

Bibliometric analysis of research trends on disability in Indonesia

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Abstract

Indonesian people have a unique perception of understanding the concept of disability. Researchers use various terminologies to address topics of disabilities in their published studies. There is no national roadmap for disability research that may integrate and guide studies on the subject. This study investigated scientific outputs made by academics researching disabilities topics in Indonesia. Publications on topics of disabilities it found 3,220 publications, indexed in the national indexing service "Garuda" (abbreviation for *Garba Rujukan Digital*, meaning: Digital Reference Portal), published from 2010 to 2019. This study employed a bibliometric approach, browsing and analyzing numerical trends of several publications, quantitative distribution of publication years, authors' characteristics, publishers, subject names, and keywords used. Findings research were compared with relevant references to provide a holistic picture of trends in disability studies over the last decade. Research result showed that the number of publications increased significantly from 2010 to 2019, and discussions on relevant and current disabilities conditions progressed according to the development of national and global works on the subject. Most studies focus on educational topics, dictating publication trends, with some published works, authors, subjects, and keywords being dominated by disability papers on education, with authors and publishers from western Indonesia dominantly publishing a significantly higher number of publications than their counterparts in the central and eastern parts. This study concludes that research trends on disability in Indonesia show significant development from year to year regarding the number of publications, the distribution of authors, and subject specifics.

Keywords: Bibliometrics; Research trend; Disability; National indexing portal

Analisis bibliometrik tren penelitian tentang disabilitas di Indonesia

Abstrak

Masyarakat Indonesia memiliki persepsi yang unik dalam memahami konsep disabilitas. Berbagai terminologi digunakan para peneliti untuk membahas topik disabilitas dalam studi yang diterbitkan. Namun saat ini belum ada national roadmap untuk penelitian disabilitas yang dapat diintegrasikan dan panduan studi tentang subjek tersebut. Kajian ini bertujuan untuk menginvestigasi hasil-hasil ilmiah yang dibuat para akademisi yang meneliti topik-topik disabilitas di Indonesia. Publikasi mengenai topik disabilitas ditemukan 3.220 publikasi, terindeks dalam layanan pengindeksan nasional, "Garuda" (*Garba Rujukan Digital*), dan diterbitkan dari 2010 hingga 2019. Penelitian ini menggunakan pendekatan metode bibliometrik, menelusuri dan menganalisis tren numerik jumlah publikasi, distribusi kuantitatif tahun publikasi, karakteristik penulis, penerbit, nama subjek dan kata kunci yang digunakan. Temuan penelitian dibandingkan dengan referensi yang relevan untuk memberikan gambaran holistik tren studi disabilitas selama dekade terakhir. Hasil penelitian menunjukkan bahwa jumlah publikasi telah meningkat secara signifikan dari 2010 hingga 2019. Diskusi terkait kondisi disabilitas saat ini telah berkembang sesuai perkembangan karya nasional dan global tentang masalah tersebut. Sebagian besar studi berfokus pada topik pendidikan, mendikte tren publikasi, dengan jumlah karya yang diterbitkan, penulis, subjek dan kata kunci, didominasi oleh makalah disabilitas tentang pendidikan, dengan penulis dan penerbit dari Indonesia bagian barat dominan menerbitkan lebih banyak publikasi dibandingkan dengan tengah dan timur. Penelitian ini menyimpulkan bahwa tren riset disabilitas di Indonesia menunjukkan perkembangan yang signifikan dari tahun ke tahun terkait jumlah publikasi, sebaran penulis, dan kekhususan subjek.

Kata Kunci: Bibliometrik; Tren penelitian; Disabilitas; Portal pengindeksan nasional

INTRODUCTION

Globally, the academic community notices significant development of studies on disabilities, with an increased number of publications on famous academic and social networking such as Mendeley, ResearchGate, VIVO, and Epernicus. The emergence of specific journals on disabilities from Elsevier, Taylor and Francis, and other reputable publishers indexed by reputable databases such as Scopus and Web of Science indicates the progressive development of the body of knowledge on disabilities studies.

In several parts of the world, research centers focusing on disability studies appear in academic institutions, NGOs, and government institutions, such as The International Disability Research Centre, Centre for Global Disability Research, Center on Disability Studies, and others. In Indonesia, there has been significant progress in increasing the publication of disability studies. However, when comparing with other comparable topics—such as works on a particular disease, for example, disabilities studies are still limited in numbers and less integrated with academicians working on their own preferred disabilities subjects.

The search process to support the previous assumption was carried out by searching for the keywords persons with disabilities on the “Garuda” portal, a national indexing service that provides a national database of journals and scientific articles, managed by the Ministry of Research and Technology/National Agency for Research and Innovation (*Kemenristek/BRIN*). The portal provides information on published research by Indonesian academics, indexing journals, conference proceedings, books, and others. Garuda Portal is a designated indexing

portal for publishers in Indonesia to obtain accreditation requirements (Kementerian Pendidikan dan Kebudayaan, 2014), automatically making it the preferred national portal for indexing articles published in Indonesia.

