Sexual Education to Realize Reproductive Health: A Bibliometric Analysis from 1991-2024

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Abstract: Sexual education has not been an interesting topic to study in realizing optimal reproductive health. Therefore, it is necessary to have a systematic visualization as a scientometric report, so as to increase researchers' interest in studying the theme. The purpose of this study is to find out the latest literacy developments, analyze collaboration, and make strategic decisions regarding the theme of sexual education and reproductive health research. This type of research is descriptive quantitative using bibliometric statistics. Research data were obtained from Scopus indexed journals and through the Publish or Perish reference manager application for Google Scholar indexed journals. The research was conducted on September 17-20, 2024. The keywords were "sexual education" and "reproductive health". Articles analyzed from 1991 to 2024, for Scopus indexed articles, the document type of the article is in English and can be accessed without payment, besides that there are no restrictions on articles, so 566 relevant articles were obtained. Google Scholar indexed articles found 999 articles. Data were analyzed and visualized using the VOSviewer application. Bibliometric analysis shows the development of research on sexual education for reproductive health is still limited, collaboration between researchers is still lacking, the trend of increasing research has been seen. Publications based on the most keywords are "health reproduction", the country that dominates this publication is the United States, the dominant author and affiliation is the World Health Organization. In conclusion, there is a great opportunity for researchers to raise the theme of scope, targets, diseases, promotive and preventive policies related to reproductive health.

Keyword: Sexual education; Reproductive health

INTRODUCTION

Sexual and Reproductive Health Rights (SRHR) include the right of every individual to make decisions about their sexual and reproductive activities without discrimination, coercion or violence. It explains that everyone has the right to adequate information, access to quality health services, and the freedom to choose when and with whom to have sex and have children. From the above definition, it should be added that the limitation of human rights is regulated in various legal regulations, both national and international, as stated in Article 29 paragraph 2 of the Universal Declaration of Human Rights (UDHR) and state constitutions, including the 1945 Constitution in Indonesia, which states that

these rights can be limited by law in the public interest. While human rights are fundamental and inherent to every individual, they are not absolute and can be restricted to maintain order, security, morality and the rights of others. For example, freedom of speech or expression can be restricted if it violates the rights of others or the law, such as in cases of hate speech, defamation, or incitement to violence. Another example is that freedom of sexual intercourse is restricted by marriage laws. These laws uphold customary cultural values and religious norms to maintain human dignity as noble beings.

Several international meetings such as the Declaration of Human Rights, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1980, and the Plan of Action of the International Conference on Population and Development (ICPD) in Cairo in 1994, all recognize SRHR. These documents affirm that sexual and reproductive rights are part of human rights that must be respected and protected by the state. The messages contained in the world agreements need to be disseminated, clarified in each country, so that the goal of a happy life in good health can be realized throughout the world.

The efforts that have been made by the world to realize sexual health and reproductive health in addition to organizing conferences, became the Millennial Development Goals (MDGs) program followed by the Sustainable Development Goals (SDGs). Almost a half of the SDGs programs are in the realm of reproductive health. Two reproductive health programs that are directly related to the theme of this research are programs 3 and 5. These programs target the elimination of reproductive diseases and gender equality. To reduce HIV cases, the target in 2030 is 95-95-95, meaning that 95% of people with HIV are aware of their status, 95% have taken ARVs and 95% of ARVs consumed can reduce the ability to infect others.

The efforts that have been implemented at the national level are an extension of the global plan. With the 2030 target of Indonesia reaching 90-90-90, namely 90% of people with HIV are aware of their status, 90% have taken ARVs and 90% of ARVs consumed can reduce the ability to infect others.

Sexual education is a need for adolescents in choosing ways to achieve reproductive health. The purpose of sexual education is to make a person aware of sexual behavior. Sexual education is important because there are still many people who have not obtained optimal reproductive health. Indicators of not optimal reproductive health can be seen from the increase in HIV cases every year since the announcement of the pandemic. In 2022 at the global level there were 29.8 million cases,

and in 2023 there were 39.9 million cases. The increase is about 10 million cases. A concerning case is the increase in cases of sexually transmitted diseases including HIV in America involving young people, especially those of minorities and LGBTQ. HIV cases in Indonesia in 2022 amounted to 500 thousand cases and increased in 2023, namely 515,455 cases. In Indonesia, the increase is almost 15.5 thousand cases. This increase in cases can begin with the patient's ignorance of healthy sexual behavior. This ignorance is caused by not receiving information or sexual education to the right people.

Education is useful to restore one's understanding in accordance with science. Science was born to prove the ultimate truth. To answer the problem of the HIV pandemic that cannot be eliminated, sexual education needs to be delivered to everyone, so that all can understand and become a motivation to continue to carry out healthy sexual activities. The results of research conducted by Agu et al, many young people do not know healthy sex and they need correct information from responsible parties. It should be noted that there are several factors that greatly influence sexual knowledge, attitudes and behavior, namely age, living environment, and school environment. Therefore, to give birth to someone who understands sexual health and reproductive health, it is necessary to support the immediate environment, and the community that equally strengthens the realization of sexual health and reproductive health.

