issue, pages	<input type="checkbox"/> Correspondence address
<input type="checkbox"/> Citation count	<input type="checkbox"/> Abbreviated source title
<input type="checkbox"/> Source & document type	
<input type="checkbox"/> Publication Stage	
<input type="checkbox"/> DOI	
<input type="checkbox"/> Open Access	

- Open the csv. File, select and copy the EID column and paste it in Microsoft Word as Text.
- Go to 'Find and Replace'. Enter the paragraph mark (**^p**) in the 'Find' field and

Replace it with ") OR EID("). Delete the first "EID) OR" and the last "OR EID(".

- Select, copy and paste in the Advanced Search Scopus, and click Search. The total documents should be the same as the final documents from the Saved list.



Export Filter Counts

1. On the left bottom of the Search page, there is an "Export filter Counts" link.
2. The link will ask you to download an Excel CSV. The file will show the summary details of the search, such as the year, author name, subject area, document type, title, keyword, country, source types, etc., based on the filtered documents.

Download Dataset

1. You can download the dataset either on the "Search" or the "Saved to List" page. First, tick the "All" box.

2. Click “Export” and select “CSV” from the dropdown.
3. Tick the boxes which are relevant to you and click “Export”.
4. You may also download the dataset for the reference manager such as Mendeley or Endnote (tick BibTeX).

Export document settings

You have chosen to export 54 documents

Select your method of export

MENDELLY
 EndNote
 RIS Format
 CSV
 BibTeX
 Plain Text
EndNote, Reference Manager Excel ASCII in HTML

What information do you want to export?

<input checked="" type="checkbox"/> Citation information	<input checked="" type="checkbox"/> Bibliographical information	<input checked="" type="checkbox"/> Abstract & keywords	<input checked="" type="checkbox"/> Funding details	<input checked="" type="checkbox"/> Other information
<input checked="" type="checkbox"/> Author(s)	<input checked="" type="checkbox"/> Affiliations	<input checked="" type="checkbox"/> Abstract	<input checked="" type="checkbox"/> Number	<input checked="" type="checkbox"/> Tradenames & manufacturers
<input checked="" type="checkbox"/> Author(s) ID	<input checked="" type="checkbox"/> Serial identifiers (e.g. ISSN)	<input checked="" type="checkbox"/> Author keywords	<input checked="" type="checkbox"/> Acronym	<input checked="" type="checkbox"/> Accession numbers & chemicals
<input checked="" type="checkbox"/> Document title	<input checked="" type="checkbox"/> PubMed ID	<input checked="" type="checkbox"/> Index keywords	<input checked="" type="checkbox"/> Sponsor	<input checked="" type="checkbox"/> Conference information
<input checked="" type="checkbox"/> Year	<input checked="" type="checkbox"/> Publisher	<input checked="" type="checkbox"/> Funding text	<input checked="" type="checkbox"/> Include references	
<input checked="" type="checkbox"/> EID	<input checked="" type="checkbox"/> Editor(s)			
<input checked="" type="checkbox"/> Source title	<input checked="" type="checkbox"/> Language of original document			
<input checked="" type="checkbox"/> volume, issue, pages	<input checked="" type="checkbox"/> Correspondence address			
<input checked="" type="checkbox"/> Citation count	<input checked="" type="checkbox"/> Abbreviated source title			
<input checked="" type="checkbox"/> Source & document type				
<input checked="" type="checkbox"/> Publication Stage				
<input checked="" type="checkbox"/> DOI				
<input checked="" type="checkbox"/> Open Access				

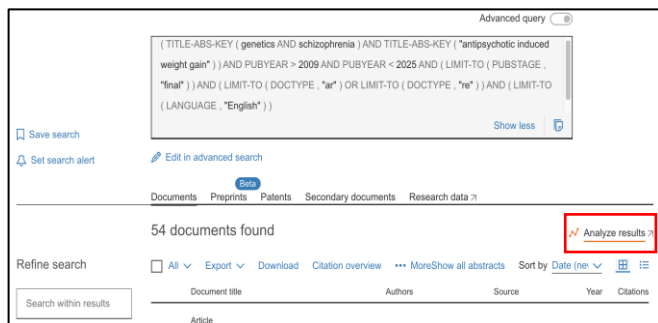
Cancel Export

NO. 2: HOW TO USE SCOPUS ANALYSER

The Scopus Analyser is available on both the “Search” and the “Saved List” pages.

Scopus Analyser in the Search Page

1. Go to the Search page
2. Click “Analyze results” located on the right upper corner of the “Sort by”.

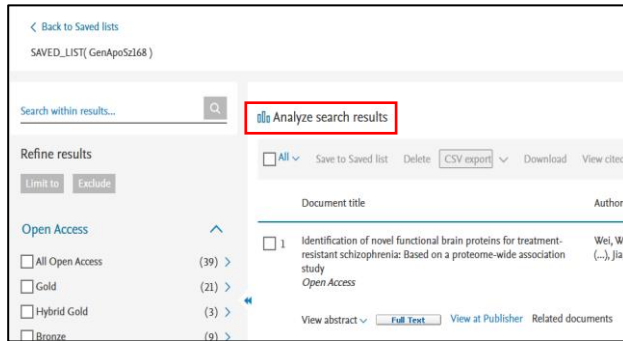


- 3.

Scopus Analyser in the Saved List

1. Click on the “Saved list.”
2. Click on the link from the “last name” in the Saved lists.

3. Click “Analyze search results” in the new pop-up window.

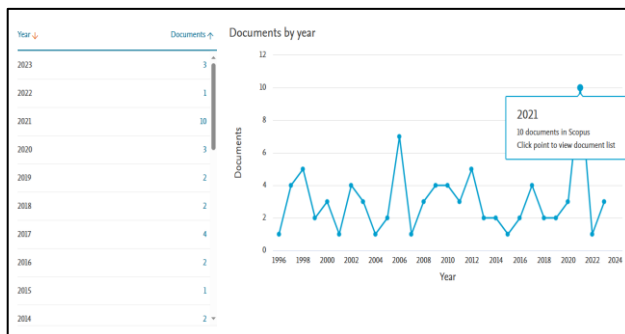


Information Retrieval

1. Click one of the diagrams/graphs/charts (images) for the summary of the results.



- The images will appear on the right and a list of the Year/Documents in the form of a table will appear on the left.



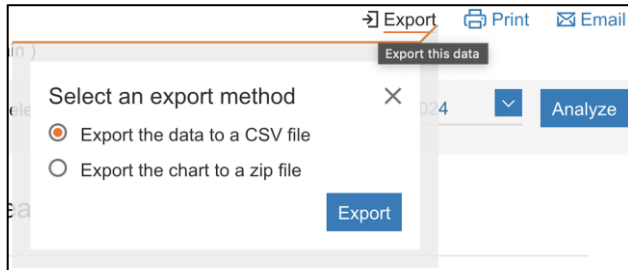
- Place the cursor on the image for a brief information.
- For more detailed information, click on the number of the Documents you are interested in navigating in the table on the left.
- The results will appear on a new page.

Download Figures and Tables

The figures and tables need to be downloaded one by one.

- In the “Analyze search results”, click the “Export” button on the top right.
- Select and click “Export the data to a CSV file”. (Excel format).

3. Select and click “Export the chart to a zip file”. (JPG, PDF and PNG format)



Description of the Scopus Analyser Results

Documents by year:

This analysis reveals annual research output trends within a specified domain, highlighting patterns of growth or decline.

