Navigating the labyrinth of social exclusion: a bibliometric review

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Abstract

Purpose – *This study aims to provide a comprehensive bibliometric analysis of social exclusion research, examining its evolution and identifying emerging trends and influential contributions in the field.*

Design/methodology/approach – *Using bibliometric and thematic analysis of 3,041 Scopus database documents, the study uses tools like VOSviewer for network analysis and Biblioshiny for trend analysis, focusing on publication patterns, author contributions and thematic clusters.*

Findings – *The findings reveal significant growth in social exclusion research since 1979, highlighting key contributions from diverse academic fields. Notable trends include the rise of digital exclusion and environmental justice themes. The study identifies leading authors, institutions and countries contributing to this field, along with highly cited documents that have shaped the discourse on social exclusion.*

Research limitations/implications – *The study acknowledges its reliance on Scopus data and suggests incorporating other databases for future research. It highlights the need to explore emerging topics and address literature gaps.*

Originality/value – *This paper presents a unique bibliometric perspective on social exclusion research, underscoring its interdisciplinary nature and evolving focus. The study's comprehensive approach offers valuable insights into the field's trajectory, contributing to a deeper understanding of social exclusion phenomena.*

Keywords *Social exclusion, Bibliometric analysis, Interdisciplinary research, Digital exclusion, Environmental justice, Academic trends*

Paper type *General review*

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1. Introduction

In the intricate tapestry of human society, the threads of social connections and belonging form the foundation upon which individuals construct their identities and find their place within the communal structure. Yet, the stark reality of social exclusion poses a formidable threat to these essential bonds, severing ties and perpetuating a hierarchy of disenfranchisement that resonates with severe consequences for those relegated to its margins (Von Der Putten and Bock, 2023). The dynamics of social exclusion extend beyond the mere absence of material resources, weaving a complex pattern of deprivation that effectively ostracizes individuals from the societal nexus, barring them from full and equitable participation in the collective economic, social and political life (Pohlan, 2019).

This insidious process delineates and solidifies societal hierarchies, segregating individuals by caste, creed, race and a multitude of identities, fostering an environment where discrimination and prejudice cast long shadows over the prospects of unity and equality (Lantian *et al.*, 2018). A spectrum of rejection from the subtle disregard by friends and family to the blatant ostracization in professional settings, characterizes the lived experiences of those facing social exclusion. For those from stigmatized groups, this can culminate in a profound sense of invisibility, where feelings of inadequacy and incompetence are an

This project was funded by FRGS Grant, Ministry of Higher Education Malaysia with grant code of FRGS/1/2022/SS02/UITM/02/13.

everyday struggle, echoing the profound need for societal acknowledgment and inclusion (Rabelo and Mahalingam, 2019).

Empirical evidence highlights the pervasive reach of social exclusion, with current estimates indicating that approximately 32% of the global populace is vulnerable to its effects, translating to between 2.33 and 2.43 billion individuals in 2022 alone (Cuesta *et al.*, 2022; Villa-Enciso *et al.*, 2023). The manifestations of exclusion are diverse, ranging from passive neglect to overt aggression, each with significant repercussions on emotional states, cognitive functions and behavioral responses such as reactance, defensive postures and aggression (Best and Bowie, 2022). These implications are profound, presenting not just individualized challenges but societal ones, as social exclusion hinders the collective goal of rapid and inclusive development (Haluwalia *et al.*, 2022).

In response to this necessity, the present study uses bibliometric analysis to delve into the current trends and themes in social exclusion research. This methodology allows for exploring the literature landscape, identifying pivotal contributions and emerging discourses. Thus, this study seeks to answer the following research questions (*RQ*):

RQ1. What is the current state of scholarly literature regarding social exclusion?

RQ2. How have the trends and growth patterns in the publication of social exclusion research evolved?

RQ3. What are the key contributions of authors, countries and institutions to social exclusion?

RQ4. Which are the most influential documents in social exclusion literature?

RQ5. What themes and topics are currently prevalent in social exclusion research?

2. Literature review

2.1 Social exclusion

Social exclusion is the condition of being isolated from or excluded by another person or group of people (Williams *et al.*, 2000). The term perceived social exclusion can describe a particular context of feeling excluded from society (Baumbach *et al.*, 2023). Williams (2009) identified the temporal need-threat model of ostracism as the primary theoretical model that examined the effects of ongoing social exclusion in three subsequent temporal stages. During the reflexive stage, victims experience hurt and negative emotions, indicating that social exclusion threatens four fundamental human needs: control, self-worth, belonging and a sense of purpose in life. During the next phase, known as the reflective stage, individuals evaluate the aspects of the situations that exclude them and use coping mechanisms to restore the needs that are being threatened. Persistent social isolation is the subject of the final stage. Long-term social isolation should inevitably lead a person to the resignation stage, which is marked by emotions of hopelessness, depression and unworthiness.

Social exclusion can be categorized into three dimensions (Cuesta *et al.*, 2022): identity-based exclusion, which occurs when individuals differ from established norms and customs such as gender, race and religion; circumstances-based exclusion, which arises from conflicts, displacement, poverty or gender violence; and socioeconomic conditions-based exclusion, where low educational attainment, unemployment or poverty limit access to benefits such as employment, loans, insurance or political rights. On top of that, the labor market, economic resources, social participation, education, health care, social welfare institutions and civic and human rights contribute to social exclusion (Pohlan, 2019). Social exclusion is also significantly influenced by banking, finance and social relations accessibility, as these factors are intimately linked to living standards and happiness (Haluwalia *et al.*, 2022). According to Bhattacharjee (2022), social exclusion from a socioeconomic

perspective is primarily related to long-term unemployment and a decrease in job security, whereas the political dimension is associated mainly with disempowerment.

A growing body of research indicates that social exclusion has varied effects on people's emotions, thoughts and actions. A person who is socially excluded is more likely to experience poor physical and mental health, academic underachievement, low self-esteem and lack of confidence (Bhattacharjee, 2022). From the workplace perspective, people who feel socially excluded may believe that their low status at work prevents them from engaging in social activities (Lantian *et al.*, 2018). Furthermore, negative emotions are triggered when someone experiences social exclusion or rejection, which poses a serious risk to social survival (Riva *et al.*, 2017). Physically, social exclusion can cause acute negative physiological responses and increase the risk of developing cardiovascular, respiratory and mental health disorders (Aldridge *et al.*, 2018).

2.2 Past studies

Based on the prior study, the social exclusion study is limited since only Liu *et al.* (2023) investigated bibliometrics of social exclusion. The study discusses the negative effects of social exclusion on consumer well-being and how inclusive advertising mitigates it. It indicates that further bibliometrics research is required in this field of study because the study's coverage is still inadequate. As a result, this study offers a thorough bibliometric analysis of previously released documents in all aspects of the social exclusion area. Table 1 compares previous reviews of this research on several dimensions.

3. Methodology

As Wahyuni *et al.* (2019) pointed out, bibliometric analysis is an ideal tool for systematically doing scientific mapping to evaluate particular regions comprehensively, provide visual analysis and establish clusters of exploration from earlier studies. This method allows us to fully understand the existing literature and to identify gaps in knowledge that can guide future research directions. The search strategy used in this study aimed to encompass a wide range of relevant publications by including different languages, document types, data categories and document years. The keywords "social exclusion" or "social ostracism" in the article's title ensured that the search results were directly related to the topic of interest.

