KESKOM. 2023; 9(2) : 379-385
JURNAL KESEHATAN KOMUNITAS
(JOURNAL OF COMMUNITY HEALTH)
http://jurnal.htp.ac.id

Identification of Suspected Tuberculosis Using A Pharmamed Chatbot Based on Health Services in The City of Padang

Identifikasi Suspek Tuberkulosis Menggunakan Pharmamed Chatbot Berdasarkan Layanan Kesehatan di Kota Padang

Sri Siswati [1*], Elsa Giatri[2], Yolanda Safitri[3]

[1,3] Faculty of Public Health Andalas University

[2] Balai Kesehatan Indera Masyarakat Provinsi Sumatera Barat

ABSTRACT

Introduction: *TB disease is the first of the ten leading causes of death in the world, and Indonesia is the third highest country after India and China. The Minister of Health said there were 824,000 people suspected of having TB and asked all health officials to prioritize surveillance efforts to find people with TB detected by name by address. The TB cure rate in West Sumatra Province in 2020 was 76.9% and has yet to reach the national target of 85% and the city of Padang is only 23%. Objective: The purpose of this study is to find suspected cases of TB using the Pharmamed Chatbot, by name and by address, so that they are easy to find to overcome TB. Methods: This type of research is quantitative descriptive of suspected TB cases using a 20-question chatbot to obtain social data by name and address and suspected TB cases. Results: The results of 838 respondents obtained 91 people suspected of TB, the composition of respondents BPJS 78.5% and 22.5%, not BPJS. BPJS respondents of productive age 15-24 years 26.91% and age range 45-64 years 34.4%. Chatbots are relatively prosperous and innovative as digital health in obtaining patients with suspected TB and the initial steps for TB control. Developing a complete chatbot and further research on TB disease prevention in Indonesia is necessary.*

ABSTRAK

Pendahuluan : Penyakit TB merupakan urutan pertama dari 10 penyebab utama kematian di dunia, dan Indonesia adalah negara ke-3 tertinggi setelah India dan China. Menteri Kesehatan mengatakan TB diduga ada 824.000 orang dan meminta seluruh jajaran kesehatan memprioritaskan upaya surveilans pencarian para penderita TB terdeteksi by name by adress. Angka kesembuhan TB di Provinsi Sumatra Barat tahun 2020 adalah 76,9% dan belum mencapai target nasional 85% dan kota Padang baru 23 %. **Tujuan:** Tujuan penelitian ini menemukan kasus terduga TB menggunakan Chatbot Pharmamed, *by name* dan *by adress* sehingga mudah disisir mengatasi TB. **Metode:** Jenis penelitian ini deskriptif kuantitatif kasus dugaan TB dengan menggunakan chattbot 20 pertanyaan memperoleh data sosial by name dan by adress dan kasus dugaan TB. **Hasil:** Hasil dari 838 responden diperoleh 91 orang terduga TB, komposisi responden BPJS 78,5 % dan tidak BPJS 22,5 %. Responden BPJS usia produktif 15-24 tahun 26,91 % dan rentang usia 45-64 tahun 34,4 %. Chatbot relatif berhasil dan inovatif sebagai digital kesehatan memperoleh pasien dugaan TB dan langkah awal penanggulangan TB. Perlu pengembangan chatbot yang lebih lengkap dan penelitian lanjut penanggulangan penyakit TB di Indonesia.

Keywords : TB Suspect, Chatbot, Innovative

Kata Kunci : Suspek TB, Chatbot, Inovasi

Correspondence : Sri Siswati
Email : siswati@ph.unand.ac.id

• Received 7 Oktober 2022 • Accepted 5 Juli 2023 • Published 31 Juli 2023
• p - ISSN : 2088-7612 • e - ISSN : 2548-8538 • DOI: https://doi.org/10.25311/keskom.Vol9.Iss2.1354

INTRODUCTION

TB in Indonesia and globally is still a major health problem. This disease is one of the top 10 causes of death in the world, and Indonesia is the country with the 3rd highest TB burden after India and China. Since the Covid-19 pandemic, this disease seems to have been forgotten and everyone is focused on preventing the Covid-19 pandemic, which is now slowly becoming endemic. TB is caused by the bacterium Mycobacterium tuberculosis, while COVID-19 is caused by a virus.