With the web address <http://garuda.kemdikbud.go.id>, by 20 October 2020, there are currently 1,273,347 indexed articles from 1,892 publishers, 10,673 journals, 154 conferences, and 40 subjects. A search query on the previous date using ‘*disabilitas*’ (*Bahasa Indonesia* for ‘disabilities’) as a keyword yielded 769 documents. It is interesting to note that the amount is relatively small because issues with disabilities should be more noteworthy by academics in Indonesia. According to WHO, the global estimate of disabled people is 15% of the world's population, with 82% located in developing countries (International Labour Organization (ILO), 2017), including Indonesia. The National Economic Survey 2018 found that the number of disabled people in Indonesia is 30.38 million, or 14.2% of the entire population (Ansori, 2020). Ironically, published studies on disabilities indexed in Garuda Portal are only at 0.06%, indicating a lack of interest in this study topic.

Solely relying on the single keyword of ‘*disabilitas*’ may be proven to be the mistake in trying to get a more excellent picture for scientific works on disabilities indexed in Garuda Portal. Authors may use different keywords as academicians have yet to agree upon a particular terminology to refer to disabilities. It should also be noted that Garuda Portal currently indexes only some academic publishers in Indonesia. The limited number of journals focusing on disability

issues also limits the option for academics to publish their articles.

Based on a search query on Pusat Nasional ISSN Indonesia as Center for Scientific Documentation and Information (PDII-LIPI), from 71,409 registered journals and proceedings, only 68 publications is found that include disabilities and similar relevant terminologies in their scope and focus of studies. Aside from the lack of published articles and the limited number of publications accommodating topics of disabilities, there is also the issue of the geographical distribution of authors and publishers, limited categories for the focus of studies, and limited specific fields of science that would provide options for variability for disabilities studies. Non-existing national research roadmap that provides information on past studies and future project topics on disabilities makes researchers go about their way in doing studies rather than collaborating. Regarding this issue, the argument arises that a baseline study is needed to map past work on disability for future work on this subject.

There are past works that have studied trends in disability topics. There is a paper about trends in the educational placement of students with intellectual disability (Brock, 2018), and there is also a systematic literature exploration on the early development of children with intellectual disabilities (Schuengel, Rest, Stanford, & Hastings, 2019). Moreover, there is a bibliometric approach to analyzing scientific production on disability (Muyor-Rodriguez, Manzano-Agugliaro, & Garrido-Cardenas, 2019), and a study that has created a list of the top 50 most cited publications in disability sports (Khoo, Li, & Ansari, 2018).

There are also past works on research trends with particular methods, such as trends in sports research using scientometrics and bibliometrics (Hafiar, Limilia, Prastowo, Amin, & Sofyan, 2022; Sofyan, Abdullah, & Hafiar, 2022), evaluating scientific productivity for research fields of disabilities using bibliometrics (Jurado-Caraballo, Quintana-García, & Rodríguez-Fernández, 2022). Work was also done on research trends based on data sources, identifying publication patterns and trends of journal articles (Mikova & Sokolova, 2019), and using databases and indexing entities (David, Rizol, Machado, & Buccieri, 2020).

Several studies are similar to the current study of Indonesian disabilities. However, these past works are more focused on the use of terminology (Suharto, Kuipers, & Dorsett, 2016), while another study is more focused on the terminology used on Google Scholar (Maftuhin, 2016). It is believed these two studies still have yet to define the current trends of research of disability studies in Indonesia that address the variety of terminology used, yearly trends, comparison of disability study focus, keywords, research subjects, author and publisher distribution, using the database of a national scholarly indexing portal, Garuda Portal.

Noting the gap that exists in works that delineate trends in disability works in Indonesia, this study would like to address that, mapping publication's trends, use of terminologies, types of disabilities, the distribution of authors and publishers, and topics discussed in the published articles based on Garuda Portal indexing services. This study would provide a baseline comparison of past studies with disabilities topics, serving as a future

reference for academics, providing links, and match on the needs for unexplored topics to address actual problems. Hopefully, this study will serve as a reference for considering future policies for creating a roadmap that allows academics to be more directed in addressing national issues on disabilities and promoting more collaborative works. This study is also expected to provide preliminary data on the follow-up of research produced by national researchers so that a successive stage is created. In brief, this study aims to reveal how research trends on disability in Indonesia using bibliometric analysis through analyzing numerical trends of several publications, quantitative distribution of publication years, authors' characteristics, publishers, subject names, and keywords used.

RESEARCH METHODS

This study employs bibliometric analysis, a quantitative research method approach that collects information based on published works, to obtain an outlook on research trends of a particular topic by analyzing existing documents (Shi & Li, 2019). The published papers indexed on Garuda Portal from 2010 to 2019 were selected for this study. The reason for limiting the publishing date is based on the consideration of the issuance process of Law No. 19 of 2011 on the ratification of the Convention on the Rights of Persons with Disabilities, which for the first time officially used the terminology of 'disabled persons' (Maftuhin, 2016).

