

TRANSPARENCY OF SOCIAL-ECONOMIC DETERMINANTS IN DEVELOPING THE EFFICIENT PUBLIC HEALTHCARE SYSTEM

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Abstract: *In the modern society, public healthcare and safe life are key tasks of any country worldwide. Social health and security are the highest and the most desired values. They are integral conditions to reach sustainable development goals. Healthcare is an important policy component of separate states and supernational communities worldwide. The issue of global approaches to healthcare and environment protection is one of the most outstanding scientific achievements of the 20th century. The current article reviews arguments in researching the public healthcare system. The main study purpose is a detailed analysis of the social-economic public healthcare determinants and their transparency in the 2013-2023 Scopus sources. The research object is public healthcare. The research topic is bibliometric analysis of the 2013-2023 Scopus sources about public healthcare. The bibliometric analysis of big data provides us with those necessary research results that cannot be obtained without special tools. To conduct the public healthcare bibliometric analysis, we applied the VOSviewer computer software. It engages wide functional possibilities of smart text processing, which generates and visualises joint networks of the most significant terms and notions in a certain branch. A thorough bibliometric analysis of the social-economic public healthcare determinants and their transparency in the 2013-2023 Scopus sources is conducted stepwise. Firstly, we select a list of keywords for the studied issue. Secondly, the Scopus search engine is activated. Thirdly, a range of sources is defined. Fourthly, we analyse a sample of Scopus publications. Fifthly, we conduct the VOSviewer cluster analysis of the Scopus sources (arranged by citation number, co-authorship frequency, countries with the given problem). Sixthly, we examine bibliometric maps with visualised clusters. The obtained research results may definitely contribute to further healthcare studies and bibliometric analysis of indexed scientific sources.*

Keywords: public healthcare; transparency; social-economic determinants; bibliometric analysis.

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Introduction. High-quality life and healthcare of citizens is a critical task for all countries in the world. Public health is not only a condition for national sustainable development but also the most important value of any country. It is social welfare, economic development, resistance to local and global challenges that depend on public health.

The worldwide experience shows that one of the most efficient ways of public healthcare proper coordination is improvement of its determinants. Among them, social-economic determinants play an important role. They include economic, social, cultural and political factors that influence the public healthcare itself.

Transparency of any social-economic systems (in particular, that of healthcare) ensures their efficiency. There are constant threats to public health: pandemics, epidemics, infectious and non-infectious diseases, wars, ecologic disasters, etc. It strongly requires researching the social-economic healthcare determinants and their transparency.

Literature Review. Experts pay a great attention to public healthcare factors. Till the 1950s, biological and physical features were regarded as the main affecting factors for public health. Later, there were much more factors; their study shifted to social-economic healthcare determinants. The most 2013-2023 Scopus publications on social-economic healthcare determinants belong to authors from the United States, the United Kingdom, India, Canada, Australia, Germany and Italy. That may be explained by the COVID-19 pandemic.

Let us review some of such recent works.

Ferrinho et al. (2023) investigate the centrality of health workforce. According to them, research for health and development (R4HD) acknowledges that many of health determinants lie outside the healthcare borders. The size and quality of the healthcare workforce (HCWF) are key drivers to the future trajectory of many of these factors.

Sheikhhattari et al. (2023) probe into influence of socio-economic determinants on the typhoid fever and paratyphoid rate. The COVID-19 challenges to the global healthcare system are explored in the paper by Albrecht (2023). Klein et al. (2023) studied the impact of socio-economic resources on local adult health to provide an example of how health surveys can identify residents with the greatest health needs.

Via the Swiss municipality data, Li et al. (2023) examined to what extent social quality environments with reference to the cross-cutting domains reliably predict various types of health. The researchers found that social inclusion had the highest predictive power for mental and functional health. Simultaneously, economic security had the highest predictive power for physical capacity and overall self-rated health.

The systematic review of healthcare efficiency was carried out in the paper by Mbau et al. (2023). The COVID-19 consequences on the public healthcare system are described in the work by Bonner (2023).