The transmission of these two disease outbreaks, TB through the air and Covid-19 is also through the air from the patient's fluid droplets. Mycobacterium tuberculosis bacteria through antibacterial taken regularly for at least 6 months. Viruses are very contagious and usually heal on their own by increasing the body's immunity and drugs that prevent the development of the virus [1].

According to data from the Indonesian Ministry of Health, there is 824,000 tuberculosis (TB) cases in Indonesia. Indonesia's Health Minister has called on all health levels to prioritize the search for tuberculosis patients so that 90% of that number will be detected by 2024. This is achieved by improving monitoring measures. Indonesia's health minister called for up to 824,000 tuberculosis patients in 2024, asking 90% of them to be identified by address. The epidemic principle is there and must be saved. This is the first and most important task, so it makes a good monitoring strategy [2].

TB cases found in the world in 2019 were 7.1 million cases of tuberculosis, while the findings of TB cases in the world in 2020 were 5.8 million cases. This decrease was due to reduced access to TB diagnosis and treatment, leading to an increase in TB deaths, around 1.3 million TB deaths rate HIV-negative people (increased from 1.2 million in 2019), and 214,000 HIV Positive TB (increased from 209,000 in 2019 [3] .

Indonesia commitment to eliminate TB by 2030 with a target incidence rate of 65/100,000 population with a mortality rate of 6/100,000 population. Based on the Global TB Report 2021, it is estimated that there are 824,000 TB cases in Indonesia, but only 393,323 cases (48%). There are still about 52% of TB cases that have not been found or have been found but have not been reported. Coverage of TB discovery and treatment is 39% in September 2022 (one-year target 90%) and the TB treatment success rate is 74% (SR target 90%). The case finding of 39% of the 90% target is very low, and this is why one of the causes of TB has not been handled properly[2,3].

The cure rate for TB treatment in Indonesia has not yet reached the set target. The cure rate for TB treatment in Indonesia ~~in~~ 2019 was 73.2% where there were 170,179 TB patients who recovered from 232,562 bacteriologically confirmed cases of tuberculosis that were registered and treated. In 2020, the cure rate decreased to 69.6% where there were 165,749 recovered patients from 238,146 bacteriologically confirmed tuberculosis cases registered and treated[.(4,5)].

The cure rate for TB treatment in West Sumatra Province, based on Indonesia's Health Profile in 2020, was 76.9%. The recovery rate in West Sumatra Province has yet to reach the set national target of 85%. In addition, TB cases in West Sumatra Province have increased. In 2019 there were 4230 bacteriologically confirmed cases of pulmonary tuberculosis registered and treated, and in 2020 it increased to 7262 TB cases. In 2020, the highest TB cases in West Sumatra Province were occupied by the City of Padang with 1670 cases (23%), followed by Pesisir Selatan District with 765 cases (11%), and Agam District with 576 cases (7%))[(4,5)].

The cure rate for TB treatment in 2021 in Padang City was 50.5%, of which 912 cases of bacteriologically confirmed patients were 461 cases that recovered. It means the cure rate for pulmonary TB treatment in the city of Padang is below from the national target of 85%[(6)]. Observing TB cases in the city of Padang from 2020 to 2021, it was seen that there were cases that did not carry out treatment, were drug-sensitive, or were drug-resistant. Handling TB cases does require perfect handling, as stated by the Minister of Health at the launch of the Protection Action of the Coordinating

Ministry for Human Development and Culture, namely the Integrated Program for Handling Tuberculosis. The theme is finding, raising, and being productive. This integrated TB control program is also in line with the Readiness to Collaborate for TB Elimination at The 4th Indonesia Tuberculosis International Meeting (INA-TIME) on September 8-9 in Bali[7].

To support the elimination of TB, it is necessary to improve and renew TB program management for health workers, doctors, nurses, midwives, epidemiologists, and program holders in health services based on the results of recent research. There needs to be innovation in finding TB cases in West Sumatra.

The purpose of this study is initial management by finding suspected cases of TB using Chatbot, by address and by name so that it is easy to comb through to overcome TB in the future.

