A BIBLIOMETRIC ANALYSIS OF THE SCHIZOPHRENIA PUBLICATIONS OF SOUTH EAST ASIA IN 2002-2023

Lathifah Nudhar[1], Rizma Adlia Syakurah[2], Haerawati Idris[3], Muhammad Syahrul Ramadhan[4]

[1]Graduate Program, Faculty of Public Health, Universitas Sriwijaya, Palembang, South Sumatra, Indonesia

[2,3]Faculty of Public Health, Universitas Sriwijaya, Indralaya, South Sumatera, Indonesia

[4]Faculty of Medicine, Universitas Sriwijaya, Palembang, South Sumatera, Indonesia

lathifahnn@gmail.com

Abstrak

Tujuan: Literatur ini bertujuan untuk mengulas produktivitas literatur terkait skizofrenia di Asia Tenggara selama lebih dari 2 dekade menggunakan analisis bibliometrik. Metode: Dilakukan pencarian sistematis melalui database Web of Science Core Collection (WoSCC) untuk mencari artikel terkait skizofrenia antara 1 Januari 2002 dan 1 Juni 2023 dan diseleksi berdasarkan negara/wilayah di 11 negara Asia Tenggara. Setelah melakukan seleksi publikasi yang tidak relevan, VOSviewer memproses informasi dan memberikan visualisasi peta publikasi. Hasil: Dari total 876 literatur dari database WoSCC yang teridentifikasi, 301 artikel dianalisis lebih lanjut. Terdapat peningkatan jumlah artikel terkait skizofrenia yang diterbitkan dari tahun 2002 hingga 2023. Analisis kata kunci yang mengelompokkan kata kunci menjadi enam kelompok sesuai dengan topik yang mirip. Analisis berdasarkan negara mengungkapkan bahwa Singapura menerbitkan jumlah publikasi terbanyak (41%) diikuti oleh Malaysia (29%) dari total 301 artikel. Analisis penulis menunjukkan bahwa sebagian besar dari 10 penulis teratas berasal dari Singapura dengan jumlah publikasi terbanyak dilakukan oleh Chong SA dengan total 50 publikasi (16,6%). Kesimpulan: Penelitian tentang skizofrenia terutama terkait dengan pengobatan farmakologis, dampak psikososial, penyakit penyerta dan patofisiologi. Riset terkait kebijakan kesehatan jiwa dan layanan berbasis komunitas masih perlu digali lebih jauh.

Kata Kunci: *Bibliometrik, Skizofrenia, Publikasi*

Abstract

Aims: We intend to examine the productivity in literature related to schizophrenia in South East Asia in over 2 decades using bibliometric analysis. Method: We performed a systematic search through Web of Science Core Collection (WoSCC) database to searched articles related to schizophrenia between 1 January 2002 and 1 June 2023 and refined by Countries/Regions of 11 South East Asia countries. After filtering irrelevant publications, the VOSviewer processed the informations and give visualizations of publications maps. Results: Of the total 876 literatures from WoSCC database identified, 301 articles included in further analysis. There were increasing number of article related to schizophrenia published from 2002 to 2023. The analysis of selected keywords grouped them into six clusters according to similar topic. Analysis based on country revealed that Singapore published the most number of publications (41%) followed by Malaysia (29%) of total 301 articles. Analysis of authors showed that most of the top 10 authors were from Singapore with the highest paper was conducted by Chong SA with 50 total publications (16.6%). Conclusion: The research on schizophrenia mainly related to pharmacological treatment, psychosocial impact, comorbidities and pathophysiology. The research related to mental health policy and community based services stil need further explorations.

Keywords: Bibliometric, Schizophrenia, Publications

Corresponding author :

Address : Pascasarjana Universitas Sriwijaya, Bukit Besar, Palembang

Email   : lathifahnn@gmail.com

Phone   : 082186475999

INTRODUCTION

Schizophrenia is one of the severe mental illness that cause the patients having significant deficits on cognitive and psychosocial aspects, the debilitating effects can last as long as the course of the mental illness. The schizophrenia patients experience three mains symptoms, positive, negative and cogntive. The positive symptoms characterized with delusions and hallucinations, while negative symptoms characterized with flat affects and social withdrawal. Cognitive impairment in schizphrenic patients made them had impaired memory, loss of reality testing ability and impaired attention and diminished excecutive function (Newton et al., 2018) (Xavier & Vorderstrasse, 2016).

