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Article

Monitoring and Evaluation of Pulmonary TB Patients During the COVID-19 Period at Bintuhan Health Center, Kaur Regency, Bengkulu Province, in 2024

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Abstract: Tuberculosis is a direct infectious disease caused by TB germs (Mycobacterium tuberculosis), most TB germs attack the lungs, but can also affect other body organs (Manaf, et al, 2019). Tuberculosis, is a dangerous infectious disease caused by germs, TB with varying effects. Every tuberculosis sufferer can transmit the disease to other people who are around them and/or who are in close contact with the sufferer (Jaorana, et al, 2019). This research method is analytical with a Cross Sectional research design where in this research design, the independent variables (Education Level, Job Level, Knowledge, Socio-Cultural, Information Sources and Environment) and the dependent variable (Pulmonary TB Patients) are measured at the same time using an approach. , observation or data collection at one time (Point Time Approach) meaning, each subject is only observed once and measurements are made on the subject's character status or variables at the time of examination. The population in this study is all pulmonary TB patients in Kaur Regency, Bengkulu Province in 2024 157 people with pulmonary TB and the sample is part of the number and characteristics of the population of 64 people. Univariate, bivariate and multivariate date analysis using Chi-square analysis techniques. This research began from April to May 2024. Results: The majority of respondents who experienced pulmonary TE during the Covid-19 period were 36 respondents (56.3%) with lower secondary education as many as 38 respondents (59.4%) who did not work as many as 33 respondents (51.6%) Those who have correct knowledge are 47 respondents (73.4%) and those who do not have low social culture are 36 respondents (56.3%) and those who do not have accurate sources of information are 37 respondents (57.8%) and those who are in a good environment are 35 respondents (54.7%) and 34 respondents (53.1%) had comorbidities. There was a relationship between education, employment, knowledge, social culture, information sources, environment, comorbidities and the incidence of pulmonary TB patients during the Covid-19 period in Kaur Regency, Bengkulu Province. 2024. And education is the most dominant factor in the incidence of stress in pulmonary TB patients during the Covid-19 period in Kaus Regency, Bengkulu Province in 2024. Conclusion: It is hoped that the health services in Kaur Regency can improve health education in the form of counseling, especially TB, not only for TB sufferers but also the community in the working area, especially health workers, especially those in Kaur Regency, maintain the quality of service in providing services to the community, especially TB sufferers, in order to improve coordination with Health Services and TB cadres in monitoring TB sufferers and can increase supervision regarding the availability of good OAT. for pulmonary TE or extra pulmonary TB, and can improve the quality of phlegm examination implementation. Ban increases collaboration with other health service facilities.

Keywords: Pulmonary TB-, Covid-19, Socio-Cultural, Education, Knowledge

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1. Introduction

Tuberculosis disease ranks second after Coronavirus Disease 2019, in 2021 there was an increase in the number of TB patients by 10.6 million compared to the previous year of 10.1 million.Of all the TB incident cases in the world, Indonesia is in second place after India as the country with the highest burden of tuberculosis (World Health Organization, 2022). Treatment coverage is one of the indicators used in TB control. The number of TB cases treated and reported among the estimated number of new cases is called TC (Treatment Coverage). In 2021, the number of treatment coverages in Indonesia increased by 47.1%. However,

However, this figure has not yet reached the expected target of 80% (Indonesian Health Profile, 2021).The number of TB cases in Indonesia was 824,000 cases in 2020 and increased to 969,000 cases in 2021 and 93,000 of them died. The Ministry of Health in 2022 reported that tuberculosis (TB) disease in Indonesia ranked third after India and China, with 824 thousand cases and deaths. 93 thousand per year or equivalent to 11 deaths per hour. Based on the Global TB Report in 2022, the highest number of TB cases is in the productive age group, especially at the age of 25 to 34 years. In Indonesia, the highest number of TB cases is in the productive age group, especially at the age of 45 to 54 years (Kemenkes RI, 2022).Tuberculosis (TB) is still a global health issue and the leading cause of death from infectious diseases. The COVID 19 pandemic has reversed years of progress in TB services. The COVID-19 pandemic has led to an increase in the number of people who are undiagnosed with TB and has become a major source of transmission leading to high morbidity and mortality rates (Siahaya, 2022).The success rate of TB treatment decreased by 69% during the COVID-19 pandemic19. Some of the reasons are the closure ofhealth facilities, many health workers are sick, and limited health facilities are limited during the pandemic (Anwar et al., 2022).