Digital health is currently growing rapidly, the Ministry of Health has planned for the transformation of health digitalization to be carried out in 2024 with the integration of health information systems so that the data generated is correct and valid.[8]. The purpose of this study is initial management by finding suspected cases of TB using Chatbot, by address and by name so that it is easy to comb through to overcome TB in the future.

METHOD

This type of research is quantitative descriptive of suspected TB cases using Chatbot, which is tried to obtain a more quickly traced program. This Chatbot is a collaboration with that consists of 7 statements of social characteristics, Social Health Insurance Administration Body (BPJS) membership, and data from patients with TB symptoms according to WHO standards, as well as conclusions about suspected TB. The population includes people who live near health services or who visit healthcare facilities such as health centers, pharmacies, drug stores, or clinics. The research was carried out for five days with a target of 800 to 1000 people in Padang. Chatbot was also tested in the Taram village at the Taram Health Center in 50 Kota with 7 enumerators. Chatbot can save WhatsApp numbers, which can later be chatted. The chatbot contains seven questions that will screen whether you have ever felt TB symptoms. The enumerator carried out the method of data collection by asking the seven questions, and the enumerator immediately filled in the answers to the questions that came out on WhatsApp.

RESULT

The study's results were carried out around 11 enumerators. The result is that as many 838 people using Chatbot and obtained TB suspects were 91 TB suspects with the composition of BPJS 78.5% and not BPJS participants 22.5%. The questions include symptoms that lead to suspected TB from questions with an age range, by address, and by name, including respondents who have had a cough for 14 days that have not recovered, have a fever, lost weight, and conclude whether the patient will be concluded as a TB suspect or not.

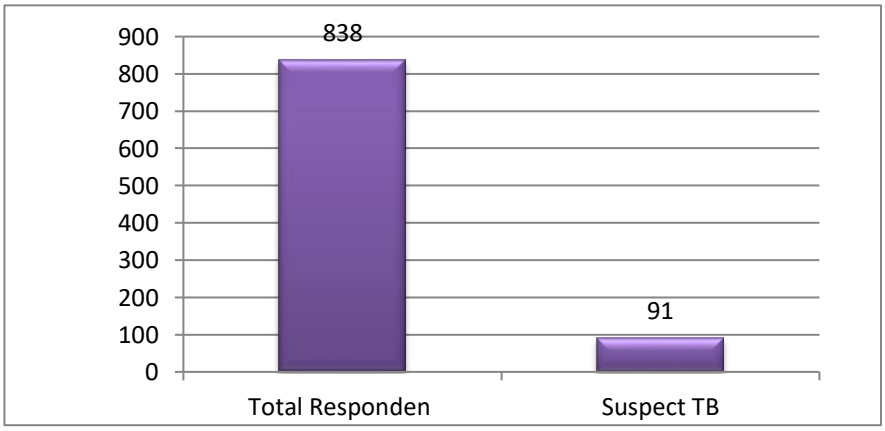

Figure 1 : Total suspect TB

Figure 1 shows that of the 838 respondents who were interviewed using the Chatbot, 91 people, or 11.9%.

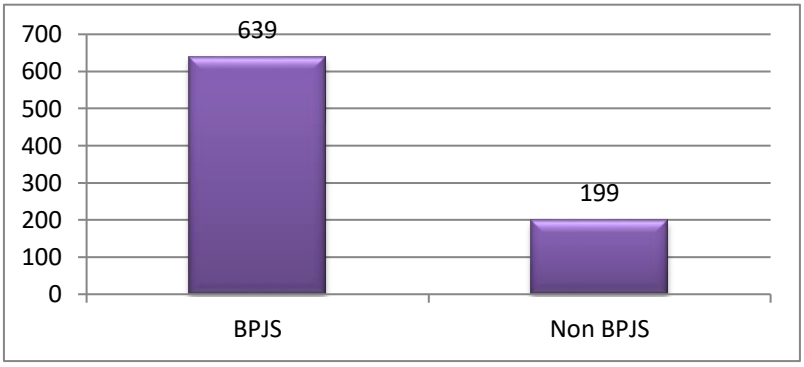

Figure 2. Respondents Use BPJS

Figure 2, it can be seen from 838 respondents, it turns out that only 639 respondents have BPJS cards, or about 76.25%, and 23.75% do not have Social Health Insurance Administration Body cards.

