



Mental Health Workforce in Developing Countries: A Bibliometric Study

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ABSTRACT

Mental health problems are one of the highest causes of disability. Unfortunately, the numbers of the mental health workforce are minimal. Moreover, problems related to mental health in developing countries are complex. This study describes the general trends and analyzes relevant indicators from aspects of types of articles, authors, citations, journals, countries, and author keywords. This article applies a bibliometric methodology. Data were retrieved from the Scopus database and visualized using VOSviewer. The study focuses on 79 English writing documents published annually on the mental health workforce in developing countries. Based on the analysis, the most influential article entitled "The mental health workforce gap in low- and middle-income countries: A needs-based approach" was written in 2011. The most influential author is Dal Poz M.R, who has written two documents and cited 204 times. The country with the most citations was the United States, with 729 sources of 22 documents, while the country with the most productive publications was the United Kingdom, with 25 documents and 516 citations. Based on keyword analysis, the subject area of the research was dominated by the health public service area. Meanwhile, various challenges in the mental health workforce, such as burnout, task sharing, and task shifting, are still infrequent. Only a few documents use Covid-19 and pandemic as author keywords. Therefore, it is critical to carry out further studies.

Keywords: *Mental Health Workforce, Developing Countries, Bibliometric Study*

1. INTRODUCTION

Mental health problems are one of the biggest causes of disability globally, and both from disability-adjusted life years (DALYs) and years of life lived with disability (YLDs) [1]. Specifically, these mental health problems are depression, alcohol use disorder, bipolar, and schizophrenia. Unfortunately, the mental health workforce numbers are minimal [2].

Mental health workforces include physicians, psychologists, nurses, mental health and substance use counsellors, care managers and coordinators, and social workers [3]. In order to meet the people's needs, the particular country should increase its mental workforce, especially the professional workers who can give good service to people [4].

The problems faced by the mental health workforce, besides the limited resources, are the lack of appreciation in the form of income and rewards and the unhealthy system [5]. In addition, the mental health workforce is also prone to burnout to depression [6]. Even psychiatrists are more prone to burnout than other physicians [7] [8].

The problems mentioned earlier prevent them from being productive and providing the best service. Research shows that workers with mental health problems' risk of facing disability at work are as high as 4.78 times that compared to workers who do not have mental health problems [9]. Disability at work in the form of loss of productivity in absence from work or attendance at work or the unhealthy condition, so it does not produce anything [10].

Mental health issues are becoming more complex due to the COVID-19 pandemic. Future uncertainty and fear of being infected worsen the psychological condition of workers, especially those who work as frontline migrant workers and those who interact directly with the community, such as healthcare workers. [11] The mental health workforce is expected to be emotionally stable when giving services to people during the pandemic.

The mental health problems workforces in developing countries are complex. The stress level at work in developing countries is higher than in developed countries [12]. Besides, the income and spending of people in developing countries are associated with depression [13]. It means the responsibility of the limited mental health workforce in developing countries becomes heavier.

According to the background, this study describes the general trends and analyses relevant indicators from aspects of types of articles, authors, citations, journals, countries, and author keywords of the mental health workforce in developing countries.

2. LITERATURE REVIEW

There are some definitions of the mental health workforce, from narrow to broader. The Health Resources and Services Administration (HRSA) stated a more narrow definition of the mental health workforce involved to existing federal programs purposed to decrease provider deficiency[14]. Meanwhile, the Substance Abuse and Mental Health Services Administration (SAMHSA) conceptualizes the mental health workforce as clinical psychology, psychiatry, psychiatric nursing, social worker clinical, counselling, and marriage and family therapy[15]. Moreover, the broader definition from the Institute of Medicine (IOM) defined the mental health workforce as primary care physicians, physician assistants, nurses, family caregivers, and peer support specialists [16].