In the work by Letunovska et al. (2023), a cluster analysis of self-organised Kohonen maps was conducted via the neural network of the Ukrainian local healthcare. Here, regional security in public health was analysed.

The cause-and-effect relationships between public health and its determinants are also considered in the works by Wilkinson and Marmot (2003), Raphael (2006), Patil (2014), Bradshaw (2008), Kindig et al. (2003), Hacker et al. (2021), Blas et al. (2011) and Lowe et al. (2022). Besides, reports of the WHO Commission on Social Determinants of Health (2008) are relevant.

Therefore, the issue of social-economic determinants and their healthcare impact remains topical for modern scientists. That is proven by 882 hits of the Scopus query «social-economic determinants of public health» for 2013-2023. The structured Scopus branch data is shown in Figure 1.

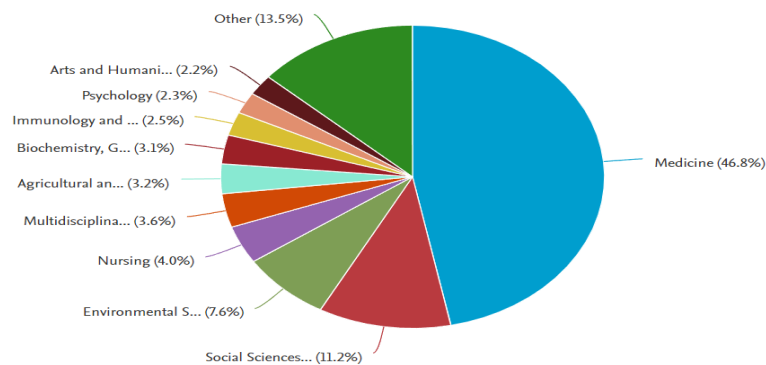


Figure 1. Branch documents as hits of the Scopus query «social-economic determinants of public health» for 2013-2023

Sources: developed by the authors.

Since 2013, the number of 2022 Scopus sources (on social-economic determinants of public health) has increased by 2.4 times. Comparing 2018 and 2022, we see a 1.7-time rise. Such a growth is explained by the COVID-19 consequences.

Among Scopus hits, 46.8% – Medicine, 11.26% – Social Sciences, 3.6% – Multidisciplinary, under 1% – Economics, Econometrics and Finance. The latter indicates a great topicality of social-economic determinants of public health. They can be conducted via statistical analysis, econometric models and integral calculations of healthcare quality, etc.

In general, public health is conditioned by social, behavioural, biological and other determinants. The digital economic transformation has also a great impact on public health. Digitalisation opens new opportunities for public healthcare:

- quick access to medical information, online consultations, mobile health applications;
- improved national awareness of healthy life via Internet resources, mobile applications, social networks;
- medical big data analysis via AI algorithms and machine learning;
- higher healthcare transparency.

The 2013-2023 Scopus papers on healthcare transparency comprise 3096 units. Their branch division is represented in Figure 2.

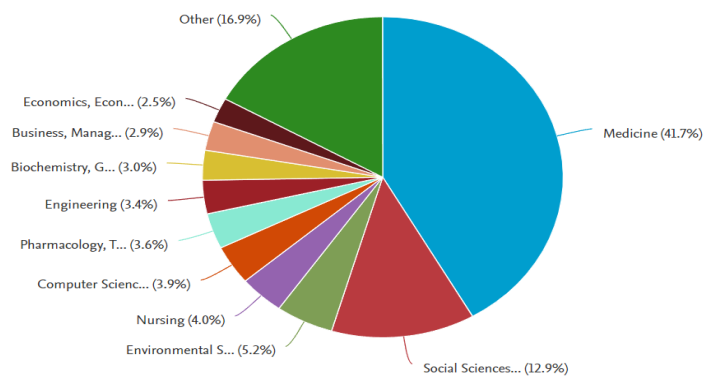


Figure 2. Branch documents as hits of the Scopus query «transparency of public health» for 2013-2023

Sources: developed by the authors.

Since 2013, the number of 2022 Scopus sources (on transparency of public health) has increased by 5 times. Comparing 2017 and 2022, we see a 2.5-time rise. Such a growth is explained by digital economic development.