Table 1 Comparison of the previous study and the present study

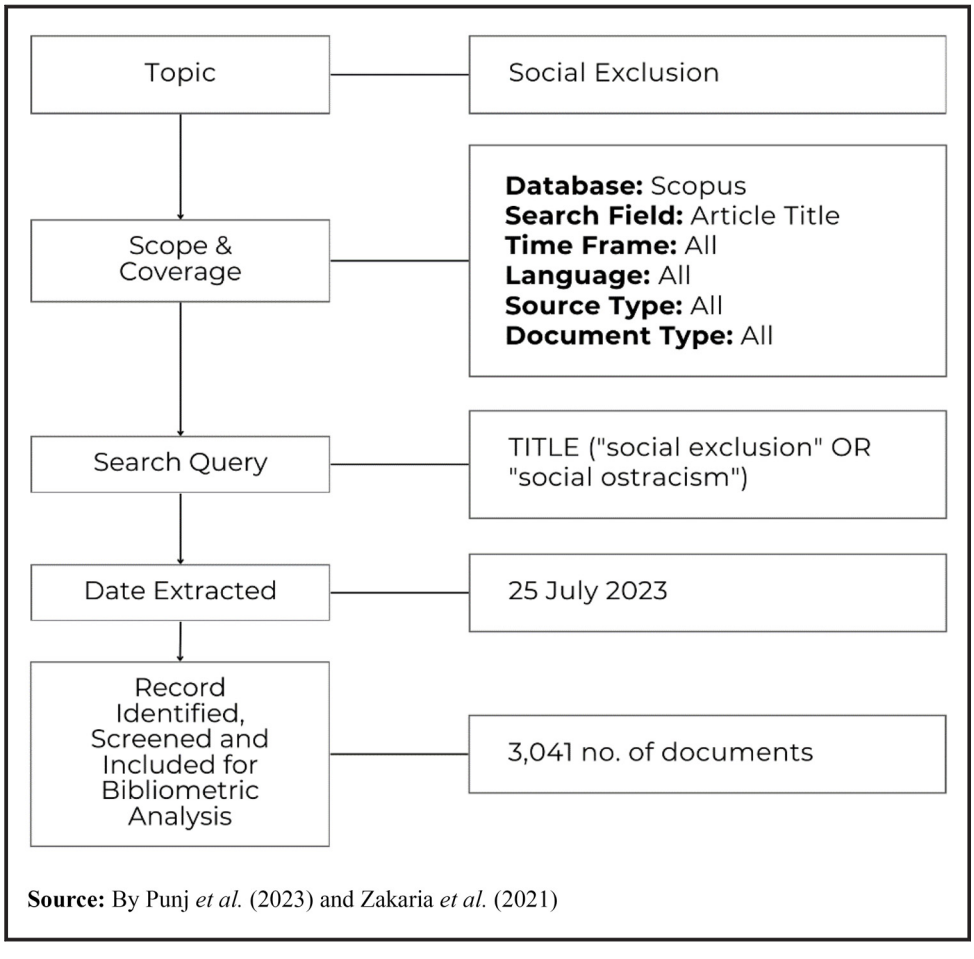
Measure	*Liu* et al. *(2023)*	*Present study*
Focus	The impact of social exclusion and its addressing through inclusive advertising	All aspects of social exclusion
Keywords	"Discrimination," "social exclusion/excluded," "rejection," "loneliness/lonely," "social isolation/isolated," "marginalization" and "ostracism." "Advertising," "brand," "business," "commercial," "communication," "market" and "product," "people," "consumer," "customer," "audience" and "viewer"	"Social exclusion" OR "social ostracism"
Total documents examined	496	3,041
Period	2000–2023	No time limit
Database	Web of Science	Scopus
Methodology	Bibliometric analysis and thematic content analysis	Bibliometric analysis
Attribute examined	Number of publications, author and citation analysis	Documents profiles, number of publications by years, authors, institutions and countries, citation metrics, highly cited documents, co-authorship analysis and co-occurrence analysis

Source: Table by authors

A total of 3,041 documents were acquired based on the query (TITLE ("social exclusion" OR "social ostracism") from the Scopus database. This study uses data obtained from Scopus because it is an acknowledged database, including social science studies. Because no start date was provided, the search engine discovered the earliest paper in the literature. By using the keywords and search techniques, the researchers aimed to gather a comprehensive range of publications that address the concept of social exclusion. This approach ensures that various perspectives and findings from earlier studies are considered, allowing analysis and identification of distinct clusters within the field of social exclusion research. After that, the data was exported into files in the research information systems (.ris) and comma-separated values (.csv) formats. Figure 1 shows the specifics of the search plan and every step involved in carrying out bibliometric analysis.

The following tools were used in the bibliometric analysis: Microsoft Excel, which was used to create relevant charts and calculate the frequencies of published materials; VOSviewer software developed by Van Eck and Waltman (2010), which was used to construct and visualize the bibliometric networks; Harzing's Publish or Perish software developed by Harzing (2007) and biblioMagika by Ahmi (2023b), which calculated the citation metrics, the number of cited papers and the author counts. These tools were selected based on their ability to efficiently analyze large data sets and provide comprehensive insights into the bibliometric landscape and Biblioshiny software developed by Aria and Cuccurullo (2017) to focus on science mapping analysis such as thematic maps, trend topics and factorial

Figure 1 Flow diagram of the search strategy



Source: By Punj *et al.* (2023) and Zakaria *et al.* (2021)

analysis. Furthermore, we also use OpenRefine to clean and harmonize the data especially related keywords, before analyzing the associated data using VOSviewer and Biblioshiny (Ahmi, 2023a).

4. Results

The result of the analysis has been divided into five sections to answer the research questions before. All the findings were reported in descriptive terms, presenting a detailed overview of the data, network highlights the relationship among the authors, institutions and countries, and lastly, mapping analysis visually represents patterns and distributions for further insights.

4.1 Current states

To answer the first *RQ* about the current state of scholarly literature regarding social exclusion, Table 2 presents the overview of the scholarly literature on social exclusion from 1979 to 2023, including the number of publications and key findings, whereas Table 3 shows the document types; languages and subject areas are shown in Tables 4 and 5, respectively.

4.1.1 Main information. Table 2 shows that researchers have studied social exclusion for decades, starting in 1979, with 3,041 papers published. These papers involve 7,551 authors, showing that many scholars collaborated to understand social exclusion.

Table 2 Main information

Main information	*Data*
Publication years	1979–2023
Total publications	3,041
Citable year	45
Number of contributing authors	7,551
Number of cited papers	2,390
Total citations	71,455
Citation per paper	23.49
Citation per cited paper	29.90
Citation per year	1623.98
Citation per author	9.46
Author per paper	2.48
Citation sums within h-core	58,114
h-index	114
g-index	200
m-index	2.53

Source: Table by authors

Table 3 Document type

Document type	*Total publications*	*%*
Article	2,088	68.66
Book chapter	509	16.74
Review	176	5.79
Book	84	2.76
Conference paper	73	2.40
Editorial	44	1.45
Note	27	0.89
Letter	15	0.49
Erratum	14	0.46
Short survey	11	0.36
Total	3,041	100

Source: Table by authors

Table 4 Languages

Language	*Total publications*	*%*
English	2,796	90.25
Spanish	133	4.29
Portuguese	36	1.16
French	32	1.03
German	28	0.90
Russian	15	0.48

Source: Table by authors

Table 5 Subject area

Subject area	*Total publications*	*%*
Social sciences	1,924	63.27
Psychology	696	22.89
Medicine	470	15.46
Arts and humanities	341	11.21
Economics, econometrics and finance	247	8.12
Business, management and accounting	221	7.27
Environmental science	154	5.06
Neuroscience	145	4.77
Engineering	95	3.12
Computer science	80	2.63
Nursing	79	2.60
Earth and planetary sciences	47	1.55
Multidisciplinary	47	1.55
Health professions	45	1.48
Biochemistry, genetics and molecular biology	40	1.32
Agricultural and biological sciences	33	1.09
Decision sciences	28	0.92
Mathematics	27	0.89
Energy	24	0.79
Pharmacology, toxicology and pharmaceutics	18	0.59
Physics and astronomy	10	0.33
Dentistry	3	0.10
Materials science	3	0.10
Immunology and microbiology	1	0.03

Source: Table by authors

Regarding the impact of the publication, the number of citations of these papers is impressive, which is 71,455. On average, each paper was cited about 23 times, and papers that were cited at least once received 30 citations. It revealed that the research on social exclusion has a significant impact. Over the years, an average of about 1,624 citations per year indicates that this research remains relevant. The average number of authors per paper is about 2.5, reflecting a collaborative approach. The h-index of 114 indicates that 114 highly cited papers give an idea of the influential works in the field. In addition, metrics like g-index and m-index add more details about how citations are distributed and about the balance between quantity and quality.

4.1.2 Document type. Table 3 includes several primary and secondary document categories, including articles, book chapters, reviews, books and conference papers. Articles account for more than half of the other documents (2,088, 68.66%), followed by book chapters (509, 16.74%) and review papers (176, 5.79%). Other documents, such as books, conference papers, editorials, notes, letters, erratums and brief surveys, accounted for less than 2% of total publications. The many articles may strongly emphasize empirical

research and scholarly analysis within this study area. In addition, the low percentage of other document types indicates a potential need for more diverse forms of publication in this study area.

4.1.3 Languages. In this field of study, publications are available in 29 languages. Table 4 displays the language with more than 15 total publications. English is commonplace for social exclusion with 90.25%. Other languages include Spanish 4.29%, Portuguese 1.16%, French 1.03%, German 0.90% and Russian 0.48%.

4.1.4 Subject area. This analysis categorizes the published papers by subject area, as shown in Table 5. There are 21 subject categories with publications on social exclusion. The distribution of study topics on social exclusion is dominated by social sciences (1924, 63.27%), psychology (696, 22.89%) and medicine (470, 15.46%). More than 100 documents on social exclusion were found in arts and humanities, econometrics and finance, business, management and accounting, environmental science and neuroscience. These diverse disciplines contribute to a comprehensive understanding of social exclusion from various perspectives.