Documents per year by source:

It distinguishes annual publication volumes by sources, pinpointing leading journals or venues in a field.

Documents by author:

This metric identifies key contributors based on the volume of their publications, spotlighting leading researchers.

Documents by affiliation:

It quantifies institutional contributions to research, aiding in the identification of active research centres.

Documents by country:

This analysis shows the geographical distribution of research output, underlining dominant contributing countries.

Documents by subject area:

It classifies research documents by their focus areas, revealing dominant and emergent research themes.

NO. 3: HOW TO USE BIBLIOSHINY

Search Strategy

1. Refer to “How to Use Scopus: A Step-by-Step Guide”
2. Tick BibTeX. (Biblioshiny can read BibTeX and CSV format; however, BibTeX is preferable.)
3. Tick “Citation information”, “Bibliographical information”, “Abstract & keywords” and “Other information” before clicking “Export”.

Export 170 documents to BibTeX ⓘ ×

What information do you want to export?

<input checked="" type="checkbox"/> Citation information	<input checked="" type="checkbox"/> Bibliographical information	<input checked="" type="checkbox"/> Abstract & keywords	<input type="checkbox"/> Funding details	<input checked="" type="checkbox"/> Other information
<input checked="" type="checkbox"/> Author(s)	<input checked="" type="checkbox"/> Affiliations	<input checked="" type="checkbox"/> Abstract	<input type="checkbox"/> Number	<input checked="" type="checkbox"/> Tradenames & manufacturers
<input checked="" type="checkbox"/> Document title	<input checked="" type="checkbox"/> Serial identifiers (e.g. ISSN)	<input checked="" type="checkbox"/> Author keywords	<input type="checkbox"/> Acronym	<input checked="" type="checkbox"/> Accession numbers & chemicals
<input checked="" type="checkbox"/> Year	<input checked="" type="checkbox"/> PubMed ID	<input checked="" type="checkbox"/> Indexed keywords	<input type="checkbox"/> Sponsor	<input checked="" type="checkbox"/> Conference information
<input checked="" type="checkbox"/> EID	<input checked="" type="checkbox"/> Publisher	<input type="checkbox"/> Funding text	<input type="checkbox"/> Funding text	<input checked="" type="checkbox"/> Include references
<input checked="" type="checkbox"/> Source title	<input checked="" type="checkbox"/> Editor(s)			
<input checked="" type="checkbox"/> Volume, issues, pages	<input checked="" type="checkbox"/> Language of original document			
<input checked="" type="checkbox"/> Citation count	<input checked="" type="checkbox"/> Correspondence address			
<input checked="" type="checkbox"/> Source & document type	<input checked="" type="checkbox"/> Abbreviated source title			
<input checked="" type="checkbox"/> Publication stage				
<input checked="" type="checkbox"/> DOI				
<input checked="" type="checkbox"/> Open access				

Select all information Save as preference

4. Save the file to be uploaded in the R Studio.

Installation for Windows

1. Installing R

- Go to <https://posit.co/download/rstudio-desktop/>
- Select No. 1: Install R: <https://cran.r-project.org/>

DOWNLOAD

RStudio Desktop

Used by millions of people weekly, the RStudio integrated development environment (IDE) is a set of tools built to help you be more productive with R and Python.

Don't want to download or install anything? Get started with RStudio on [Posit Cloud for free](#). If you're a professional data scientist looking to download RStudio and also need common enterprise features, don't hesitate to [book a call with us](#).

1: Install R

RStudio requires R 3.3.0+. Choose a version of R that matches your computer's operating system.

2: Install RStudio

DOWNLOAD AND INSTALL R

DOWNLOAD RSTUDIO DESKTOP FOR WINDOWS

Size: 215.66 MB | SHA-256: 03C83C42 | Version: 2023.12.1+402 | Released: 2024-01-29

- Select “Download R for Windows”
- Select “install R for the first time”
- Download “R-4.3.0 for Windows”

The Comprehensive R Arc

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac**

- [Download R for Linux \(Debian, Fedora/Redhat, Ubuntu\)](#)
- [Download R for macOS](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management sys

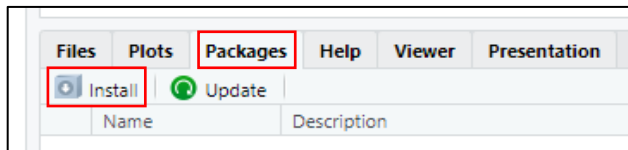
- Save the file, double-click it to open, and follow the installation instructions.
- Once R is installed, download and install RStudio.

2. Installing RStudio

- Go to <https://posit.co/download/rstudio-desktop/>
- Select No. 2: Install RStudio: Click "Download R for Windows".
- Save the file, double-click it to open, and follow the installation instructions.

3. Installing Bibliometrix Package

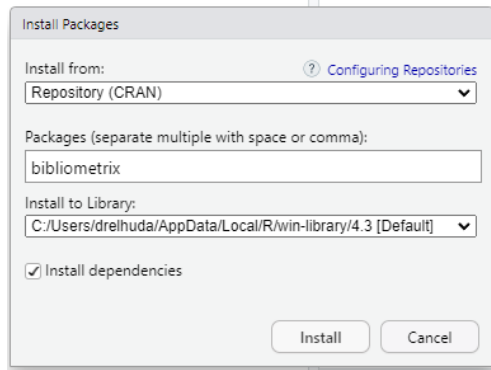
- Open the RStudio
- Click on the “Packages” and click “Install” tab.



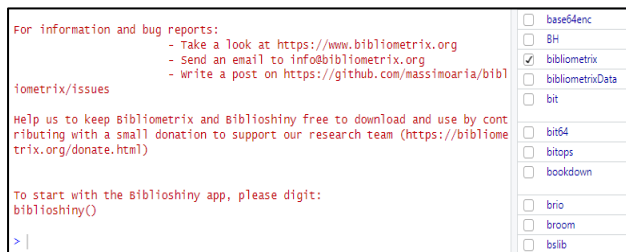
- A pop window will appear. Write and browse “Bibliometrix” and click “Install.”

4. Opening the Biblioshiny

- Tick “bibliometrix” in the “Packages”.



- Read the instruction in the Console: “To start the shiny web interface, please digit: biblioshiny()”, type in “biblioshiny()”, and click “Enter”.
- The Biblioshiny webpage will be opened.

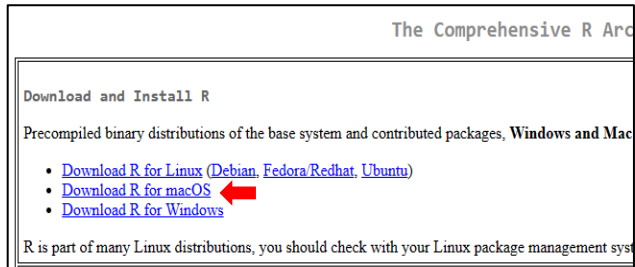


Installation for MacOs

1. Installing R

- Go to <https://posit.co/download/rstudio-desktop/>

- Select No. 1: Install R: <https://cran.r-project.org/>
- Select “Download R for macOS”.



- Select “install R for the first time”
- Download “R-4.3.0-x86_64.pkg”
- Save the file, double-click it to open, and follow the installation instructions.
- Once R is installed, download and install RStudio.

2. Installing R Studio

- Go to <https://posit.co/download/rstudio-desktop/>
- Select No. 2: Install RStudio: Click “Download R for macOS”.
- Save the file, double-click it to open, and follow the installation instructions.

