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Community diagnosis in efforts to reduce new cases of pulmonary tuberculosis at the kresek health center

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ABSTRACT

Tuberculosis (TB) is a disease caused by Mycobacterium tuberculosis. It is estimated that nearly 2 billion people are infected with M. tuberculosis. Every year, around 10 million people get TB disease and 1.6 million people die from it. According to data from the Kresek District Public Health Center, there has been an increase in TB cases in the last 3 years. This activity aims to reduce the number of new cases of pulmonary TB in the working area of the Kresek Health Center. problem identification using paradigm Blum, priority problem with Delphi non-scoring technique, identify root cause problems with Fishbone, and an intervention plan was developed. Evaluation of activities is carried out with a systems approach. The results of problem identification found that lifestyle factors play a role in the high number of new cases of pulmonary TB. The results of the identification of the root causes revealed that there was a lack of public knowledge about pulmonary TB due to a lack of education, so counseling was chosen as one of the educational media. Counseling was carried out to the community and the results of the intervention found that there was an increase in knowledge in the Kresek village community. The conclusion is that the community diagnosis obtained in the working area of the Kresek Health Center is pulmonary TB. Kresek Village is a location that has the main problem of pulmonary TB. After the intervention, there was an increase in the knowledge of the people who attended the counseling, so community diagnosis activities were suggested to address other health problems

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INTRODUCTION

Community diagnosis is a systematic effort which includes solving family health problems as the primary unit of the community communities that are the focus of community diagnosis. (Utami & Sulistyawati, 2021) This community diagnosis identifies problems and then directs a corrective intervention to produce a concrete work plan. (Herqutanto & Werdhani, 2014) In addition, this

Diagnosis is intended to provide a detailed picture of the community as well as an evaluation of public health, including the main factors that cause it and the needs felt by the population. (Alberdi-Erice et al., 2021) Using this approach, the problem in the community can be identified gradually. (Katiandagho & Kulas, 2012)

Tuberculosis (TB) is a progressive granulomatous infectious disease caused by gram-positive acid-resistant bacilli classified in the genus Mycobacterium. (Khan et al., 2019) This disease mainly affects the lungs, making pulmonary tuberculosis the most common presentation. Other organ systems frequently affected include the respiratory system, gastrointestinal (GI) system, lymphoreticular system, skin, central nervous system, musculoskeletal system, reproductive system, and liver. (Adigun & Singh, 2022) It is estimated that nearly 2 billion people (about a quarter of the world's population) are infected with M. tuberculosis. Every year, around 10 million people get TB disease and 1.6 million people die from it. (Centers for Disease Control and Prevention, 2019) Tuberculosis remains a major public health problem in the world, although several efforts have been made to improve case identification and treatment adherence. (Shimeless et al., 2019) Tuberculosis is very common in populations with lower socioeconomic and marginalized sections of society. (Natarajan et al., 2020) TB patients are the main source of infection because their sputum contains Mycobacterium tuberculosis. When the patient coughs or sneezes, droplets of sputum or droplet nuclei will spread into the air so that if another person breathes in the air containing the infectious sputum, that person will be infected. (Kementerian Kesehatan Republik Indonesia, 2020)

WHO estimates that in 2015 there were 10.4 million new TB cases, of which 60% of these cases were found in Nigeria, Indonesia, China, India, South Africa, and Pakistan. Of the 60% of these cases, 45% were found in Indonesia, India, and China. Until now, tuberculosis still bears the title of one of the top ten deadliest diseases in the world. (Harahap, 2022) Based on data from Basic Health Research (Riskesdas) in 2018, Banten Province has the second highest prevalence of pulmonary TB after Papua, namely 0.76% or 23,262 cases and in Serang District there are 2,762 cases. (Riset Kesehatan Dasar, 2019) According to data from the Kresek District Public Health Center, there has been an increase in TB cases over the last 3 years, namely in 2019 there were 109 new cases, in 2020 there were 111 new cases, in 2021 there were 132 new cases, while in 2022 from January to May there were 30 new cases. TB is also a Public Health Center Minimum Service Standard with a target of 100%, so this TB case is an interesting topic for community diagnosis. TB prevention itself can be carried out with various activities such as health promotion, TB surveillance, controlling risk factors, finding and treating TB cases, providing immunity, and administering preventive drugs. (Kementerian Kesehatan Republik Indonesia, 2016)