4.2 Publication trends

To answer the second *RQ* on trends and growth patterns in the evolution of social exclusion research, this section reveals the ten years of social exclusion publication. It provides insights into the growth patterns and changes observed in social exclusion. Table 6 displays the ten most recent years of social exclusion publishing from 2014 to 2023. In the past ten years, the lowest publication was 117 in 2014, and the highest was 214 in 2017. Although there were only 163 articles, this data extract is barely beyond the halfway point of July 2023. Thus, the entire number of publications for the year has yet to be released, and the figure is expected to rise.

Furthermore, the graph in Figure 2 depicts the evolution and increase of scholarly production from the first year of publication until the new creation of topics in 2023. This indicates that researchers increasingly recognize the importance of studying social exclusion and actively contribute to the field. The increase in publications suggests a growing interest in understanding and addressing the issue, which may lead to more comprehensive and effective future strategies for combating social exclusion.

4.3 The key contributors

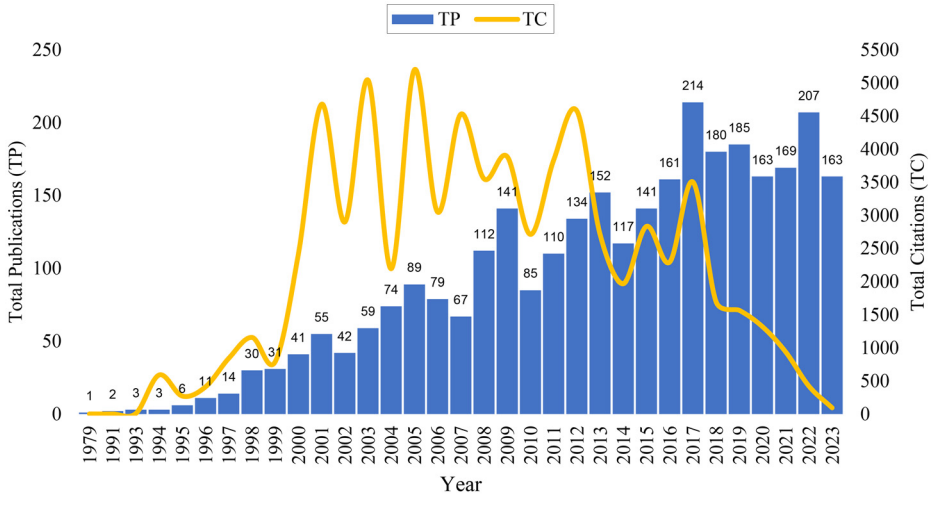
This section presented the most productive authors, institutions and countries to answer the *RQ3* about the key contributions of authors, institutions and countries to the field of social exclusion.

Table 6 The recent 10 years of publication

Year	*TP*	*NCP*	*TC*	*C/P*	*C/CP*	h	g
2014	117	105	1,969	16.83	18.75	26	38
2015	141	120	2,832	20.09	23.60	30	48
2016	161	127	2,292	14.24	18.05	26	42
2017	214	184	3,504	16.37	19.04	30	51
2018	180	153	1,698	9.43	11.10	22	30
2019	185	142	1,568	8.48	11.04	20	30
2020	163	127	1,320	8.10	10.39	20	29
2021	169	126	939	5.56	7.45	14	24
2022	207	114	422	2.04	3.70	9	12
2023	163	48	94	0.58	1.96	4	5

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; C/P = average citations per publication; C/CP = average citations per cited publication; *h* = h-index; and *g* = g-index
Source: Table by authors

Figure 2 Total publications and citations by year



Source: Figure by authors

4.3.1 Publications by authors. Table 7 lists the 14 productive writers with at least ten publications. Baumeister, R.F. and Riva, P. are revealed as the leading authors in social exclusion, with a total publication of 22 papers and 21 papers, followed by Williams, K.D. with 17 total publications and Stanley, J. with 14 publications. In terms of total citations by author, Baumeister, R.F. and Riva, P. have not only published a significant number of papers but also received the highest number of citations with 6,906, followed by Twenge, J.M. with 4,588 total citations and Williams, K.D. with 3,643 total citations. The rankings of authors based on total publications and citations demonstrate the significant contributions. Their impressive publication count and high citation numbers indicate the impact of their research in this area.

Table 7 Most productive authors

Author's name	*Affiliation*	*Country*	*TP*	*NCP*	*TC*	*C/P*	*C/CP*	*h*	*g*
Baumeister, R.F.	University of Queensland	Australia	22	22	6,906	313.91	313.91	17	22
Riva, P.	Universita Degli Studi di Milano-Bicocca	Italy	21	21	622	29.62	29.62	13	21
Williams, K.D.	The Military College of South Carolina	United States	17	17	3,643	214.29	214.29	12	17
Stanley, J.	The University of Sydney Business School	Australia	14	14	573	40.93	40.93	8	14
Twenge, J.M.	San Diego State University	United States	14	14	4,588	327.71	327.71	11	14
Aydin, N.	Alpen-Adria-Universitat Klagenfurt	Austria	12	12	391	32.58	32.58	8	12
DeWall, C.N.	University of Kentucky	United States	12	12	3,087	257.25	257.25	11	12
Killen, M.	University of Maryland	United States	12	12	814	67.83	67.83	9	12
Scharf, T.	University of Newcastle	United Kingdom	12	12	601	50.08	50.08	9	12
Walsh, K.	University of Galway	Ireland	12	10	332	27.67	33.20	7	12
Crowley, M.J.	Yale Child Study Center	United States	11	11	447	40.64	40.64	9	11
Shucksmith, M.	University of Newcastle	United Kingdom	11	11	478	43.45	43.45	9	11
Crone, E.A.	Erasmus Universiteit Rotterdam	Netherlands	10	9	570	57.00	63.33	9	10
Frey, D.	Ludwig-Maximilians-Universitat Munchen	Germany	10	10	372	37.20	37.20	7	10
Hine, J.	Ulster University	United Kingdom	10	8	416	41.60	52.00	8	10
Lucas, K.	The University of Manchester	United Kingdom	10	6	1,633	163.30	272.17	9	10

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; C/P = average citations per publication; C/CP = average citations per cited publication; *h* = h-index; *g* = g-index
Source: Table by authors

4.3.2 Publications by institutions. Based on total publications, Table 8 lists the ten most productive institutions that have contributed most to social exclusion. The University of Bristol and University College London, located in the United Kingdom, rank first and second, respectively, with 38 and 34 publications. The result shows that all institutions are from the USA, Germany, Italy, Australia and the United Kingdom. Consequently, it is critical to strengthen collaboration between these institutions to ensure that social exclusion develops uniformly throughout various countries. By fostering collaboration between these institutions, valuable insights and research findings can be shared, leading to a more comprehensive understanding of social exclusion and the development of effective strategies to address it, ultimately benefiting societies worldwide.

4.3.3 Publications by countries. This section analyzes the top 10 countries in Table 9. With 746 publications overall, the United Kingdom ranked first, followed by the United States with 465 publications, Australia in third place with 196 publications, Germany in fourth place and Spain in fifth place both with 193 publications. These rankings are based on total publications. In terms of total citations, the United Kingdom ranked first with 24,628 citations, followed by the USA in second place with 24,451 citations, Australia in third place with 8,770 citations, Germany in fourth place with 4,145 citations and Spain in fifth place with 1,370 citations. These countries have made significant contributions to the field of research, and dedication to research has enhanced their scientific communities and contributed to the global body of knowledge in various fields.