3. Installing Bibliometrix Package

- Open the RStudio from the Launchpad

- Click on the “Packages” and click on the “Install” tab
- A pop window will appear. Write and browse “Bibliometrix” and click “Install”.

4. Opening the Biblioshiny

- Select Package Manager
- Tick “bibliometrix” and “bibliometrixData”
- Read the instruction in the Console: “To start the shiny web interface, please digit: biblioshiny()”, type in “biblioshiny()”, and click “Enter”.
- The Biblioshiny webpage will be opened.

Uploading Data

1. From the top menu, click Load Data
2. Click the dropdown for Import or Load Files, “Import raw file(s)”
3. Click “Scopus” for the Database
4. Browse the file downloaded from Scopus in .bib or CSV. Format.
5. Click the “Start” button.




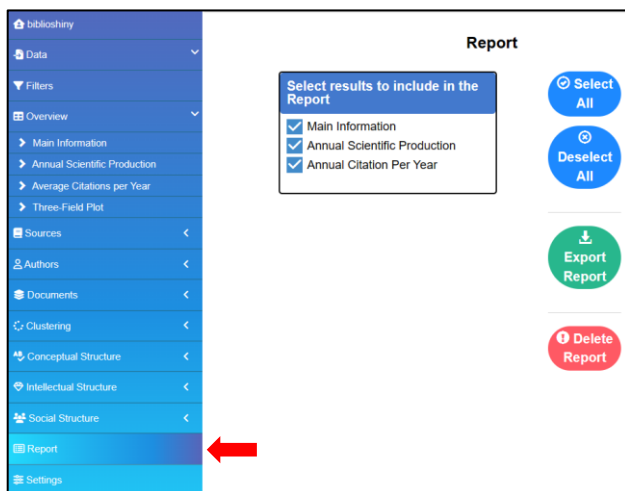
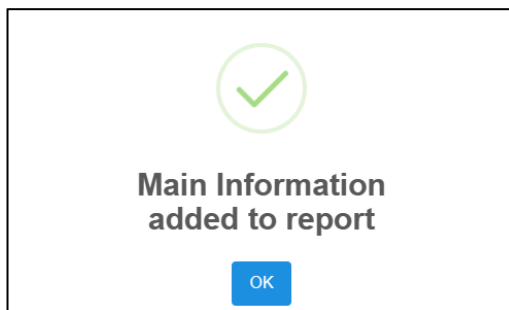
6. The total number of documents should appear in the results.

Completeness of bibliographic metadata

Metadata	Description	Missing Counts	Missing %	Status
AB	Abstract	0	0.00	Excellent
C1	Affiliation	0	0.00	Excellent
AU	Author	0	0.00	Excellent
CR	Cited References	0	0.00	Excellent
DT	Document Type	0	0.00	Excellent
SO	Journal	0	0.00	Excellent
ID	Keywords Plus	0	0.00	Excellent
LA	Language	0	0.00	Excellent
PY	Publication Year	0	0.00	Excellent
T1	Title	0	0.00	Excellent
TC	Total Citation	0	0.00	Excellent
RP	Corresponding Author	2	3.70	Good
DI	DOI	2	3.70	Good
DE	Keywords	7	12.96	Acceptable
NR	Number of Cited References	54	100.00	Completely missing
WC	Science Categories	54	100.00	Completely missing

[Advice](#)
[Save](#)
[Close](#)

7. The navigation pane provides several parameters for the bibliometric analysis. Each page will have a  “plus sign” in the right upper corner. By clicking this signage, the information will be added to the report.



Navigation Pane in Biblioshiny

1. Overview

This section offers a comprehensive analysis, including a summary of the data's scope, research output trends over time, and the citation impact of the works included. It serves as a foundational starting point.

Main information | Annual Scientific Production
Average Citations per Year | Three-Fields Plot

2. Sources

This section provides an analytical lens of the most prolific journals and conferences. It measures these sources' impact within the dataset and monitors their publication activity over time.

Most Relevant Sources | Sources' Local Impact | Sources'
Production over Time

3. Authors

This section provides a variety of analytical perspectives focusing on authors, their affiliations, and countries. These viewpoints offer valuable insights into various bibliometric features like productivity, impact, relevance, and citation metrics.

Authors:

Most Relevant Authors | Authors' Production over Time |
Authors' Local Impact

Affiliations:

Most Relevant Affiliations | Affiliations' Production over Time

Countries:

Corresponding Author's Countries | Countries' Scientific Production | Countries' Production over Time | Most Cited Countries

4. Documents

This section explores document analysis, providing information on the importance of keywords and the impact of citations. It also provide resources for understanding which documents are noteworthy in the field and how particular keywords are used over time.

Documents Section:

Most Global Cited Documents | Most Local Cited Documents | Cited References Section

Most Local Cited References:

References Spectroscopy | Words Section

Most Frequent Words

WordCloud | TreeMap | Words' Frequency over Time | Trend Topics

5. Clustering

This section aims to aid in investigating clusters within the scientific literature. By analysing the coupling of documents, it is possible to gain insights into the interconnectivity and thematic concentrations within a specific research area.

6. Conceptual Structure

This section is critical for understanding the conceptual foundations and thematic development of a research field. It maps and analyses the co-occurrences and relationships between ideas using factorial and network techniques.

Network Approach:

Co-occurrence Network

Thematic Map: Thematic Evolution

Factorial Approach: Factorial Analysis

7. Intellectual Structure

This software segment allows for the investigation of the scholarly backbone of a field, displaying how works and ideas connect and impact each other over time.

Co-citation Network | Historiography

8. Social Structure

This section is dedicated to analysing and visualising the collaborative aspects of research, highlighting the networks and global partnerships within the scientific community.

Collaboration Network | Countries' Collaboration World Map

NO. 4: HOW TO USE VOSVIEWER

Installation of VOSviewer

1. To run VOSviewer, one must have a computer system offering Java support. Java version 6 or higher needs to be installed.
2. Using a Web Browser >> Search VOSviewer.
3. Go to VOSviewer website (<https://www.VOSviewer.com/>)
4. On the VOSviewer website, click the “Download” tab.



VOSviewer
Visualizing scientific landscapes

Leiden University | CWTS | CWTS B.V. | Other CWTS sites

Home Features Getting Started **Download** Publications Products Course Contact

Harvard Univ

Welcome to VOSviewer

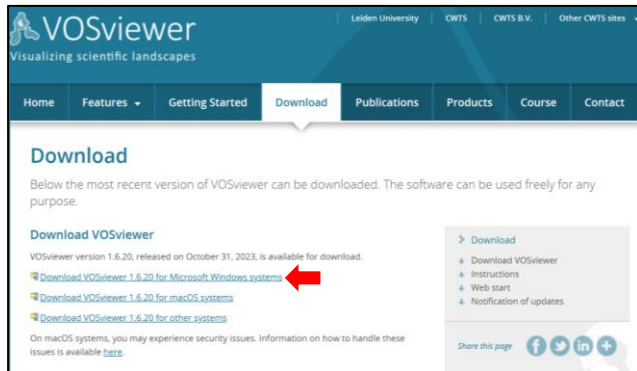
VOSviewer is a software tool for constructing and visualizing bibliometric networks. These networks may for instance include journals, researchers, or individual publications, and they can be constructed based on citation, bibliographic coupling, co-citation, or co-authorship relations. VOSviewer also offers text mining functionality that can be used to construct and visualize co-occurrence networks of important terms extracted from a body of scientific literature.