Among Scopus hits, 41.7% – Medicine, 12.9% – Social Sciences, 2.5% – Economics, Econometrics and Finance.

Within digitalisation, public healthcare (as an economic category), econometric features of social-economic health determinants and their transparency are relevant to investigate.

The main study purpose is a detailed analysis of the social-economic public healthcare determinants and their transparency in the 2013-2023 Scopus sources.

Methodology and research methods. In our study, we apply theoretical (grouping, abstraction, synthesis) and empirical (observation, description) methods. Besides, the Scopus system (2023) and the VOSviewer software (2023) are involved.

Results. According to the World Health Organisation (2023), health is defined as a state of physical, mental and social welfare rather than absence of diseases or defects.

Public health is welfare of population that is conditioned by social, economic, behavioural, ecological and biological factors. It is assessed via demographical indexes, physical development, morbidity and disability rates.

One of the most efficient ways to coordinate public healthcare properly is improvement of corresponding determinants.

According to the World Health Organisation (2023), health determinants are individual, social, economic and ecological factors that determine the health status of separate persons or groups. They focus on health and life enhancement via disorder prevention and treatment.

The World Health Organisation (2023) singles out ten main functions of public healthcare:

1. Epidemic, health and welfare monitoring.
2. Danger health monitoring in emergencies.
3. Health, environment, labour and food protection.
4. Health fixing via social determinants, reduction of health inequalities.
5. Disease prevention (early diagnosing).
6. Strategical welfare management.
7. Healthcare provision with skilled staff.
8. Stable establishments and their proper funding.
9. Explanatory work, advocacy, communication and social mobilisation for healthcare improvement.
10. Research development to ground public healthcare.

Scientific studies play an important role in reforming public health policies.

As regarded by the World Health Organisation (2023), there are several directions in healthcare studies:

- broader knowledge for proper healthcare coordination;
- new methods, technologies and decisions in the healthcare branch;
- new partnerships with research and academic centres to conduct advanced healthcare studies.

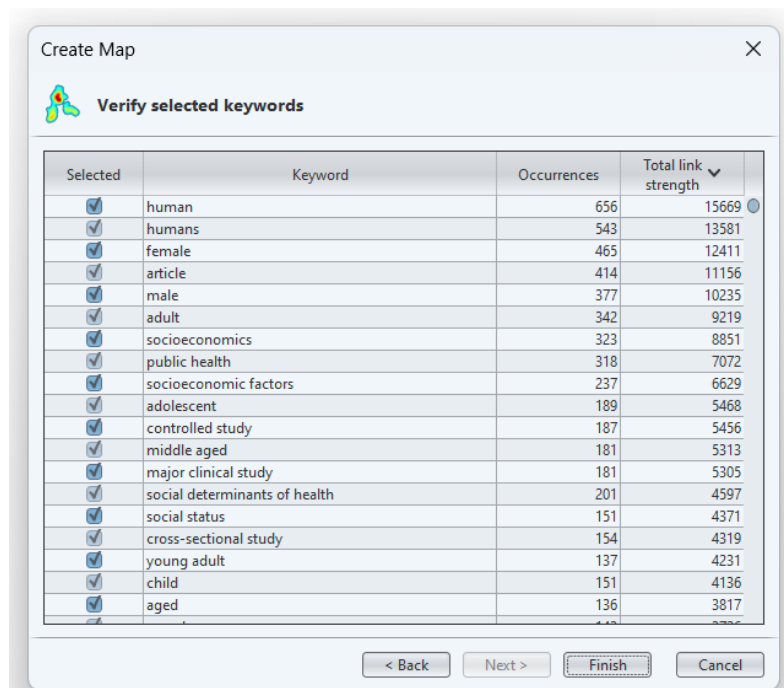
Among modern appropriate tools of public healthcare analysis, we select the Scopus system (2023). The bibliometric source processing can identify structure and main trends of public healthcare research.

To conduct the bibliometric source analysis of social-economic determinants in public healthcare, we engaged the VOSviewer software (2023). It processed the 2013-2023 Scopus publications – 882 units.