The responsibilities of the mental health workforce are complex. They give patients therapy and are promotive, preventive, and rehabilitative. Promotion of mental health, including stress management, can also improve the quality of physical health [17]. Preventive efforts are reflected through the early detection of mental disorders. Preventive efforts focus on the factors that cause problems to prevent those with mild mental disorders from becoming severe [18]. Curative efforts aim to improve the mental health of the community. The Mental Health Law states that curative efforts are provided by providing health services to people with severe mental issues, which includes a proper diagnosis and management process. Rehabilitation efforts are reflected by making people with mental disorders

become productive again and can socialize in their social environment [19]

3. METHODS

This article uses a bibliometric approach. Bibliometric research analyzes relationships between documents, authors, keywords, or journals [20]. As a bibliometric study, this study uses a dataset retrieved from Scopus, then analyzed using the Excel program and VOSviewer to explore the relationship between the data and visualize the results [21].

Data in this article were retrieved on May 20 2022 with keyword: (TITLE-ABS-KEY(mental health workforce in developing countries) AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"re") OR LIMIT-TO (DOCTYPE,"ch") OR LIMIT-TO (DOCTYPE,"bk") OR LIMIT-TO (DOCTYPE,"cp")) AND (LIMIT-TO (LANGUAGE,"English"))). In the first stage, the word “workforce mental health” was searched in the document’s title, abstract, and keywords, yielding 91 documents. The next stage was to limit the documents to reviews, book chapters, books, and conference papers in English. The second stage of this study found 79 documents (See figure 1).

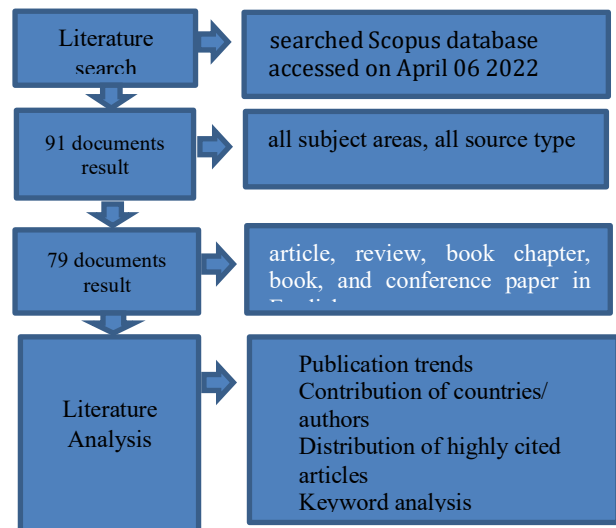


Figure 1 Protocol of Data Retrieving.

4. RESULT AND DISCUSSION

4.1. Result

4.1.1. Influential Authors

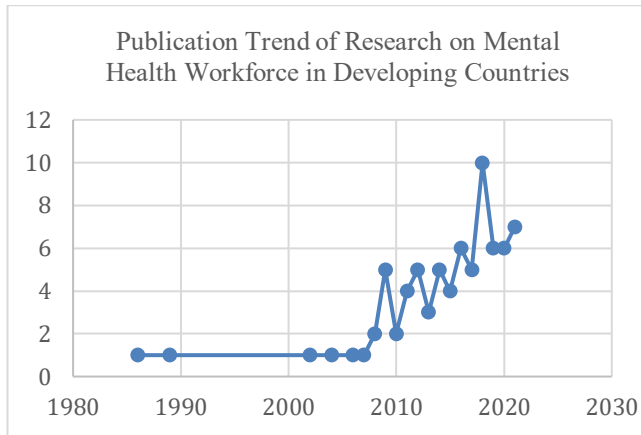


Figure 2 Publication Trend of Research on Mental Health Workforce in Developing Countries.

The first publication related to the mental health workforce in developing countries was started in 1986. Publications related to the theme from 1986 to 2007, the number of publications per year is only one. The highest trend was in 2018 with ten publications that year. Then it decreased again in 2019 and 2020 to six publications. After that, it rose to seven publications in 2021.

4.1.2. Influential Authors

The total number of authors on this theme is 338 authors. The following two tables show ten influential authors with the highest publications and citations.