Schizophrenia impacts around 24 million individuals globally, which approximately 1 in every 300 people (0.32%). Among adults, the prevalence rate is slightly higher at 1 in 222 people (0.45%). The five types of mental illness causes the highest global burden disease included schizophrenia in the 11th rank, although schizophrenia is less widespread compared to numerous other mental health conditions, but it have a serious impact to to the patients, families and their society (Vos et al., 2015; (Xavier & Vorderstrasse, 2016). According to a systematic analysis, it was stated that only 13.5% of individuals with schizophrenia met the criteria for both clinical and social recovery (Jääskeläinen et al., 2013).

The number of schizophrenia is increasing year by year. Some findings indicate that in 2017, there were approximately 19.78 million individuals affected by schizophrenia, marking a significant surge of 62.74% when compared to the figures from 1990. Furthermore, in 2017, the burden of disease, measured in DALYs (Disability-Adjusted Life Years), attributed to schizophrenia amounted to 0.51% of the total DALYs caused by all factors. In Asian countries, the number of schizophrenia are higher than any other countries, with the highest incidence in schizophrenia were in East Asia and South Asia, while Southeast Asia is on third place.

Bibliometric analysis is a method for examining published research within a specific field. By conducting bibliometric analysis, researchers gain valuable quantitative information about the knowledge structure and trends within particular disciplines. Consequently, this analysis offers insights into future research directions. (Tang et al., 2023). There is no research about productivity in literature related to schizophrenia in South East Asia. We intend to do examine the trends in over 2 decades to limit the time of our bibliometric study. We limited this study in literature produced by ASEAN countries including Brunei, Malaysia, Thailand, Philippines, Singapore, Indonesia, Vietnam, Laos, Myanmar, and Cambodia.

METHOD

To determine the productivity of literatures related to schizophrenia published by South East Asian authours over the last 2 decades, we performed a systematic search through Web of Science Core Collection (WoSCC) database. We searched articles related to schizophrenia between 1 January 2002 and 1 June 2023. The keywords used are TS = [(schizophrenia) OR (schizophrenia spectrum disorder)] DOP =(2002-01-01/2023-06-01), refined by Countries/Regions : Indonesia OR Vietnam OR Philippines OR Brunei OR Malaysia OR Singapore OR Laos OR Cambodia OR Myanmar OR Thailand; language type=English; document types=articles. The next step is to do screening while removing and filtering the irrelevant publications that is not related to the topic based on each title and abstract. We imported the full record in txt format and analyze it further into VOSviewer. The VOSviewer later processed the informations and give visualizations of publications maps such as keywords, country, institutions, country, etc.