Table 8 Top 10 most productive institutions

Institutions	*Country*	*TP*	*NCP*	*TC*	*C/P*	*C/CP*	*h*	*g*
University of Bristol	United Kingdom	38	30	752	19.79	25.07	11	27
University College London	United Kingdom	34	30	918	27.00	30.60	15	30
Universia degli Studi di Milano-Bicocca	Italy	33	33	1,176	35.64	35.64	17	33
Deakin University	Australia	29	19	379	13.07	19.95	10	19
University of Birmingham	United Kingdom	26	26	864	33.23	33.23	15	26
Florida State University	United States	25	24	5,264	210.56	219.33	17	25
Monash University	Australia	25	22	1,266	50.64	57.55	14	25
University of Oxford	United Kingdom	25	21	2,038	81.52	97.05	14	25
Ludwig Maximilian University of Munich	Germany	25	21	606	24.24	28.86	11	24
University of Kentucky	United States	23	23	1582	68.78	68.78	16	23

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; C/P = average citations per publication; C/CP = average citations per cited publication; *h* = h-index; *g* = g-index
Source: Table by authors

Table 9 Top 10 countries contributed to the publications

Country	*TP*	*NCP*	*TC*	*C/P*	*C/CP*	*h*	*g*
United Kingdom	746	636	24,451	81	130	28	53
United States	465	405	24,628	70	149	23	44
Australia	196	172	8,770	38	91	33	66
Germany	193	156	4,145	35	60	23	38
Spain	193	149	1,370	19	31	19	31
China	149	119	1,839	23	38	35	60
Canada	123	108	4,646	33	66	38	91
Italy	115	98	2,265	23	44	70	149
Netherlands	111	99	3,082	28	53	10	21
India	82	48	523	10	21	81	130

Notes: TP = total number of publications; NCP = number of cited publications; TC = total citations; C/P = average citations per publication; C/CP = average citations per cited publication; *h*: h-index; *g* = g-index
Source: Table by authors

4.4 The influential document

To answer the fourth *RQ* on the most influential documents in social exclusion literature, the analysis presented the top 20 highly cited articles. Based on the total number of citations for every publication, Table 10 summarizes the top 20 highly cited documents on social exclusion. The paper that receives the greatest citations is one that many academics use as a reference at every stage of its evolution. Eisenberger *et al.* (2003) ranked first in the article "Does rejection hurt?" An fMRI study of social exclusion with a total number of citations of 2,573 and an average of 122.52 per year. This paper explores the emotional and neural responses to social exclusion, making it a significant contribution to social psychology. It is consistently receiving high citation counts which suggests its influence and relevance within the research community.

4.5 Themes and topics

To address the fifth *RQ*, which focuses on identifying the prevailing themes and topics in contemporary social exclusion research, we explored the author's keyword co-occurrences

Table 10 Top 20 highly cited articles

No.	Authors	Title	Source title	Cites	Cites per year
1	Eisenberger *et al.* (2003)	Does rejection hurt? An fMRI study of social exclusion	*Science*	2,573	122.52
2	MacDonald and Leary (2005)	Why does social exclusion hurt? The relationship between social and physical pain	*Psychological Bulletin*	1,089	57.32
3	Twenge *et al.* (2001)	If you can't join them, beat them: Effects of social exclusion on aggressive behavior	*Journal of Personality and Social Psychology*	963	41.87
4	Lucas (2012)	Transport and social exclusion: Where are we now?	*Transport Policy*	901	75.08
5	Kurzban and Leary (2001)	Evolutionary origins of stigmatization: The functions of social exclusion	*Psychological Bulletin*	876	38.09
6	Baumeister *et al.* (2005)	Social exclusion impairs self-regulation	*Journal of Personality and Social Psychology*	874	46.00
7	Maner *et al.* (2007)	Does social exclusion motivate interpersonal reconnection? Resolving the "porcupine problem"	*Journal of Personality and Social Psychology*	819	48.18
8	Twenge *et al.* (2007)	Social exclusion decreases prosocial behavior	*Journal of Personality and Social Psychology*	789	46.41
9	Scott *et al.* (2001)	Financial cost of social exclusion: Follow up study of antisocial children into adulthood	*British Medical Journal*	694	30.17
10	Silver (1994)	Social exclusion and social solidarity: three paradigms	*International Labour Review*	567	18.90
11	Baumeister *et al.* (2002)	Effects of social exclusion on cognitive processes: Anticipated aloneness reduces intelligent thought	*Journal of Personality and Social Psychology*	567	25.77
12	Preston and Rajé (2007)	Accessibility, mobility and transport-related social exclusion	*Journal of Transport Geography*	507	29.82
13	Williams and Sommer (1997)	Social ostracism by coworkers: Does rejection lead to loafing or compensation?	*Personality and Social Psychology Bulletin*	483	17.89
14	Twenge *et al.* (2003)	Social exclusion and the deconstructed state: Time perception, meaninglessness, lethargy, lack of emotion, and self-awareness	*Journal of Personality and Social Psychology*	481	22.90
15	Church *et al.* (2000)	Transport and social exclusion in London	*Transport Policy*	473	19.71
16	Cass *et al.* (2005)	Social exclusion, mobility and access	*Sociological Review*	441	23.21
17	Kenyon *et al.* (2002)	Transport and social exclusion: Investigating the possibility of promoting inclusion through virtual mobility	*Journal of Transport Geography*	437	19.86
18	Gardner *et al.* (2000)	Social exclusion and selective memory: How the need to belong influences memory for social events	*Personality and Social Psychology Bulletin*	432	18.00
19	Masten *et al.* (2009)	Neural correlates of social exclusion during adolescence: Understanding the distress of peer rejection	*Social Cognitive and Affective Neuroscience*	388	25.87
20	Zhong and Leonardelli (2008)	Cold and lonely: Does social exclusion literally feel cold?	*Psychological Science*	386	24.13

Source: Table by authors

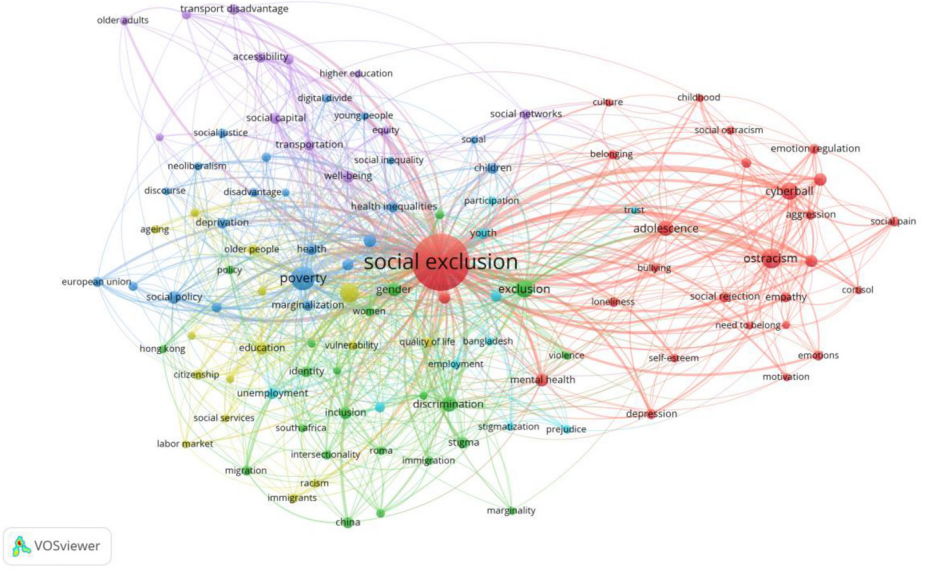
using VOSviewer. This comprehensive analysis allowed us to generate a network and overlay visualization, providing valuable insights into the research landscape. In addition, we expanded our analytical toolkit by using Biblioshiny, enabling us to delve deeper into the thematic map, trend topics and conduct factorial analysis. This multifaceted approach facilitates a robust understanding of the current research trends and thematic emphases within social exclusion studies.

4.5.1 Network visualization. Figure 3 presents a network visualization resulting from a co-occurrence analysis of author keywords in the context of social exclusion research. Co-occurrence analysis identifies relationships and patterns in a data set by examining the frequency with certain keywords appearing together in the same documents. In this case, the analysis explores how often author keywords related to social exclusion are mentioned in scholarly publications. The network visualization is generated using VOSviewer, a tool commonly used for visualizing and analyzing bibliometric data. The study used specific settings for the analysis, notably a threshold of nine minimum occurrences of author keywords. Out of 4,450 keywords, 108 met this threshold, indicating their significance and relevance in social exclusion research.

The network visualization in Figure 3 reveals several clusters of keywords, suggesting the presence of distinct themes or topics within the social exclusion literature. These clusters are represented by nodes (keywords) that are closely connected, indicating their strong co-occurrence in scholarly publications. Clustering analysis is a valuable technique for identifying thematic groupings within a research field, helping researchers understand the interconnectedness of different concepts and areas of study:

- Youth and adolescence cluster: This cluster encompasses research on young individuals' experiences and challenges, particularly adolescents. It is a critical area of study within social exclusion research as it delves into the complexities of how exclusionary factors impact the lives of young people. Studies in this cluster often

Figure 3 Network visualization of co-occurrence analysis of the authors' keywords



Source: Figure by authors using VOSviewer
https://app.vosviewer.com/?json=https://drive.google.com/uc?id=1ii5kyzPqaK7KWVPsAiTcmOOrr4vAqlNr

explore issues such as educational disparities, peer relationships and the effects of social exclusion on youth development. Researchers within this cluster may examine interventions to promote inclusion and well-being among adolescents, thereby contributing to our understanding of the long-term consequences of social exclusion during these formative years.