In 2020, the number of new TB cases was distributed in WHO South East Asia, with 43% of new cases, followed by WHO Africa with 25% of new cases and WHO West Pacific with 18%. In 2020, 86% of new TB cases occurred in 30 high TB burden countries. Eight countries accounted for two-thirds of new TB cases: India, China, Indonesia, Philippines, Pakistan, Nigeria, Bangladesh and South Africa (Ministry of Health and Family Welfare, 2019).Epidemiologically, TB is more prevalent in adults of productive age. However, all age groups are at risk of TB. The risk of active TB is greater in people suffering from conditions that compromise the immune system. In addition, tobacco use behavior greatly increases the risk of TB disease and death. More than 20% of TB cases worldwide are caused by smoking. Characteristics of groups at risk of TB need to be known in order to increase case finding rates and provide early treatment (Asriati, 2019).

Estimates of TB cases decline following case-finding programs in groups at high risk of contracting TB. In Indonesia, the Case Notification Rate is a number indicating the total number of TB patients found and recorded among 100TB patients found and recorded among 100,000 population in a region. The CNR rate is useful for showing trends in the increase or decrease in the discovery of TB patients in an area (Astuti, 2020). Based on data from the North Maluku statistics center, data on tuberculosis patients in Ternate has decreased from 2018 to 2020, namely 816 in 2018 and 399 in 2020. Reporting data from the Lung TB Program of the Bengkulu Provincial Health Office, the number of Lung TB cases in 2020 was reported as 1,828 and in 2021 as many as 2,884 cases. The data clearly shows that the increase in Lung TB cases is quite high every year due to treatment failure,

therefore it is worth looking at the factors of the cause, and become a common concern. where the recovery rate for Lung TB patients in 2021 is only 47%, the recovery rate for pulmonary TB patients is quite an increase compared to 2020 where only 21% of the target recovery rate for Lung TB patients in Bengkulu Province. and the complete treatment rate only reached 61%, a decrease from 2020 where the complete treatment rate reached 71% complete treatment rate has reached 71%.

2. Materials and Methods

This study is analytic in nature with a Cross Sectional research design where in this research design, the independent variables (Education Level, Employment Level, Knowledge, Socio-Culture, Information Sources and Environment) and the dependent variable (Pulmonary TB Patients) are measured at the same time by means of an approach, observation or data collection at one time (Point Time Approach) meaning that each subject is only observed once and the measurement is carried out at one time.

Information Sources and Environment) and the dependent variable (Lung TB Patients) are measured at the same time by means of an approach, observation or data collection at one time (Point Time Approach), meaning that each subject is only observed once and measurements are made of the status of the character or subject variable at the time of the examination.

3. Results

The results of univariate analysis to describe each variable used in this study include independent variables (Education Level, Employment Level, Knowledge, Socio-Culture, Information Sources and Environment) and dependent variables (Pulmonary TB Patients).

Bivariate analysis to see the relationship between the independent variables, namely (Education Level, Employment Level, Knowledge, Socio-Culture, Information Sources and Environment) with the dependent variable (Pulmonary TB Patients). The test used in bivariate analysis is the Chi-Square X2 test) with a value of 0.05. This analysis aims to obtain the probability of occurrence. If the P value> 0.05 then Ho is rejected and Ha is accepted which means there is no relationship between the two variables. Conversely, if the P value ≤ 0.05, Ho is rejected and Ha is accepted, which means there is a relationship between the two variables. (Askhary, 2017).