As the VOSviewer analysing method, we chose co-occurrence. It clusters keywords according to the degree of how often they occur together in one work. Consequently, we obtain thematic clusters.

The VOSviewer individual clusters are marked in different colours. Each keyword size is determined by the total link strength indicator (strength of a given keyword relationship to all others). The lines reflect relationship between two separate keywords.

Results of bibliometric source analysis are shown in Figures 3-8. The most used VOSviewer keywords within the topic “social-economic determinants in public healthcare” are represented in Figure 3.



Selected	Keyword	Occurrences	Total link strength
<input checked="" type="checkbox"/>	human	656	15669
<input checked="" type="checkbox"/>	humans	543	13581
<input checked="" type="checkbox"/>	female	465	12411
<input checked="" type="checkbox"/>	article	414	11156
<input checked="" type="checkbox"/>	male	377	10235
<input checked="" type="checkbox"/>	adult	342	9219
<input checked="" type="checkbox"/>	socioeconomics	323	8851
<input checked="" type="checkbox"/>	public health	318	7072
<input checked="" type="checkbox"/>	socioeconomic factors	237	6629
<input checked="" type="checkbox"/>	adolescent	189	5468
<input checked="" type="checkbox"/>	controlled study	187	5456
<input checked="" type="checkbox"/>	middle aged	181	5313
<input checked="" type="checkbox"/>	major clinical study	181	5305
<input checked="" type="checkbox"/>	social determinants of health	201	4597
<input checked="" type="checkbox"/>	social status	151	4371
<input checked="" type="checkbox"/>	cross-sectional study	154	4319
<input checked="" type="checkbox"/>	young adult	137	4231
<input checked="" type="checkbox"/>	child	151	4136
<input checked="" type="checkbox"/>	aged	136	3817

Figure 3. List of the most used keywords on the topic «social-economic determinants in public healthcare»

Sources: developed by the authors via the Scopus database and the VOSviewer software.

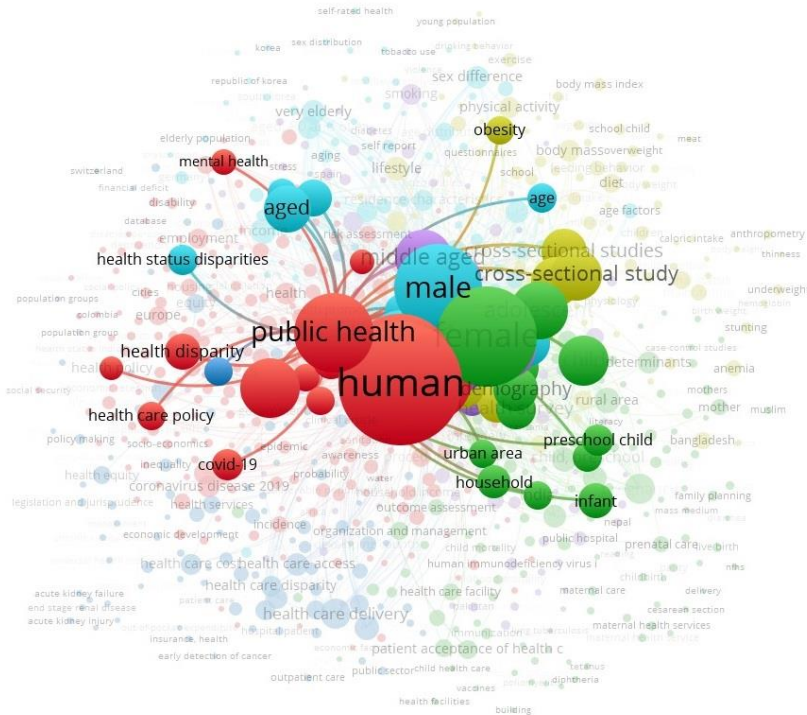


Figure 5b. Bibliometric map of the keyword «public health»

Sources: developed by the authors via the Scopus database and the VOSviewer software.