- Mental health and well-being cluster: The keywords clustered here, including "depression," "mental health" and "well-being," signify an essential focus within social exclusion research. This cluster seeks to comprehend the intricate interplay between social exclusionary factors and individuals' mental health and overall well-being. Researchers in this field investigate how experiences of exclusion can lead to psychological distress and how social policies and support systems can mitigate these effects. This body of work contributes valuable insights into the potential interventions and strategies required to address the mental health and well-being challenges posed by social exclusion.
- Immigration and diversity cluster: This cluster revolves around research that examines immigration, ethnic diversity and the multifaceted challenges faced by immigrant populations. Scholars in this area explore acculturation, discrimination and the impact of immigration policies on social exclusion dynamics. Through empirical studies, this cluster contributes to our understanding of the unique experiences of immigrants and ethnic minorities in different social contexts, shedding light on how societies can promote social inclusion and equity among diverse populations.
- Social inequality and policy cluster: The keywords within this cluster, including "inequality," "policy" and "social policy," are indicative of research that delves into social inequalities and the role of public policies in either exacerbating or mitigating them. Researchers in this cluster critically examine the structural and systemic factors contributing to social exclusion and assess the effectiveness of various policy interventions. Their work informs public discourse and policymaking, emphasizing the need for evidence-based approaches to address social inequalities and promote social inclusion.
- Social interaction and ostracism cluster: This cluster is characterized by terms such as "ostracism," "prejudice" and "social rejection." It represents research exploring the psychological dimensions of social exclusion, including cognitive biases, discriminatory behavior and the emotional impact of social rejection. Scholars within this cluster investigate the mechanisms through which individuals and groups perpetuate exclusionary practices and aim to develop strategies for reducing prejudice and fostering more inclusive social interactions.
- Employment and labor market cluster: Keywords like "employment" and "unemployment" define this cluster, focusing on the labor market's role in social exclusion dynamics. Research within this cluster examines how employment status and access to job opportunities are intertwined with broader patterns of social exclusion. Scholars explore issues such as income inequality, access to quality employment and the impact of labor market policies on social integration. Their findings contribute to a deeper understanding of the economic dimensions of social exclusion and inform policies promoting equitable labor market participation.

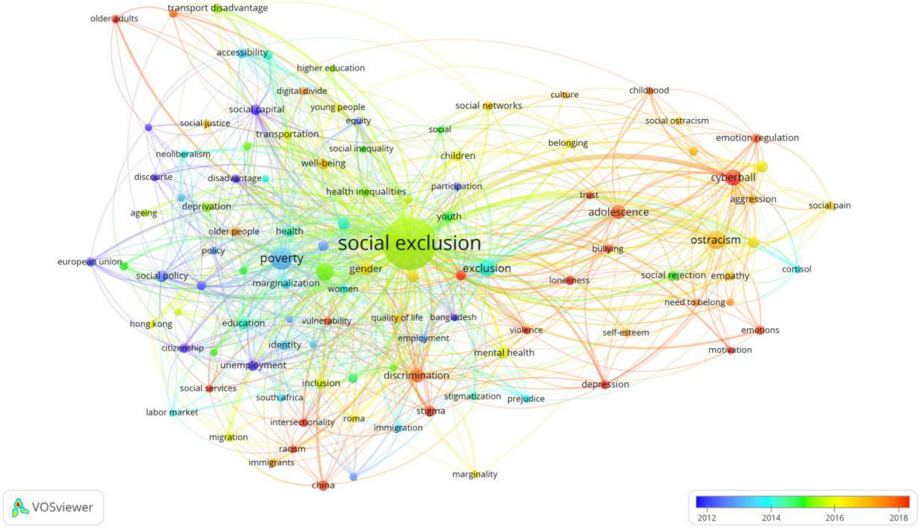
These clusters collectively contribute to the multidimensional understanding of social exclusion, reflecting the diverse areas of inquiry within this field of research. They highlight the complex interrelationships between social, economic and psychological factors that underlie social exclusion and provide a foundation for evidence-based interventions and policies to foster greater social inclusion and equity. By identifying clusters of closely related keywords, researchers can gain insights into the key themes and trends in the field. These thematic clusters can serve as a foundation for further investigating and exploring

specific subdomains or research areas. In addition, understanding which keywords are central to the network and have the highest co-occurrence can help researchers pinpoint pivotal concepts and topics that have garnered significant attention in the literature.

4.5.2 Overlay visualization. Figure 4 offers an intriguing overlay visualization of co-occurrence analysis involving the author's keywords in the academic domain. To gain insights into the temporal evolution of these keywords, it becomes essential to delve into the metric that indicates their relative recency in research. First, we can observe keywords that garnered higher scores, indicating research conducted beyond the average year of publication (e.g. from 2017 onward). These keywords, such as "COVID-19," "prosocial behavior," "empathy" and "bullying," stand as clear indicators of current and burgeoning academic interests. This suggests that contemporary scholarly endeavors have predominantly centered around probing the consequences of the COVID-19 pandemic on societal aspects, alongside exploring psychological and social dynamics concerning adolescence and youth. These encompass facets such as prosocial behavior, empathy and bullying.

In contrast, certain keywords exhibit lower scores, which signal research with historical or comparatively less recent relevance conducted before the average year of publication (e.g. before 2017). These keywords include terms such as "inequality," "discrimination" and "racial disparities," pointing toward enduring themes that have been the focal points of earlier academic investigations. They underscore the sustained scholarly emphasis on addressing social inequalities, discrimination and racial disparities. Within this spectrum of temporal evolution, a transitional phase emerges, characterized by keywords positioned around the average publication year (e.g. 2017). This signifies a period of continuity and transformation within research trends. Keywords like "adolescence" and "mental health" occupy this intermediate territory, suggesting a shift in academic discourse toward matters concerning youth during the late 2010. This transitional period highlights the gradual evolution of research themes over time. Moreover, certain keywords may display notable fluctuations in their scores. For instance, "COVID-19" prominently surfaces during the 2021–2022 period, reflecting the sudden and profound influence of the pandemic on research priorities within this field.

Figure 4 Overlay visualization of co-occurrence analysis of the authors' keywords



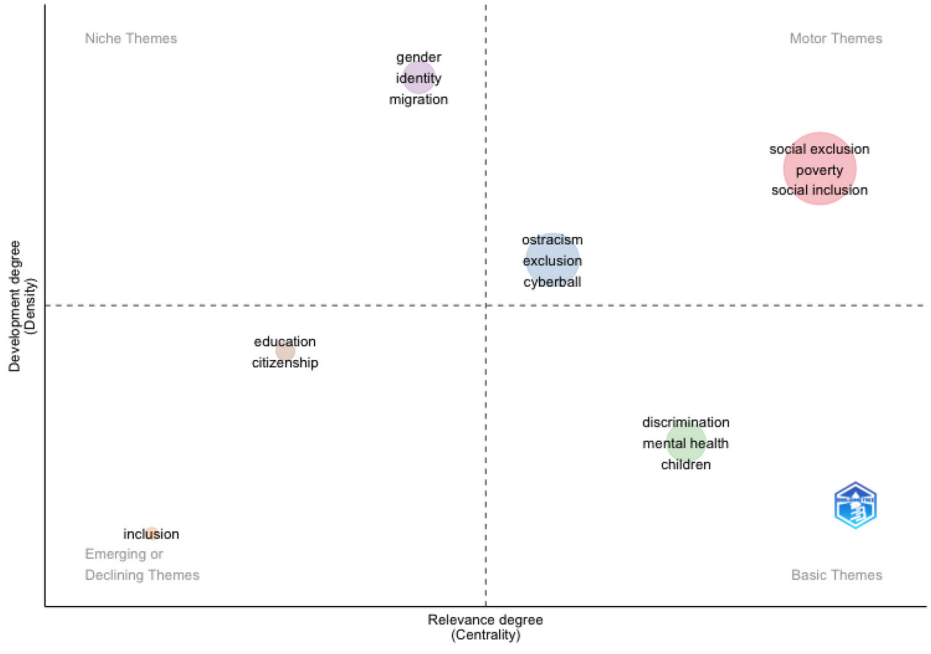
Source: Figure by authors using VOSviewer

Figure 4 also serves as a captivating visual portrayal of the dynamic nature of academic research trends within social sciences and inclusion studies. The metric used to assess the temporal evolution of these author's keywords provides a valuable tool for understanding the emergence of contemporary themes, the persistence of historically significant issues and the transitional phases in research focus. This analysis offers valuable insights into the ever-evolving scholarly landscape and the societal dynamics that steer academic inquiry in this domain.