Based on the incidence of pulmonary TB patients in the Covid-19 period who were exposed to 36 people with lower secondary education of 38 people and with an average of 33 people who did not work with correct knowledge of 47 people with existing socio-culture of 36 people with existing information sources of 37 people with a good environment of 35 people and with comorbidities of 34 people.

4. Discussion

The relationship between education and Pulmonary TB during the Covid-19 period in Kaur Regency, Bengkulu City, 2024

In Lawrence Green's theory, there are 3 factors that determine behavior, one of which is predisposing factors. These redisposing factors are factors that exist from within that can be manifested in the form of knowledge, attitudes, beliefs, values, and so on. Then education is an influential factor in shaping a person's knowledge, attitudes, perceptions, beliefs and assessments of health. so that the higher a person's education, the easier it is to

receive information (Yanto & Verawati, 2022).Based on research conducted by Rezi Septa, 2022, the statistical test results obtained a p value of 0.000 with a meaning level of 95% on the education variable which means that there is a relationship between education and compliance with taking Pulmonary TB medication.Relationship between work and Pulmonary TB during Covid-19 in Kaur Regency, Bengkulu City, 2024Work is something that is done to make a living. To do a job certainly requires a relatively long time, the possibility to pay attention to the environment tends to decrease. In addition, with work conditions that take up In addition, with work conditions that take up a lot of time coupled with relatively low income, people will tend to think more about basic things including food, clothing, and shelter (Rahmansyah, 2012).Work is a routine activity carried out by respondents to get rewards in the form of money or goods to meet family needs. Income levels will have a lot of influence on behavior in maintaining individual and family health. This is in accordance with research conducted by Priska et al (2014) which states that work has an influence on patient treatment compliance and research conducted by Novalita et al (2021) entitled Factors related to compliance with taking anti-tuberculosis drugs in pulmonary TB patients in Tebing Tinggi city which states that work has a relationship with compliance with taking TB medication.

The relationship between knowledge and Pulmonary TB during the Covid-19 period in Kaur Regency, Bengkulu City, 2024Knowledge is the result of "knowing" and this occurs after people have sensed a certain object. Knowledge or cognitive is a very important domain for the formation of one's actions (overt behavior). If the acceptance of new behavior or the adoption of behavior through a process like this which is based on knowledge, awareness, and positive attitudes, the behavior will be long lasting (Notoatmodjo, 2019).Based on Rezi's research, 2022, the statistical test results showed a p value of 0.001 with a meaning level of 95%, meaning that there is a relationship between knowledge and compliance with taking pulmonary TB medication at the Sukarami Health Center, Palembang City in 2022. One of the supports for the success of pulmonary TB treatment is to know how far the patient's knowledge about pulmonary TB. Patients' knowledge of the term pulmonary TB, symptoms and transmission is still relatively poor. Whereas the ability and knowledge of the community or sufferers of the symptoms of pulmonary TB disease and how it is transmitted is absolutely understood. Because at this stage, prevention of pulmonary TB disease can be done. Or at least the patient's disease can be known earlier so that the treatment to be carried out is not too long and has a smaller risk of failure.Knowledge is a cognitive domain that is very important in shaping one's actions (over behavior) (Notoatmodjo, 2012). The results of this study are in line with research conducted by anggrain (2020) entitled Factors associated with adherence to taking medication in patients with pulmonary tuberculosis in the Medan puskesmas working area in 2020.Deli in 2020. Based on the chi-square test, the p value = 0.001 indicates that there is a significant relationship between knowledge and compliance with taking medication in patients with pulmonary TB at the Medan Deli Health Center in 2020. Widianingrum's research (2017) in the Perak Timur Surabaya Health Center work area has a p value of 0.000, which means that there is a significant relationship between knowledge and compliance with taking medication.