The determinant of unhealthy sexual behavior is deviant sexual behavior. This behavior can occur as a result of interactions between humans, humans and animals, humans and unreal creatures, humans and media, or humans and other inanimate objects. Deviant behavior can also result from dissatisfaction with sexual fulfillment under normal conditions. A deviant social life reinforces a person's deviance. The stage of a person committing deviation/violation of rules begins with trying, at this stage still having a feeling of fear. When the first experience of trying does not feel negative consequences, then the desire to try again can appear next, and so on. Starting from trying eventually becomes a habit. Some people make habits a truth. These stages, if applied to sexual deviance, will eventually form deviant sexual behavior that is considered normal or correct.

The following are the global and national HIV elimination program targets. By 2022 globally, 75% of people living with HIV (PLHIV) know their status, 76% are on ART, and 41% have achieved viral load suppression. The death rate from HIV/AIDS in that year was recorded at 1.6%. By 2022, the national target is that 72% of people living with HIV (PLHIV) will know their status. Of the estimated

0.54 million PLHIV recorded, 0.39 million knew their status. 41% of PLHIV are on ARV therapy. In addition, 14% of PLHIV on ART achieved viral load suppression. In the same year, 1.9% of new PLHIV were detected, 31% of whom were adolescents.

Based on the targets set, both global and national targets have not been achieved. The remaining time to achieve the target is less than 6 years. Globally, 20% of people living with HIV should know their status, 19% are not on ARV therapy, and 54% have not experienced viral load suppression. In the same year, the national targets achieved showed that 18% of PLHIV did not know their status. The remaining 49% of ODHIV were not yet on ARV therapy and 76% of ODHIV had not yet achieved viral load suppression (17). From these achievements, the biggest target that has not been achieved is the ability to suppress ARV viral load. From this data, we can see that treatment is not easy, so preventing HIV is definitely better. The next target that is still quite far away is the consumption of ARVs for PLHIV at the national level, which has only reached half while there is one third of the time left.

Previous research on sexual education and reproductive health is as follows. First, sexual education needs to be delivered to every adolescent to suppress all kinds of problems arising from sexual deviations such as teenage pregnancy, STIs and others. From these efforts, there are various obstacles including funds, readiness for consistent monitoring and evaluation of activities. The success of adolescents in avoiding deviant sexual behavior is largely the will of each adolescent. Another factor is conducive environmental conditions, namely taking care of each other to keep sexual behavior in accordance with health standards. Second, routine health checks are expected by adolescents accompanied by reproductive health counseling (among others). Adolescents need easy access to services such as at school, in the community and at youth-friendly health services. Third, more adolescents need complete information about reproductive health and sexual health, they feel that it is not enough for the material to be delivered integrated with other subject matter, except for Biology.

Based on the references from the journals that have been analyzed, there has been no research using bibliometric analysis. Moreover, if this analysis takes the keywords "sexual education" and "reproductive health" together, there is no previous research. The purpose of this study is to find out the latest developments, analyze collaboration, and make strategic decisions regarding the theme of sexual education and reproductive health research. This type of research is descriptive quantitative using bibliometric statistics.

METHODS

This research is a quantitative descriptive research using bibliometric type statistics. The research data was obtained from Scopus-indexed and Google Scholar-indexed journals through the Publish or Perish (POP) reference manager application. The research stages consisted of article search strategies, publication restrictions and bibliographic analysis.

The article search strategy, starting with searching for articles in two ways, namely accessing Scopus, and accessing Google Scholar. First, accessing the Scopus web then entering keywords, then selecting article restrictions until the total articles and relevant articles appear. The last step in this first stage is to export all documents into CSV files, then select all citation information, bibliographic information, abstracts and keywords, for other information only select "include reference", save this CSV file in the appropriate folder. This describes the trends of the 5 journals, 10 countries, 10 institutions 10 highest authors of publications and citations. Description of research results by calculating the frequency, citation rate and research impact for each author, journal, institution and country based on the number of publications. Second, search for relevant articles from Google Scholar. This search requires access through the POP application. After opening the POP application we select Google Scholar as the search source, then enter the keyword.

The restrictions of Scopus indexed publications are year, document type, keywords, language and access method. Initially we were going to research from 1980, but the publications detected by Scopus began in 1991. Therefore, articles were analyzed from 1991 to 2024. The keywords "sexual education" and "reproductive health" were restricted. The document type was only articles, English language and open access, other than that there were no restrictions on articles, so 566 relevant articles were obtained. Publication restrictions from Google scholar are based on year and maximum number of articles. After the relevant articles appeared, we saved the articles in the appropriate file type. The year restriction is the same, starting from 1991 to 2024. The maximum number of articles is 1000. In this research we save in the form of "RIS/Refmanager".