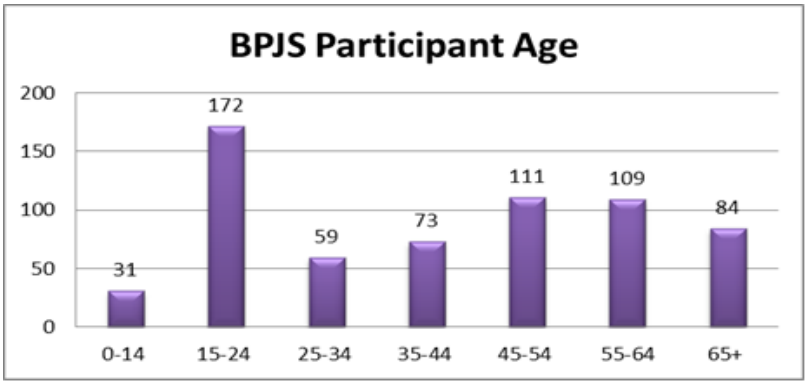

Figure 3. BPJS Participant by Age

Figure 3 shows the age distribution of patients suspected of TB, and what is worrying is that it is dominated by patients of productive age who move freely outside, namely 172 or 26.91% of respondents at the age of 1-24 years, 111 or 17.4% at the age of 45-45 years. and 109 (17.06%) at the age of 55-64 years .

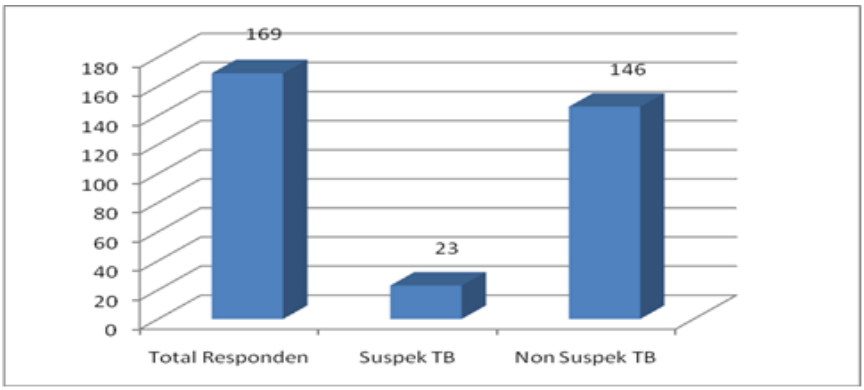

Figure 4.TB Suspect in Taram Health Center

Figure 5 shows at the Taram Health Center, it was seen that there are 23 Suscpect of TB find.

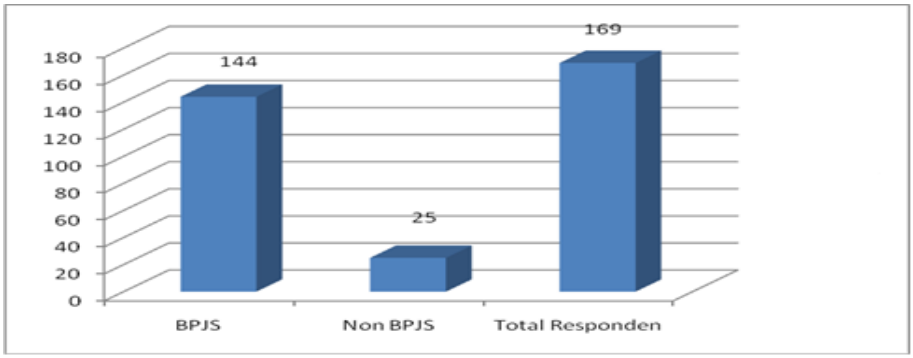

Figure 5. Respondents by BPJS

Participants who were tested for the TB suspect test with Chatbot at the Taram health center consisted of 25 (14,7 %) non-BPJS participants from the total BPJS respondents from 169 respondents.