RESULTS AND DISCUSSION

Total 876 literatures from Web of Science Core Database were identified base on the topic of schizophrenia or schizophrenia spectrum disorder between 1 January 2002 and 6 June 2023. After sorting the title and abstract based on related topics, 301 articles included in further analysis. All of the publications written in English and published by authors from South East Asian countries. From **figure 1** we can see the increasing number of article published from 2002 to 2023. In 2021, there were a total of 37 articles, accounting for roughly 12.3% of the articles published over a span of 20 years. The number of articles published in 2022 was 33 articles (about 11%), followed by 29 articles (around 9.6%) in 2019, and 28 articles (about 9.3%) in 2020.
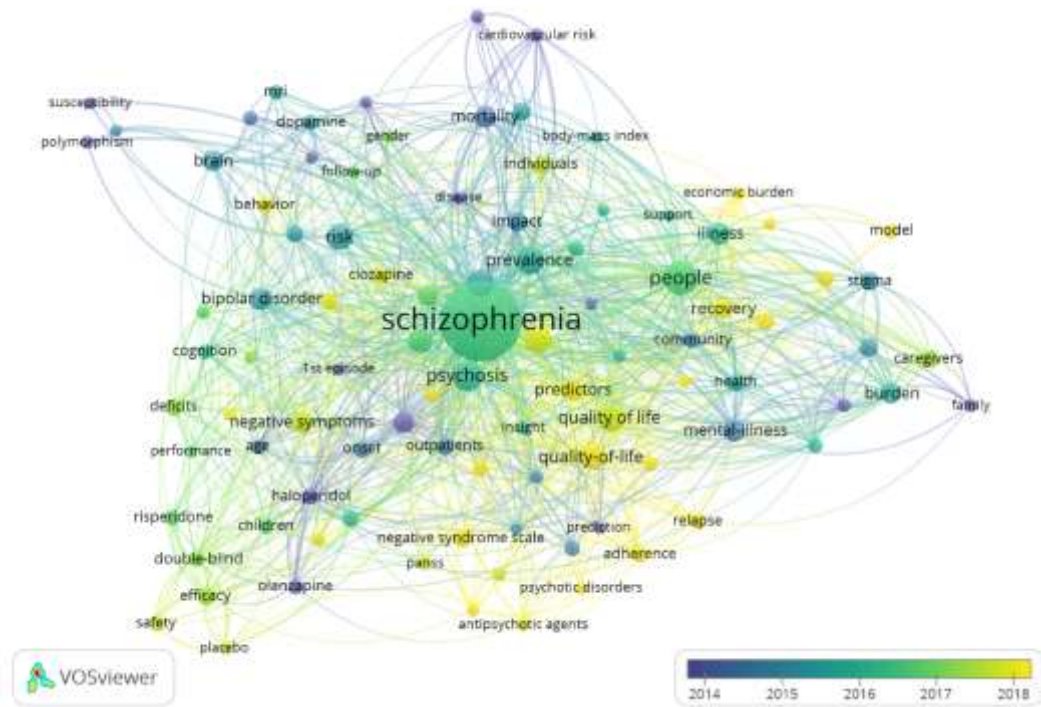
Figure 1. Publication trend over last 20 years

Keywords analysis

This analysis selected the keywords from the papers that appeared at least 5 times and categorized them into six distinct groups. Of 1471 keywords, 112 of them met the threshold. "schizophrenia" is the largest node size means that it appeared the most in the title and abstract with 200 cooccurences, followed with "psychosis" with 29 occurences, "prevalence" with 25 occurences, "disorders" with 23 occurences and "quality of life" with 22 occurences. The representation of various research topics was accomplished by using five different colors, social and family aspects of schizophrenia appeared in green, epidemiology appeared in purple, diagnostic approach and genetic aspects showed in yellow, pharmacological therapy showed in dark blue, quality of life and symptoms showed in red and community aspects show in light blue.

Figure 2. The keywords co-occurence map

Figure 3 show the trend of schizophrenia research over the year, it can be inferred that the yellow nodes are the keyword that appeared in recent research while the blue dot are the keyword that appear in earlier research, for example, the latest keyword are negative symptoms, economic burden, quality of life and recovery. Earlier research consisted of keyword haloperidol and mortality. **Figure 4** visually depicts the level of research depth, indicating that as the colors become more concentrated and the number of research instances increases, the research intensity also grows.

Figure 3. The overlaying map of keyword analysis using VOSviewer

Figure 4. Density visualization of topic area using VOSviewer

Analysis of Country/region

Based on the analysis made by WoSCC, from 11 countries of South East Asia, only 6 countries had participated in publications and research related to schizophrenia as showed in **figure 5**. The countries are Singapore, Malaysia, Indonesia, Thailand, Philippines and Vietnam. Singapore published the most number of publications (126 articles) followed by Malaysia (89 articles), Indonesia (44 articles), Thailand (42 articles), Philippines (3 articles) and Vietnam (2 articles).
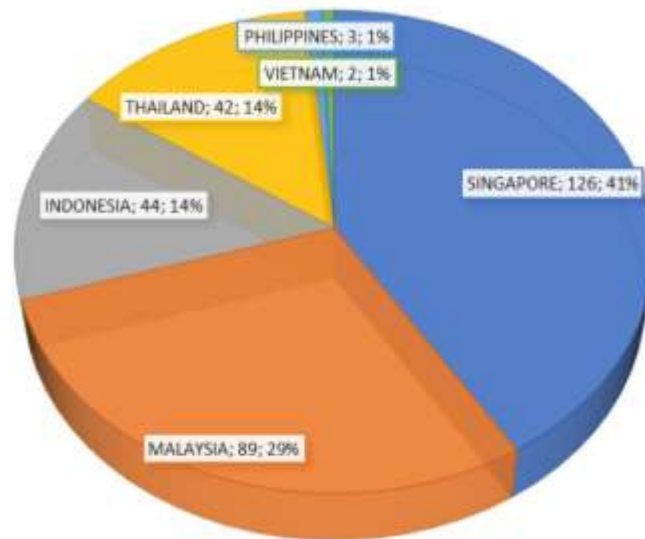
Figure 5. ASEAN Articles related to schizophrenia per country percentage and total