The first stage of bibliometric analysis was conducted on Scopus indexed data, which analyzed the development of publications in 3 decades. The year grouping used is based on the formula:

$$m = 1 + \frac{(\log n)}{\log 2}$$

m = year grouping n = amount of data

2 = constant.

$$m = 1 + \frac{(\log 33)}{\log 2} = 6$$

The resulting m=6 means that the number of year groupings is 6.

Calculating the year range (p) is calculated using the formula: $p = \frac{\text{range}}{m}$

$$p = \frac{2024-1991}{6} = 5{,}5 \text{ rounded up to } 6$$

This resulted in p=6, meaning there were 6 years in one group. The year 1991 is the lower limit because Scopus detects the oldest relevant article appeared in 1991. The formula for publication progression per 5 years (lower limit per year group minus lower limit per year group) is calculated using the formula:

$$((\text{final value}/\text{initial value}) - 1) \times 100 = \sqrt[1]{(\text{final value})} - 1) \times 100$$

The second stage of bibliometric analysis was conducted on Google Scholar indexed data through the POP application. The data analyzed were top author and top topic publications. Google Scholar indexed publication trends. Search results from Google Scholar found 999 relevant articles, total citations 1307840, citations per year 39631.52, citations per paper 1309.15, citations per author 718670.20, paper per author 502.55, author per paper 2.93, h index 689, g index 999, hI norm 414, hI annual 12.55, hA index 158, papers with ACC> = 1,2,5,10,20: 988, 981, 984, 880, 829.

The bibliometric visualization stage uses the VOSviewer application, to start the analysis we select one of the data types, data sources (this source is adjusted to the data in the first and second steps), enter the appropriate data file, then select the part of the article to be analyzed, then select the calculation method, then select the terminology / analysis boundaries.

RESULTS AND DISCUSSION

The world meeting that discusses reproductive health began in 1980 with the organization of CEDAW, the meeting has not moved the researchers to study the subject of reproductive health. The next meeting was held in 1994 with the ICPD. Four years after the ICPD, there was no publication, only one publication appeared in 1999. In 2000, the MDGs were agreed upon, and the first five years after the MDGs, there were several studies although less than 6 publications per year. Since 2010 publications began to increase and more than 10-20 per year. After 2015 and the SDGs were agreed upon, publications increased significantly to more than 30 publications per year and continue to increase until now. Below is an explanation of the results of Bibliometric analysis in the form of a description of publication trends indexed by Scopus, indexed by Google Scholar and Visualization of the publication landscape.

The first analysis is a description of Scopus indexed publication trends. This analysis can be seen in Table 1. From the calculation, the frequency distribution and development of relevant article publications can be made in Tables 1,2,3 and 4.

Five journals that have consistently published articles on the theme of sexual education and reproductive health in 3 decades. Reproductive Health Journal (started in 2011 / 13 years) from the United Kingdom has published 60 articles (related to the theme), in 2023 it reached a cite score of 6.0 SJR 1,083 and SNIP 1,496. BMC Public Health Journal (started in 2006 / has been 18 years) published 36 articles (related to the theme), in 2023 reached a cite score of 6.5 SJR 1,253 and SNIP 1,386. Plos

One Journal (started in 2011 / has been 13 years) published 35 articles (related to the theme), in 2023 reached a cite score of 6.2 SJR 0.839 and SNIP 1,084. Reproductive Health Matters Journal (2001-2017 / 16 years) published 30 articles (related to the theme), in 2023 reached a cite score of 2.3 SJR 0.846. Sexual and Reproductive Health Matters Journal (starting in 2019 / 5 years) published 28 articles (related to the theme), in 2023 achieved a cite score of 4.0 SJR 0.914 and SNIP 1,274.

Table 1. Scopus Indexed Publications with Keywords "Sexual Education" and "Reproductive Health" in 3 Decades

Group	Year	Publication (n)	Average publications per year	Progress in 4 years (%)
	1991-1996	2	0,4	Can't be counted
	1997-2002	6	1,2	24,57
	2003-2008	36	7,2	43,09
	2009-2014	88	17,6	19,57
	2015-2020	210	42	19,00
	2021-2026	224	44,8	Can't be counted yet
	Total	566		