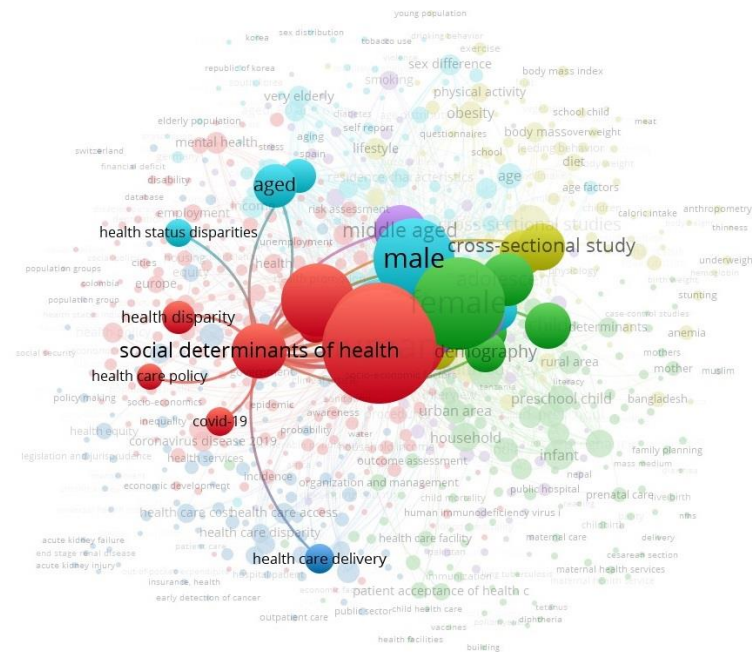


Figure 5c. Bibliometric map of the keyword «social determinants of health»

Sources: developed by the authors via the Scopus database and the VOSviewer software.

Within the VOSviewer tools, we can conduct chronological use analysis of the Scopus source keywords on the selected topic. Such results are indicated in Figure 6.

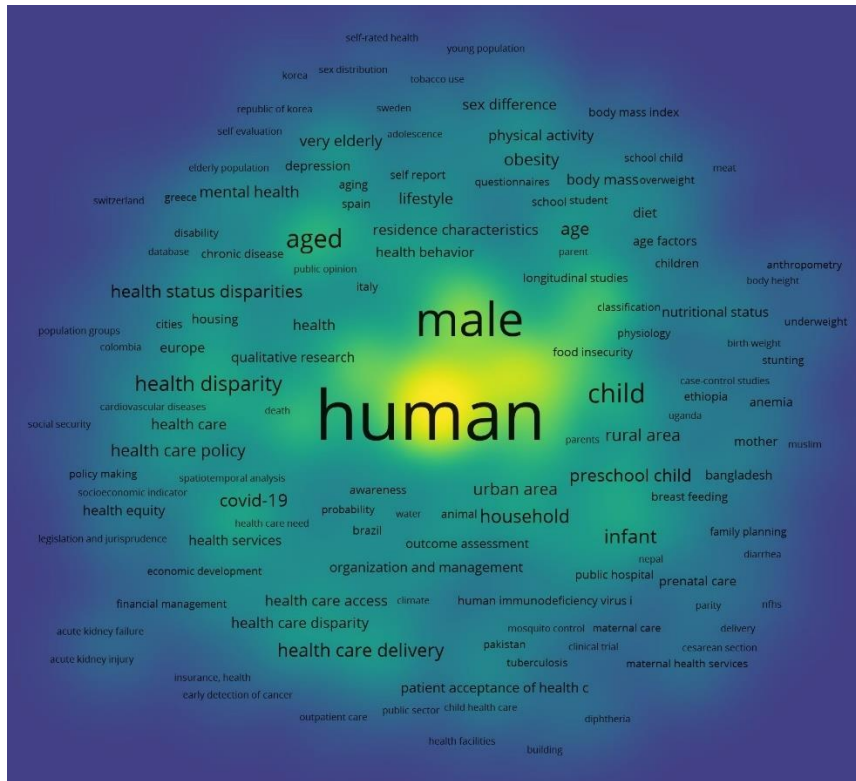


Figure 8. Visualised keyword density in the 2013-2023 Scopus sources on social-economic determinants of public health

Sources: developed by the authors via the Scopus database and the VOSviewer software.