Table 1. Influential Authors Based on the Number of Articles

Author	Number of Documents A	Number of Citations C	Average C/A
patel v.	3	143	47.67
abera m.	2	34	17
dal poz m.r.	2	204	102
tesfaye m.	2	34	17
li j.	2	118	59
lohmans j.	2	3	1.5
naal h.	2	11	5.5
Kohrt b.a.	2	34	17
Karban k.	2	1	0.5

Table 2. Influential Authors Based On Number of Citations

Author	Number of Documents A	Number of Citations C	Average C/A
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dal poz m.r.	2	204	102
bruckner t.a.	1	201	201
chisholm d.	1	201	201
fulton b.d.	1	201	201
morris j.	1	201	201
scheffler r.m.	1	201	201
shekhar s.	1	201	201
shen g.	1	201	201
yoon j.	1	201	201
patel v.	3	143	47.67

Based on the table above, the most productive author in writing about the mental health workforce in developing countries is Patel V, who wrote three articles and was cited 143 times. Patel V is also an influential author regarding the number of citations. At the same time, the other authors wrote two articles each. Regarding the number of citations, the author with the most citations is Dal Poz, M.R., who wrote two articles and was cited 204 times. The authors in influential authors based on the number of citations above, except Patel V, are the authors of the same article entitled The mental health workforce gap in low- and middle-income countries: A needs-based approach.

4.1.3. Influential Countries

60 countries are countries of origin for writers who write about the Mental Health Workforce in Developing Countries. Although this study specifically looks at conditions in developing countries, many authors from developed countries write about the theme. Here are the two most influential country tables regarding the number of publications and citations.

Table 3. Influential Countries Based on the Number of Documents

Country	Number of Documents A	Number of Citations C	Average C/A
United Kingdom	25	516	20.3
United States	22	729	31.2
Australia	15	185	12.9
India	8	211	29.4
Germany	5	82	16.4
Spain	3	60	19.3
Finland	3	50	16.3

Netherlands	3	139	45.7
Uganda	3	28	9.3
Switzerland	3	226	74.3
China	3	180	60
Iran	3	0	0
New Zealand	3	13	4.3

Table 4. Influential Countries Based On Number of Citations

Country	Number of Documents A	Number of Citations C	C/A
United States	22	729	31.2
United Kingdom	25	516	20.3
India	9	265	29.4
Switzerland	3	226	74.3
Australia	15	185	12.9
China	3	180	59
Netherlands	3	139	45.7
Kenya	2	101	50
Germany	5	82	16.4
Denmark	1	70	70

Based on the two tables above, it is known that the U.K. is the most productive country in writing related to themes by writing 25 documents and being cited 516 times. Meanwhile, the country with the most citations was the United States, which cited 729 times out of 22 documents.

The most authoring countries are Europe and America, from the number of documents and citations. Developing countries that include the influential category in terms of the number of articles are India, China and Uganda. Meanwhile, regarding the number of citations, developing countries included in the influential countries category are India, China, and Kenya.

4.1.4. Influential Documents

Influential documents are the most cited documents. Table 5 shows the ten most cited documents related to the theme of the mental health workforce in developing countries.

The most influential article is The mental health workforce gap in low- and middle-income countries: A

needs-based approach, cited 198 times. This article was written in 2011 by Bruckner T.A., Scheffler R.M., Shen G., Yoon J., Chisholm D., Morris J., Fulton B.D., dal Poz M.R., Shekhar S. The second most cited document is The acceptability and feasibility of task-sharing for mental healthcare in low and middle-income countries: A systematic review, cited 113 times. Padmanathan P. and De Silva M.J. wrote this article in 2013. Then, the third most cited document was Mental disorders, health inequalities and ethics: A global perspective cited 100 times. This document was written by Ngui E.M., Khasakhala L., Ndeti D., and Roberts L.W. in 2010.

4.1.5. Influential Source

The influential source is the source that contains the most documents related to the theme and the most cited source.