VOSviewer version 1.6.20

VOSviewer version 1.6.20 was released on October 31, 2023. This version offers improved features for creating maps based on data downloaded through APIs. It also supports creating maps based on data exported from Scopus in the open Science file format.

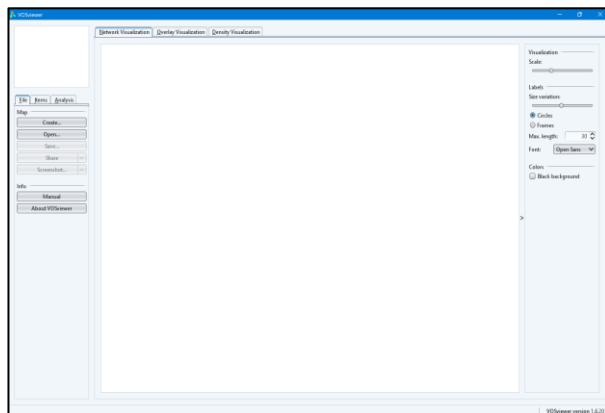
New edition of CWTS

5. Download the VOSviewer zipped file according to the computer processor. Extract the zip file and launch VOSviewer by clicking the application file.

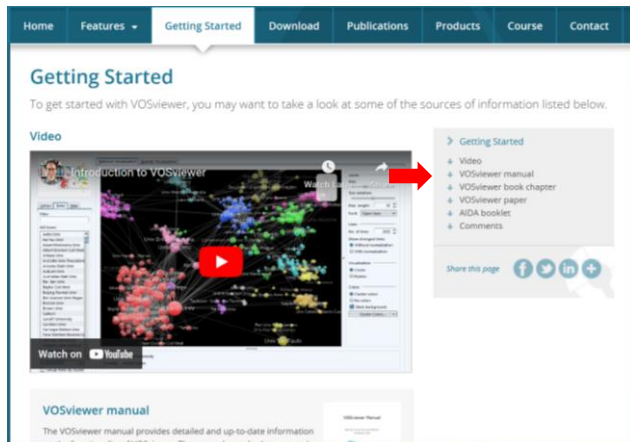


6. Extract the zip file and launch VOSviewer by clicking the application file.

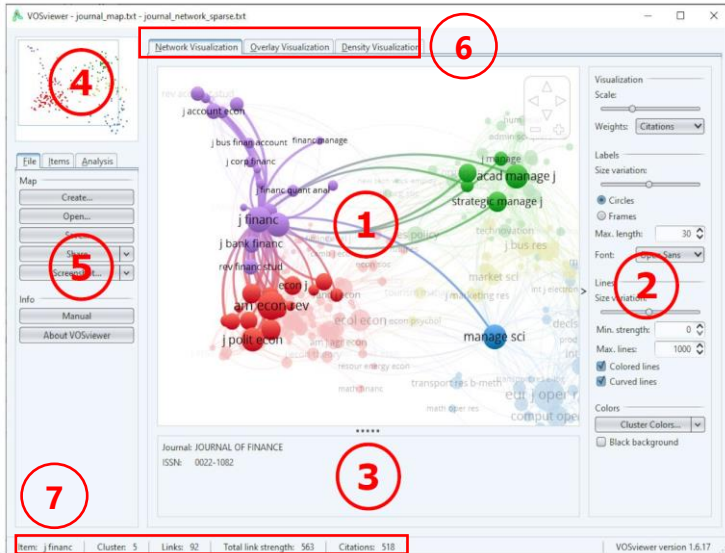
7. The main window of the VOSviewer will appear.



8. For more information, the VOSviewer Manual can also be accessed in the extracted file.
9. You can refer to the website (<https://www.VOSviewer.com/>) for the YouTube tutorial video and download the latest “VOSviewer manual” and “VOSviewer book chapter” for more details.



Main Window of VOSviewer Interface



1. Main Panel

This panel visualises the currently active map. Zoom and scroll functionality allow users to explore the map in full detail.

Most Relevant Sources | Sources' Local Impact | Sources' Production over Time.

2. Options panel

This panel allows you to adjust the visualisation of the currently active map presented in the main panel.

3. Information panel

This panel presents descriptions of items in the currently active map.

4. Overview panel

This panel presents an overview of the currently active map. A rectangular frame indicates the area in the map that is shown in the main panel.

5. Action panel

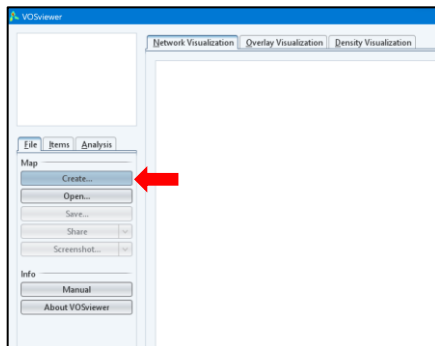
This panel can be used to perform different kinds of actions, such as creating a new map, opening or saving an existing map, making a screenshot, and updating the layout or the clustering of a map.

6. VOSviewer provides three visualisations, referred to as the network visualisation, the overlay visualisation, and the density visualisation.

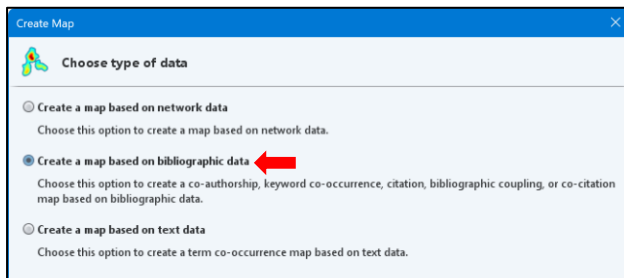
7. The status bar in VOSviewer, positioned at the bottom of the main window, offers details about the active map, including the count of items, clusters, links, and the overall link strength. It also updates to show information about a specific item or link when the mouse pointer hovers over them in the main panel.

Bibliographic Coupling Network of Researchers

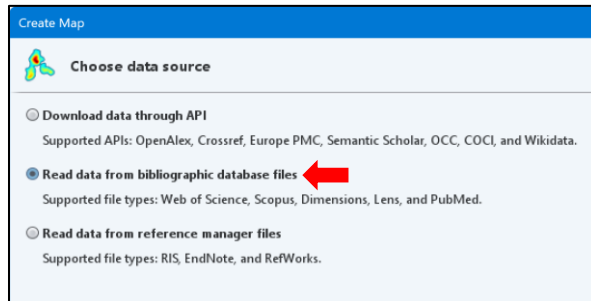
1. Launch VOSviewer by clicking the VOSviewer application file.
2. Click the “Create” on the Action tab to open the “Create Map” dialogue box.



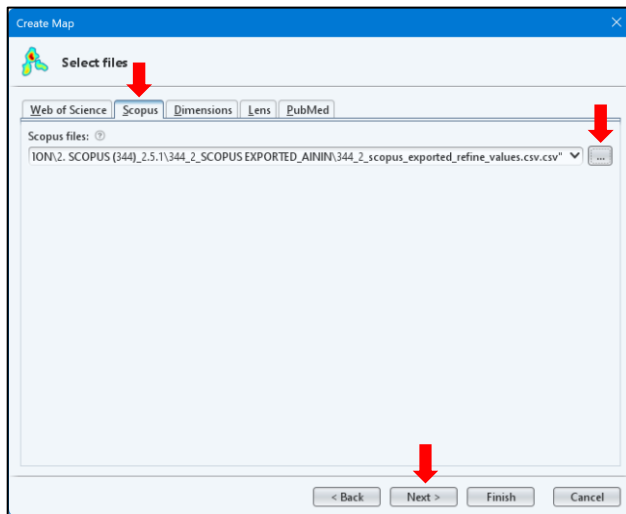
3. Select the “Create a map based on bibliographic data” option and click “Next”.



