



Tuberculosis Research Trends in Indonesian Health Scientific Journals: From Research Design to Data Analysis

Nita Yuniarti Ratnasari¹✉, Sri Handayani²

¹Department of Community Nursing, Giri Satria Husada Nursing Academy, Wonogiri

²Department of Maternity Nursing, Giri Satria Husada Nursing Academy, Wonogiri

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Abstract

This study aims to analyze various tuberculosis articles published in health science journals in Indonesia. These involve the frequency of the number of publications per year, type of research, research subjects, and topics often raised by the researchers in their research. This research method used the principle of content analysis, which focused on findings from various studies on tuberculosis published in scientific journals in Indonesia. Data were from content analysis in journals related to tuberculosis. The results of the journal's content analysis published in SINTA-1 with the tuberculosis subject area in the last ten years as a whole show the progress from year to year. Four things become the subjects of study analysis, namely the number of publications per year (the publication of tuberculosis articles in the SINTA 1 journal decreased in 2019 because of the emergence of the Coronavirus in that year and began to plague in the following years); research type (in this study the results obtained that of the 27 articles analyzed, 23 of them were quantitative types). Subject (tuberculosis patients sampled in this study included the intensive phase and the advanced phase patients) and research topic (topics around knowledge are still the variables that researchers are most interested in).

Introduction

According to The World Health Organization (WHO), Indonesia ranked second highest in tuberculosis cases worldwide (Papeo et al., 2021). The government has been trying to develop a policy program related to this disease. Without the support and participation of various parties, these efforts will not get maximum results. Until 2018, the tuberculosis case did not significantly decrease due to many undetected cases. Tuberculosis infection remains one of the biggest health problems in Indonesia, which ranked second in the world on the list of countries with a high burden of TB. In numerous low and middle-income countries with high TB burdens, the government takes necessary action to stop TB spreading. Case-finding rates in the Indonesian

National Tuberculosis Program have remained steady or slightly declined lately under announcement and access walls to individual installations. Tuberculosis control problems are associated with a low position of mindfulness and knowledge of TB, substantially because of a low position the community's high position of TB smirch.

All elements of society are responsible for tuberculosis management, including researchers in higher education. The researchers' contribution in handling this disease is through conducting tuberculosis research by taking various variables to produce more health articles related to tuberculosis. These results can become an interest in eradicating this disease. On the other hand, tuberculosis articles published in various

✉ Correspondence Address:

Department of Community Nursing, Giri Satria Husada Nursing Academy, Wonogiri,
Email : nitayr.gshwng@gmail.com

health journals in Indonesia are still limited. The filter results conducted on the database of accredited journals according to the criteria obtained 27 articles with 9 sub-topics discussed. These results are variables of knowledge, self-efficacy, tuberculosis transmission, social support, health cadres, MDR-TB, nutrition, child TB, and stress coping. Concerning the high number of cases and mortality from this disease, reaching 98 thousand or equivalent to 11 mortality per hour (Lisum et al., 2022). More studies about tuberculosis are required by enriching the variables used.

In this study, the researcher analyzed various tuberculosis articles published in health science journals in Indonesia, including the frequency of the number of publications per year, type of research, research subjects, and topics often raised by researchers. It is expected that there will be tuberculosis research articles with more diverse variables in the coming years. In the end, the results are expected to contribute to the management of tuberculosis in Indonesia.

Method

This research method used the principle of content analysis, which focused on findings from various studies on tuberculosis published in scientific journals in Indonesia. Data were from content analysis in journals related to tuberculosis. All articles were from indexed scientific journals of Science and Technology Index (SINTA) as of September 2022. SINTA (<https://sinta.kemdikbud.go.id/journals?page=2>) is a platform for measuring science and technology designed and developed by the Ministry of Education and Culture of the Republic of Indonesia.