Previous studies suggest that delays in diagnosis and treatment contribute to persistent TB transmission. Increasing case detection by actively searching for sick individuals is only the first step in stopping transmission. The second step is to ensure that people with tuberculosis are diagnosed quickly and given an effective treatment regimen. (Yuen et al., 2015) It is also said that most of the infection control attention is on diagnosed TB patients and focused on effective treatment, whereas in reality most of the transmission comes from patients with unexpected cases of TB or unexpected drug resistance who are not on effective treatment. (Migliori et al., 2019)

Currently the work area of the Kresek Health Center requires prevention and treatment of pulmonary TB because new pulmonary TB cases have continued to increase in the last 3 years so that the chain of TB transmission can be broken, and to reduce the increase in the number of cases so that complications do not occur. For this reason, a community diagnostic approach is needed, which is an effort to help and fix problems to prevent additional cases of pulmonary TB.

RESEARCH METHOD

Situation analysis was carried out around the Kresek Health Center area and identified problems using the Blum paradigm. From the results of the analysis, it was found that the problems

underlying the increase in new pulmonary TB cases came from several problems, namely medical care services, the environment and lifestyle. After getting some of the problems, then determining the priority of the problems to be intervened using the Non-Scoring Technique (Delphi) and holding discussions at the Kresek Health Center with doctors at the Kresek Health Center and holders of the pulmonary TB disease program at the Kresek Health Center with the result that the priority problem chosen is lifestyle, Lifestyle which is the main problem is the lack of knowledge and preventive behavior against pulmonary TB in the people of Kresek District.

The next activity is to identify the root cause of the problem using a fishbone diagram. Based on the results of the mini survey which was distributed to 30 respondents who came to the Kresek Health Center, the following problems were found:

a. There are still people who lack knowledge about pulmonary TB in the form of methods of transmission, causes, symptoms, risk factors, treatment, prevention methods, and government programs.
b. There are still people who do not agree that pulmonary TB treatment lasts quite a long time and must be routine.
c. There are still people who are not sensitive to bringing people around them who experience symptoms of pulmonary TB to health care facilities.
d. There are still people who don't apply cough etiquette properly and throw phlegm anywhere.
e. There are still people who are not disciplined in taking drugs.

Based on the results above, it can be concluded that alternative solutions to the problem of the case in Kresek Village are:

a. Conduct counseling about pulmonary TB to the people of Kresek Village.
b. Demonstrating good and proper ethical procedures for coughing, removing phlegm, and washing hands for the people of Kresek Village.

Evaluation of activities is carried out with a systems approach.

RESULTS AND DISCUSSIONS

Based on data from the Kresek Health Center, the incidence of pulmonary TB has increased from 2019 to 2021. In 2020, there were 58 new cases in men and 45 new cases in women. For 2021 there are 67 new cases in men and 52 new cases in women.

These results are following previous studies which state that most tuberculosis patients are male and there has been an increase in TB cases for 3 consecutive years, namely 2017 - 2019 in the city of Kendari. (Amirullah et al., 2022) This is because men have a greater susceptibility to infection or a more frequent chance of being exposed. Generally, men smoke more than women in which smoking is a greater contributor to the burden of TB disease in men. Alcohol use has also been identified as a risk factor for TB disease because it may have an immunosuppressive effect whereby alcohol abuse is higher in men than in women. (Marçôa et al., 2018; Miller et al., 2021)