For 2013–2023, the most used keyword is «human». It confirms topicality of studying the social-economic determinant impact on public health.

In general, social-economic determinants of public health are determined by human life circumstances. They comprise many local and national factors that affect health status of people.

Social determinants of public health include education, income, labour and housing conditions, access to medical aid, etc. Economic determinants of public health are economy development, population employment, infrastructure facilities, healthcare investments, social protection, etc. Both determinant types are interrelated. They influence public health.

As noted in the World Health Organisation papers (WHO Public Health Services, 2023), governments seek for public guarantees when people can strengthen their health, welfare and disease prevention.

The given results of bibliometric source analysis on social-economic determinants of public health confirm the research topicality. It will also contribute to healthcare reforms.

Healthcare is a complex, non-linear and self-organised system. Therefore, it follows all principles of social-economic units. Therefore, transparency is one of critical determinants in public healthcare.

The next research stage is bibliometric analysis of the 2013-2023 Scopus publications on public healthcare transparency. 924 sources were processed via the VOSviewer software.

To arrange and visualise thematic studies associated with the keywords «transparency» and «public health», we generated Figure 9. Here, there are 7 marked clusters with 441 items.

Cluster 1 (red): 131 items. The most used keywords are «public health» (408 links), «transparency» (220 links), «COVID-19» (255 links).

Cluster 2 (green): 79 items. The most used keywords are «trust» (266 links), «ethics» (255 links), «global health» (135 links), «social responsibility» (113 links).

Cluster 3 (dark blue): 59 items. The most used keywords are «human» (422 links), «economics» (243 links), «healthcare quality» (212 links).

Cluster 4 (light green). The most used keywords are «organisation and manager» (284 links), «human experiment» (201 links), «questionnaire» (232 links), «psychology» (191 links).

Cluster 5 (purple): 53 items. The most used keywords are «health economics» (112 links), «national health organisation» (76 links), «health disparity» (69 links).

Cluster 6 (light blue): 52 items. The most used keywords are «medical research» (193 links), «healthcare facility» (97 links), «health» (97 links).

Cluster 7 (orange): 25 items. The most used keywords are «statistical model» (99 links), «socioeconomic factor» (85 links), «health communication» (72 links), «medical information» (143 links).

The bibliometric analysis results for the 2013-2023 Scopus sources on public healthcare transparency are represented in Figures 9-13.

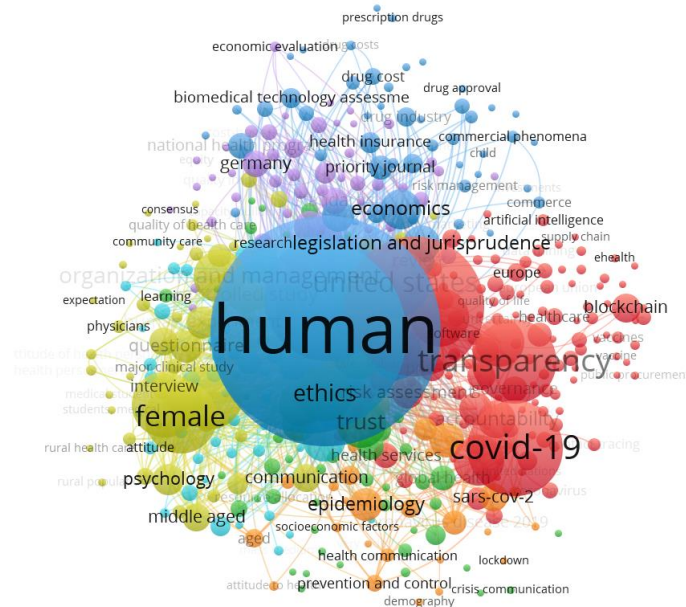


Figure 9. Bibliometric map of the 2013-2023 Scopus publications in the subject area «public healthcare transparency»

Sources: developed by the authors via the Scopus database and the VOSviewer software.