The ten countries or territories with the highest number of publications with the keywords "Sexual Education", and "Reproductive Health" indexed by Scopus are United States 216 publications or 38.69% of all world publications, United Kingdom 81 publications or 14.31%, South Africa 44 publications or 7.77%, India and Nigeria 27 each 27 publications or 4, 77%, Sweden 25 publications or 4.42%, Kenya and Switzerland both 24 publications or 4.24%, Netherlands22 publications or 3.89%, Canada 21 publications or3.71% Highest Institution Scopus Indexed Publication by Keyword "Sexual Education" and "Reproductive Health" is Organization Mondiale de la Sante17 document Geneva City Switzerland, Johns Hopkins Bloomberg School of Public Health16 document Baltimore City United States, Columbia University15 document New York City United States, University 13 document of California, San Francisco14 document San Francisco City, Jhons Hopkins University Baltimore City, Centers for Disease Control and Prevention 13 document Atlanta City, The University of northern California at Chapel Hill 13 document United States, London School of Hygiene & Tropical Medicine13 document City of London United Kingdom, Mailman School of Public Health 11 document City of New York United States University of Kwazulu Natal10 document City of KwaZulu-Natal South Africa.

Google scholar searches are author trends and topic trends. This search was carried out because looking at the publication process, Scopus publications are fewer than publications indexed

by Google Scholar, therefore these two searches were carried out to complement the shortcomings in one of the searches. Description of Google Scholar indexed publication trends, Highest Google Scholar Indexed Publications by Keyword “Sexual Education” and “Reproductive Health” 1198 author citations LH Bearinger, RE Sieving, J Ferguson, V Sharma dengan judul Global perspectives on the sexual and reproductive health of adolescents; patterns, prevention, and potential in 2007 from journals and published oleh The lancet citations per year 70.47 citation per author 300; 1112 author per citations A Glasier, AM Gülmezoglu, GP Schmid, CG Moreno, at all with title Sexual and reproductive health: a matter of life and death in 2006 from jurnal The Lancet published by thelancet.com citations per year

61.78 author per citation 222; 1107 author citation PK Kohler, LE Manhart, WE Lafferty with title Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy in 2008 with Journal of adolescent Health publish by Elsevier citations per year 69.19 citation per author 369; 1066 author citations M Fine, SI McClelland title Sexuality education and desire: Still missing after all these years in 2023 jurnal The critical pedagogy reader publish by taylorfrancis.com citation per year 1066.00 citation per author 533; 890 author citations AK Blanc title The effect of power in sexual relationships on sexual and reproductive health: an examination of the evidence in 2001 jurnal Studies in family planning publish by Wiley Online Library citation per year

38.70 citation per author s 890; 699 author citations N Haberland, D Rogow title Sexuality education: emerging trends in evidence and practice in 2015 Journal of adolescent health publish by Elsevier citation per year 77.67 citation per author 350; 597 author citations World Health Organization title Sexual health, human rights and the law tahun 2015 publish by apps.who.int sitasi per year 66.33 citation per author 597; 466 author citations Cora C. Breuneur, MD; Gerri Mattson, MD; at all title Sexuality education for children and adolescents tahun 2016 dari jurnal Pedriatics publish by publications.aap.org citation per yaer 58.25 citation per author 233; 62 author citations MJ Moore, BA Rienzo title Utilizing the SIECUS guidelines to asses sexuality education in one state: content scope and importance in 2000 Journal of School Health publish by Wiley Online Library citation per years

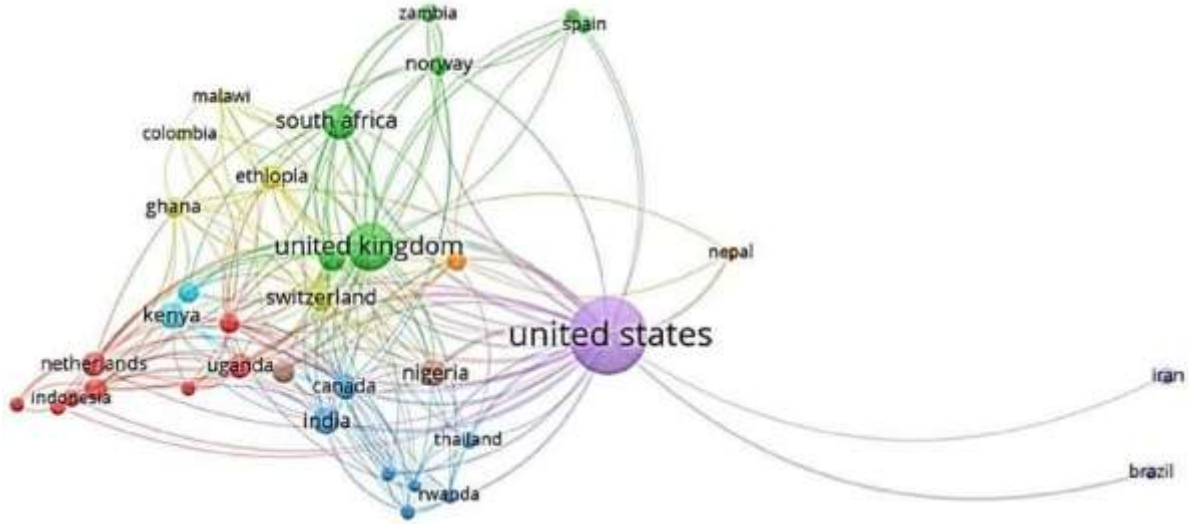
2.58 sitasi per author 31; dan 49 author citations M Plesons, CB Cole, G Hainsworth, R Avila title Forward, together: a collaborative path to comprehensive adolescent sexual and reproductive health and rights in our time in 2019 Journal of Adolescent Health publish by Elsevier citation per year 9.80 citation per author 10.