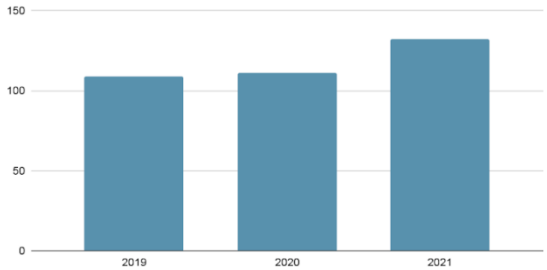

Figure 1. Number of New Cases of Pulmonary TB in the Last 3 Years at the Kresek Health Center

From the results of interviews and discussions on June 20 2022, among the four aspects of the Blum paradigm, the priority problem chosen is lifestyles. The lifestyle which is main problem is the lack of knowledge and preventive behavior against pulmonary TB in the people of Kresek District. After the priority of the problem is determined, the root cause of the problems are that there were still people who lacked knowledge about pulmonary TB, lack of knowledge due to the low level of public education and lack of outreach and education about pulmonary TB by health workers to the community. There are still people who do not agree that pulmonary TB treatment lasts quite a long time and must be routine. There are still people who are not sensitive to bringing people around them who experience symptoms of pulmonary TB to healthcare facilities.

As in previous studies it was stated that lifestyle indirectly affects tusberculosis. Lifestyle risk factors which include eating habits, living conditions, education, population density, smoking, alcohol and occupation, etc. have contributed to the tuberculosis burden. These factors have been shown to influence the tuberculosis burden. (Alsharani et al., 2021) In previous research explained that education is the most powerful factor influencing a person's knowledge of tuberculosis. The higher the education level, the better the TB patient's knowledge, and the lower the education level of the patient, the lower the TB patient's knowledge. (Hidayat et al., 2020) In addition, it was also explained that adequate knowledge of disease transmission routes is an important factor for TB prevention and control programs. (Amare et al., 2022)

Counseling and demonstrations were carried out at the Kresek Health Center and attended by the people of Kresek Village who had been invited with a target of 30 people. At the event, the community was asked to do a pre-test and post-test regarding pulmonary TB. The activity was attended by 23 participants. The pre-test results showed that 14 participants (65%) scored <75. The post-test results showed an increase in the number of participants who scored ≥75. At the end of the demonstration activity, the people present can carry out ethical procedures for coughing, removing phlegm, and washing hands properly and correctly.

The previous studies said that counseling led to better patient knowledge and clarified common misconceptions about TB that have been shown to lead to better patient outcomes. Effective counseling is a strategy that is easy to implement in low resource settings. (Sajjad et al., 2020) This is because by carrying out individual health promotion and individual evaluation, the knowledge that will influence changes in attitudes is good in forming attitudes and behavior of patients to be able to prevent transmission to people around them, their families and society in general. (Sumampow et al., 2018)