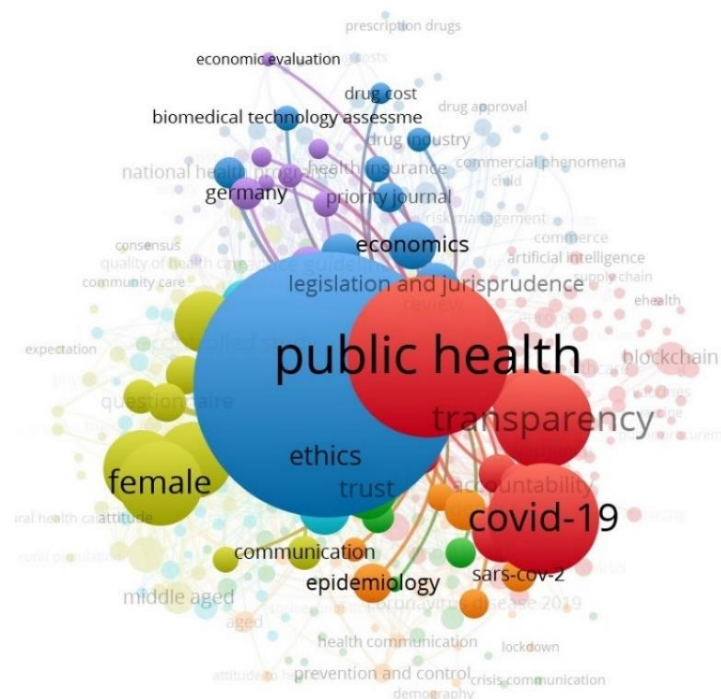


Figure 10a. Bibliometric map of the keyword «public health»

Sources: developed by the authors via the Scopus database and the VOSviewer software.

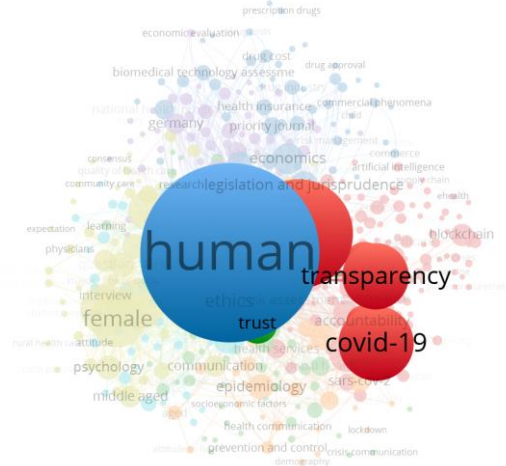


Figure 10b. Bibliometric map of the keyword «transparency»

Sources: developed by the authors via the Scopus database and the VOSviewer software.

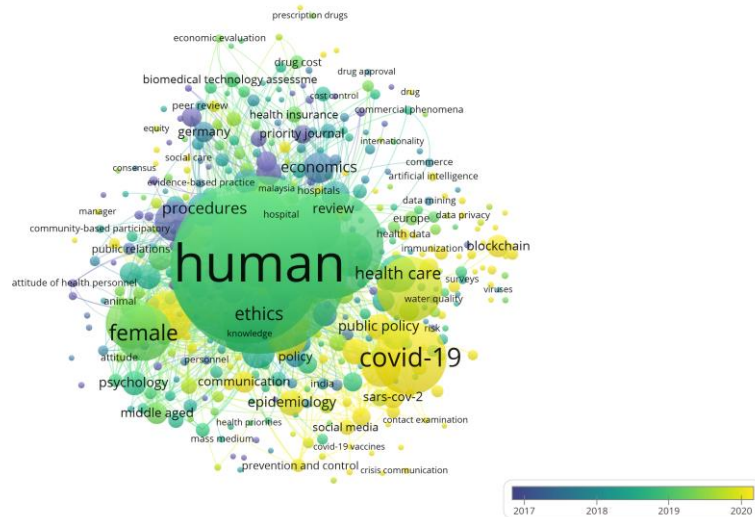


Figure 11. Chronological measurement map in the subject area «public healthcare transparency» for 2013-2023

Sources: developed by the authors via the Scopus database and the VOSviewer software.