Table 5. Influential Source Based On Number of Documents

Name of Journal/Book	Number of Documents A	Number of Citations C	Average C/A
PLoS ONE	3	17	5.67
Asian Journal of Psychiatry	2	17	8.5
International Review of Psychiatry	2	106	53
BMC Health Services Research	2	53	26.5
Harvard Review of Psychiatry	2	29	14.5
Annals of Global Health	2	28	14
Journal of Psychiatric and Mental Health Nursing	2	23	11.5
Rural and remote health	2	21	10.5
Human Resources for Health	2	3	1.5
Workforce Development Theory and Practice in the Mental Health Sector	2	0	0

Table 6. Influential Source Based On Number of Citations

Name of Journal/Book	Number of Documents A	Number of Citations C	Average C/A
Bulletin of the World Health Organization	1	201	198
Social Science and Medicine	1	115	113
International Review of Psychiatry	2	107	53.5
Annual Review of Public Health	1	96	96
Scandinavian Journal of Public Health	1	70	70
Health and Place	1	62	62
International Journal of Epidemiology	1	56	56
BMC Health Services Research	2	53	26.5
Annual Review of Clinical Psychology	1	52	52
Cochrane Database of Systematic Reviews	1	49	49

The source that contains the most documents related to the mental health workforce in developing countries is the Asian Journal of Psychiatry, with three documents related to the theme. PLoS ONE also contains three documents with a related theme. Seven sources each have two documents related to the theme. While other sources only contain one document related to the field.

Regarding the number of citations, the most cited source was the Bulletin of the World Health Organization, which was cited 201 times. The second largest is Social Science and Medicine, cited 115 times. Furthermore, the third most was the International Review of Psychiatry which was cited 107 times.

Table 7. Influential Documents

Title	Authors	Year	Source Title	Total Citations	Document Type
The mental health workforce gap in low- and middle-income countries: A needs-based approach	Bruckner T.A., Scheffler R.M., Shen G., Yoon J., Chisholm D., Morris J., Fulton B.D., dal Poz M.R., Shekhar S.	2011	Bulletin of the World Health Organization	198	Article
The acceptability and feasibility of task-sharing for mental healthcare in low and middle-income countries: A systematic review	Padmanathan P., De Silva M.J.	(2013).	Social Science and Medicine	113	Article
Mental disorders, health inequalities and ethics: A global perspective	Ngui E.M., Khasakhala L., Ndetei D., Roberts L.W.	2010	International Review of Psychiatry	100	Review
Early intervention to reduce the global health and economic burden of major depression in older adults	Reynolds III C.F., Cuijpers P., Patel V., Cohen A., Dias A., Chowdhary N., Okereke O.I., Amanda D.e.w. M., Anderson S.J., Mazumdar S., Lotrich F., Albert S.M.	2012	Annual Review of Public Health	95	Review
Psychosocial work environment and intention to leave the nursing profession: Results from the longitudinal Chinese NEXT study	Li J., Fu H., Hu Y., Shang L., Wu Y., Kristensen T.S., Mueller B.H., Hasselhorn H.M.	2010	Scandinavian Journal of Public Health	70	Article
Exploring the linkage between greenness exposure and depression among Chinese people: Mediating roles of physical activity, stress, and social cohesion and moderating role of urbanicity	Liu Y., Wang R., Xiao Y., Huang B., Chen H., Li Z.	2019	Health and Place	59	Article
Status of epidemiology in the South-East Asia region: Burden of disease, determinants of health and epidemiological research, workforce and training capacity	Dhillon P.K., Jeemon P., Arora N.K., Mathur P., Maskey M., Sukirna R.D., Prabhakaran D.	2012	International Journal of Epidemiology	56	Article
Lay Health Worker Involvement in Evidence-Based Treatment Delivery: A Conceptual Model to Address Disparities in Care	Barnett M.L., Lau A.S., Miranda J.	2018	Annual Review of Clinical Psychology	49	Review
Non-medical prescribing versus medical prescribing for acute and chronic disease management in primary and secondary care	Weeks G., George J., Maclure K., Stewart D.	(2016).	Cochrane Database of Systematic Reviews	49	Review
Workplace stressors, coping, demographics and job satisfaction in Chinese intensive care nurses.	Li J., Lambert V.A.	(2008).	Nursing in Critical Care	48	Article