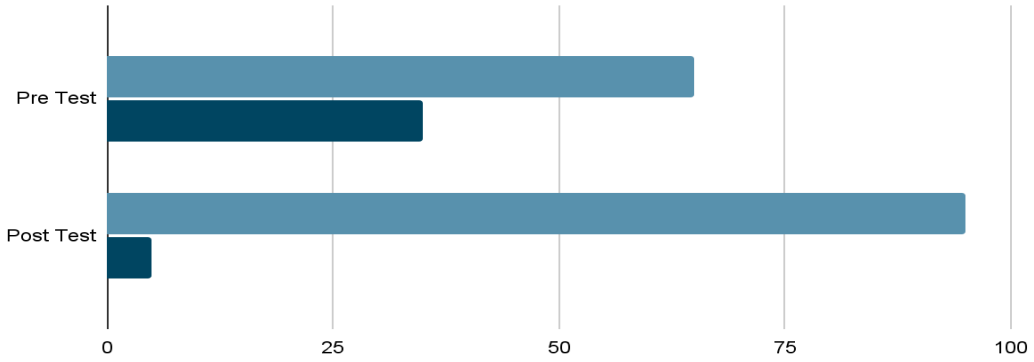

Figure 2. Comparison of the Number of Participants who Scored < 75 and ≥ 75

CONCLUSION

Efforts to help and fix problems to prevent additional cases of pulmonary TB in the work area of the Kresek Health Center are by conducting counseling and demonstrations regarding pulmonary TB with the people of Kresek Village as the target and the priority issue is lifestyles. The results of these activities showed that there was an increase in public knowledge about pulmonary TB and the community could carry out several efforts to prevent the transmission of pulmonary TB in their environment. For further activities, it is hoped that there will be re-education regarding pulmonary TB disease and efforts to prevent transmission of pulmonary TB disease and it is hoped that the target of these activities will include other villages. In this study there was a time limit so that it could only intervene in one root problem, namely lifestyle, so it is hoped that future research will intervene in other problems such as medical care systems and the environment.

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References

Adigun, R., & Singh, R. (2022). Tuberculosis. *StatPearls*. https://www.ncbi.nlm.nih.gov/books/NBK441916/

Alberdi-Erice, M. J., Martinez, H., & Rayón-Valpuesta, E. (2021). A Participatory Community Diagnosis of a Rural Community from the Perspective of Its Women, Leading to Proposals for Action. *International Journal of Environmental Research and Public Health 2021, Vol. 18, Page 9661*, *18*(18), 9661. https://doi.org/10.3390/IJERPH18189661

Alsharani, F., Zafar, M., Omar, E. O., & Muzaheed. (2021). Lifestyle Risk Factors Associated with Tuberculosis Patients in Asir Region of Saudi Arabia. *International Journal of Preventive Medicine*, *12*(1). https://doi.org/10.4103/IJPVM.IJPVM_211_19

Amare, W., Sinaga Teshome, M., Dessie, G., & Malik, T. (2022). Assessment of knowledge, attitude, and practices of tuberculosis patients towards DOTs regimen in Jimma health center, Jimma zone, southwest Ethiopia. *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*, *28*. https://doi.org/10.1016/J.JCTUBE.2022.100329

Amirullah, Tosepu, R., & Effendy, D. S. (2022). Epidemiology of Tuberculosis Disease Using Surveillance Data in Kendari City, Indonesia. *KnE Life Sciences*, 63-67-63–67. https://doi.org/10.18502/KLS.V0I0.11774

Center for Disease Control. (2019). *Module 2 - Epidemiology of Tuberculosis*. CDC.

Harahap, F. H. (2022). THE ASSOCIATION BETWEEN TUBERCULOSIS RISK FACTORS AND VITAMIN D SERUM LEVEL ON TUBERCULOSIS PATIENS. *JIMKI: Jurnal Ilmiah Mahasiswa Kedokteran Indonesia*, *9*(3), 1–8. https://doi.org/10.53366/jimki.v9i3.415

Herqutanto, & Werdhani, R. A. (2014). *Buku Keterampilan Klinis Ilmu Kedokteran Komunitas*. Departemen Ilmu Kedokteran Komunitas FKUI.

Hidayat, J., Lee, M.-C., Lee, M.-D., & Chen, C.-H. (2020). The Relationship between Knowledge and Medication Compliance Behavior among Patients with Tuberculosis. *South East Asia Nursing Research*, *2*(2), 1. https://doi.org/10.26714/seanr.2.2.2020.1-9

Katiandagho, D., & Kulas, E. I. (2012). DIAGNOSIS KOMUNITAS DI KELURAHAN PONGANGAN KECAMATAN GUNUNGPATI KOTA SEMARANG TAHUN 2011. *Jurnal Kesehatan Lingkungan*, *2*(1), 139–147. https://doi.org/10.47718/JKL.V2I1.536

Kementerian Kesehatan Republik Indonesia. (2016). *Peraturan Menteri Kesehatan tentang Penanggulangan Tuberkulosis*. Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan Republik Indonesia. (2016). *Peraturan Menteri Kesehatan tentang Penanggulangan Tuberkulosis*. Kementerian Kesehatan Republik Indonesia.