Table 2. Highest Author of Scopus Indexed Publications with Keywords "Sexual Education" and "Reproductive Health"

No	Author	Doc	Afiliasi	City, Country	Citation	H-Index
1	Temmerman, M.	6	Aga Hospital Khan University	Nairobi, Kenya	31,086 by 25,749/ 665	76
2	Chandra-Mouli, V.	5	Organization Mondiale de la Sante	Geneva, Switzerland	4,343 by 3,259/ 143	33
3	Essink, D.R.	5	Vrije Universiteit Amsterdam Athena Instituut	Amsterdam, Netherlands	572 by 530/ 43	14
4	Speizer, I.S.	5	UNC Gillings School of global Public health	Chapel Hill, United States	4,730 by 3,910/ 188	37
5	Sychareum, V.	5	University of Health Sciences	Laos, Laos	1,490 by 1,367/ 89	20
6	Zulu, J.M.	5	University of Zambia	Lusaka, Zambia	1,484 by 1,154/ 106	23
7	van Reeuwijk, M.	5	Rutgers	Utrech, Netherlands	277 by 260/ 18	10
8	Lohan, M	4	Queen's University Belfast	Belfast, United Kingdom	2,195 by 1,906/ 85	22
9	Marcell, A.V.	4	Johns Hopkins Bloomberg School of Public Health	Baltimore, United States	4,960 by 4,191/ 111	32
10	Michielsen, K	4	Universiteit Ghent, Faculteit Geneeskunde en	Ghent, Belgium	1,648 by 1,420/ 792	24

The third bibliometric analysis is the mapping of research landscapes on research domain topics. The first landscape mapping of scopus indexed papers, as follows: Publication trends by country, from 566 relevant articles from 125 countries, then from 125 countries it is required to have produced a minimum of 5 papers, resulting in 36 countries. The top five countries with the most documents and citations are United State (US) 214 documents with 4,179 citations, United Kingdom (UK) 80 documents with 1,734 citations, Switzerland 23 documents with 697 citations, South Africa 43 documents with 622 citations, and Sweden 25 documents with 266 citations. Indonesia is in cluster 1, indicating that the number of studies is still limited, ranked 27th (out of 36 countries), starting research in 2021, 11 documents with 40 citations. The strength of the collaboration network based on keywords from the 36 countries, US, UK, South Africa, is quite good, for ASEAN countries it is still small, especially since Indonesia has only collaborated with 4 countries, namely the Netherlands, India, Sweden and the US. Many health education and reproductive health research centers are conducted in the US.

Image 1. Visualization of Scopus Indexed Publication Interstates by Keyword “Sexual

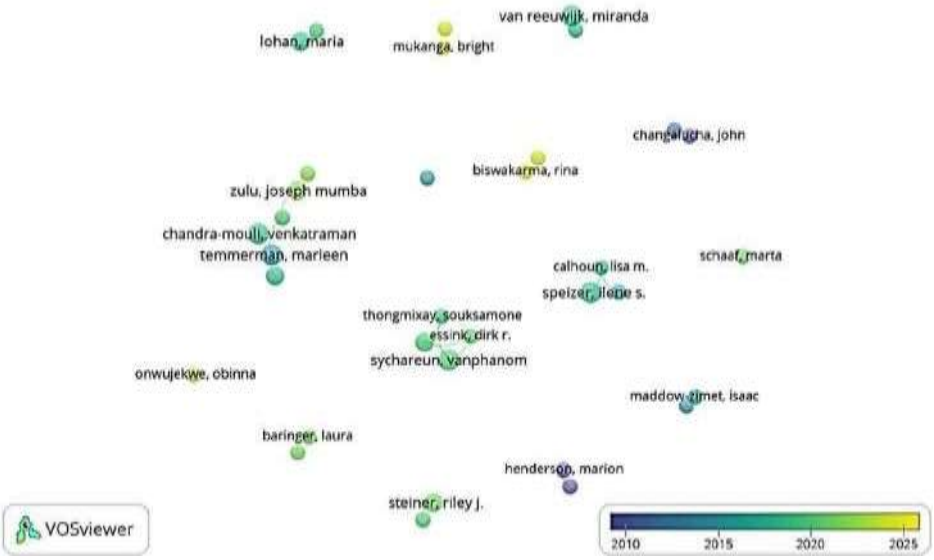


Education” and “Reproductive Health”