Socio-cultural relationship with Pulmonary TB during Covid-19 in Kaur Regency, Bengkulu City, 2024

These socio-cultural factors play an important role in the spread of disease and prevention efforts (Syafriyanti & Hadi, 2023). Therefore, it is important to understand the relationship between socio-cultural factors and TB prevention. One important aspect to consider in TB prevention is the diversity of traditions and beliefs of local communities, such as the Toraja traditional funeral tradition, for example, which involves intense social interaction between community members. This can increase the risk of TB transmission if an infected individual is participating in the funeral ceremony. A good understanding of these local traditions and beliefs will allow health care providers at Puskesmas Makale to design more effective prevention programs, while still respecting the traditions and beliefs of the community.prevention programs, while still respecting the cultural values and customs of the community (Sitio, 2021).Local culture can also influence community health traditions and practices in TB prevention efforts. There are traditional health practices that may be practiced by local communities that can contribute to the spread of TB or hinder effective prevention efforts. For example, practices such as incense burning or the use of certain medicinal plants may not be effective in controlling TB transmission.

In this case, there needs to be a culturally sensitive approach, where ineffective traditional health practices are combined with medical approaches supported by evidence. The role of local culture can also influence community participation in TB prevention programs. Strong and well-organized communities can help mobilize TB prevention efforts more effectively. Local culture that encourages solidarity, mutual cooperation, and active involvement in health issues can increase community participation in TB screening, counseling, or vaccination campaigns. In this case, utilizing local culture as a resource in TB prevention efforts is important to achieve optimal results (Farid, 2022; Pratiwi et al., 2012; Sulistyono et al., 2017). The role of local culture can also be utilized in communication and education about TB. Communities may be more responsive to prevention messages delivered through culturally appropriate media, such as art, music, dance, folklore, or traditional leaders. Using approaches that utilize local culture in communication and education can help to create better connection and engagement with communities, and increase the effectiveness of prevention messages.This research is in line with Elda Rahmania Putri's research (2020) which states that the role of local culture with TB prevention efforts is very influential (Putri, 2020). Makale Health Center can play an active role in exploring and understanding the role of local culture in TB prevention efforts. In designing prevention programs, it is important to acknowledge, respect, and work with local communities, traditional leaders, or community leaders to ensure the suitability and acceptance of prevention programs. Using a culturally sensitive approach, Puskesmas can integrate cultural values in counseling, social campaigns, and participatory activities that can motivate communities to adopt effective TB prevention behaviors. The role of local culture has a significant impact on prevention efforts.

The relationship between information sources and Pulmonary TB during the Covid-19 period in Kaur Regency, Bengkulu City, 2024

The source of information is everything that becomes an intermediary in conveying information, information media for mass communication. Sources of information can be obtained through print media (newspapers, magazines), electronic media (television, radio, internet), and through health worker activities such as training held (Notoatmodjo, 2019).Information obtained from various sources will affect a person's level of knowledge. Someone gets a lot of information so he tends to have broad knowledge. The more often

people read, the better knowledge will be than just hearing or seeing (Notoatmodjo, 2003). According to Rohmawati (2011) in Taufia (2017) exposure to health information to individuals will encourage health behavior. Various efforts have been made to overcome the problems of TB patients during the pandemic. Providing health education and medical rehabilitation is carried out in various media, one of which is telehealth services. Health workers can use virtual services and digital technologies such as video and text messages that contain treatment monitoring, educational tools and TB treatment therapy. Virtual services and digital technology have the aim that TB patients get support for treatment compliance, officers can also monitor the health of TB patients, conduct follow-up counseling and consultation (Fei et al., 2020). Therapy using video demonstration media can also support treatment adherence and help TB patients complete treatment during a pandemic (Theresiana., 2020).This study is in line with Visca's research, 2021 explaining that information sources (video demonstration media) can significantly reduce treatment non-adherence, save time and money and increase patient satisfaction. The use of telehealth services during the COVID-19 pandemic can also prevent transmission and focus on health services (Dina Visca et al., 2020). The use of digital health technologies should be intensified to support patients, improve communication, counseling, care, and provide health education. In accordance with WHO recommendations, technologies such as medication monitoring, educational tools and video-supported therapy can help patients complete TB treatment (World Health Organization, 2020).