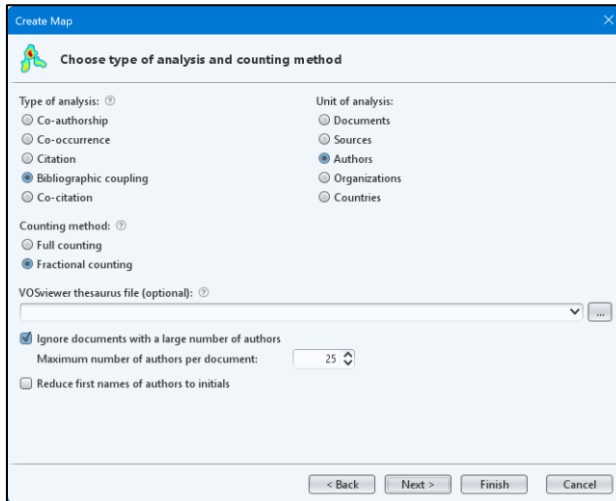
4. Choose Data Source. Select the “Read data from bibliographic database files” option and click “Next”.



5. Go to the “Scopus” tab and click the ... dropdown button to open the “Select Scopus File” dialogue box. Select the Scopus file in CSV format, and click the “OK” and “Next” buttons.



6. Select the “Bibliographic coupling of authors” and “Fractional counting” option and click “Next”.

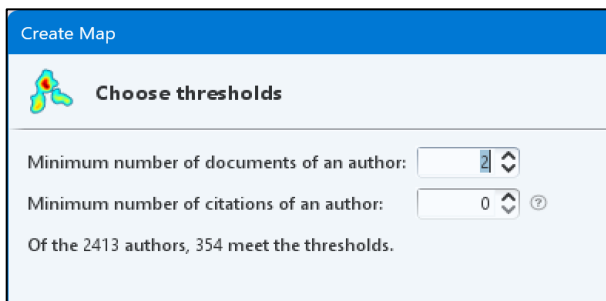


The screenshot shows a dialog box titled "Create Map" with a close button (X) in the top right corner. Below the title bar is a header area with a small icon and the text "Choose type of analysis and counting method". The main area contains several sections:

- Type of analysis:** A list of radio buttons with "Bibliographic coupling" selected.
- Unit of analysis:** A list of radio buttons with "Authors" selected.
- Counting method:** A list of radio buttons with "Fractional counting" selected.
- VOsviewer thesaurus file (optional):** A dropdown menu with a search icon and a browse button (...).
- Ignore documents with a large number of authors:** A checked checkbox with a sub-label "Maximum number of authors per document:" and a spinner box set to "25".
- Reduce first names of authors to initials:** An unchecked checkbox.

At the bottom of the dialog are four buttons: "< Back", "Next >", "Finish", and "Cancel".

7. Choose the minimum number of documents of an author 2 threshold publications and click “Next” and 354 authors meet this threshold.



The screenshot shows a dialog box titled "Create Map" with a close button (X) in the top right corner. Below the title bar is a header area with a small icon and the text "Choose thresholds". The main area contains:

- Minimum number of documents of an author:** A spinner box set to "2".
- Minimum number of citations of an author:** A spinner box set to "0" with a help icon (?) to its right.
- Of the 2413 authors, 354 meet the thresholds.**

- In the Create Map dialog box, choose all authors and click the “Finish”.

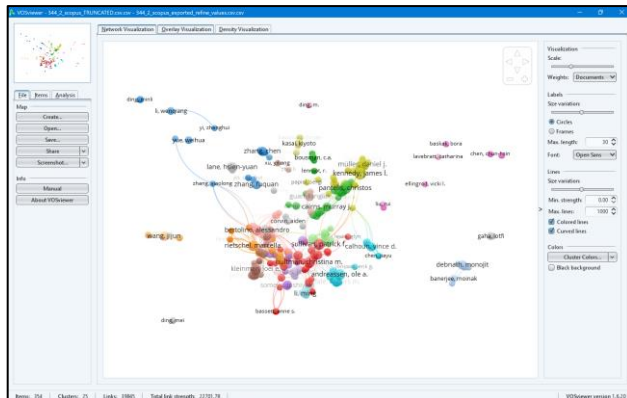
Create Map

Verify selected authors

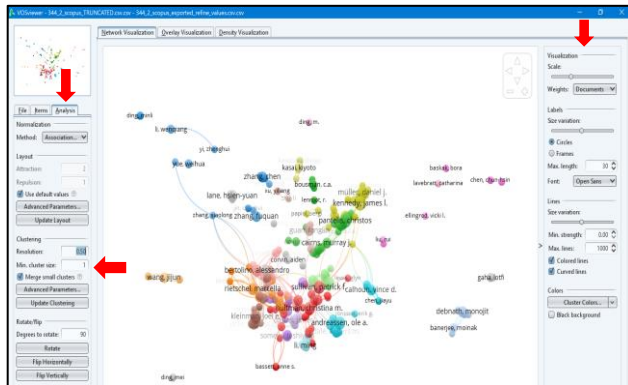
Selected	Author	Documents	Citations	Total link strength
<input checked="" type="checkbox"/>	bertolino, alessandro	5	132	394.63
<input checked="" type="checkbox"/>	blasi, giuseppe	5	132	394.63
<input checked="" type="checkbox"/>	weinberger, daniel r.	5	289	383.67
<input checked="" type="checkbox"/>	andreassen, ole a.	6	151	370.53
<input checked="" type="checkbox"/>	rietschel, marcella	5	49	359.64
<input checked="" type="checkbox"/>	müller, daniel j.	6	139	329.80
<input checked="" type="checkbox"/>	kennedy, james l.	7	171	327.48
<input checked="" type="checkbox"/>	pergola, giulio	4	67	326.97
<input checked="" type="checkbox"/>	ursini, gianluca	4	114	321.83
<input checked="" type="checkbox"/>	hultman, christina m.	6	420	292.55
<input checked="" type="checkbox"/>	lencz, todd	5	195	286.33
<input checked="" type="checkbox"/>	sullivan, patrick f.	6	225	285.76
<input checked="" type="checkbox"/>	dale, anders m.	4	143	279.74
<input checked="" type="checkbox"/>	smeland, olav b.	4	143	279.74
<input checked="" type="checkbox"/>	wang, yunpeng	4	143	279.74
<input checked="" type="checkbox"/>	kleinman, joel e.	5	292	279.68
<input checked="" type="checkbox"/>	lane, hsien-yuan	5	44	273.27
<input checked="" type="checkbox"/>	lin, chieh-hsin	5	44	273.27
<input checked="" type="checkbox"/>	hyde, thomas m.	4	284	271.07
<input checked="" type="checkbox"/>	meltzer, herbert v.	5	1	268.80

< Back Next > **Finish** Cancel

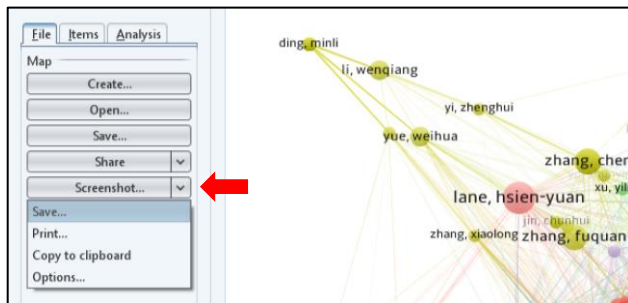
- The result will be shown in the VOSviewer window.