Image 1 Visualizing Scopus-indexed publications illustrates the publication activity of countries in the world. The most dominant countries are recorded to publish sexual education and reproductive health. The 3 largest circles are United States (US), United Kingdom (UK), and South Africa. The circles indicate the number of publications, the more publications the bigger the circle. The stretched lines show collaboration activities. Each line has a different color, each color indicates a cluster. From the network visualization image, there are 8 clusters. Cluster 1 is red including Indonesia, cluster 2 is green including South Africa, cluster 3 is blue including India, cluster 4 is yellow including Ethiopia, cluster 5 is purple including the US, cluster 6 is tosca green including Kenya, cluster 7 is salem including Nepal and finally cluster 8 is brown including Nigeria. The next visualization is the overlay visualization, this shows the time span of the publication. The darker color indicates that the publication has been done for a long time, while the lighter color (yellow) indicates the latest publication. The visualization shows that there are fewer recent publications than old publications. Density visualization shows the density of publications or the number of publications carried out by the country with the brightest color (yellow), namely the US. We also show Indonesia's new collaboration with 4 countries and this publication was carried out recently. From this visualization, Indonesia has a great opportunity to establish and increase cooperation with other countries to research or publish with the keywords of sexual education and reproductive health.

Image 2 of scopus indexed article search results, visualizing author activity related to the keywords "Sexual Education" and "Reproductive Health". The circles formed are not too large, meaning that not many researchers have published work related to the keywords sexual education and reproductive health. What is more interesting is that collaboration between authors is still lacking, collaboration is still carried out in each cluster. There are 6 authors who are considered the most collaborative, namely Temmerman, Marleen; Chandra Mauli, Venkatraman; Zulu, Joseph Mumba. The most recently published authors based on the visualization overlay are Mukanga, Bright and Biswakarma, Rina.

Image 2. Visualization of Scopus Indexed Publications Author by Keyword “Sexual Education” and “Reproductive Health”



Unlike the search results in Figure 2, the names that appear in the Scopus search results do not appear in the Google Scholar search. Google scholar found the dominant author, is the World Health Organization (WHO), the WHO circle is the largest, striking, meaning the difference is very far from the others. It is likely that the names of the highest authors in the Scopus search are part of the authors at WHO. The difference in circles in the visualization of Google Scholar search results looks very clear can be seen in image 3. The similarity between image 2 and 3 is that collaboration between authors is still very lacking, this can be seen from the lack of connecting lines between circles. Collaboration occurs still at the cluster level. In line with the number of publications, WHO also

publishes a lot in the latest years, the interest of other authors is increasing. This is indicated by the almost even distribution of yellow color in the overlay visualization.

Image 3. Visualization of Google Scholar Indexed Publications by Author Network Keyword "Sexual Education" and "Reproductive Health"

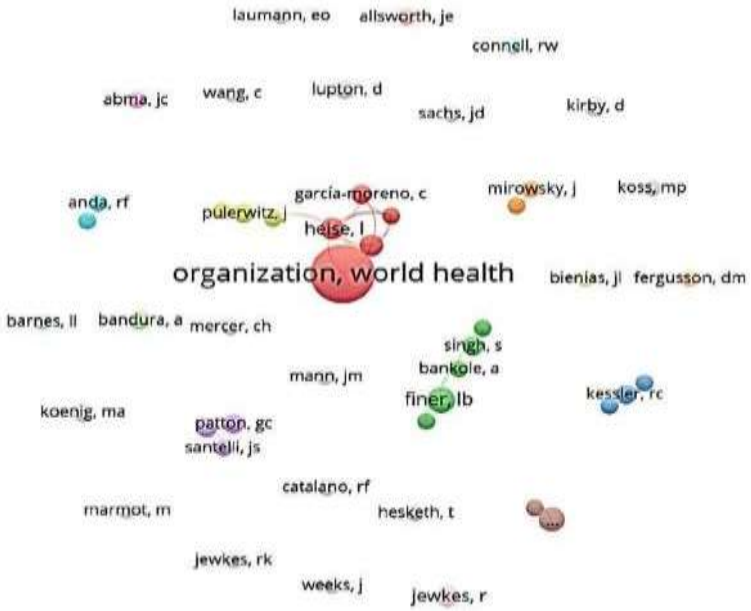


Image 4 visualizes the publication topics of the keywords "Sexual Education" and "Reproductive Health" from Scopus search results. Image 5 visualizes the publication topic of the keywords "Sexual Education" and "Reproductive Health" from Google Scholar search results. In Image 4, it can be seen that the circles formed are almost none dominant, all are still small circles. There are 3 circles that are larger than the others, namely the words "reproductive health", "education", and "study". The word "reproductive health" is in a different cluster from the word "education". The lines are close together, meaning that there are many publications that link the two words. There are many lines in this visualization, meaning that the linkages between words according to keywords are varied. The latest topics are the words "child", "srh", and "depth interview". Based on the density of the depth visualization, the most common topics are "study", "education", and "reproductive health". From the topics that appear the word "education" stands alone instead of the word "sexual education", this

means that "sexual education" is still rarely published so it has a great opportunity to be researched and published.