Environmental relationship with Pulmonary TB during Covid-19 in Kaur Regency, Bengkulu City, 2024

The increase in tuberculosis is influenced by the home environment, according to (Ministry of Health of the Republic of Indonesia, 1999) regarding Housing Health Requirements in the regulation there are requirements for a healthy home that has several aspects or factors, namely building materials, components and spatial arrangement, lighting, air quality, ventilation, infectious animals, water, availability of safe food storage facilities, waste, and occupancy density. Research (Rokot et al., 2023)Residential density, humidity, lighting, ventilation are associated with the incidence of tuberculosis. Apriliani et al.'s research (2021) found a relationship between the physical condition of the house including: the presence of ceilings, wall quality, floor quality, occupancy density, the presence of ventilation, the presence of windows, the presence of glass tiles, room humidity, room temperature, and family behavior including smoking behavior and smoking history and the use of fuel when cooking. TB transmission can be prevented by implementing a clean and healthy life, the community should immediately improve the physical condition of the house in accordance with a healthy home so that the incidence of TB can immediately decrease.Research by Rahmawati, Ekasari and Yuliani, (2021) found that there is a relationship with the incidence of tuberculosis is the environment (ventilation area, humidity, and lighting). Research conducted by (Hapsari et al, 2020) in Malang City found that environmental factors associated with tuberculosis cases were occupancy density, house walls, unqualified ventilation. The behavioral factor studied by Hapsaria was window-opening behavior, which found that window-opening behavior was a factor associated with tuberculosis cases. Research conducted by (Setiarni et al, 2013) in West Kalimantan, there are several behavioral factors studied, namely smoking behavior factors and economic factors.

The relationship between comorbidities and Pulmonary TB during the Covid-19 period in Kar Regency, Bengkulu City, 2024

The severity of COVID-19 is influenced by several things, one of which is the comorbid factors or comorbidities possessed in Covid-19 patients, comorbidities in this case include Diabetes Mellitus, Autoimmune, Kidney Disease, Hypertension, Chronic Obstructive Pulmonary Disease (COPD), Tuberculosis (Kemenkes RI, 2020). Diseases such as diabetes, hypertension and chronic kidney failure (CKD) continue to increase in prevalence from year to year. Older populations are more susceptible to this coronavirus invasion. Various studies have shown that older populations withcomorbidities have a higher risk of mortality compared to other populations. The magnitude of the influence of a history of diabetes, hypertension, chronic renal failure, chronic obstructive pulmonary disease and the presence of respiratory tract symptoms needs to be well examined to be able to become the basis for further health policy implementation related to the priority of health services for COVID-19 patients to efforts to suppress the increase in the prevalence of these non-communicable diseases in the future (Clement Drew, 2021). This study shows that out of 295 respondents, 295 (100%) of covid-19 patients do not have comorbid TB and there are 0 (00.0%) who have comorbid TB.This study is in line with research conducted by Gana, 2022 which shows that of the 295 respondents there were 295 (100%) covid-19 patients who did not have comorbid TB and there were 0 (00.0%) who had comorbid TB. Therefore, it can be concluded that of the 295 respondents who were positive for covid-19 did not have comorbid TB (Tuberculosis). TB patients infected with SARS-CoV-2 can give a poor clinical picture, especially if there is interference during tuberculosis (TB) treatment. Symptoms can be more severe if there has been damage to lung structure and function caused by previous TB (Soeroto et al, 2020). TB bacteria float in the air in droplets for several hours after a TB patient coughs, sneezes, shouts or sings and people who breathe them in can become infected.The size of these droplets is a key factor determining the infectiousness of TB disease, the concentration of bacteria can be reduced by ventilation and direct sun exposure.