SINTA Journal Filter is based on 2 categories, namely ranking and subject area. In the ranking selected SINTA - 1 category, the subject area is health. The inclusion criteria

were: 1) topics around tuberculosis; 2) an original article; 3) published in the last 10 years (2012 - 2022). While the exclusion criteria were: 1) outside the topic of tuberculosis; 2) research of case reports and review articles; 3) publication before 2012. From hundreds of articles collected, there were 31 with the theme of tuberculosis. According to inclusion criteria, 27 articles were obtained. Here's the explanation: Bali Medical Journal has 4 articles, The Sudirman Journal of Nursing has 3 articles, Nurse Media Journal of Nursing has 1 article, Belitung Nursing Journal has 5 articles, Makara Journal of Health Research has 1 article, International Journal of Public Health Science has 5 articles, Universa Medicina has 1 article, Indonesian Nursing Journal has 2 articles, Medical Journal of Indonesia has 2 articles and KESMAS: National Public Health Journal has 3 articles.

The instrument used in this study is a modified content analysis guidelines of (Susetyarini & Fauzi, 2020). There are four main aspects to review and analyze, namely: (1) the number of publications per year; (2) the research type; (3) the subject of research, and (4) the topic of research. As presented in table 1 below. Each article was classified based on pre-defined aspects. Then the data obtained are presented in bar charts

Result and Discussion

The number of published articles indicates how often a study is conducted in a period. In Figure 1, it appears that articles related to tuberculosis published in the SINTA-1 journal can be found since 2015. There is no particular shift pattern that occurs in the number of publications each year. However, referring to Figure 1, it appears that the publication of tuberculosis articles in the SINTA 1 journal decreased in 2019.

Table 1. Aspects and Categories used for Content Analysis in this study

Aspects	Categories	
Number of publications per year	2015 : 1 2016: 2 2017: 4 2018: 4	2019 : 3 2020: 5 2021: 4 2022: 4
Types of research	A1. Qualitative	A2. Quantitative
Research subjects	B1. Medical record B2. TB patients in health centers / hospitals B3. Child / Adolescent TB B4. TB community	B5. Health cadres B6. Nurse B7. Hajj pilgrims
Topics	C1. MDR TB C2. Stress and coping C3. Social support C4. TB transmission C5. Child TB	C6. Health cadres C7. Nutrition C8. Variable of self-efficacy C9. Knowledge variables

Source: Primary Data. 2022

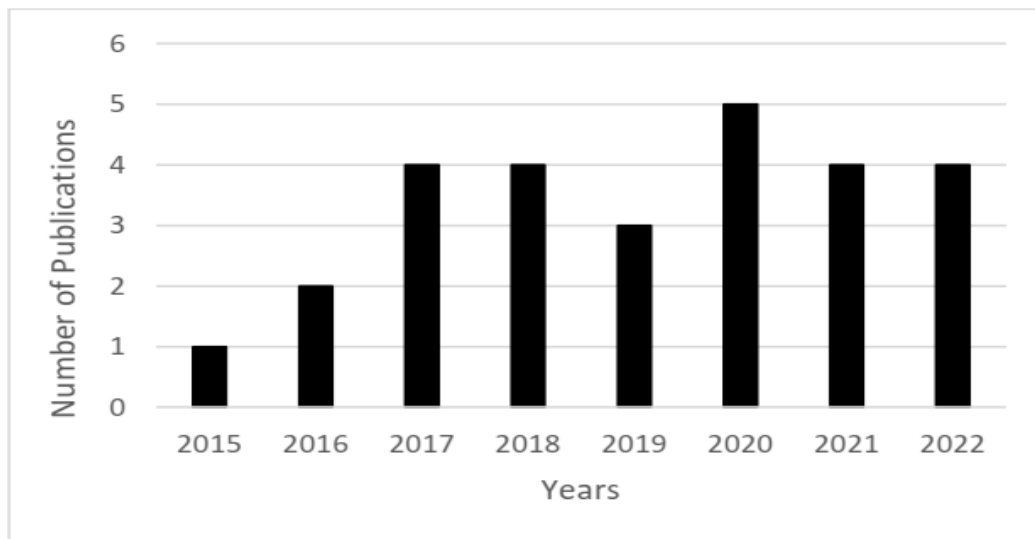


Figure 1. Number of Publications per Year

This condition is related to the emergence of the Coronavirus in that year and began to plague in the following years. However, in 2020, the number of publications showed the highest increase of 5 articles. It shows the amount of researcher enthusiasm who continues to work during the pandemic. Covid-19 indirectly affects the world of research with the emergence of research trends with the Covid-19 topics. So, other themes decreased. During the pandemic,