Preliminary queries to identify articles with disabilities topics were done using a combination of keywords for exploration criteria. The criteria referenced past studies with similar

approaches (Tarsidi & Somad, 2009; Suharto et al., 2016; Maftuhin, 2016). After inputting selected keywords, results were filtered by selecting articles published in journals and discarding proceedings. The language was wider than Indonesian, as almost all selected papers are written in Indonesian. It was decided to turn off the filtering based on the field of science to allow any works related to disabilities to be included. Since Garuda Portal offers no export data feature, data was inputted manually into Microsoft Excel. It recorded the title of the paper, name of the author(s), institution(s) of the author(s), year of publishing, name of the journal, publisher name, and subject(s) of study. After filtering duplicates and irrelevant papers, the search resulted in 3,220 papers eligible for further analysis.

Verification of data was the next step. Verifying incomplete articles was conducted by browsing and exploring relevant websites. For example, when an article with an incomplete author's name was found in Garuda Portal, further investigation was conducted by visiting the journal website. Other example includes browsing additional info on subjects of publication on Center for Scientific Documentation and Information (PDII-LIPI).

Data verification was also done in parallel with the grouping of articles. For example, several authors wrote their institution's name differently while referring to one institution. Authors from Universitas Padjadjaran sometimes wrote the institution's name as Universitas Padjadjaran and sometimes used the English transliteration Padjadjaran University, often using the

abbreviation UNPAD. Adding the institution's location also complicates the matter, as some authors would write Universitas Padjadjaran Bandung (Bandung, the location of the old campus). In contrast, other authors wrote Universitas Padjadjaran Sumedang (Sumedang, the location of the new campus). There are also issues of typographical mistakes, writing Universitas Padjadjaran (missing a letter d). It could happen in other institutions. Aside from the previously explained problems, inconsistencies were found in other categories, such as incorrectly writing the journal's name, adding an acronym or abbreviation, or subtitle of the journal.

Grouping articles based on author affiliation while verifying duplicates by exploring/scouring the journal for the actual source. The confirmation process is also carried out on journal names based on the ISSN number. If there is any doubt about the category assignment, the question is brought to the entire group, and a decision is rendered by consensus (Ivanov et al., 2017). From 3,220 titles, 1,288 journals and 481 publishers were identified, with 30 subjects related to disabilities topics. After that, data was calculated based on the categories of research objectives, followed by comparing various categories, displaying data using graphs

and graphs, and finally, analyzing the data and drawing conclusions from the findings.

RESULTS AND DISCUSSION

The international research trends on disabilities indirectly influence the development of work in Indonesia. It is very critical to have a sound understanding of the contributions of Indonesian academics on this topic so that it can be thought of more carefully in moving forward with studies on disabilities. Using the bibliometric is the most appropriate approach, as this method allows us to trace the evolution of kinds of literature on a particular subject (Herther, 2015), in this case, disabilities.

Bibliometric classifies academic works into several categories and provides an illustrative summary considering critical key points. Important categories in bibliometrics include dividing papers based on topics, types of journals, and country of origin. With bibliometrics, it is possible to analyze the parameters of journal publication, publication activities of a country and institution, research trends, and article visibility. Bibliometrics can also analyze word distribution patterns in titles and keywords (Yonoff, Ochoa, Cardenas-Escorcia, Silva-Ortega, & Meriño-Stand, 2019).

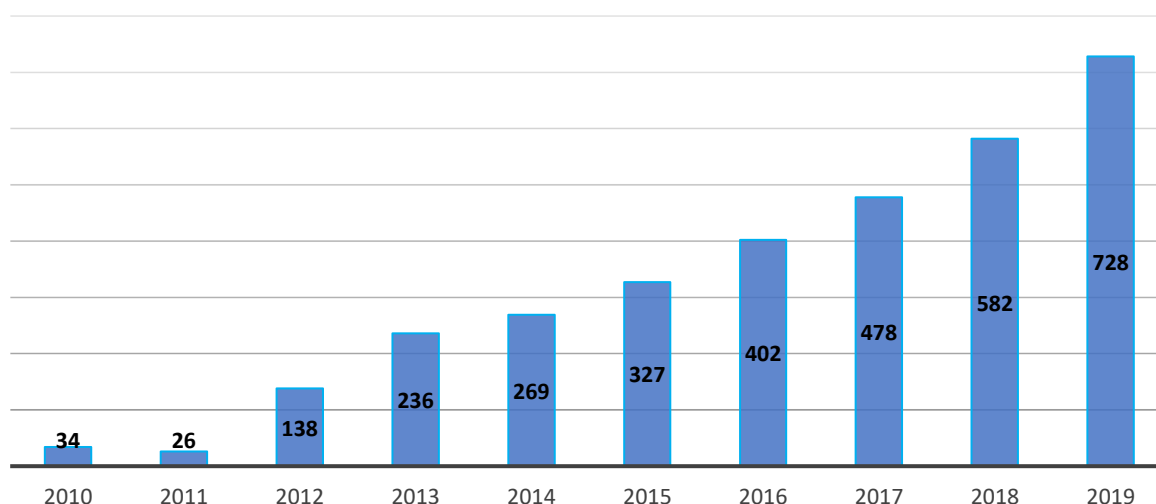


Figure 1. The trend of several research publications on disabilities (2010-2019 period)