5. Conclusion

Most of the respondents who experienced Pulmonary TB during the Covid-19 period were 36 respondents (56.3%) with lower secondary education as many as 38 respondents (59.4%) who did not work as many as 33 respondents (51.6%) who had correct knowledge as many as 47 respondents (73.4%) and who did not have socio-cultural/low as many as 36 respondents (56.3%) and who did not have an accurate source of information as many as 37 respondents (57. 8%) and who are in a good environment as many as 35 respondents (54.7%) and who have comorbidities as many as 34 respondents (53.1%) There is a relationship between education, occupation, knowledge, socio-culture, information sources, environment, comorbidities with the incidence of pulmonary TB patients during the Covid-19 period in Kaur Regency, Bengkulu Province in 2024. And education is the most dominant factor in the incidence of stress in patients with pulmonary tuberculosis during the Covid-19 period in Kaur Regency, Bengkulu Province in 2024.

REFERENCES

[1] F. Conradie, “Treatment of highly drug-resistant pulmonary tuberculosis,” *N. Engl. J. Med.*, vol. 382, no. 10, pp. 893–902, 2020, doi: 10.1056/NEJMoa1901814.

[2] P. Lakhani, “Deep learning at chest radiography: Automated classification of pulmonary tuberculosis by using

convolutional neural networks," *Radiology*, vol. 284, no. 2, pp. 574–582, 2017, doi: 10.1148/radiol.2017162326.

[3] S. Chakravorty, "The new Xpert MTB/RIF ultra: Improving detection of Mycobacterium tuberculosis and resistance to Rifampin in an assay suitable for point-of-care testing," *MBio*, vol. 8, no. 4, 2017, doi: 10.1128/mBio.00812-17.

[4] M. Pai, "Tuberculosis," *Nat. Rev. Dis. Prim.*, vol. 2, 2016, doi: 10.1038/nrdp.2016.76.

[5] D. E. Zak, "A blood RNA signature for tuberculosis disease risk: a prospective cohort study," *Lancet*, vol. 387, no. 10035, pp. 2312–2322, 2016, doi: 10.1016/S0140-6736(15)01316-1.

[6] C. Kosmidis, "The clinical spectrum of pulmonary aspergillosis," *Thorax*, vol. 70, no. 3, pp. 270–277, 2015, doi: 10.1136/thoraxjnl-2014-206291.

[7] M. Ali, "Understanding the technical and social paradoxes of learning management systems usage in higher education: A sociotechnical perspective," *Syst. Res. Behav. Sci.*, vol. 41, no. 1, pp. 134–152, 2024, doi: 10.1002/sres.2945.

[8] F. Stapleton, "TFOS lifestyle: Impact of societal challenges on the ocular surface," *Ocul. Surf.*, vol. 28, pp. 165–199, 2023, doi: 10.1016/j.jtos.2023.04.006.

[9] J. Sicsic, "Preferences for COVID-19 epidemic control measures among French adults: a discrete choice experiment," *Eur. J. Heal. Econ.*, vol. 24, no. 1, pp. 81–98, 2023, doi: 10.1007/s10198-022-01454-w.

[10] R. Caruso, "Violence Against Physicians in the Workplace: Trends, Causes, Consequences, and Strategies for Intervention," *Curr. Psychiatry Rep.*, vol. 24, no. 12, pp. 911–924, 2022, doi: 10.1007/s11920-022-01398-1.

[11] U. Ludewig, "COVID-19 Pandemic and Student Reading Achievement: Findings From a School Panel Study," *Front. Psychol.*, vol. 13, 2022, doi: 10.3389/fpsyg.2022.876485.

[12] M. Ferrara, "Learning from the Past to Improve the Future—Vaccine Hesitancy Determinants in the Italian Population: A Systematic Review," *Vaccines*, vol. 11, no. 3, 2023, doi: 10.3390/vaccines11030630.

[13] G. Sulis, "Antimicrobial resistance in low- and middle-income countries: current status and future directions," *Expert Rev. Anti. Infect. Ther.*, vol. 20, no. 2, pp. 147–160, 2022, doi: 10.1080/14787210.2021.1951705.