Image 4. Visualization of Scopus Indexed Topic Publications by Keyword “Sexual Education” and “Reproductive Health”

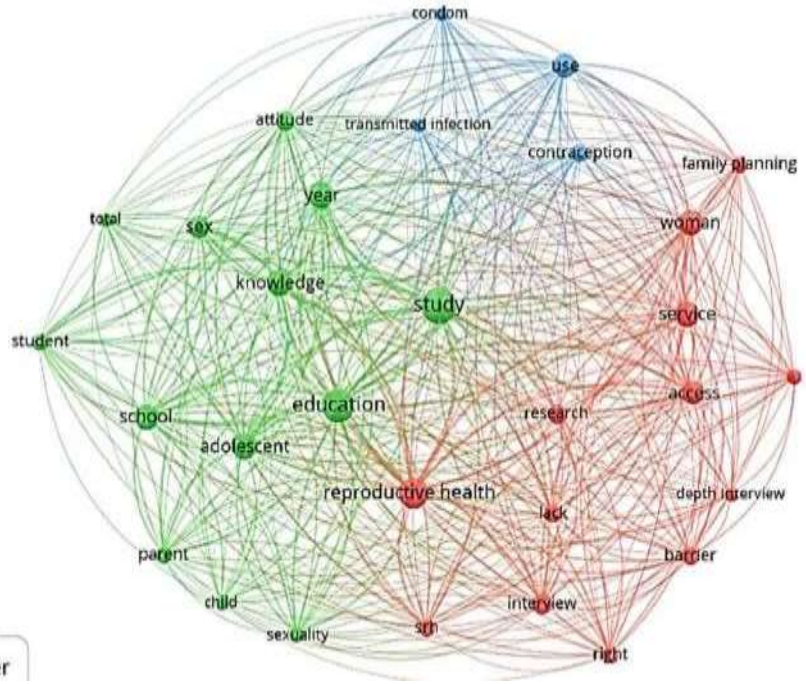


Image 5 visualizes the publication topics. Similar to the results of bibliometric analysis of Scopus indexed articles, the topics that appear are "reproductive health", "woman", and "age". There are already quite a number of publications that link reproductive health with women. There is already a variety of topics that are connected to one another. Based on overlay visualization, the latest topics are "intimate partner sexual violence", "mental health", "reproductive health service", "access", and "right". The results of bibliometric analysis based on google scholar publications appear the topic "sex education", but the circle on the topic is still small, meaning that there are not many publications on the topic. In image 5, we can see the density of research themes, the most in-depth discussions are "Woman", "Reproductive Health" and "Age".

Image 5. Visualization of Google Scholar Indexed Topic Publications by Keyword “Sexual Education” and “Reproductive Health”