Analysis of authors

Table 1 shows the list of names of 10 authors from South East Asia countries who have published the most articles on schizophrenia in the last 20 years. Most of the top 10 authors were from Singapore with the highest paper was conducted by Chong SA with 50 total publications (16.6%).

Table 1. Top 10 authors with the highest number of publication articles

Rank	Author	Country	Total Publications	Percentage
1	Chong SA	Singapore	50	16.6%
2	Subramaniam M	Singapore	42	14.0%
3	Sim K	Singapore	41	13.6%
4	Lee J	Singapore	35	11.6%
5	Verma S	Singapore	20	6.6%
6	Tang PY	Malaysia	18	6.0%
7	Abdin E	Singapore	16	5.3%
8	Tee SF	Malaysia	14	4.7%
9	Nurjono M	Singapore	11	3.7%
10	Mahendran R	Singapore	10	3.3%

Discussion

Schizophrenia is a debilitating mental disorder that have multiple consequences and involves multisectoral interventions. Schizophrenic patients have difficulties in their daily activities and quality of life aside from stigma, violence target and human rights violation (Murwasuminar et al., 2023). It is not just affected individual but also burden the family and community. The people with schizophrenia are more likely to be ignored and perceived as burden for society, so schizophrenia remain a public health issue. (Haro & McGrath, 2022) (de Villiers et al., 2014) This study provide an analysis of publications related to schizophrenia published by authors from South East Asian countries. Using visualization and bibliometric analysis, this paper discussed the trend and current schizophrenia publications according to countries, topics, institutions and journals.

The number of publications on schizophrenia has increased extensively in the past 20 years. Based on the analysis of these publications, Singapore is the country with the most contributions to the publication of articles related to the topic of schizophrenia with 126 articles published (41.9%). Singapore is known as a developed country which can explain why research in Singapore is more developed than other countries, because research funding sources are higher than developing countries. A study also stated in a study that most psychiatry literature published by high income countries (Kiraz, 2020). The lifetime prevalence of schizophrenia is similar to other south east Asian countries, estimated to be about 0,27 percent (Wai & Tung, 2019) but The treatment gap in mental health may explain the high number of publications in Singapore, unlike any other countries in South East Asian, the treatment gap in Singapore is lower, with almost 80% of schizophrenia patients got treatment (Subramaniam et al., 2021). It is widely known that the issue of mental health have been neglected by governments, but the Singapore made change by the formulation of the first National Mental Health Policy and Blueprint 2007-2010. This change encourage research and contribute to the research by many psychiatric and mental health centres in Singapore (Chong, 2007). The second country in rank is Malaysia by producing 89

articles, it indicates that developing countries possess significant potential for enhancing productivity in the field of psychiatric research.