[14] R. R. Marzo, "Perceived COVID-19 vaccine effectiveness, acceptance, and drivers of vaccination decision-making among the general adult population: A global survey of 20 countries," *PLoS Negl. Trop. Dis.*, vol. 16, no. 1, 2022, doi: 10.1371/journal.pntd.0010103.

[15] K. Iwińska, "The primary drivers of private-sphere pro-environmental behaviour in five European countries during the Covid-19 pandemic," *J. Clean. Prod.*, vol. 393, 2023, doi: 10.1016/j.jclepro.2023.136330.

[16] B. Cordella, "How socio-institutional contexts and cultural worldviews relate to COVID-19 acceptance rates: A representative study in Italy," *Soc. Sci. Med.*, vol. 320, 2023, doi: 10.1016/j.socscimed.2023.115671.

[17] A. İ. C. Gözüm, "Developing the Teacher Self-Efficacy Scale in the Use of ICT at Home for Pre-school Distance Education During Covid-19," *Technol. Knowl. Learn.*, vol. 28, no. 3, pp. 1351–1381, 2023, doi: 10.1007/s10758-022-09616-8.

[18] Alvin, Agustina, A., & Ramadhana, PV (2017). Analysis of Risk Factors for the Incidence of Tuberculosis in the Working Area of the Pidie Community Health Center, Pidie Regency in 2017 Cell Journal of Health Research, 7(2), 52–60. https://doi.org/10.22435/sel.v7i2.3735

[19] Anwar et al, (2022). Relationship between Adherence to Taking Medication and Recovery of BTA Positive Pulmonary Tuberculosis Patients at the Delanggu Community Health Center, Klaten Regency. Integrated Journal of Health Sciences, 6(1), 7–12. https://doi.org/10.37341/interest.v6i1.71.

[20] Asriati., & Wulandari, ISM (2019). The relationship between knowledge of TB sufferers and the stigma of their disease in the working area of the Parongpong Community Health Center, Parongpong District, West Bandung Regency. CHMK NURSING SCIENTIFIC JOURNAL, 4(1), 171–177

[21] Astuti, Marselia, R. (2020). Relationship between Length of Therapy and Level of Depressive Symptoms in Pulmonary TB Patients in the Pontianak Lung Disease Treatment Unit. Cerebellum Journal, 3(3), 831–841

[22] Darmanto, Pujiati, E., & Icca, N. (2018). Factors Associated with the Occurrence of Depression in Hiv/Aids Sufferers (PLWHA). Journal of the Nursing Profession, 8(2), 163–178.

[23] Devi Yuniar, I., & Lestari, SD (2019). The relationship between nutritional status and income on the incidence of pulmonary tuberculosis. Indonesian Nursing Journal, 1(1), 18–25.

[24] Fitriani, T., Wahyudi, A., & Murni, NS (2020). Analysis of Determinants of Pulmonary Tuberculosis. Journal of 'Aisyiyah Medika, 7(1), 166–179. https://doi.org/10.36729/jam.v7i1.782

[25] Ministry of Health and Family, Shrestha, P., Subba, UK, Brouwer, M., & Sweetland, AC (2019).Depression among TB patients and associated factors in Kathmandu Valley, Nepal. Global Mental Health, 7, e4. https://doi.org/10.1017/gmh.2019.28.

[26] Nahda, ND, Kholis, FN, Wardani, ND, & Hardian. (2017). Factors that influence the incidence of depression in tuberculosis patients at RSUP dr. Kariadi Semarang. Diponegoro Medical Journal, 6(4), 1529–1542. https://doi.org/https://doi.org/10.14710/dmj.v6i4.18383

[27] Yunita Theresiana (2020) Determinants of Healthy Latrines Ownership in Working Area at Public Health Center of Suak Tapeh in Banyuasin Regency South Sumatra. https://scholar.google.co.id/citations?view_op=view_citation&hl=en&user=q-q1_jsAAAAJ&citation_for_view=q-q1_jsAAAAJ:9yKSN-GCB0IC