Source: Data processed by the authors, 2022

Several publications were categorized based on published work from 2010-2019. Document explorations based on the year of publication were intended to identify the periodical progression of publications from time to time. There were 3,220 documents examined and classified based on the year of publication. The annual progression, which has significantly increased since 2012, indicated an upward trend to 2019. Comparison of the number of publications from 2015 increased twice; while comparing the number of publications from 2010, the number increased almost 22 times, from 34 in 2010 to 728 in 2019. Briefly examining this figure, it could be estimated positively that the number of publications on disability studies would also increase in the coming years (figure 1).

When comparing the number of vulnerable groups in publications, categories based on three groups were obtained, namely women (7,381 articles), children (34,061), and the elderly (1,002 articles). Research ethics may be the primary deterrent for academics to

conduct research on disability, as invasive research that may affect individual privacy without consent violates human rights (Biros, 2003). As humans are subjects for studies on disabilities categorized as a vulnerable group, ethical protocols for such studies are more rigid, discouraging academics from conducting research. Scientific institutions need to put more effort into raising researchers' awareness to comply with the ethical protocols required to study vulnerable groups while encouraging publishing media to have their platforms indexed, enabling acceleration in disability studies. Improvements in research output on this topic would indirectly affect the well-being of the disabled community.

Another main aspect that caused the low number of publications detected indexed on the Garuda Portal was the various terminologies used in references to disabilities by authors. This was due to the rich vocabulary of words related to disability in Bahasa Indonesia, with several borrowed words from English and Sanskrit,

through transliteration, absorption, and word matching (Hudaa, 2019).

Based on data exploration, this study found 30 words used by authors to define the condition of disability in their articles. There were several terminologies in Bahasa Indonesia, e.g., *penyandang cacat* (people with disabilities), *gangguan/keterbelakangan/hambatan* (impaired, behind, hindered) followed by categories of disabilities: *penglihatan/pendengaran/mental/fisik* (visually, hearing, mentally, physically) to form a phrase (e.g., *gangguan penglihatan* translated into visually impaired).

There were original Indonesian words such as *buta* (blind), *tuli* (deaf), and *lumpuh* (paralyzed) used in the articles, and there were terminologies borrowed from Old Javanese, influenced by Sanskrit such as *tuna* (without, deficit), *Netra* (visually), *rungu* (hearing), *wicara* (mute), *grahita* (mentally disabled), *daksa* (physically impaired). In foreign languages, especially English, several borrowed words were found in these articles, such as *disabilitas* (disability), *difabel* (different ability), *retardasi*, *intelektual* (retardation), and *amputasi* (amputee). The borrowed words appearing in studies on disability resulted from developments in studies where Indonesian academics started to borrow words from international partners. Two important content words from English most frequently used by authors are '*disabilitas*' (disability) and '*difabel*' (different ability).

Words originating from Old Javanese represent 59.7% of the terminology used, 29.7% of words originated from English, and 10.6% were original words from Bahasa Indonesia. It was quite interesting to note that borrowed words from Old

Javanese and English were used more in published articles on disability than the original words from Bahasa Indonesia. In Bahasa Indonesia, the word used to define a condition of disabilities includes words such as '*kelainan*' (abnormal) and '*cacat*' (defect/invalid). Using these words is often demeaning to people with impairments (Suharto et al., 2016). Borrowed words from foreign languages are considered more appropriate, such as phrases adopted from 'people with disabilities' translated into '*penyandang disabilitas*,' 'differently abled' transliterated and abbreviated as '*difabel*,' and other words adapted from medical terms such as mental retardation transliterated into '*retardasi mental*' and paraplegia, altogether borrowing the word without any alteration. Another word used to define disabilities from Old Javanese is '*tuna*,' which means damaged or loss (Tarsidi & Somad, 2009) and deficit/loss (Suharto et al., 2016).

Inconsistent use of specific words and terminologies by authors on disability studies indicates disagreement by authors, as there is currently no consensus on the terminologies used to define particular concepts/definitions. This section examined the three most popular terminologies referring to disability conditions. These data were believed to be critical for the development of disability studies. Although the academic community carries out discussions to agree upon specific terminology, terminological preferences among disability study authors still vary. For example, a study states that the terminological preferences chosen by persons with disabilities who work as athletes include '*difabel*,' '*disabilitas*,' and '*ketunaan*,' respectively (Hafiar, 2012).

Of the 3,220 selected documents, 827 articles that used the words '*Penyandang cacat*,' '*Disabilitas*,' and '*Difabel*' in their titles were identified. In contrast, the rest of the documents did not include these three words. 70% of the titles used the word '*disabilitas*,' 22.9% included '*difabel*,' and 7.1% included '*penyandang cacat*.' The word '*disabilitas*,' a loanword from the English word '*disabilities*,' was the most popular word in publication titles. Chronologically, the popularity of the word *disabilitas* can be traced from the enactment of Law No. 4 of 1997 concerning '*Penyandang Cacat*' (persons with disabilities), which is defined as any individual with physical and/or mental disabilities, which may affect the individual's well-being. '*Penyandang Cacat*' directly translates the phrase 'persons with disabilities'.