Analysis of keyword co-occurences show the current research directions and prominent areas of focus within specific discipline. The analysis revealed 6 main clusters of keyword regarding the literature related to schizophrenia. The word "schizophrenia" has the biggest nodes show that it is appeared the most in the studies. In cluster 1, the keyword mainly inferred the symptoms and quality of life of patients with schizophrenia, it also notable that keyword related to scale such as "negative syndrome scale" and "psychometric properties" appeared. The word "quality of life" also correlated with "caregivers and family caregivers" because being schizophrenia caregivers considerable as challenging, stressful and exhausting physically and mentally. On the other side, caregivers is a need for those people with schizophrenia for providing support and assistance in daily living (Stanley et al., 2017) (Tristiana et al., 2019). The second cluster show the social aspects of the illness mentioned by the keyword "burden", "people" and "stigma". Schizophrenia is a complex psychiatric conditions with psychosocial impairment, people with this conditions are vulnerable to poverty, homelessness, unemployment and it mainly affects people in productive age and causing economic burden (Charlson et al., 2018). They also experience stigma from society and health professionals, in South East Asian, people believed schizophrenia is caused by supernatural things or punishment from god (Anjara et al., 2021) (da Silva et al., 2020).

The third clusters showed the main topic of pharmacological treatment with keyword "haloperidol", "risperidone" and "olanzapine", as they were the main antisychotics treatment for schizophrenia. The research about pharmacological treatment showed progress, as seen in the overlay visualizations that now research has shifted toward the new generation of atypical antipsychotics. The research about treatment are still evolving to develop interventions that resulting in efficacy of the treatment (Ganguly et al., 2018) (Rubio & Kane, 2022). The forth clusters described the genetic and mechanism of schizophrenia as shown by keyword "brain", and "polymorphism" as schizophrenia is strongly correlated with genetic predisposition (Laksono et al., 2019) (Maritska et al., 2022). There are also increasing interest in other mental disorder such as bipolar disorder and depression (Vogelzang et al., 2012); Xu et al., 2021). The fifth clusters described the comorbidity theme by keyword "mortality" and "cardiovascular risk" as pharmacological treatment attributed to other

physical-related illness in schizophrenia patients (Vickers, 2017) (Tan et al., 2022).

Literature related to schizophrenia retrieved from a single database, Web of Science Core Collection and going through bibliometric analysis using VOSviewer. There are some limitations in this study, the use only single database from Web of Science may have led to potential exclusion from other databases resulting in incomplete data, we only selected literature with English languange. We also excluding the non-article type of documents. This study only provide the current analysis about publication trend and future direction.

CONCLUSION

We performed systematic search through Web of Science database from 2002 to 2023 to identify the trend of publications and research progress of schizophrenia in South East Asia country. The country published the most articles were Singapore as the only developed country in South East Asian. The research on schizophrenia mainly related to pharmacological treatment, psychosocial impact, comorbidities and pathophysiology. The research related to mental health policy and community based services stil need further explorations.

REFERENCES

Anjara, S. G., Brayne, C., & Van Bortel, T. (2021). Perceived causes of mental illness and views on appropriate care pathways among Indonesians. *International Journal of Mental Health Systems*, *15*, 1–14.

Charlson, F. J., Ferrari, A. J., Santomauro, D. F., Diminic, S., Stockings, E., Scott, J. G., McGrath, J. J., & Whiteford, H. A. (2018). Global epidemiology and burden of schizophrenia: findings from the global burden of disease study 2016. *Schizophrenia Bulletin*, *44*(6), 1195–1203.

Chong, S.-A. (2007). Mental health in Singapore: a quiet revolution? *Annals-Academy of Medicine Singapore*, *36*(10), 795.

da Silva, A. G., Loch, A. A., Leal, V. P., da Silva, P. R., Rosa, M. M., Bomfim, O. da C., Malloy-Diniz, L. F., Schwarzbold, M. L., Diaz, A. P., & Palha, A. P. (2020). Stigma toward individuals with mental disorders among Brazilian psychiatrists: a latent class analysis. *Brazilian Journal of Psychiatry*, *43*, 262–268.

de Villiers, J., Hobbs, K., & Hollebrandse, B. (2014). Recursive complements and propositional attitudes. *Recursion: Complexity in Cognition*, 221–242.

Ganguly, P., Soliman, A., & Moustafa, A. A. (2018). Holistic management of schizophrenia symptoms using

pharmacological and non-pharmacological treatment. *Frontiers in Public Health*, *6*, 166.

Haro, J. M., & McGrath, J. J. (2022). The Burden of schizophrenia. *European Neuropsychopharmacology: The Journal of the European College of Neuropsychopharmacology*, *57*, 33–35.