4.1.6. Keyword Analysis

4.1.6.1. Keywords Network

In this section, keyword analysis is carried out to see the relationship between keywords. In addition, knowing keywords with a high occurrence and link strength with other keywords is also high. Here are the results of the author's keyword analysis using VOSviewer

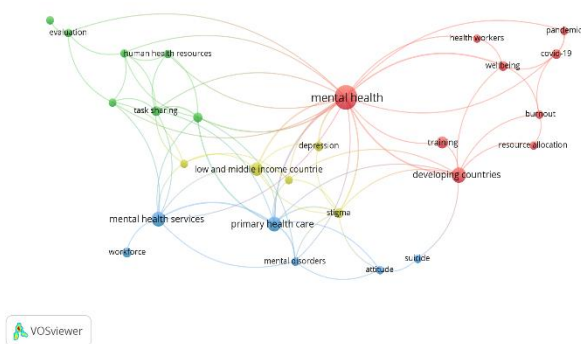


Figure 3. Keyword Network Visualization

The keywords that appear most often and have high link strength based on the results of the VOSviewer analysis are mental health, developing countries/ low-middle income countries, primary health care, and mental health services. While the forms of mental health problems, specifically in the work of the mental health workforce, such as burnout and depression, issues that cause mental health problems, such as task sharing or task shifting that is not balanced, are not discussed much.

There are 5 clusters based on the results of the analysis, which are marked in red (cluster 1), green colour (cluster 2), blue colour (cluster 3), yellow colour (cluster 4), and purple (cluster 5). Influential documents from each cluster are shown in table 7.

4.1.6.2. Keywords Overlay

The keyword overlay displays the keywords used by year. It shows the latest keywords and keywords that have been used for a long time. Research keywords conducted before 2014 are marked in dark blue; research conducted from 2014 – 2018 is bright blue; research from 2018 to 2020 is green; and research after 2020 is yellow.

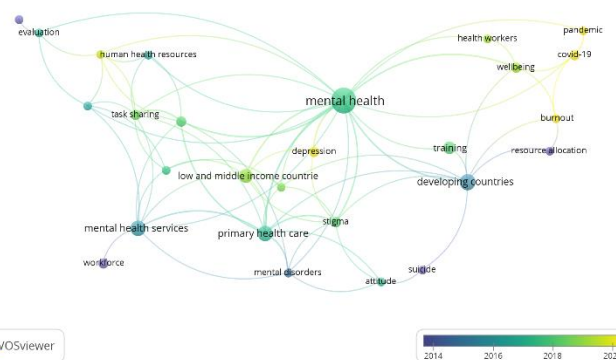


Figure 4. Keyword Overlay

The keywords mainly used before 2014 were related to suicide and resource allocation. Meanwhile, the keywords mainly used from 2014 to 2018 were related to task sharing, well-being, mental health services, primary health care, and human resources. While a very new keyword - the yellow- is related to covid-19 and burnout.

4.1.6.3. Keywords Density

Keyword density is an analysis to determine what keywords are used most often and which are still rarely used. The more often a particular keyword appears in the research, the lighter the colour; In contrast, the dimmer the colour of the keyword means, the less often the keyword appears in the research related to the mental health workforce in developing countries.