4.5.3 Thematic map. Figure 5 depicts the thematic map developed based on the author's keywords, divided into four classifications depending on the development stage and significance degree. The upper-right quadrant depicts motor themes classified by high centrality and density, regarded as the most developed subject in the literature and the primary focus of social exclusion study. This quadrant revolves around social exclusion, poverty and inclusion. Next, the upper-left quadrant contains niche themes such as gender, identity and migration. These quadrants are well developed yet less relevant. In the lower-left quadrant are the emerging and declining themes. It could be developing areas of research that are just starting to gain attention or the areas that are declining relevance. It tracks the field's evolution and identifies areas that may need more attention or are becoming less relevant. The emerging and fading motifs appear in the lower-left quadrant.

The emerging and declining themes appear in the lower-left quadrant. It might be new fields of study that are just starting to gain interest or have declined in significance. It tracks the progress of the field and identifies areas that may require further study or are becoming less significant. In social exclusion study, education, citizenship and inclusion fall under this quadrant. Finally, the lower-right quadrant displays basic themes. Discrimination, mental health and children are included in this quadrant, indicating great significance but low development. They are crucial to this topic, although they may not have been thoroughly investigated or developed in this study.

Figure 5 Thematic map

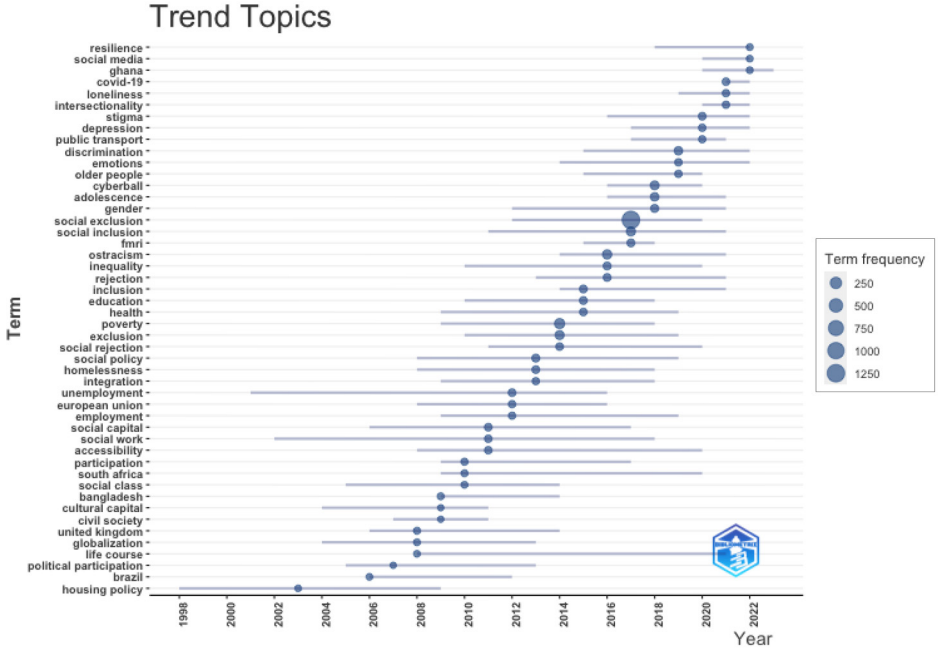


Source: Figure by authors using Biblioshiny

4.5.4 Trend topic. In Figure 6, the bibliometric analysis presents a comprehensive overview of the evolving research landscape related to social exclusion. Trend topics are essential in identifying and understanding the current dynamics within this field. These topics represent the key areas of focus and inquiry that have emerged over time. Here, we will analyze the data to highlight significant trends and their implications for social exclusion studies. One noteworthy trend is the continuous exploration of "housing policy." While it has been a research subject since 1998, it remains relevant and important, indicating the enduring challenges and complexities surrounding housing issues concerning social exclusion. Similarly, the emphasis on "poverty" and "social exclusion" is striking, with 146 and 1,251 occurrences, respectively. This indicates the sustained interest and recognition of these core concepts within the field. Researchers continue to delve into the multifaceted dimensions of poverty and social exclusion, emphasizing their far-reaching consequences and the need for effective interventions. In recent years, the emergence of topics like "COVID-19" and "public transport" highlights the impact of contemporary events and societal changes on social exclusion studies. The COVID-19 pandemic and its effects on social dynamics and access to public services have become focal points of investigation.

Furthermore, "gender" and "discrimination" have gained prominence, indicating a growing awareness of the intersectional nature of social exclusion. Researchers are increasingly exploring how gender-based discrimination and inequalities intersect with other factors affecting individuals' experiences of social exclusion. The topics "cyberball" and "adolescence" suggest a shift toward investigating technology's role and the challenges vulnerable groups face during their formative years. "Social media" is also gaining traction, reflecting the evolving digital landscape and its implications for social inclusion and exclusion. This trend analysis reveals the dynamic nature of social exclusion studies, with established themes persisting alongside emerging areas of interest. The field continues to evolve, addressing contemporary challenges while building on its foundational concepts to deepen our understanding of social exclusion and inform policy and practice.

Figure 6 Trend topic



Source: Figure by authors using Biblioshiny

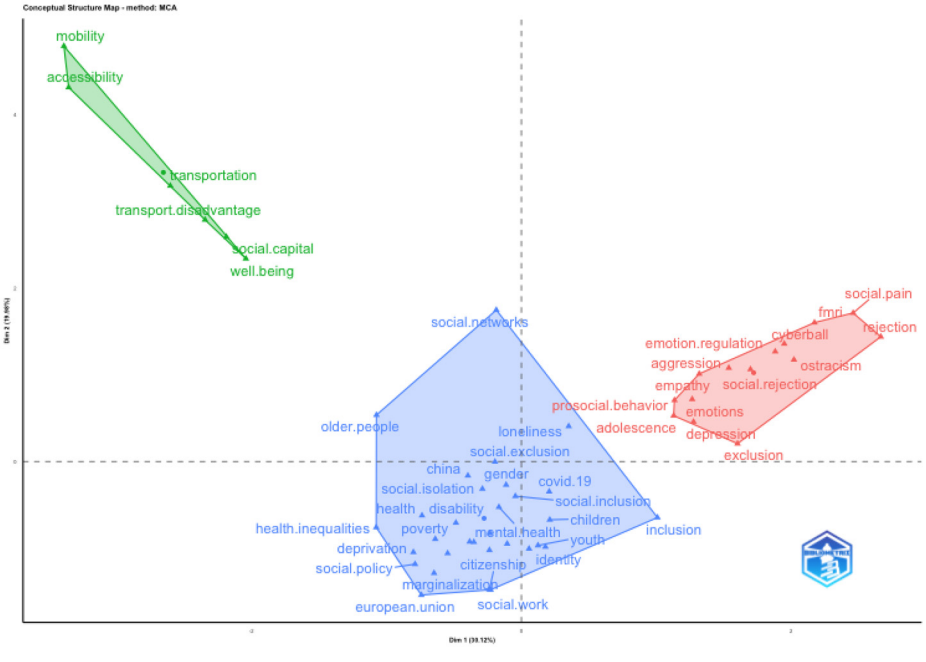
4.5.5 Factorial analysis. Figure 7 shows a factorial analysis using multiple correspondence analysis and the R program bibliometric. It develops a word map that depicts the association between various terms in social exclusion studies. The map depicts the data in two dimensions, with each point representing a keyword and the distance between them reflecting the strength of the link between keywords. Closely connected terms appear near together on the map, whereas unrelated terms show further away. If two different words appear in the same number of articles, they can be grouped. This allows scholars to examine and comprehend the links between distinct terms in social exclusion research, identifying crucial topics and trends. By pinpointing areas that require more research, it can also be used to guide future studies.

Based on the analysis, three clusters are generated. The main cluster is blue, which contains terms associated with societal aspects like older people, social networks and well-being. These terms might be related to demographic and societal factors that influence social exclusion. The next cluster is in red color. This cluster focuses on emotional and psychological aspects that include terms of loneliness, depression and emotions, among others. The last cluster is green and includes terms such as mobility, accessibility, transportation and transport disadvantage. These terms might be related to physical aspects of social exclusion, such as difficulties in transportation and mobility that can lead to social exclusion.

5. Discussion

The research includes findings and discussion based on bibliometrics from the Scopus database of 3,041 articles. The following findings have concluded that this research topic has increased over the past ten years, starting in 2014. The rise in articles on social exclusion suggests a growing recognition of its impact on various aspects of society. It reflects the increasing interest, relevance and importance of social exclusion issues.

Figure 7 Factorial analysis



Source: Figure by authors using Biblioshiny

5.1 Key findings

Most of the articles were published in English as it became the primary language. Other academic fields, such as social science, psychology and medicine, are also interested in this topic. This interdisciplinary interest also highlights social exclusion as a complex issue that requires a comprehensive understanding from various perspectives. Compared to other documents, articles are the most commonly used. This is because articles provide a detailed analysis and an in-depth exploration of social exclusion issues, allowing researchers to effectively present their findings and arguments. The publications focusing on social exclusion were cited 1,624 times per year, with 24 citations per paper and ten citations per author. Overall, these results contribute to the achievement of the first *RQ*.