The terminology mentioned above is considered inappropriate as the word '*cacat*' is often considered derogatory or demeaning, defined as a deficiency, having poor quality, or inferior quality, so the word is associated with negative attributes. Therefore, when attached to an individual, this terminology tends to construct negative attributes of the individual as being unfortunate, pathetic, dishonorable, and undignified due to their disability (Tarsidi & Somad, 2009).

Indonesia formally adopted the terminology '*penyandang disabilities*' since the enactment of Law no. 19/2011 and Law no. 8/2016; the term '*penyandang disabilities*' (people who have a disability) was adapted from the English term 'people with disabilities' (Suharto et al., 2016). '*Disabilitas*' (disabilities) are loss of ability to perform normal activities due to a particular impairment or condition. Disability can be defined as the level of

disability at an individual level to function normally (Tarsidi & Somad, 2009). As many people define '*disabilitas*' as an inability, many consider the term '*penyandang disabilities*' as inappropriate since it focuses on physical deficits rather than acknowledging the varied abilities (Suharto et al., 2016). People who argue the inappropriateness of the term '*penyandang disabilities*' believe that disabled people are not unable to perform tasks but instead have a different ability to perform tasks (Tarsidi & Somad, 2009).

The argument on the inappropriate use of disability as a keyword triggers the usage of a newly coined term '*difabel*,' an acronym from the English word '*differently abled*.' The new adjective to define disabilities produces a derivative, '*difability*,' an acronym for '*different ability*.' The proponents heavily promote these two words rather than using '*disabled*' and '*disability*' (Tarsidi & Somad, 2009). The term '*difabel*' is considered more appropriate for respecting differences and recognizing the different abilities of people with impairments (Suharto et al., 2016). Though the word is not formally acknowledged by Indonesian law, it does not discourage people from using it (Maftuhin, 2016). It is because the related term '*difability*' may enable people with impairments and direct service providers to express each person's uniqueness better (Suharto et al., 2016).

The ongoing discussion on the appropriate use of terminology to define disabilities is not exclusive to the Indonesian academic community; rejection of degrading terminology such as blind and blindness rather than using visual impairment also occurs in several parts of the world (Bolt, 2005). This allows many people to support the Social Model of

Disability as a reference for using appropriate words to define a particular disability/impairment. The model itself is a social model that heavily contributed to changing society's relationship with disabled people and understanding disability (Levitt, 2017).

Author affiliations are an essential metric in Bibliometric. In this particular study, the author categorizes based on types of institutions and geographical spread. Author affiliation is determined solely based on identifying the first author, as the person is considered to have contributed the most and received the most credit for authorship (Tschardtke, Hochberg, Rand, Resh, & Krauss, 2007). Type of affiliation is categorized by whether the first author is from an education institution (university, school), a government institution (including a government-owned research institution), a private company, and a Non-Governmental Organization (NGO). Categorization of geographical origins refers to the existing 34 provinces in Indonesia. Figure 2 visualizes authors' distributions based on affiliations' geographical origins.

Findings show that authors on studies of disabilities are predominantly from universities compared to other affiliations. This could be explained by '*Tridharma Perguruan Tinggi*' (the three primary obligations of lecturers in Higher Education). This regulation requires every lecturer to publish research continuously,

aside from the obligation to teach and conduct community services (Bungai & Perdana, 2018). As lecturers are obliged to conduct research regularly, it contributes to the higher number of publications on disabilities from universities.

It is essential to note the limited facilities and infrastructure to support the research of NGOs and private companies. Synergy is needed between the Government and NGOs to allow independent researchers to improve their ability in budgeting management, human resources, and other facilities to promote public awareness of persons with disabilities in Indonesia (Damayanti & Sabiq, 2018). Researchers are encouraged to collaborate with NGOs because there is an argument that NGOs have richer data sources and better experience in the field related to disability issues (Dzulfikar, 2020).

The high interest of the academic community in researching disabilities is an opportunity for collaboration with NGOs and industry. However, accelerating this would require government initiation as academics at universities often feel only a few domestic companies have the interests and or capacity to innovate on research. The formation of research-based partnerships between academia-Industry-government is a potential step forward to improve future studies from a collaborative perspective (Moeliodihardjo, Soemardi, Brodjonegoro, & Hatakenaka, 2012).