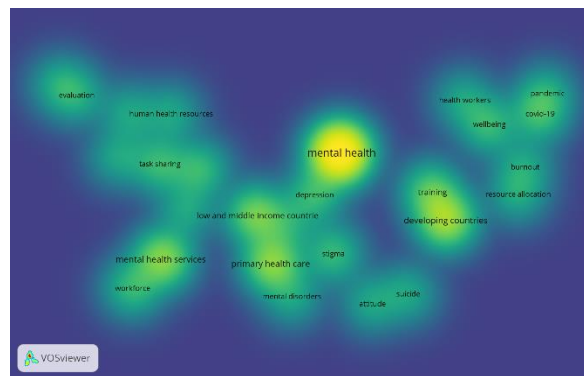


Figure 5. Keyword Density

Based on **Fig. 5**, it is known that the mental health keyword is the most commonly used. Research on primary health care and mental health services related to work or workplaces is often done. While the keywords related to task sharing, suicide, and human health resources, are still rarely done

Table 8. Keyword Analysis by Cluster

Cluster	Number of Nodes	Research Focus Area	Lead Paper in terms of Total Link Strength
1 (Red)	9	Mental health, burnout, resource allocation, health workers, training, well-being, covid-19	The acceptability and feasibility of task-sharing for mental healthcare in low and middle-income countries: A systematic review (2013) Padmanathan P., De Silva M.J. (115)
2 (Green)	7	Evaluation, nurse education, task sharing, task shifting, non-physician clinician	Perceived challenges and opportunities arising from the integration of mental health into primary care: A cross-sectional survey of primary health care workers in the south-west (2014) Abera M., Tesfaye M., Belachew T., Hanlon C. (33)
3 (Blue)	5	Capacity building, depression, global health, low and middle-income countries, stigma	The acceptability and feasibility of task-sharing for mental healthcare in low and middle-income countries: A systematic review (2013) Padmanathan P., De Silva M.J. (115)
4 (Yellow)	4	Attitude, mental disorders, primary health care, suicide	Perceived challenges and opportunities arising from the integration of mental health into primary care: A cross-sectional survey of primary health care workers in the south-west (2014) Abera M., Tesfaye M., Belachew T., Hanlon C. (33)
5 (Purple)	2	Mental health services, workforce	The global need for lived experience leadership (2018) Byrne L., Stratford A., Davidson L. (29)

4.2. Discussion

The results of VOSviewer's analysis of the author's country who wrote related to the mental health workforce found that most of the authors came from developed countries. The most influential countries in terms of citations and the number of published documents are from developed countries, namely the United States and the United Kingdom. Overall, mental health issues in developing countries are taboo. People with mental health problems should be kept from society because they are [22]. In addition, the stigma attached to people with mental problems causes people to be ashamed to admit that they or their family members have mental disorders [23].

The limited human resources to deal with mental health problems are a problem in delivering mental health services [24]. The high workload is not followed by an adequate number of mental health workforce which triggers burnout and depression. However, based on the keyword analysis results, not many studies discuss burnout and depression experienced by the mental health workforce in developing countries.

Non-physicians are empowered as a form of task sharing to meet the resource needs of the mental health sector in developing countries. Non-physicians involved in the mental health service process must receive training related to mental health first. The results of the VOSviewer analysis show that non-physicians are related to the keywords task sharing, task shifting, and human resources. However, this density of keywords shows that there is still a lack of research on non-physician in developing countries.

The availability of mental health workers is an important issue, especially during a pandemic [25]. During the pandemic, people's mental health conditions are very vulnerable, and they need assistance from the mental health workforce. Based on the results of the VOSviewer analysis, there are not many studies related to COVID-19. In addition, the relationship between keywords connects covid-19 with burnout and well-being, while research linking covid-19 with human health resources has not been carried out.

5. CONCLUSION

Mental health problems are severe and require a good quality mental health workforce. Further research

on task sharing involving the community also needs to be done. In addition, research about efforts to solve depression and burnout problems for the mental health workforce, especially during and after the pandemic, is also significant. The mental health workforce will undoubtedly find it difficult to provide services to the community if they experience mental health problems.

AUTHORS' CONTRIBUTION

In this article, Nova Yulanda Putri Sipahutar is the main contributor, while other authors contributed equally.

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