The publication over the past decade from 2014 to 2023 gives useful insights into social exclusion studies' trends and evolution patterns of the second *RQ*. The number of publications fluctuated annually, from 117 in 2014 to a peak of 2014 in 2017. Despite fluctuations, the overall trend shows growing interest and recognition among scholars regarding the importance of studying social exclusion.

The third *RQ* was to achieve the most contribution in three aspects: authors, countries and institutions. According to the results, Baumeister R.F. and Riva, P. are the most productive authors in terms of total publications and total citations. In terms of contribution by country, the United Kingdom had the most contributing authors, while the University of Bristol was the most productive institution. Furthermore, this study enables comparisons across various countries, organizations and authors regarding productivity and its effect in tackling social exclusion. These results shed light on key players and institutions shaping research on this topic.

The analysis presents the top 20 highly cited articles on social exclusion with the paper title "Does rejection hurt?" An fMRI study of social exclusion by Eisenberger *et al.* (2003) ranked first with 2,573 citations. Its consistent citation count reflects the result of the fourth *RQ*, the most influential document in the social exclusion study.

Lastly, the fifth *RQ* was answered by the author's keywords occurrence analysis, thematic map, trend topic and factorial analysis. The network visualization reveals the distinct clusters of keywords encompassing topics such as youth, adolescents, social inequality and policy. Overlay visualization highlights the temporal evolution of research themes with certain keywords indicating the current interest related to COVID-19, prosocial behavior, empathy and bullying. The thematic map categorizes keywords based on the development stage and significance degree. It provides an understanding about the depth and breadth of research topics within the social exclusion. The trend topic analysis identifies key areas to focus on, including housing policy, poverty, gender, discrimination and the role of technology. Based on factorial analysis, three distinct clusters emerge, focusing on societal aspects, emotional and psychological dimensions, and physical aspects such as mobility and accessibility.

5.2 Future research

In the ever-evolving field of social exclusion studies, numerous avenues for future research can contribute to a deeper understanding of the complex dynamics surrounding social exclusion. This discussion explores key directions for future scholarly inquiry, each offering valuable insights into addressing the challenges of social exclusion and promoting a more inclusive and equitable society.

- *Digital exclusion and online spaces:* An emerging area that warrants significant attention in future research is the phenomenon of digital exclusion within online spaces. As society becomes increasingly interconnected through technology, it is essential to investigate how individuals are excluded or marginalized in the digital realm. Research

in this domain can delve into issues such as digital literacy disparities, online bullying and the impact of algorithms and artificial intelligence on social exclusion. Understanding the dynamics of exclusion in digital environments is crucial as these spaces shape contemporary social interactions and participation.

- *Environmental justice and social exclusion:* The intersection of environmental justice and social exclusion offers a promising avenue for future research. Investigating how marginalized communities are disproportionately affected by environmental hazards, climate change and resource disparities can shed light on the interconnectedness of social and environmental inequalities. Future studies in this area can provide valuable insights into the social exclusion dynamics related to environmental issues and inform policies to achieve environmental equity.
- *Health inequalities and social exclusion:* Ongoing global health challenges, including the aftermath of the COVID-19 pandemic, underscore the need for continued research into health inequalities and their association with social exclusion. Future research can explore how access to health care, socioeconomic status and social determinants of health contribute to disparities in health outcomes among different population groups. Understanding the complex interplay between health and social exclusion is essential for developing targeted interventions and policies to reduce inequalities.
- *Cross-cultural and comparative studies:* Future research should consider cross-cultural and comparative studies to comprehensively understand social exclusion. Examining how social exclusion manifests in diverse cultural contexts and the impact of cultural norms and values on exclusionary practices can provide insights into both universal and context-specific factors. Comparative studies across regions and countries can contribute to a more nuanced understanding of social exclusion dynamics.
- *Longitudinal studies:* Longitudinal studies tracking individuals and communities over extended periods can provide valuable insights into the long-term effects of social exclusion. Future research can investigate how experiences of exclusion during critical life stages, such as childhood or adolescence, influence individuals' life trajectories and well-being in adulthood. Understanding the cumulative impact of social exclusion over time is crucial for developing effective interventions and policies.
- *Interventions and policy evaluation:* As research in social exclusion advances, there is a growing need for rigorous evaluations of interventions and policies to reduce exclusion and promote inclusion. Future studies should focus on assessing the effectiveness of various programs and policies in addressing the root causes of social exclusion and improving the lives of marginalized populations. Scholars can inform evidence-based approaches to combating social exclusion by conducting rigorous policy evaluations.
- *Intersectionality and multidimensional exclusion:* The concept of intersectionality, which recognizes that individuals can experience multiple forms of social exclusion simultaneously (e.g. gender, race, disability), should be a central theme in future research. Understanding how different dimensions of exclusion intersect and compound one another is critical for developing more inclusive and holistic approaches to addressing social inequality. Future studies can explore the complex interactions between multiple facets of social exclusion and their cumulative impact on individuals and communities.

Social exclusion studies offer numerous avenues for future research to enhance our understanding of this multifaceted phenomenon. These research directions encompass digital exclusion, environmental justice, health inequalities, cross-cultural studies, longitudinal research, policy evaluations, intersectionality and much more. By addressing

these key areas, scholars can contribute to developing evidence-based policies and interventions that promote social inclusion and equity in diverse societal contexts.

6. Conclusion

This study has started an evaluation of all academic works that have been published so far on the subject of social exclusion using bibliometric analysis. In conclusion, other than that, it has included particular details on yearly publishing trends and authorship patterns. This comparison offers valuable insights into the effectiveness of various approaches and strategies in addressing social exclusion. Since this analysis is within the Scopus database, the scope of this paper's review is limited. Therefore, future research could consider including a broader range of sources, such as a combination of Web of Science, Google Scholar and other databases, to ensure a more comprehensive analysis of productivity and impact in addressing social exclusion. This would provide a more complex understanding of the global landscape and the potential gaps in knowledge on this topic.

References

Ahmi, A. (2023a), "OpenRefine: an approachable tool for cleaning and harmonizing bibliographical data", *AIP Conference Proceedings*, Vol. 2827 No. 1, doi: 10.1063/5.0164724.

Ahmi, A. (2023b), "biblioMagika", available at: www.aidi-ahmi.com/index.php/bibliomagika

Aldridge, R.W., Story, A., Hwang, S.W., Nordentoft, M., Luchenski, S.A., Hartwell, G., Tweed, E.J., Lewer, D., Katikireddi, S.V. and Hayward, A.C. (2018), "Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis", *The Lancet*, Vol. 391 No. 10117, pp. 241-250.

Aria, M. and Cuccurullo, C. (2017), "Bibliometrix: an R-tool for comprehensive science mapping analysis", *Journal of Informetrics*, Vol. 11 No. 4, pp. 959-975, doi: 10.1016/j.joi.2017.08.007.

Baumbach, L., König, H.H. and Hajek, A. (2023), "Associations between changes in physical activity and perceived social exclusion and loneliness within middle-aged adults – longitudinal evidence from the German ageing survey", *BMC Public Health*, Vol. 23 No. 1, doi: 10.1186/s12889-023-15217-6.

Baumeister, R.F., Twenge, J.M. and Nuss, C.K. (2002), "Effects of social exclusion on cognitive processes: anticipated aloneness reduces intelligent thought", *Journal of Personality and Social Psychology*, Vol. 83 No. 4, p. 817, doi: 10.1037/0022-3514.83.4.817.

Baumeister, R.F., DeWall, C.N., Ciarocco, N.J. and Twenge, J.M. (2005), "Social exclusion impairs self-regulation", *Journal of Personality and Social Psychology*, Vol. 88 No. 4, p. 589, doi: 10.1037/0022-3514.88.4.589.

Best, M.W. and Bowie, C.R. (2022), "Social exclusion in psychotic disorders: an interactional processing model", *In Schizophrenia Research*, Vol. 244, pp. 91-100, doi: 10.1016/j.schres.2022.05.016.

Bhattacharjee, S. (2022), "Migration, insecured childhood and social exclusion: issues and challenges in front of the Dalits in urban Guwahati, Assam", *Contemporary Voice of Dalit*, Vol. 14 No. 1, pp. 67-79, doi: 10.1177/2455328X211000537.

Cass, N., Shove, E. and Urry, J. (2005), "Social exclusion, mobility and access", *The Sociological Review*, Vol. 53 No. 3, pp. 539-555, doi: 10.1111/j.1467-954X.2005.00565.x.

