Tahun 2025 [JURNAL KREATIVITAS PENGABDIAN KEPADA MASYARAKAT (PKM), P-ISSN: 2615-0921 E-ISSN: 2622-6030 VOLUME 8 NOMOR 12 TAHUN 2025] HAL 6091-6101

OPTIMIZING THE ROLE OF CADRES AND FAMILIES THROUGH EDUCATION AND DIGITAL TECHNICAL GUIDANCE DOTS MANAGEMENT IN IMPROVING TUBERCULOSIS TREATMENT ADHERENCE

Ari sukma Nela[1*], Laisa Azka[2], Armen Patria[3]

[1-3]Universitas Mitra Indonesia, Lampung

Email Korespondensi: arisukmanela@umitra.ac.id

Disubmit: 03 Oktober 2025 Diterima: 15 November 2025 Diterbitkan: 01 Desember 2025
Doi: https://doi.org/10.33024/jkpm.v8i12.22938

ABSTRACT

Tuberculosis (TB) remains one of the main challenges in the field of health in Indonesia, marked by high incidence rates and high rates of treatment discontinuation. Patient compliance in following treatment is key to the success of therapy. In previous community service activities, the role of health cadres and family support in the implementation of DOTS (Directly Observed Treatment Short-course) management has been carried out, but still needs to be optimized. This is because the manual data collection system is considered quite cumbersome and has an impact on the low achievement of TB control program indicators, which are far from the expected targets. Therefore, one of the new strategies designed is the implementation of digital-based technical guidance (bimtek). This activity aims to improve the role of cadres and families through education and digital technical guidance on DOTS management in order to improve TB patient compliance. The activity was carried out over a period of one month, consisting of socialization, group education, and participatory training, including counseling, mentoring, and the use of interactive digital media. There were 30 participants, consisting of health cadres, patients' families, and community leaders in the Gedong Tataan Community Health Center area. Preparations took two weeks, while the implementation took place over two days offline. Evaluation was conducted using pre-tests, post-tests, observations, and satisfaction questionnaires. The results of the activity showed an increase in the knowledge and skills of cadres and families, the use of digital applications, and patient compliance with therapy up to 78%. Digital education and technical guidance on DOTS management proved to empower the community in supporting TB control. In conclusion, DOTS-based digital education and technical guidance can empower cadres and families in supporting TB patient treatment, thereby increasing the success of TB control programs in the community.

Keywords: Tuberculosis, DOTS, Treatment Adherence, Health Cadres, Digital Education

1. INTRODUCTION

Tuberculosis (TB) remains a serious public health issue, both globally and nationally. According to the 2024 Global Tuberculosis Report, TB ranks 13th among the leading causes of death worldwide and is the second most common infectious disease after COVID-19. According to the World Health

Organization (WHO) in 2023, an estimated 1.25 million people died from TB, while the number of new cases reached 10.8 million with an incidence rate of around 134 per 100,000 population. The WHO has targeted a strategy of "End TB by 2030" to stop the global TB epidemic. Indonesia is among the top three countries with the highest TB burden in the world, along with India and China. The high incidence of TB in Indonesia poses a major challenge in achieving the 2030 TB elimination target (E. L. Susanti et al., 2024).

The success of TB control is largely determined by patient adherence to long-term treatment, which generally lasts six to twelve months. However, the rate of treatment discontinuation remains high. One of the main strategies that has been implemented is Directly Observed Treatment Short-course (DOTS), in which patients are accompanied by medication supervisors to ensure regularity of therapy. However, the implementation of DOTS often faces obstacles, particularly in terms of family involvement, lack of patient understanding, and limited capacity of health workers to provide assistance (Damanik et al., 2023).

The role of health cadres and families has proven effective in improving patient compliance. Cadres serve as the spearhead of health services in the community, while families play a key role in providing motivation and supervision. However, the effectiveness of both is often not optimal due to limited knowledge, communication skills, and access to the latest information on TB treatment management (Nela, 2025)

The development of digital technology has opened up opportunities to improve the quality of education and technical guidance for cadres and families of TB patients. Digital platforms enable faster, more interactive, and continuous knowledge transfer. The use of digital education and online technical guidance is also considered to be able to strengthen the role of cadres and families in supporting the implementation of DOTS more effectively (A. I. Susanti et al., 2023)

Through this digital education and technical guidance, it is hoped that there will be wider accessibility, continuity of monitoring, efficiency in terms of time and costs, interactivity and innovation, personalization of materials, increased compliance, better recording and evaluation, and flexibility in collaboration. Community health centers, as the frontline of primary health care, have a central role in facilitating these empowerment programs through an integrated promotive and preventive approach, one of which is through the empowerment of cadres (A. I. Susanti et al., 2023).