Khan, M. K., Islam, M. N., Ferdous, J., & Alam, M. M. (2019). An Overview on Epidemiology of Tuberculosis. *Mymensingh Medical Journal : MMJ*, *28*(1), 259–266. https://europepmc.org/article/med/30755580

Marçôa, R., Ribeiro, A. l, Zão, I., & Duarte, R. (2018). Tuberculosis and gender – Factors influencing the risk of tuberculosis among men and women by age group. *Pulmonology*, *24*(3), 199–202. https://doi.org/10.1016/J.PULMOE.2018.03.004

Miller, P. B., Zalwango, S., Galiwango, R., Kakaire, R., Sekandi, J., Steinbaum, L., Drake, J. M., Whalen, C. C., & Kiwanuka, N. (2021). Association between tuberculosis in men and social network structure in Kampala, Uganda. *BMC Infectious Diseases*, *21*(1), 1–9. https://doi.org/10.1186/S12879-021-06475-Z/FIGURES/4

Migliori, G. B., Nardell, E., Yedilbayev, A., D'Ambrosio, L., Centis, R., Tadolini, M., van den Boom, M., Ehsani, S., Sotgiu, G., & Dara, M. (2019). Reducing tuberculosis transmission: a consensus document from the World Health Organization Regional Office for Europe. *European Respiratory Journal*, *53*(6), 1900391. https://doi.org/10.1183/13993003.00391-2019

Natarajan, A., Beena, P. M., Devnikar, A. v., & Mali, S. (2020). A systemic review on tuberculosis. *Indian Journal of Tuberculosis*, *67*(3), 295–311. https://doi.org/10.1016/J.IJTB.2020.02.005

Riset Kesehatan Dasar. (2019). *Laporan Provinsi Banten, Riskesdas 2018*. Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan.

Sajjad, S. S., Sajid, N., Fatimi, A., Maqbool, N., Baig-Ansari, N., & Amanullah, F. (2020). The impact of structured counselling on patient knowledge at a private TB program in Karachi. *Pakistan Journal of Medical Sciences*, *36*(1), S49. https://doi.org/10.12669/PJMS.36.ICON-SUPPL.1713

Sumampouw, J., Konoralma, K., & Sukandar, D. (2018). *The Effectiveness of Health Promotion Method Using Poster in Improving Patients' Behaviour to Prevent Transmission of Pulmonary Tuberculosis Disease*. https://ejurnal.poltekkes-manado.ac.id/index.php/PMHP2nd/article/download/949/724/

Shimeles, E., Enquselassie, F., Aseffa, A., Tilahun, M., Mekonen, A., Wondimagegn, G., & Hailu, T. (2019). Risk factors for tuberculosis: A case–control study in Addis Ababa, Ethiopia. *PLOS ONE*, *14*(4), e0214235. https://doi.org/10.1371/JOURNAL.PONE.0214235

Utami, D. O., & Sulistyawati. (2021). Community Diagnosis dan Peningkatan Pengetahuan Penyakit Hipertensi pada Masyarakat RT. 02 Desa Dalam, Kecamatan Alas, Sumbawa. *ABDIMASKU : JURNAL PENGABDIAN MASYARAKAT*, *4*(3), 320–325. https://doi.org/10.33633/JA.V4I3.298

Yuen, C. M., Amanullah, F., Dharmadhikari, A., Nardell, E. A., Seddon, J. A., Vasilyeva, I., Zhao, Y., Keshavjee, S., & Becerra, M. C. (2015). Turning off the tap: stopping tuberculosis transmission through active case-finding and prompt effective treatment. *Lancet (London, England)*, *386*(10010), 2334. https://doi.org/10.1016/S0140-6736(15)00322-0