DISCUSSION

The discovery of suspected TB is significant to do by asking about the general symptoms of TB. This data can be used for follow-up whether the TB suspect is positive or negative. Of course, it is followed up by health facilities. This is related to research by Nurhikmah that the Case Notification Rate before TB screening was 0.01%, while the CNR rate after the screening was 0.07%. It can be seen that there is an increase in TB CNR by 0.06%. So there is an effect of screening on increasing TB CNR, or it can be said that the effectiveness of screening is substantial in increasing the CNR of TB patients.[9,10].

Another study regarding the Hallo Batuk Program was conducted at the Piladang Public Health Center, District 50 Kota. This research explained that researchers carried out knocking door activities in Jorong Batu Tanyuh or home visits by providing information about TB and discussing tuberculosis, where in counseling, the symptoms of TB were explained[11,12].

Based on the Decree of the Minister of Health of the Republic of Indonesia Number 67 of 2014 concerning Guidelines for the Management of Tuberculosis, the discovery of TB patients is carried out passively with active promotion. Screening of suspected patients is carried out in health care units, supported by active counseling by health workers and the community to increase the scope of finding suspected TB patients.[13].

The National TB Program adopted the Directly Observed Treatment Short Course (DOTS) strategy as a national strategy and is now being developed into a more accelerative strategy, namely TOSS TB (Find Tuberculosis, Treat Until Healed). One of the strategy changes from promotive passive discovery to active, intensive, and massive one is by increasing the service network by involving Private Hospitals and Clinics, known as the Public-Private Mix.[14].

The results of this study are relate with the policy of the Indonesia Ministry of Health so that all levels of health prioritize the search for TB patients so that 90% of that number can be detected in 2024.

TB takes a relatively long time, about six months, for continuous treatment. Sweeping patients by address and by name will take a relatively long time. In addition, TB patients must take medication regularly. Cultural and social problems will arise more complicated than Covid-19. To overcome this, the community must be tricked into being aware of the need to treat TB. The Minister of Health must initiate the socialization obligation, and all stakeholders participate and support it.

A comparison in a small area in 50 Kota District with one area at the Taram Health Center shows that the chatbot test has shown results of 13.6% of participants suspected of having TB. Respondents who were non-BPJS amounted to 14.7% of the total 169 respondents. These results prove that relatively many patients are suspected of having TB in this Nagari. Our comparison was made at the Pakan Rabaa health center, about 5 km from the Taram health center, where most patients were TB patients. By 2022, tuberculosis cases will increase by approximately 1.6% to 14%. Compared with the 50 Kota in the province, which has 22 public health centers excluding Posyandu, pharmacies, drug stores, and clinics, the number of 50 cities is relatively high, both suspected and positive TB. There are interviews with the head of Puskesmas Pakan Rabaa that looked at 1 of his ten close to TB-positive patients, prioritizing family members over one TB patient. This requires immediate follow-up.

This TB suspect identification study is also in line with the Indonesia Tuberculosis International Meeting (INA-TIME) activity, which is carried out every year as a means to obtain the latest information from the results of TB research that TB Program researchers have carried out. The goal is to become a forum for scientific discussion through exposure to the latest research results and research plans in TB control.

Through INA-TIME activities, it can be a medium to expand the network of TB researchers, program managers, and practitioners in formulating new strategies to accelerate TB elimination in Indonesia and to motivate academics and health researchers to conduct TB research with themes that follow the priority problems of the TB program. National. Pentahelix, which combines elements of collaboration, is needed to support the elimination of TB by 2030. Pentahelix combines academia, business, community, government, and media, which aims to develop knowledge innovation for the advancement of the TB program.

This TB identification study in Padang and 50 Kota using the Pharmamed Chatbot was collaborated by submitting the results to the competent agency in the health sector for further coordination. These results are also the input for practitioners in the field of eradicating infectious diseases for research materials in learning to improve TB completion in universities. Using the Pharmamed Chatbot to find TB suspects, it is hoped that innovation will become further research that is more complete and perfect[15].

Following the mandate of Presidential Decree No. 67 of 2021, the role and support of multi-stakeholders from the central, district/city levels to the community must be encouraged and accelerated in TB control.