Cadres' skills in understanding and applying DOTS management knowledge digitally in providing services at the Puskesmas, especially in TB treatment and DOTS support (N.L & Arda, 2022).

Optimizing the role of cadres and families through education and technical guidance on digital DOTS management in improving tuberculosis treatment adherence is one of the follow-up programs from previous empowerment efforts with a strategic approach oriented towards strengthening the capacity of individuals and communities to recognize, understand, and actively engage in TB management (Sri Indarswari et al., 2022)

This activity is related to one of the SDGs, namely the End TB Strategy, for the sake of realizing a healthy world free of TB, because TB is among the top 10 causes of death. Increased understanding and skills of cadres in DOTS education and assistance can help ensure that patients and at-risk groups

understand how to treat and assist them so that the risk of TB transmission or TB treatment failure can be prevented (Damanik et al., 2023)

This follow-up activity is a continuation of previous activities that focused on empowering high-risk communities through education and technical guidance on DOTS management to improve tuberculosis treatment adherence (Subbaraman et al., 2018). Although it has had a positive impact, there are still challenges in the form of limited coverage, obstacles to the sustainability of face-to-face assistance, and changing needs in the digital era (Hayudini et al., 2025). The success of TB control does not only depend on high-risk groups, but also requires family support and the role of health cadres as medication supervisors. The use of digital technology is a strategic solution to provide interactive, fast, and easily accessible education, while also enabling continuous monitoring. Therefore, program development is directed at optimizing the role of cadres and families through digital education and systematic technical guidance in order to expand coverage, improve the effectiveness of patient compliance monitoring, and deliver community service innovations that are relevant to current technological developments and needs, so that the goal of sustainable TB control can be achieved.

The Gedong Tataan Community Health Center, located in Pesawaran District, Lampung Province, is one of the areas facing challenges in TB control, including low levels of treatment adherence. Therefore, structured and digital-based interventions are needed to empower communities in order to improve the effectiveness of the DOTS program. Digital education and technical guidance activities for high-risk communities are a potential strategy to overcome compliance barriers, improve community understanding, and strengthen social support in accompanying the TB treatment process as a whole.

Based on this, this service focuses on optimizing the role of cadres and families through education and technical guidance on digital DOTS management to improve TB patient treatment adherence. It is hoped that this approach can provide real support and contribute to reducing the number of patients who discontinue treatment and accelerating the achievement of TB elimination targets in Indonesia.

2. IMPLEMENTATION METHOD

This community service is a follow-up program, which was preceded by the empowerment of high-risk communities through education and technical guidance on DOTS management in an effort to improve compliance with TB treatment. It was implemented using a participatory approach through a structured education and technical guidance model. In this follow-up community service activity, the method used remains participatory through the following steps:

1) Digital DOTS Management Training
   a) Through workshops on the use of simple applications on Android devices.
   b) Simulation of daily digital recording of TB patients.
2) Cadre Assistance
3) Implementation of the Digital Reporting System
4) Evaluation and Feedback

a) Assessment of improvements in cadre knowledge and skills.
b) Analysis of TB patient compliance data before and after the implementation of the digital system.
c) Focus group discussion (FGD) sessions to hear the experiences of cadres in the implementation.

This activity aims to improve the capacity of cadres and families in understanding and implementing tuberculosis (TB) treatment management based on the Directly Observed Treatment, Short-course (DOTS) strategy using digital applications to improve compliance with the therapy being carried out.

This activity was carried out in the working area of the Gedong Tataan Community Health Center, Pesawaran Regency, Lampung Province, from August 25 to September 22, 2025, for one month. The main targets of this activity were cadres and families classified as high-risk groups, with a total of 30 targets, consisting of 15 cadres, 12 families in high-risk groups, and 3 active TB patients undergoing treatment. This program was implemented using a community empowerment method combined with a capacity building approach through two main strategies, namely health education and technical guidance and training. This method was chosen to ensure an increase in knowledge and skills in practicing DOTS-based TB treatment management with digital applications, both independently and in a mentoring role. The media used included PPT slides, videos, guides, and leaflets about TB and how to manage DOTS mentoring and digital recording simulations.