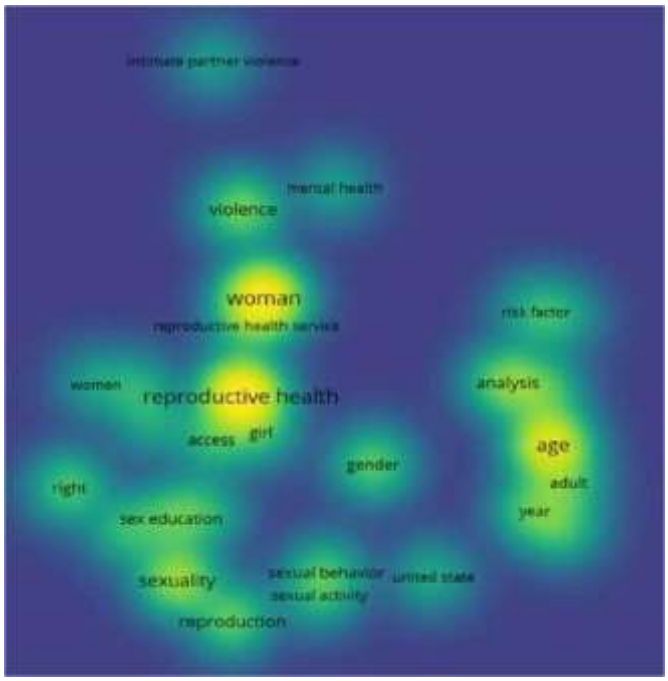
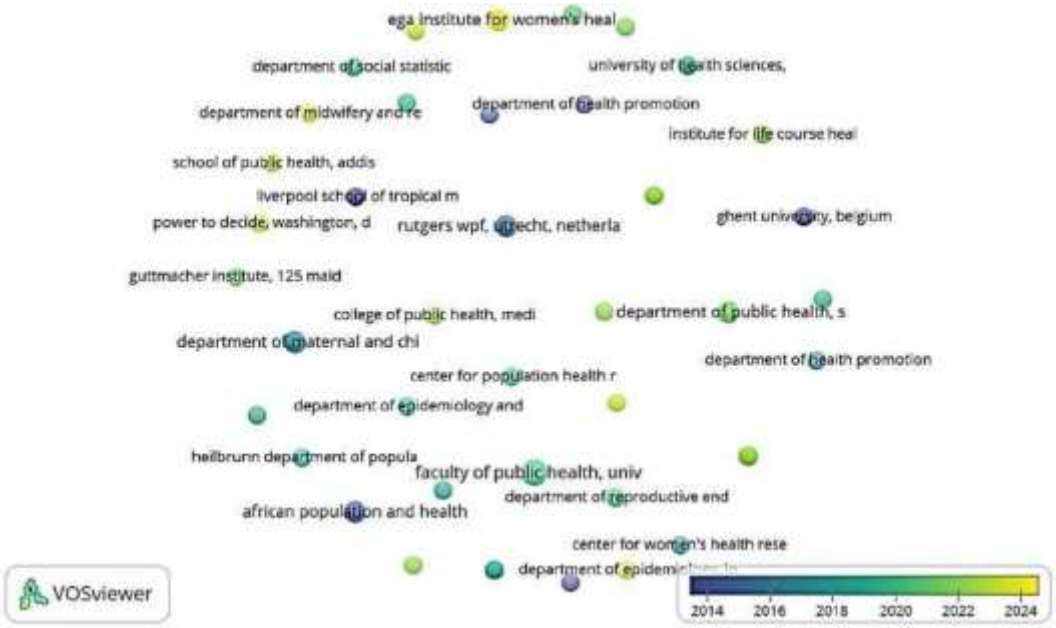


Image 6. Affiliations Overlay Visualization of Scopus Indexed Publications by Keyword “Sexual Education” and “Reproductive Health”



From images 4 and 5 there are similarities, namely the topic of "reproductive health" appears as a topic that has been widely studied, researched and published. Analyzing from these two search results, new topics that need to be published are the scope of reproductive health such as adolescent reproductive health, elderly reproductive health, family planning. sexual education, sexually transmitted diseases, sexual violence, gender and many others.

Image 6, visualizes the most affiliations of publications. From the overlay visualization, there are no visible collaboration lines, no dominant circles, the good news is that the institutions that publish sexual education and reproductive health keywords between old and new publications are balanced. The circles that are slightly larger than the others are Fakulty of Public Health, Univ; Department of Maternal and Chi, Rutgers Wpf, Utrecht, Netheria; Ega Institute for women's Heal. Something odd about the visualization is that there is a fairly large circle and light density color but no name of the institution.

After analyzing all data and visualizations, the next step is to reveal research gaps, namely themes/topics that are still under-researched and published, namely keywords in small circles and far from major topics, or not yellow in density visualization or even words or topics that do not exist. Words that have appeared in scopus search results but still lack publications such as "transmitted infection", "parent", "right". Google scholar search results "intimate partner violence", "risk factor", "mental health", "reproductive health service", "sex education". Topics that have not yet appeared "adolescent pregnancy", "comprehensive sexuality education", "sexual deviation". And of course there are many more.

The results of this study are in line with the results of research by Gery, Lian 2023, Lian highlighted more transgender keywords, that the discussion of reproductive health is still less published, less collaboration, not many countries and affiliations have studied this theme (21). Similarly, Waleed M. Swaileh in 2018 analyzed bibliometrically the theme of health rights, both recommending researchers to research and publish health themes with rights including reproductive rights (22). Since 6 years ago until now research using bibliographic analysis is still lacking, this is an opportunity for researchers to analyze research with bibliometrics, so that new knowledge can be found from themes that have not been studied by many other researchers.

CONCLUSION

From the analysis of bibliometric analysis with the keywords "Sexual education" and "reproductive health" is still limited when compared to other topics in the field of health, let alone outside health. In general, Scopus search results and Google Scholar search results are almost the same. First, the countries or territories that dominate are the US and UK. Second, the highest authors are WHO (google scholar search results) and Temmerman, Marleen (scopus search results). The third most published topic based on both searches is "reproductive health". Less than five words were the dominant topic. Collaboration between authors is still limited to clusters, not yet global.Fourth, the affiliations that publish the most on this theme are the Faculty of Public Health (Scopus search results) and WHO (google scholar search results). Based on this, it is a great opportunity for researchers to raise the theme of promotive and preventive, scope, and target of reproductive health.

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