all existing resources were diverted to handling Covid-19. It makes other programs neglected. The challenges of tuberculosis treatment in 2020 were exacerbated by the Covid pandemic case (Rita et al., 2020).

The type and design of the study determine the focus. In this study, the results obtained that of the 27 articles analyzed, 23 were quantitative types, as shown in Figure 2.

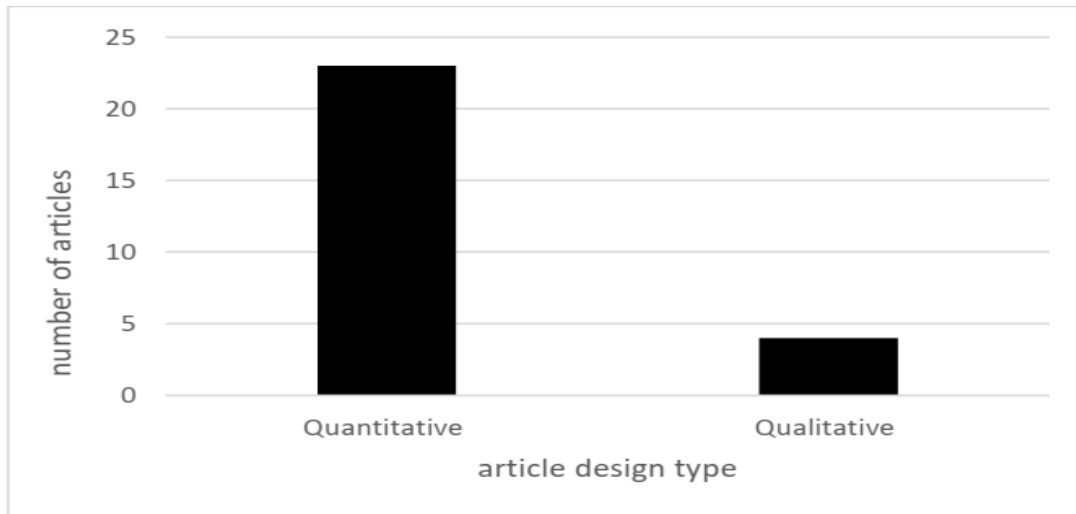


Figure 2. Types of Research

In large populations, the research used quantitative studies. Quantitative is considered a more practical method of analyzing a study with a large number of subjects. It is related to the TB and HIV/AIDS increase in developing countries in the same period (Muliawan & Sawitri, 2016). This study analyzed data from 27 articles, 23 of which were quantitative research. Here are some explanations of the article in question: research (Da Silva et al., 2016) with descriptive correlation method the number of samples of 100 people; (Sukartini et al., 2019) with cross-sectional design of the population of 77 people; (Dwidiyanti et al., 2019) with cross-sectional approach the number of samples of 45 people; (Noorratri et al., 2017) with quasi-experimental method the sample of 38 people (19 people intervention group, 19 people control group); (Yani et al., 2020) with cross-sectional approach a total sample of 52 people; (Sadipun et al., 2018) by the method of pre-experimental number of samples as many as 45 people; (Malini et al., 2021) with quasy experimental method the number of samples 29 people; (Sofiana et al., 2022) with a sample of 52 respondents; (Sari & Sari, 2020) by cross-sectional method the number of samples 45 respondents; (Rohman, 2018) by the method of cross-sectional study of a sample of 162 respondents; (Irawan et al., 2017) with observational study method the number of samples of 19 tuberculosis patients

and 38 controls; and research (Nursasi et al., 2021) with cross-sectional design method involved 83 respondents.