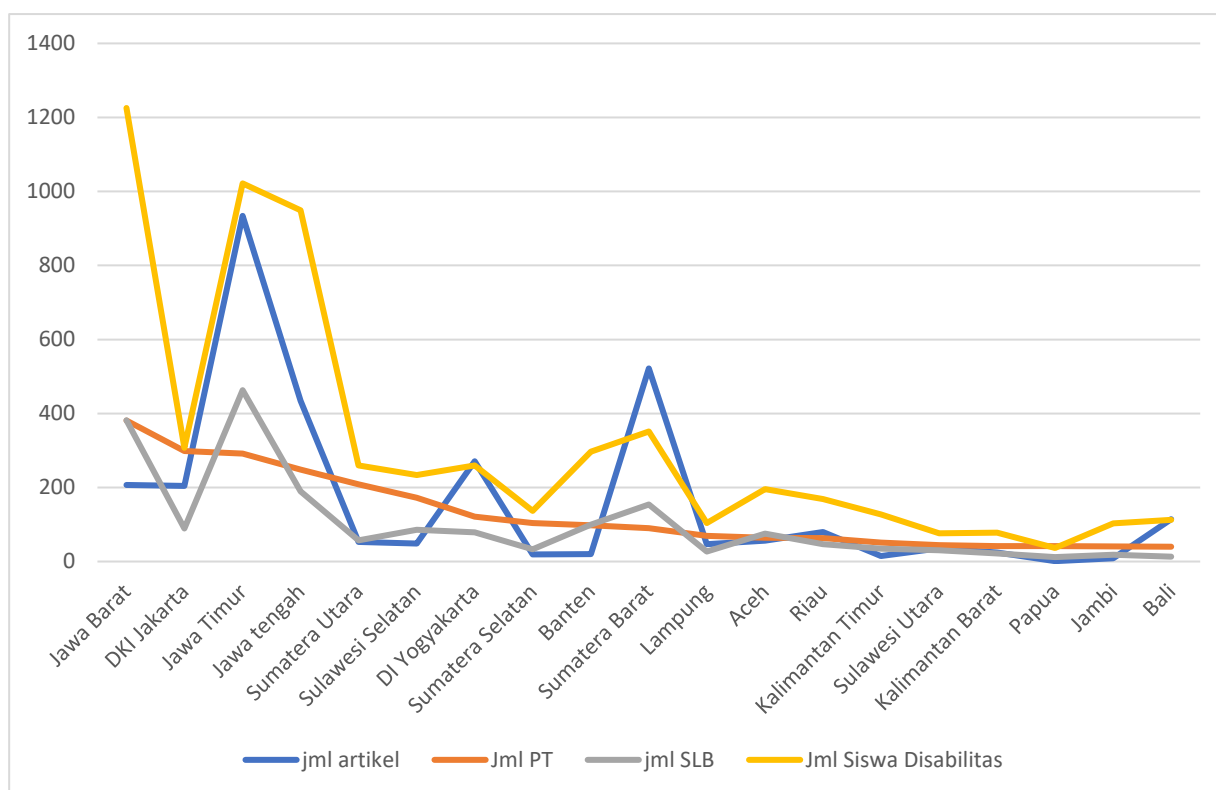


Figure 2. Author distribution based on province of affiliation

Source: Data processed by the authors, 2022

There are currently 2,770 SLB (special education schools) in Indonesia, divided into 34 provinces. Based on the data displayed in figure 2, the published articles are similar to the number of special schools in each province. It showed that most research was conducted in these schools or using samples of the students. It was assumed that most studies of disabilities are focused on educational subjects with a local scope.

Therefore, it is necessary to widen the field of science and the object of study, moving forward from education topics and students with disabilities only. It is also inevitable that 'normal' people still have a 'charity' approach to people with disabilities rather than empowering them through research, with only a few inclusions of persons with disabilities in research in Indonesia. It is believed that it will be better to develop collaborative research with communities of people with

disabilities to increase research that involves persons with disabilities (Dzulfikar, 2020).

Research grants also play a vital role in funding research projects on disabilities; so far, several universities have recorded the highest number of research grants from the Directorate General of Higher Education program (Moeliodihardjo et al., 2012). Hopefully, from the research funding from universities, a scheme will lead to increased research projects that involve and raise the interests of vulnerable groups, including people with disabilities. Direct participation from persons with disabilities in research will lead to a more inclusive and better-targeted policy toward the needs of the disabled community (Dzulfikar, 2020).

Research publications are paramount for researchers to get recognition and contribute to developing knowledge. Any research work is completed only after the

final step, “dissemination” (Dangal, Hamal, & Giri, 2017), and scientific journals inevitably play a critical role in this respect. A research journal is a tool for promoting and understanding researcher development (Borg, 2001).

Based on data exploration, 3,220 articles were published from 1,288 journals and 481 publishers on Garuda Portal. Of 3,220 articles, 3,038 were published by 416 publishers (86.5%) affiliated with a university in Indonesia. Higher education institutions have the best potential to disseminate research results on disabilities to the public with a direct impact on society. Creating new knowledge lies at the heart of the research university Hahn, Lowry, Lynch, Shulenberg, and Vaughn (2009). To disseminate research, scholars rely on university-owned journals and

media services (Klar, Krupnikov, Ryan, Searles, & Shmargad, 2020). Based on these opinions, universities, and research institutions can produce new knowledge and develop new technologies faster than before (Siddiqui, 2016), including knowledge, innovations, and technological advancements related to the interests of people with disabilities.