Church, A., Frost, M. and Sullivan, K. (2000), "Transport and social exclusion in London", *Transport Policy*, Vol. 7 No. 3, pp. 195-205, doi: 10.1016/S0967-070X(00)00024-X.

Cuesta, J., López-Nova, B. and Niño-Zarazúa, M. (2022), "Social exclusion: concepts, measurements, and a global estimate", Policy Research Working Papers.

Eisenberger, N.I., Lieberman, M.D. and Williams, K.D. (2003), "Does rejection hurt? An fMRI study of social exclusion", *Science*, Vol. 302 No. 5643, pp. 290-292, doi: 10.1126/science.1089134.

Gardner, W.L., Pickett, C.L. and Brewer, M.B. (2000), "Social exclusion and selective memory: how the need to belong influences memory for social events", *Personality and Social Psychology Bulletin*, Vol. 26 No. 4, pp. 486-496, doi: 10.1177/0146167200266007.

Haluwalia, S., Bhat, G.M. and Rani, M. (2022), "Exploring the factors of social exclusion: empirical study of rural Haryana, India", *Contemporary Voice of Dalit*, Vol. 14 No. 1, pp. 53-66, doi: 10.1177/2455328X211000565.

Harzing, A.W. (2007), "Publish or perish", Available.

Kenyon, S., Lyons, G. and Rafferty, J. (2002), "Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility", *Journal of Transport Geography*, Vol. 10 No. 3, pp. 207-219, doi: 10.1016/S0966-6923(02)00012-1.

Kurzban, R. and Leary, M.R. (2001), "Evolutionary origins of stigmatization: the functions of social exclusion", *Psychological Bulletin*, Vol. 127 No. 2, p. 187, doi: 10.1037/0033-2909.127.2.187.

Lantian, A., Muller, D., Nurra, C., Klein, O., Berjot, S. and Pantazi, M. (2018), "Stigmatized beliefs: conspiracy theories, anticipated negative evaluation of the self, and fear of social exclusion", *European Journal of Social Psychology*, Vol. 48 No. 7, pp. 939-954, doi: 10.1002/ejsp.2498.

Liu, Y., Bhoumik, K., Ulqinaku, A. and Grazzini, L. (2023), "Social exclusion: a bibliometric analysis and future research directions in advertising", *Journal of Advertising*, Vol. 52 No. 5, pp. 756-773, doi: 10.1080/00913367.2023.2255250.

Lucas, K. (2012), "Transport and social exclusion: where are we now?", *Transport Policy*, Vol. 20, pp. 105-113, doi: 10.1016/j.tranpol.2012.01.013.

MacDonald, G. and Leary, M.R. (2005), "Why does social exclusion hurt? The relationship between social and physical pain", *Psychological Bulletin*, Vol. 131 No. 2, p. 202, doi: 10.1037/0033-2909.131.2.202.

Maner, J.K., DeWall, C.N., Baumeister, R.F. and Schaller, M. (2007), "Does social exclusion motivate interpersonal reconnection? Resolving the porcupine problem", *Journal of Personality and Social Psychology*, Vol. 92 No. 1, p. 42, doi: 10.1037/0022-3514.92.1.42.

Masten, C.L., Eisenberger, N.I., Borofsky, L.A., Pfeifer, J.H., McNealy, K., Mazziotta, J.C. and Dapretto, M. (2009), "Neural correlates of social exclusion during adolescence: understanding the distress of peer rejection", *Social Cognitive and Affective Neuroscience*, Vol. 4 No. 2, pp. 143-157, doi: 10.1093/scan/nsp007.

Pohlan, L. (2019), "Unemployment and social exclusion", *Journal of Economic Behavior and Organization*, Vol. 164, pp. 273-299, doi: 10.1016/j.jebo.2019.06.006.

Preston, J. and Rajé, F. (2007), "Accessibility, mobility and transport-related social exclusion", *Journal of Transport Geography*, Vol. 15 No. 3, pp. 151-160, doi: 10.1016/j.jtrangeo.2006.05.002.

Punj, N., Ahmi, A., Tanwar, A. and Abdul Rahim, S. (2023), "Mapping the field of green manufacturing: a bibliometric review of the literature and research frontiers", *In Journal of Cleaner Production*, Vol. 423, p. 138729, doi: 10.1016/j.jclepro.2023.138729.

Rabelo, V.C. and Mahalingam, R. (2019), "They really don't want to see us: how cleaners experience invisible dirty work", *Journal of Vocational Behavior*, Vol. 113, pp. 103-114, doi: 10.1016/j.jvb.2018.10.010.

Riva, P., Montali, L., Wirth, J.H., Curioni, S. and Williams, K.D. (2017), "Chronic social exclusion and evidence for the resignation stage: an empirical investigation", *Journal of Social and Personal Relationships*, Vol. 34 No. 4, pp. 541-564, doi: 10.1177/0265407516644348.

Scott, S., Knapp, M., Henderson, J. and Maughan, B. (2001), "Financial cost of social exclusion: follow up study of antisocial children into adulthood", *BMJ*, Vol. 323 No. 7306, p. 191, doi: 10.1136/bmj.323.7306.191.

Silver, H. (1994), "Social exclusion and social solidarity: three paradigms", *Int'l Lab. Rev*, Vol. 133, p. 531.

Twenge, J.M., Baumeister, R.F., DeWall, C.N., Ciarocco, N.J. and Bartels, J.M. (2007), "Social exclusion decreases prosocial behavior", *Journal of Personality and Social Psychology*, Vol. 92 No. 1, p. 56, doi: 10.1037/0022-3514.92.1.56.

Twenge, J.M., Baumeister, R.F., Tice, D.M. and Stucke, T.S. (2001), "If you can't join them, beat them: effects of social exclusion on aggressive behavior", *Journal of Personality and Social Psychology*, Vol. 81 No. 6, p. 1058, doi: 10.1037/0022-3514.81.6.1058.

Twenge, J.M., Catanese, K.R. and Baumeister, R.F. (2003), "Social exclusion and the deconstructed state: time perception, meaninglessness, lethargy, lack of emotion, and self-awareness", *Journal of Personality and Social Psychology*, Vol. 85 No. 3, p. 409, doi: 10.1037/0022-3514.85.3.409.

Van Eck, N.J. and Waltman, L. (2010), "VOSViewer: visualizing scientific landscapes [software]", *Version*, Vol. 1, p. 15.

Villa-Enciso, E., Ruiz-Castañeda, W. and Robledo Velásquez, J. (2023), "Agent based model to analyze the role of the university in reducing social exclusion", *Sustainability (Switzerland)*, Vol. 15 No. 16, doi: 10.3390/su151612666.

Von Der Putten, A.R. and Bock, N. (2023), "Seriously, what did one robot say to the other? Being left out from communication by robots causes feelings of social exclusion", *Human-Machine Communication*, Vol. 6, pp. 117-134, doi: 10.30658/hmc.6.7.

Wahyuni, H., Vanany, I. and Ciptomulyono, U. (2019), "Food safety and halal food in the supply chain: review and bibliometric analysis", *Journal of Industrial Engineering and Management*, Vol. 12 No. 2, pp. 373-391, doi: 10.3926/jiem.2803.

Williams, K.D. (2009), "Chapter 6 ostracism", *A Temporal Need-Threat Model. Advances in Experimental Social Psychology*, Vol. 41, pp. 275-314, doi: 10.1016/S0065-2601(08)00406-1.

Williams, K.D. and Sommer, K.L. (1997), "Social ostracism by coworkers: does rejection lead to loafing or compensation?", *Personality and Social Psychology Bulletin*, Vol. 23 No. 7, pp. 693-706, doi: 10.1177/0146167297237003.

Williams, K.D., Cheung, C.K.T. and Choi, W. (2000), "Cyberostracism: effects of being ignored over the internet", *Journal of Personality and Social Psychology*, Vol. 79 No. 5, p. 748, doi: 10.1037/0022-3514.79.5.748.

Zakaria, R., Ahmi, A., Ahmad, A.H., Othman, Z., Azman, K.F., Ab Aziz, C.B., Ismail, C.A.N. and Shafin, N. (2021), "Visualising and mapping a decade of literature on honey research: a bibliometric analysis from 2011 to 2020", *In Journal of Apicultural Research*, Vol. 60 No. 3, pp. 359-368, doi: 10.1080/00218839.2021.1898789.

Zhong, C.-B. and Leonardelli, G.J. (2008), "Cold and lonely: does social exclusion literally feel cold?", *Psychological Science*, Vol. 19 No. 9, pp. 838-842, doi: 10.1111/j.1467-9280.2008.02165.x.

Further reading

United Nations (2016), "World Social Situation 2016: leaving no one behind – the imperative of inclusive development", Department of Economic and Social Affairs Poverty.

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