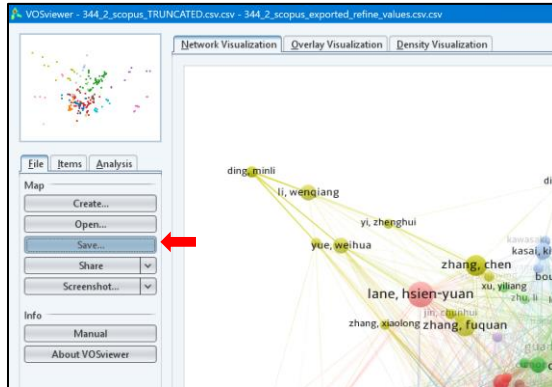
- 10.** To analyse the results, select the “Analysis” tab. In the Clustering resolution text box, decrease the value of the resolution parameter from 1.00 to 0.50. Select the “Update Clustering” option” button. Adjust the right tab (Visualization, Labels, Lines and Colours) accordingly.



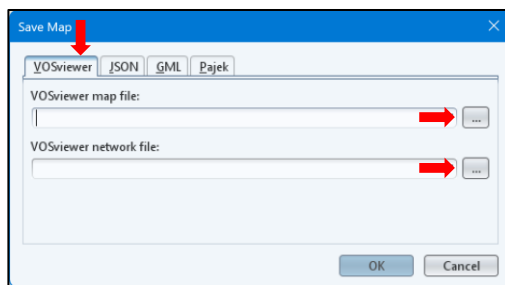
- 11.** Go to the “File” tab in the left panel. Select the “Screenshot” dropdown button, then select the Save option to open the Save Screenshot dialogue box.



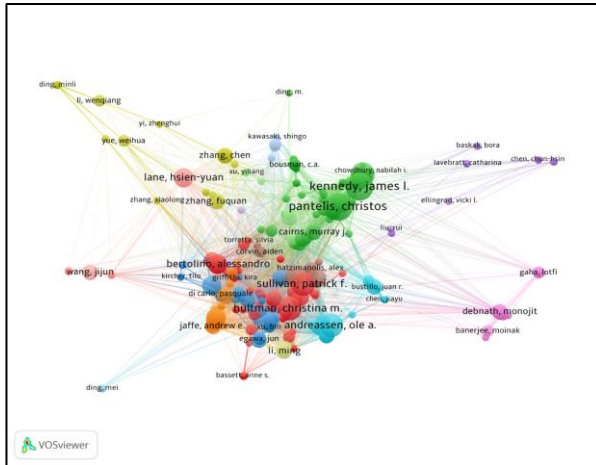
- 12.** Other SAVE options (VOSviewer Map File and Network File). Click “Save” to open the “Save Map” dialogue box.



- 13.** Then, click the VOSviewer tab, and click ... dropdown button to choose the destination file to save the Map and Network files.



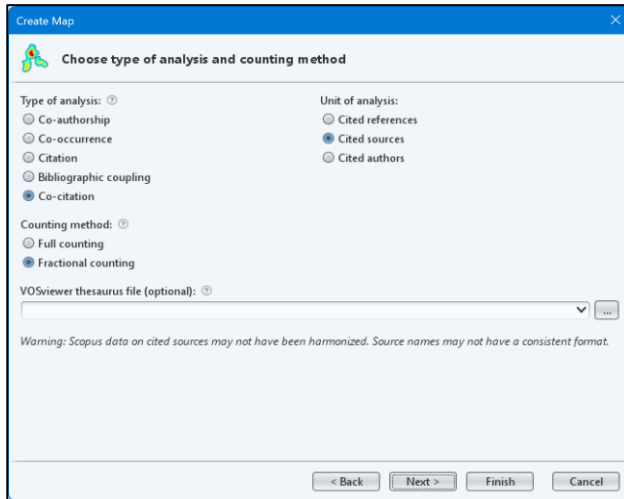
Visualisation and Analysis of Results



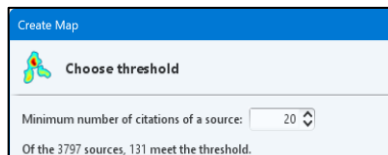
1. Each circle represents a researcher.
2. Large circles represent researchers who have many publications. Small circles represent researchers with only a few publications.
3. Researchers who are close in a visualisation tend to cite the same publications, while those far apart do not.
4. Different colours indicate clusters of researchers.

Co-Citation Network of Journals

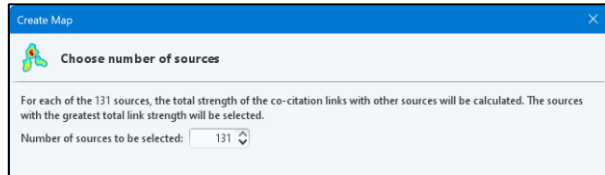
1. Select the “Co-citation of sources” and “Fractional counting” option and click “Next”.



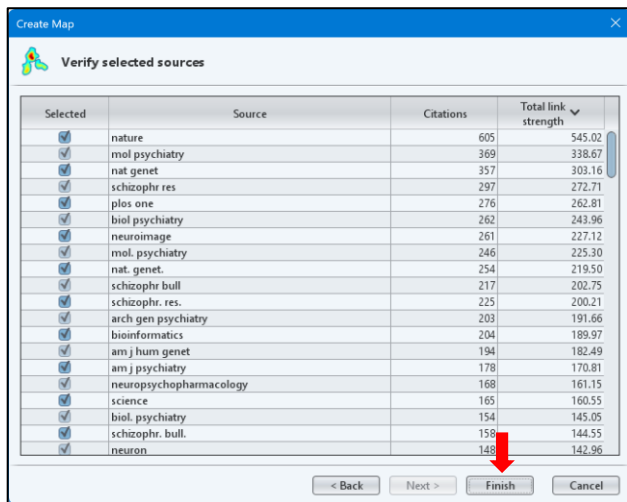
2. VOSviewer needs at least 20 citations for a journal to be part of the co-citation network. In the example, 131 journals meet this requirement. Click “Next” to proceed.



The journals with the smallest number of co-citation relations will be excluded. Click “Next” to proceed.