The distribution of publishers based on the province of affiliation is displayed in figure 3, with additional information on the number of articles published by other institutions in the same province. Data queries for the locations of publishers were done by exploring publisher addresses displayed on the detailed information page of each journal listed on the Garuda Portal.



Figure 3. Distribution of publisher based on province of affiliation
Source: Data processed by the authors, 2022

The query on Garuda Portal resulted in 1,288 journals from 481 publishers that have published articles on disabilities. If this figure is compared with all indexed article data on <http://garuda.kemdikbud.go.id>, there are 10,673 journals published by 1,892

publishers. This means that 12% of all indexed journals and 25.4% of indexed publishers have published articles with topics on disabilities.

This shows that research results on disabilities are not only published in journals with a particular scope for

disabilities but also in journals with other scopes, such as humanities, law, technology, and even architecture journals. It demonstrates the opportunity for research on disabilities to be published in journals in another field of studies outside of disabilities when it was taken into account the low number of journals with specific scopes of disability in the Center for Scientific Documentation and Information (PDII LIPI) is still relatively limited, only 68 journals.

Other findings that can be highlighted are the fact that the most significant contribution to the publication of research on disabilities originated from journals with publishers from universities from the western part of Indonesia. The lack of support and facilities in research institutions exacerbates the access of persons with disabilities to be involved in research (Dzulfikar, 2020). Not all tertiary institutions in Indonesia have service units and facility compliance for people with disabilities. It is quite concerning as Article 42, paragraph (3) of Law Number 8 of 2016 concerning people with disabilities, states that every higher education provider (University) is required to facilitate the formation of a Disability Service Unit (ULD) to provide guidance and evaluation on proper compliance for disabled people needs. Universities that fail to comply with this regulation are subject to administrative penalties (Yunardi, 2017).

This part will discuss the research subjects of the published articles on disabilities. The study of the subject of an article is essential since the subject shows the scientific field that underlies research. Subject clustering generally refers to substantive classifiers (Leydesdorff & Rafols, 2008). On the Garuda portal, there is a feature to view the subject of an article.

There were several articles in which the subject needed to be listed. So, a search was carried out on each journal's synopsis of the article on the PDII LIPI website, including the focus and scope of the journal's OJS page. Based on the 40 subjects on the Garuda portal, it was identified that there were 30 groups of research articles about disabilities, as illustrated in Figure 4.

There were three major groups of subjects, education (37.8%), social sciences (15%), and health professions (7%); the rest of the category was divided into 27 other subject groups. It aligns with the composition of the top three subject groups of all articles on Garuda, namely Education, Social Sciences, Economics, Econometrics & Finance. However, the category of health professions is significantly different.

By using the disability model, it can be seen which academic disciplines that conduct studies of disabilities (Retief & Letšosa, 2018). Disability studies in Indonesia were still dominated by research from the fields of education and social science. It showed the adoption of particular disability models by researchers on disability in Indonesia, in which they considered the context of disability to be approached from the aspects of education and social science.

Often disability is still understood as an individual misfortunate from social and political points of view (Bampi, Guilhem, & Alves, 2010), requiring people with disabilities to be able to adapt by themselves to the environment. From the medical standpoint, disability is considered a disease (Retief & Letšosa, 2018), with medical practitioners using keywords of medical treatments and rehabilitation. In the social model of

disability, society is considered to be treating disabled people with the 'inability' stereotype. There is a need to advocate social change and improve

society's perspective on people with disabilities so they can play a more empowered role within their community.