CONCLUSION

Chatbot is one of the TB Surveillance features developed by Pharmamed Chatbot. This Chatbot serves as a TB self-test service or a tool for pharmacists or surveillance teams. The Chatbot contains seven questions that ask about symptoms that lead to TB symptoms, and users will be given a choice of Yes or No answers.

Chatbot is relatively successful and innovative as a digital health to get patients with suspected TB results and is a guideline for managing TB control programs with processes such as combing and treating patients until they are cured. Identification of respondents suspected of TB, only some Social Health Insurance Administration Body participants, so that it has yet to be addressed to get guaranteed treatment. Identification of suspected TB patients using Chatbot mostly in productive age 15-24 and 45-64 years. It is necessary to develop a complete chatbot in the program to overcome the problem of TB in Indonesia. There is a need for a TB control development roadmap that requires further research. Cross-program and cross-sector collaboration are needed to describe the actual TB control program. There is a need for regulation in innovative TB control programs.

CONFLICT OF INTEREST

There’s no conflict of interest of this research.

ACKNOWLEDGEMENT

Thanks for all respondents of this research and thanks to all author and enumerators. Funding for this research came from the DIPA of the Faculty of Public Health, Andalas University.

REFERENCE

1. Handayani I, Sumarni. Tuberkulosis. Penerbit NEM; 2021.
2. Kementerian Kesehatan Republik Indonesia. Melalui Kegiatan INA – TIME 2022 Ke-4, Menkes Budi Minta 90% Penderita TBC Dapat Terdeteksi di Tahun 2024 [Internet]. 2022. Available from: https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20220909/5541046/menkes-budi-minta-90-penderita-tbc-terdeteksi-di-2024/
3. World Health Organization. Global Tuberculosis Report 2021 [Internet]. 2021. Available from: https://www.who.int/publications/i/item/9789240013131
4. Kementrian Kesehatan RI. Profil Kesehatan Indonesia 2019. Jakarta : Kementrian Kesehatan RI; 2020.
5. Kementrian Kesehatan Republik Indonesia. Profil Kesehatan Indonesia 2020. 2021.
6. Dinas Kesehatan Kota Padang. Laporan Evaluasi Pengobatan TB 2018-2021. 2021.
7. Kementerian Kesehatan Republik Indonesia. Strategi Nasional Penanggulangan Tuberkulosis di Indonesia 2020-2024. Pertem Konsolidasi Nas Penyusunan STRANAS TB. 2020;135.
8. Kementerian Kesehatan Republik Indonesia. Strategi Transformasi Kesehatan Digital. Kementerian kesehatan RI; 2021.
9. Nurhikmah. Efektifitas Skrining Tuberculosis Terhadap Case Notification Rate (CNR) Pada Penderita Tuberculosis Diwilayah Kelurahan Kwitang. 2017;4:9–15.
10. Free C, Phillips G, Watson L, Galli L, Felix L, Edwards P, et al. The Effectiveness of Mobile-Health Technologies to Improve Health Care Service Delivery Processes: A Systematic Review and Meta-Analysis. PLoS Med. 2013;10(1).
11. Adriani, Nurhayati, Oktavianis, Antono D. Pembentukan Program " Hallo Batuk " Untuk Penemuan Suspek Tb Di Puskesmas Piladang Kabupaten Lima Puluh Kota. Empower Soc J. 2020;1(2):67–76.
12. Arif MAI. the Legal Review of Online-Based Medical Services. 2018;1–134.
13. Kementerian Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan Nomor 67 Tahun 2016 Tentang Penanggulangan Tuberkulosis. 2016.
14. TB Indonesia. KONSEP JEJARING LAYANAN TB DI FASILITAS KESEHATAN PEMERINTAH DAN SWASTA BERBASIS KABUPATEN/KOTA (DISTRICT-BASED PUBLIC-PRIVATE MIX/DPPM) [Internet]. 2021. Available from: https://tbindonesia.or.id/pustaka-tbc/informasi/teknis/ppm/
15. Falzon D, Raviglione M, Bel EH, Gratziou C, Bettcher D, Migliori GB. The role of eHealth and mHealth in tuberculosis and tobacco control: A WHO/ERS consultation. Eur Respir J [Internet]. 2015;46(2):307–11. Available from: http://dx.doi.org/10.1183/09031936.00043315