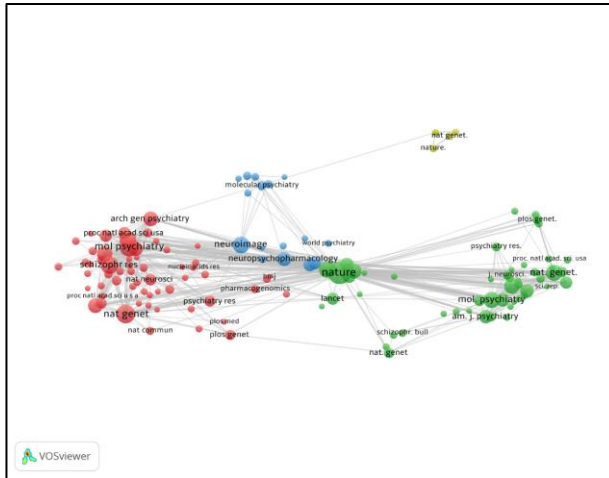


3. Click “Finish”.



4. Improve the Visualisation, Labels, Lines, and Colors according to your preferences using the right panel.

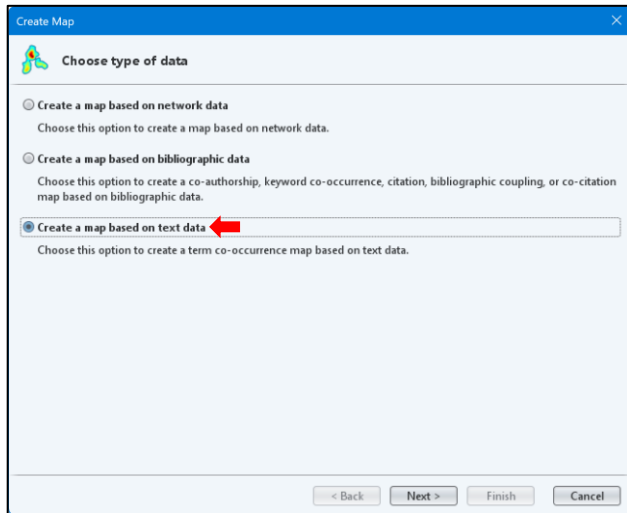
Visualisation and Analysis of Results



1. Each circle represents a journal.
2. The size of a circle reflects the number of citations a journal has received.
3. Journals that are located close to each other in the visualisation tend to be more strongly related, based on co-citations, than journals that are located far away from each other.
4. Four broad groups of journals can be distinguished. These four groups of journals can also be easily recognised.

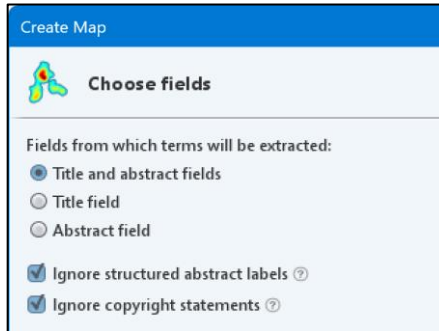
Co-Occurrence Network of Terms

1. Launch VOSviewer.
2. Click the "Create" button located on the Action tab to open the "Create Map" dialog box.
3. Select the "Create a map based on text data" option and click "Next".



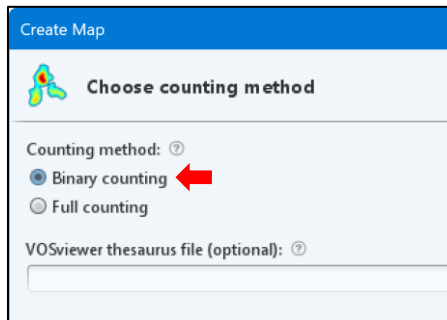
4. Go to the "Scopus" tab and select the Scopus output files to be used, and click "Next". This is the same step as the analysis of the researcher's bibliographic coupling and co-citation network of journals.

5. Select the “Title and abstract fields” option and click “Next”. VOSviewer will extract noun phrases from the titles and abstracts of the Scopus output files. This process may take some time.



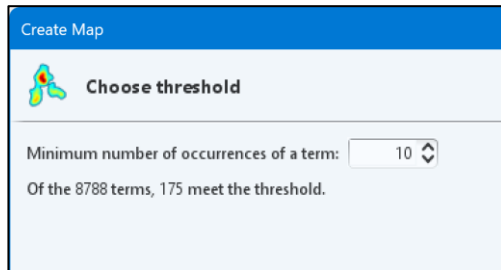
The screenshot shows a window titled "Create Map" with a sub-header "Choose fields". Below the sub-header, there is a section "Fields from which terms will be extracted:" containing three radio button options: "Title and abstract fields" (selected), "Title field", and "Abstract field". Below this section, there are two checked checkboxes: "Ignore structured abstract labels" and "Ignore copyright statements".

6. Select the “Binary counting” option and click “Next”. In a co-occurrence network, the frequency of a noun phrase in the title and abstract of a publication is not considered because a binary counting methodology is used. This means that all noun phrases are given equal importance.



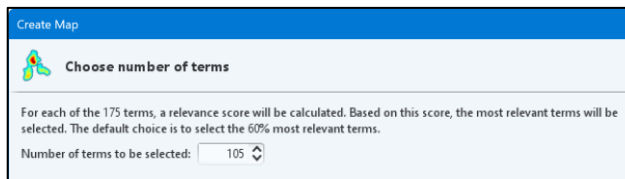
The screenshot shows a window titled "Create Map" with a sub-header "Choose counting method". Below the sub-header, there is a section "Counting method:" containing two radio button options: "Binary counting" (selected, indicated by a red arrow) and "Full counting". Below this section, there is a text input field labeled "VOSviewer thesaurus file (optional):".

7. VOSviewer requires at least 10 occurrences of a noun phrase to be included in the co-occurrence network. In the example, 175 relevant noun phrases were identified in the title or abstract of 10 publications. Click “Next” to proceed.



The screenshot shows a window titled "Create Map" with a sub-header "Choose threshold". On the left is a small icon of a globe with colored dots. The main text reads "Minimum number of occurrences of a term:" followed by a dropdown menu set to "10". Below this, it says "Of the 8788 terms, 175 meet the threshold."

8. select the number of noun phrases required to create a co-occurrence network. Change the default 60% to 105 for better relevance scores. In this step, all noun phrases will have their relevance scores calculated; the phrases with the lowest scores will be excluded. Click “Next” to proceed. This may take some time to complete.



The screenshot shows a window titled "Create Map" with a sub-header "Choose number of terms". On the left is a small icon of a globe with colored dots. The main text reads "For each of the 175 terms, a relevance score will be calculated. Based on this score, the most relevant terms will be selected. The default choice is to select the 60% most relevant terms." Below this, it says "Number of terms to be selected:" followed by a dropdown menu set to "105".

9. These noun phrase is known as “terms”. Click “Finish”.

Create Map

Verify selected terms

Selected	Term	Occurrences	Relevance
<input checked="" type="checkbox"/>	polymorphism	149	0.42
<input checked="" type="checkbox"/>	genotype	74	0.97
<input checked="" type="checkbox"/>	healthy control	63	0.73
<input checked="" type="checkbox"/>	schizophrenia patient	61	0.49
<input checked="" type="checkbox"/>	allele	58	0.41
<input checked="" type="checkbox"/>	phenotype	53	0.60
<input checked="" type="checkbox"/>	case	52	0.55
<input checked="" type="checkbox"/>	pathway	48	0.48
<input checked="" type="checkbox"/>	cohort	44	0.55
<input checked="" type="checkbox"/>	response	43	0.40
<input checked="" type="checkbox"/>	loci	42	1.72
<input checked="" type="checkbox"/>	approach	42	0.80
<input checked="" type="checkbox"/>	relationship	42	0.37
<input checked="" type="checkbox"/>	difference	41	0.32
<input checked="" type="checkbox"/>	genome wide association study	40	1.40
<input checked="" type="checkbox"/>	carrier	39	0.85
<input checked="" type="checkbox"/>	age	39	0.52
<input checked="" type="checkbox"/>	wide association study	38	1.43
<input checked="" type="checkbox"/>	activity	38	0.56
<input checked="" type="checkbox"/>	gwas	36	1.88
<input checked="" type="checkbox"/>	trait	35	1.56

< Back Next > **Finish** Cancel

10. Improve the Visualisation, Labels, Lines, and Colours according to your preferences.

Network Visualization | Cluster Visualization | Empty Visualization

Visualization

Scale: [Slider]

Weights: [Dropdown: Chromosome]

Labels: [Dropdown: Chromosome]

Size variation: [Dropdown: Chromosome]

Color: [Dropdown: Chromosome]

Font: [Dropdown: Arial]

Lines: [Dropdown: Solid]

Line weights: [Dropdown: Chromosome]

Max. length: [Slider]

Max. lines: [Slider]

Color lines: [Dropdown: Chromosome]

Color lines: [Dropdown: Chromosome]

Cluster Colors: [Dropdown: Chromosome]

Blank background: [Dropdown: Chromosome]

Nodes: 100 Edges: 1 Labels: 1000 Total link strength: 1000

Network visualization version 1.0.0

NO. 5: HOW TO CREATE A JOURNAL BANK

Journal Bank Template

1. Use this table using Excel or Word document as a template.
2. Extract the information from Scopus, Scimago JR or specific journals.
3. Fill up the table accordingly.