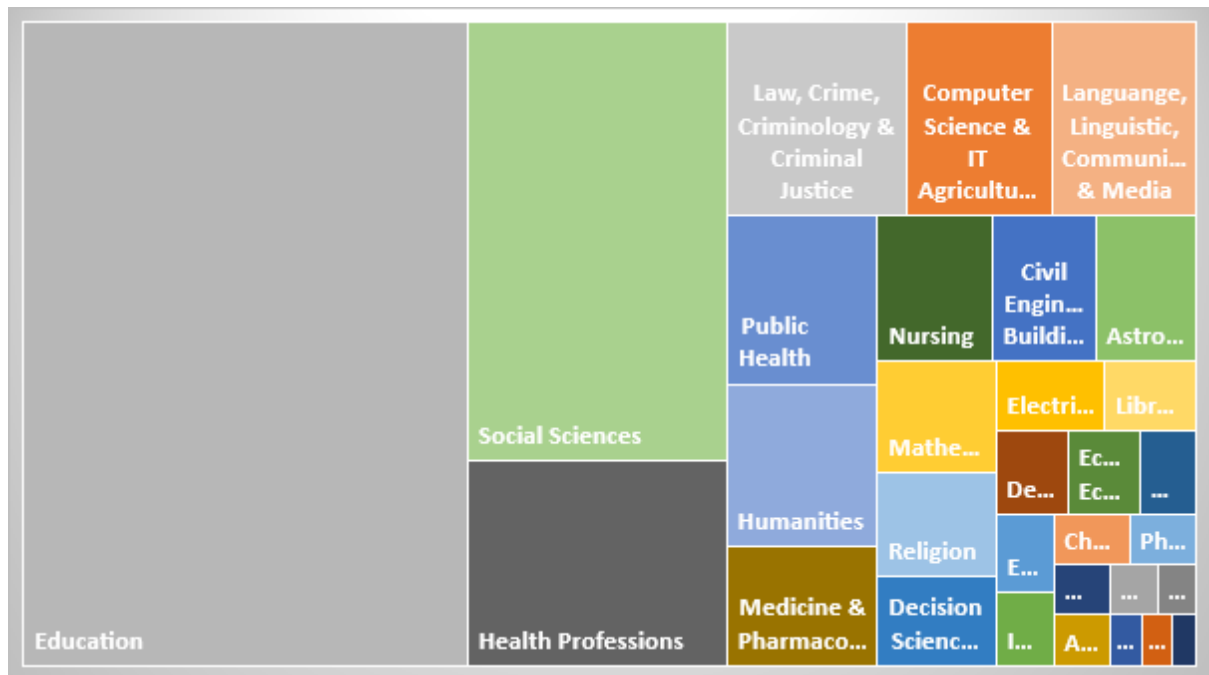


Figure 4. Article distributions based on subject
Source: Data processed by the authors, 2022

So many fields of science are involved in research on disabilities, and this shows researchers' efforts to improve the construction of the public's perspectives on disabilities. It is no longer necessary to give a bleak outlook towards people with disabilities; instead, treat them as people with equal rights and obligations. Therefore, it will be necessary to have a shared understanding of the disability model that the community needs to adopt, as the way of thinking is deeply rooted in the model of disability and has a considerable influence on shaping the environment (Jackson, 2018). At this point, the role of researchers should be

optimized, as research influences encourage policy implementations as a way of voicing the needs of disabled people (Dzulfikar, 2020).

In the study of bibliometrics, analysis of titles, abstracts, and keywords is intended to examine the publications' main topics (Arik & Akboga, 2018). In this process, a controlled vocabulary selection is carried out while extracting terms. This controlled vocabulary method is used to capture variations, define the terms used, and consistently identify the particular concept of the study (Parlina, Ramli, & Murfi, 2020). Figure 5 displays the result of the query based on keywords.

Another caveat is the limited identification of terminology during the article query process. Three separate reviewers interpreted the articles and may suffer from inter-observer variability. In order to limit this, the definitions for categorizing the studies were made clear to the investigators before initiating the study. Therefore, the next potential step that could be taken is the expansion of techniques to support the search for terminology/words in the language in question and the expansion of other literary sources (Chen & Sarkar, 2015).

Counting the number of publications provides a partial picture of a country's global contribution to scientific research efforts. The results of this study can provide information about research opportunities on disabilities to improve the novelty of the topic and develop the diversity of subjects in studying various aspects related to the world of disabilities. National and international researchers and institutions of disability studies can target future opportunities in producing new research on topics and subjects, as well as producing new findings that would affect the improvement of the quality of life of persons with disabilities in Indonesia and also globally.

The result of this study would demonstrate potential opportunities for collaborative research among researchers and institutions in universities, government, NGOs, industry, and the public. This research could provide an overview in the form of preliminary data for the sharpening national research roadmap on disabilities. It should be treated as a consideration for decision-makers from research granting institutions, in addition to opening up opportunities for

similar research to be carried out and developed in other countries.

CONCLUSION

Research trends on disability in Indonesia using bibliometrics have shown significant development from year to year regarding the number of publications, the distribution of authors, and subject specifics. In general, it can be concluded that disability studies in Indonesia will continue to develop in the future, thanks to a global paradigm shift that has increased the awareness of researchers in universities, governments, NGOs, and other elements of society in promoting equal rights and interests of disabilities in their daily livelihoods. The topic of disability has generated interest in the scientific field, and many studies on the subject have been published in national and international journals, with a significant increase in the number of publications. The number of research publications on disabilities has shown an increasing trend over the last ten years and is expected to continue as technological development related to assistive learning tools would also continuously stimulates studies on disability. The discussion on the consensus of terminology to define the conditions of disabilities is likely to continue also as the development of disability studies has expanded globally, with initiatives from the government. The number of publications and research related to disability in Indonesia will seemingly follow the trend of the number of students and special schools with disabilities since the majority of research is in the field of education, taking the students as the study sample. Authors and publishers originating from educational institutions in western Indonesia are more

dominant in numbers. It is essential to encourage researchers and research institutions from non-educational institutions and affiliations from provinces in central and eastern Indonesia to contribute more to disabilities through research. The findings suggest that studies on educational topics are more popular, which could contribute to increasing the amount of research on disabilities. Published research results should be followed up by new studies that address the limitations and recommendations of past studies; recommendations should also be implemented to improve the quality of education for people with disabilities in Indonesia. Researchers, research institutions, and other stakeholders can reuse this dataset in research and development.

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