Jääskeläinen, E., Juola, P., Hirvonen, N., McGrath, J. J., Saha, S., Isohanni, M., Veijola, J., & Miettunen, J. (2013). A systematic review and meta-analysis of recovery in schizophrenia. *Schizophrenia Bulletin*, *39*(6), 1296–1306.

Kiraz, M. (2020). A holistic investigation of global outputs of Covid-19 publications in neurology and neurosurgery. *Eurasian J Med Invest*, *4*(4), 506–512.

Laksono, J. P., Sumirtanurdin, R., Dania, H., Ramadhani, F. N., Perwitasari, D. A., Abdulah, R., & Barliana, M. I. (2019). Polymorphism of TPH2 gene rs120074175 is not associated with risk factors of schizophrenia. *Journal of Pharmacy & Bioallied Sciences*, *11*(Suppl 4), S601.

Maritska, Z., Fitri, F., Prananjaya, B. A., Liansari, R. A. M., Parisa, N., & Hasani, M. I. S. (2022). DRD2 Gene-141C insertion/deletion polymorphism among schizophrenia patients: The first investigation in Palembang, Indonesia. *Advances in Human Biology*, *12*(3), 283–285.

Murwasuminar, B., Munro, I., & Recoche, K. (2023). Mental health recovery for people with schizophrenia in Southeast Asia: A systematic review. *Journal of Psychiatric and Mental Health Nursing*.

Newton, R., Rouleau, A., Nylander, A.-G., Loze, J.-Y., Resemann, H. K., Steeves, S., & Crespo-Facorro, B. (2018). Diverse definitions of the early course of schizophrenia—a targeted literature review. *Npj Schizophrenia*, *4*(1), 21.

Rubio, J. M., & Kane, J. M. (2022). The pharmacological treatment of schizophrenia: How far have we come? *Psychiatry and Clinical Neurosciences Reports*, *1*(2), e13.

Stanley, S., Balakrishnan, S., & Ilangovan, S. (2017). Psychological distress, perceived burden and quality of life in caregivers of persons with schizophrenia. *Journal of Mental Health*, *26*(2), 134–141.

Subramaniam, M., Abdin, E., Vaingankar, J. A., Sambasivam, R., Zhang, Y. J., Shafie, S., Basu, S., Chan, C. T., Tan, C. S., & Verma, S. K. (2021). Lifetime prevalence and correlates of schizophrenia and other psychotic disorders in Singapore. *Frontiers in Psychiatry*, *12*, 650674.

Tan, X. W., Chan, C. Y. W., Lum, A. W. M., Lee, E. S., Mok, Y. M., Fung, D. S. S., & Tor, P. C. (2022). Association of cardiovascular metabolic risk factor measurements with psychiatric readmission among in-hospital patients with severe mental illness: a retrospective study. *BMC Psychiatry*, *22*(1), 43.

Tang, Y., Lu, X., Wan, X., & Hu, M. (2023). A bibliometric analysis of publications on obsessive–compulsive disorder using VOSviewer. *Frontiers in Psychiatry*, *14*, 1136931.

Tristiana, R. D., Triantoro, B., Nihayati, H. E., Yusuf, A., & Abdullah, K. L. (2019). Relationship between caregivers' burden of schizophrenia patient with their quality of life in Indonesia. *Journal of Psychosocial Rehabilitation and Mental Health*, *6*, 141–148.

Vickers, N. J. (2017). Animal communication: when i'm calling you, will you answer too? *Current Biology*, *27*(14), R713–R715.

Vogelzang, B. H., Scutaru, C., Mache, S., Vitzthum, K., Kusma, B., Schulte-Herbrüggen, O., Groneberg, D. A., & Quarcoo, D. (2012). A bibliometric analysis of bipolar affective disorders using density-equalizing mapping and output benchmarking. *Indian Journal of Psychiatry*, *54*(4), 320.

Wai, M.-A. L., & Tung, K. (2019). Continuing Care of the Schizophrenia Patient in the Community. *The Singapore Family Physician*, 22–23.

Xavier, R. M., & Vorderstrasse, A. (2016). Neurobiological basis of insight in schizophrenia: a systematic review. *Nursing Research*, *65*(3), 224–237.