Journal	Cite score	Impact Factor	Quartile	Article Processing Charge	Open access	Journal Link

Scopus

Search Within Article Title

This is useful when you are preparing a “Bibliometric” or “Systematic Review” which is contained in the title.

1. Go to the Scopus Search page.

2. Click on the dropdown and select “Article Title”
3. Write in the search documents: “Bibliometric” and “(your topic)”
4. The Sources are the journal names.



Search Using Sources

1. Go to Scopus.
2. On the top right next to the author profile is “Sources”. Click on it.
3. Refine your search on the “Title” by entering the title keyword or “Subject area” by selecting the subjects available using the dropdown.

The screenshot shows the Scopus Sources search page. At the top, the 'Sources' tab is selected, indicated by a red arrow. Below it, a search bar contains the text 'Schizophrenia' and a 'Find sources' button. A notification banner below the search bar states: 'Improved CiteScore: We have updated the CiteScore methodology to ensure a more robust, stable and comprehensive metric which provides an indication of research impact, earlier. The updated methodology will be applied to the calculation of CiteScore, as well as retroactively for all previous CiteScore years (ie. 2018, 2017, 2016...). The previous CiteScore values have been removed and are no longer available. View CiteScore methodology >'. Below this, the 'Filter refine list' section shows '8 results'. A table of results is displayed with columns for 'Source title', 'CiteScore', 'Highest percentile', 'Citations', 'Documents', and '% Cited'. The first result is 'Schizophrenia Bulletin' with a CiteScore of 11.5, which is highlighted by a red box.

Source title	CiteScore	Highest percentile	Citations	Documents	% Cited
1. Schizophrenia Bulletin	11.5	95%	7,022	612	89

4. When choosing the journal, the higher the CiteScore is, the more challenging the acceptance rate.

Scimago JR (SJR)

1. Go to <https://www.scimagojr.com/>
2. Click on the “Journal Rankings”
3. The information provided here includes more information, such as the Scimago Journal Rank (SJR) indicator, Quartile, Countries, Total documents, and Total citations.

Title	Type	SJR	H Index	Total Docs. (2022)	Total Docs. (3years)	Total Refs. (2022)	Total Citers (3years)	Citable Docs. (3years)	Citers / Doc. (3years)	Ref. / Doc. (2022)
1 World Psychiatry	journal	14.306	125	104	292	4345	4232	62	15.61	41.78
2 Lancet PsychiatryThe	journal	8.167	127	255	941	4591	11027	317	14.05	18.00
3 Annual Review of Clinical Psychology	journal	6.744	134	22	65	2911	1369	64	18.98	132.32
4 JAMA Psychiatry	journal	6.579	394	212	699	5673	7931	382	11.48	26.76

Individual Journals

1. From the list of journals generated from Scopus and Scimago, extract the information and go to the journal website.
2. Look up “Article publishing charge”, “Open access options”, “Publication Fee”, or “Policies” to get the information regarding the charges.
3. Some journals offer to pay for Open Access or no publication fee for Subscription.

The screenshot displays the 'Schizophrenia Research' journal page. The header includes the journal title, 'Supports open access', a CiteScore of 7.4, and an Impact Factor of 4.5. A navigation bar contains links for 'Articles & Issues', 'About', 'Publish', 'Order journal', 'Search in this journal', 'Submit your article', and 'Guide for authors'. The main content area is titled 'Open access information' and features a sidebar with links: 'Submit your article', 'Guide for authors', 'Open Access options', and 'Language Editing services'. A 'Compare journals' button is also present. The main text explains that the journal is a 'Plan 5 journal' and offers two publishing choices: 'Gold open access' and 'Subscription'. The 'Gold open access' section states that articles are freely available to subscribers and the wider public with permitted reuse, and that an open access publication fee is payable by authors or their institution/funder. The 'Subscription' section states that articles are made available to subscribers and patient groups in developing countries through access programs, and that there is no open access publication fee. Red boxes highlight the 'Language Editing services' link and the 'No open access publication fee.' text.

Schizophrenia Research
Supports open access

7.4 CiteScore | 4.5 Impact Factor

Articles & Issues | About | Publish | Order journal | Search in this journal | Submit your article | Guide for authors

Open access information

Submit your article | Guide for authors | Open Access options | Language Editing services | Compare journals

Plan 5 journal. For authors funded by those funders implementing Plan 5 principles from 2021, this effectively means that you can publish open access in this journal, receive funding for your Article Publishing Charges, and meet Plan 5 requirements.

Schizophrenia Research offers authors two choices to publish their research:

Gold open access	Subscription
Articles are freely available to both subscribers and the wider public with permitted reuse.	Articles are made available to subscribers as well as developing countries and patient groups through our access programs.
An open access publication fee is payable by authors, or their institution or funder.	No open access publication fee.

REFERENCES

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Ahmi, A. (2023, September 22-23). Online Workshop for Beginners and Non-Coders: Essential Steps to Conduct Bibliometric Analysis (Zoom Online).

Mohamed, W., Razali, K., & Amirah, S. (2023, July 25). Bibliometric Analysis Workshop for Healthcare & Medical Sciences 2023. Kulliyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang, Malaysia.

Van Eck, N.J., & Waltman, L. (2014). *Visualizing bibliometric networks*. In Y. Ding, R. Rousseau, & D. Wolfram (Eds.), *Measuring scholarly impact: Methods and practice* (pp. 285–320). Springer. The book chapter is available at http://dx.doi.org/10.1007/978-3-319-10377-8_13

Van Eck, N. J., & Waltman, L. (2017). *VOSviewer Manual*. 23 October 2017. *Manual for VOSviewer version 1.6.6*. Retrieved from https://www.VOSviewer.com/documentation/Manual_VOSviewer_1.6.6.pdf

Wan Azani, W.M. (2023, December 22-24). Hands On: Bengkel Penulisan Bibliometric Analysis & Scoping Paper, Permai Hotel Kuala Terengganu, Terengganu, Malaysia.

The module originates from the insights and materials presented during a Bibliometric Analysis Workshop conducted on the 24th of February and the 5th of March, 2024, at the Department of Pathology and Laboratory Medicine Sultan Ahmad Shah Medical Centre @IIUM. The main objective of this module is to provide researchers with a comprehensive guide on how to effectively navigate and analyse scientific literature across different disciplines using bibliometric tools such as Scopus, Biblioshiny and VOSviewer. The guide also introduces the idea of a "Journal Bank" to assist researchers in preparing and submitting their manuscripts for publication.

e ISBN 978-629-96678-8-9