This study found 4 articles using qualitative design as the research method. Generally, qualitative methods are used in studies that require detailed analysis, in-depth, and detailed explanation of the subjects. So not all tuberculosis studies can be explained from quantitative aspects, for example, related to the role of the family, where each family has its uniqueness in disease prevention programs (Gunawan, 2019). Another reason why researchers choose qualitative methods is that they want to know in detail about what experiences patients obtained during the treatment period, following the obstacles encountered in following the tuberculosis control program (Machmud et al., 2020). A qualitative design was also used to explore the role of health cadres in motivating patients to seek treatment, explore what factors affect the performance of cadres (Febriani et al., 2021), and used to describe the perspective of adolescents related to parents with pulmonary tuberculosis (Lisum et al., 2022). The subject of research is a factor that affects the quality of research results. Selection of the right subject can improve the quality of articles produced. In this study, several things can be learned about the type of research subjects used by the researcher, as shown in the following figure:

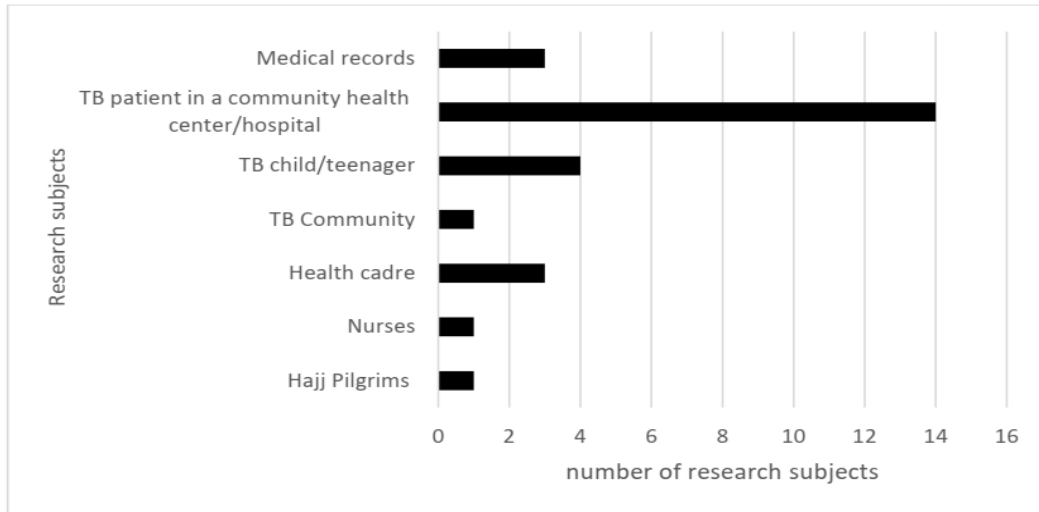


Figure 3: Research Subjects

Based on the SINTA database, 14 articles used tuberculosis patients as their research subjects, both undergoing treatment programs at health centers and hospitals. Tuberculosis patients must have a treatment course for 6 to 8 months Wulandari (2015), through the Directly Observed Treatment Shortcourse (DOTS) program, namely the tuberculosis control strategy through direct supervision of taking medication by people who have received the instruction of the Public Health Center/hospital Papeo et al. (2021), they will often visit health care centers during this period to control and take TB medicine. Tuberculosis patients sampled in this study included the intensive and the advanced phase patients. These conditions make it easier for researchers to retrieve data related to on-going research by providing interventions according to the researcher's needs. Various interventions conducted by researchers include interviews both with patients directly and the family, observation, questionnaires and checklists, physical observation, and data retrieval from the patient's medical record and laboratory results Kusumawati et al. (2018), where the medical record data was taken from the tuberculosis registration system (Moosazadeh et al., 2021).