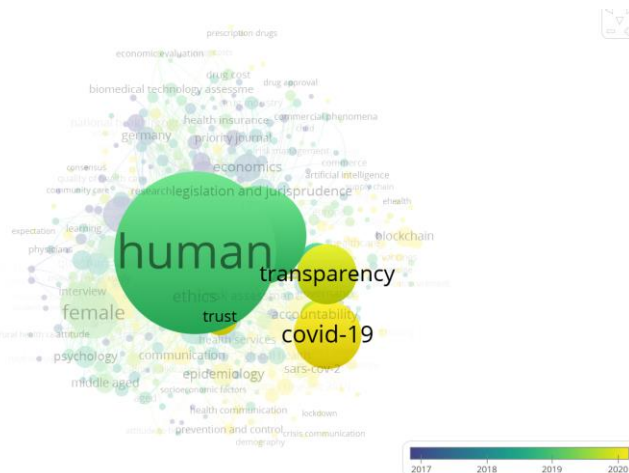


Figure 12. Chronological measurement map in the subject area «transparency» for 2013-2023

Sources: developed by the authors via the Scopus database and the VOSviewer software.

Bonner, A. (2023). *COVID-19 and Social Determinants of Health. Wicked Issues and Relationalism*. Policy Press. [[Google Scholar](#)] [[CrossRef](#)]

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Sheikhhattari, P., Barsha, R., Shaffer, E., Bhuyan, I., & Elliott, B. (2023). Lessons learned to improve COVID-19 response in communities with greatest socio-economic vulnerabilities. *BMC Public Health*, 23(1), 659. [[Google Scholar](#)] [[CrossRef](#)]

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The World Health Organisation (2023). Retrieved from: [[Link](#)]

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Транспарентність соціально-економічних детермінант як складова розвитку ефективної системи громадського здоров'я населення

Збереження здоров'я громадян, забезпечення якісного, повноцінного життя є вкрай важливим завданням як для окремих країн, так і для всієї світової спільноти. Здоров'я окремого громадянина та суспільства в цілому є найбільшою цінністю та необхідною умовою досягнення сталого соціально-економічного розвитку країни. Питання охорони здоров'я становлять важливу складову політик не лише багатьох країн, а й наднаціональних структур. Розуміння необхідності глобального підходу до охорони здоров'я населення та навколишнього середовища є одним з важливих досягнень наукової думки ХХ століття. Стаття узагальнює дослідницькі питання системи громадського здоров'я. Метою студії є опрацювання категорій «соціально-економічні детермінанти громадського здоров'я» та «транспарентність громадського здоров'я». Відтак, проводиться бібліометричний аналіз наукових публікацій, індексованих базою Scopus за період 2013-2023 років. Об'єкт дослідження – громадське здоров'я. Предмет дослідження – бібліометричний аналіз Scopus-джерел у сфері громадського

здоров'я. Бібліометричні дослідження великого масиву даних дозволяють досягти результатів у структуруванні, визначенні тенденцій наукової діяльності, що важко зробити без застосування спеціальних засобів. Для проведення бібліометричного аналізу Scopus-публікацій залучено програму VOSviewer. Вона надає широкі функціональні можливості інтелектуального аналізу тексту, що забезпечує побудову та візуалізацію мереж найбільш значимих у певному дослідницькому полі понять та термінів. Бібліометричний аналіз здійснено в наступній послідовності: 1) обрано ключові слова; 2) ініційовано базу Scopus; 3) визначено діапазон наукових публікацій; 4) проаналізовано вибірку Scopus-публікацій; 5) проведено кластерний аналіз джерел через програму VOSviewer (із сортуванням за кількістю цитувань, найчастішим співавторством, країнами); 6) проаналізовано бібліометричні карти, де візуально репрезентуються виявлені кластери. Результати можуть бути корисними для проведення подальших наукових досліджень у сфері громадського здоров'я, а також бібліометричного аналізу публікацій.

Ключові слова: громадське здоров'я; транспарентність; соціально-економічні детермінанти; бібліометричний аналіз.