Tuberculosis of children and adolescents became the subject of the next most research, 4 journals used children and adolescents as subjects. Cases of childhood tuberculosis are still relatively high in the world. One million children are infected with tuberculosis annually,

and there are 210.000 mortality due to this disease. The incidence of childhood tuberculosis reaches 10% of all tuberculosis cases (San-juan & Misael, 2022). As reported, children living in tuberculosis-endemic areas will experience various health problems, such as malnutrition, diarrhea, pneumonia, malaria, and HIV infection (Detjen et al., 2019). When compared with adult cases, childhood tuberculosis is more difficult to detect because there are no signs in specific symptoms (Saputra et al., 2020), and often, overlooked its occurrence (Asyary et al., 2017). This condition makes nurses, health care providers, and pediatric medicine have a vital role in improving the health and quality of children's life with tuberculosis (Lusmilasari et al., 2017).

One of the success keys against tuberculosis is community empowerment programs, an intervention involving many parties in the community (Ro'isah et al., 2022), for example, health cadres. The role of health cadres is mainly related to early detection of tuberculosis cases (Ratnasari et al., 2019). In addition, cadres are also the instructors or extension workers, referral systems, and supervisors of taking medication directly (Ratnasari & Marni, 2020). Although not fully implemented, the involvement of cadres in case discovery efforts and related sensitive to drugs has long been conducted in Indonesia (Febriani et al., 2021). In this study, out of a total of 27 articles analyzed, 3 of them used cadres as research subjects. Cadres are part of the community as

volunteers equipped with various sciences and work to inform some health-related matters to the community (Lepuen et al., 2020). Related to the existence of cadres in the community, it is expected that they can be an extension of health service providers in Public Health Center and hospitals. So that various cases of health problems in the community can be found early while avoiding the severity of the condition.

In this article review, the researcher also discussed the topics often used by researchers who then published their articles, especially in the indexed journal SINTA 1 for the last ten years. The description of the topics that are trending in tuberculosis research, as shown in the following figure:

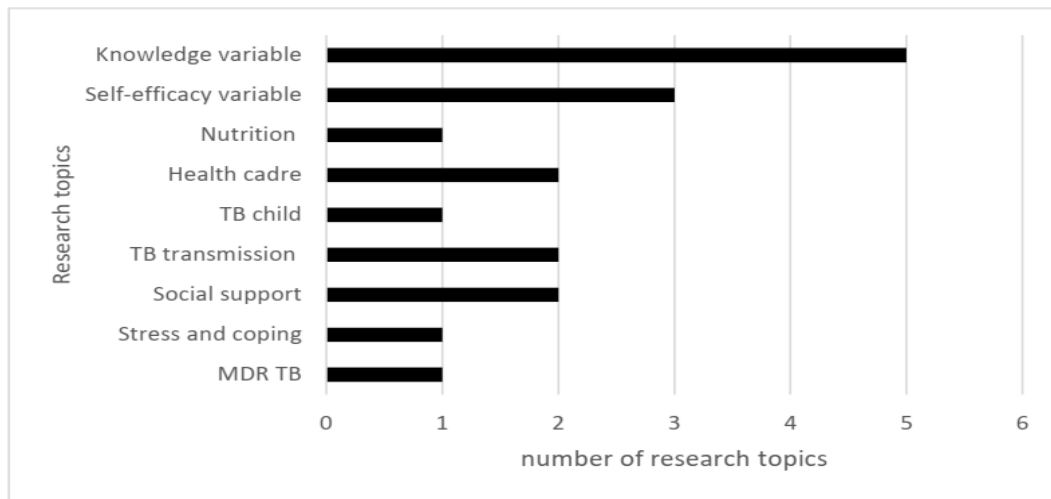


Figure 4: Research Topics

Topics around knowledge are still the variables that researchers are most interested in. In this study, there are five articles used for these variables, namely knowledge, attitudes, and ethics of cough (Yani et al., 2020); knowledge, attitudes, and behaviors of seeking health care from (Saputra et al., 2020) knowledge, employment, and family income relation to drop out of treatment (Da Silva et al., 2016); knowledge, family support/social support and self-efficacy of (Sukartini et al., 2019) and health education prevention of tuberculosis by MDR (Malini et al., 2021). Important knowledge about tuberculosis in vulnerable groups must be more intensive so that patients get the proper treatment and avoid getting late for treatment (Harstad et al., 2022). Adequate knowledge is required related to the course of tuberculosis in preventing transmission and as a determinant of the success of the prevention program (Amare et al., 2022). There are many things to know and learn about tuberculosis. Knowledge about tuberculosis must be socialized early in the community, so with adequate knowledge, a prosperous society will be developed, and later

it will lead to an improvement in public health status.

The self-efficacy variable is the second largest variable of interest to researchers. Three articles used self-efficacy in their research, namely (Sukartini et al., 2019) self-efficacy and independence of tuberculosis patients (Noorratri et al., 2017), and self-efficacy and adherence to treatment (Sofiana et al., 2022). Self-efficacy can increase engagement and future success (Sánchez et al., 2012) and improve health control behavior (Sofiana et al., 2022). Someone with high self-efficacy will be more confident in learning, solving problems that arise during the educational process, and undergoing even the most difficult types of training (Ahmad & Safaria, 2013). Otherwise, a person with a negative self-concept is likely to experience failure in achieving the expected performance (Basith et al., 2020). Thus, it can be concluded that self-efficacy has a positive correlation and is also as a determining predictor of academic achievement (Basith et al., 2020)

Tuberculosis is a disease transmitted

through the air through infectious aerosols. Cough is a factor in infectious aerosols causing tuberculosis (Patterson & Wood, 2019). Smear-positive tuberculosis patients (acid-resistant bacteria) are a source of transmission of this disease, which occurs when the patient coughs or sneezes, germs will fly into the air (Gunawan, 2019). Contact with family members who live in the same house as tuberculosis patients is a source of infection that has implications for public policy (Mcintosh et al., 2019). Accurately identifying separate transmission events is more complicated in the management of tuberculosis, since its prevalence in a sufficiently large population and individual-level transmission is almost always not observed (Smith et al., 2022).

In the case of parents infected with pulmonary tuberculosis, it will affect the physical and psychosocial health of family members living together, including adolescents (Lisum et al., 2022). In addition, it also affects a person's quality of life, including physical, social psychological, and environmental health issues (Sofiana et al., 2022). Psychological problems often encountered in tuberculosis cases is the inability to control negative emotions (Sadipun et al., 2018), so that an effective coping strategy is required to overcome this problem (Sari & Sari, 2020).

There is an increase in Multidrug-Resistant (MDR) Tuberculosis every year. The rise of MDR is a new challenge related to the treatment of tuberculosis. It occurs due to several conditions, including the difficulty of establishing a diagnosis, a large therapeutic failure rate, mortality (Ratnasari, 2020), high cases of drug addicts (Salam et al., 2021), and inadequate capacity for the implementation of routine checks against drug resistance (Zignol et al., 2018). In this study, an article was found where patients with MDR tuberculosis as the subject, a retrospective study, and data taken from the medical records of previous patients (Kusumawati et al., 2018). Support provided to patients during the therapy program can improve adherence to treatment of MDR patients (Ratnasari et al., 2020).

Conclusion

The journal content analysis published in SINTA-1 with the tuberculosis subject area in

the last ten years as a whole show the progress from year to year. Four things become the subjects of study analysis. They are number of publications per year, research type, subject, and research topic. The findings have several recommendations for future researchers. First, it is necessary to add tuberculosis research with qualitative methods, considering that from 27 articles, only 4 are qualitative research. So, the researcher's ability in terms of qualitative studies needs improvement. Secondly, it is necessary to conduct research with community subjects of tuberculosis, considering that out of 27 articles, only one used subjects of patients in community groups. Third, related to research topics, these need to be more developed for the selection of topics on aspects of stress and coping, nutrition, childhood tuberculosis, and MDR-TB.

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