Implementation Stages

This activity was carried out in several stages as follows:

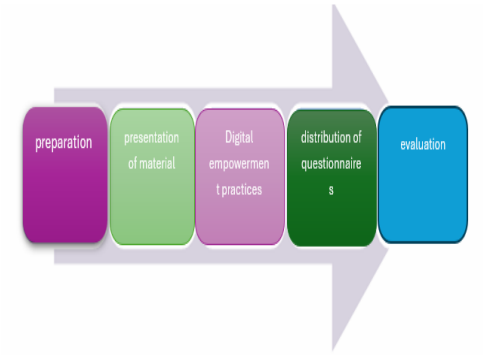

Figure 1. Flowchart of Community Service Activities

a. Preparation Stage
This stage involves cooperation and coordination with the Gedong Tataan Community Health Center (Puskesmas) regarding mapping the area and activity targets, preparing educational materials, and preparing evaluation instruments and tools. This stage also involves determining achievement indicators and preparing pre-test and post-test instruments.
b. Education Implementation Stage
This stage is conducted in groups using visual media (videos, posters, leaflets, guides, and presentation slides) that explain TB, the importance of treatment adherence, and the basic principles of DOTS management.

The material is delivered by the community service team and TB officers from the Community Health Center in the form of interactive counseling.

c. Digital-based Technical Guidance (Bimtek) Phase
Bimtek activities focus on providing practical skills training to cadres and patients' families in monitoring medication adherence, recording, and daily reporting in accordance with DOTS procedures. This guidance is carried out through simulations, small group discussions, and role-playing. The digital training stage involves assisting cadres in simulations and receiving digital reports.

d. Questionnaire and evaluation stage
Evaluation was conducted through pre-tests and post-tests to measure participants' knowledge improvement. In addition, monitoring of post-activity treatment management was carried out through home visits, in-depth interviews, and the completion of compliance forms provided.

e. Data Analysis Techniques
Data obtained from pre-test and post-test instruments were analyzed descriptively and quantitatively to determine changes in knowledge levels before and after the activity. Meanwhile, qualitative data from observations and interviews were analyzed thematically to evaluate the achievement of technical guidance processes and implementation challenges in the field. The methods used were lectures, question and answer discussions, and management demonstrations for DOTS management. The use of leaflets has the advantage of making it easy for participants to remember TB and apply it in their daily lives. Evaluation was carried out at the end of the session with the aim of assessing the success of the activity.

3. RESULTS AND DISCUSSION

The implementation of this community service activity received a positive response from the community in the Gedong Tataan Community Health Center working area. This activity was carried out using a participatory approach through digital-based education and technical guidance for cadres and families in the Gedong Tataan Community Health Center working area. The activity lasted for one month, from August 18 to September 22, 2025, beginning with a socialization phase, followed by group education sessions and training and technical guidance on digital-based DOTS (Directly Observed Treatment Short-Course) management. The results of the evaluation of the achievement of the activity preparation phase can be seen in the following table:

Table 1. Results of the evaluation of the achievement of the activity preparation stage

No	Activities	Achievement 100%	
		Implemented	Not yet implemented
1	Survey of the venue for the activity	100%	
2	Administration and location permits for community service activities	100%	

3	Preparation of tools and materials for activity implementation as well as activity implementation materials	100%
4	Educational intervention	100%
5	Digital technical training	100%
	Achievement of stages	100%

The results achieved in this activity are as follows:

a. There was independence among cadres and families in DOTS management given to 30 participants, with an increase in the average score from 62.3 to 100 (scale of 0–100), indicating an increase in digital skills in the role of DOTS management in supporting patient compliance. A total of 15 health cadres were intensively trained in the application of digital DOTS management, including supportive communication techniques and daily medication monitoring. The cadres were also provided with educational tools such as leaflets and pocket books on TB therapy supervision. The evaluation results showed that 100% of the cadres felt more confident and competent in carrying out their role as medication supervisors.
b. Increased Adherence to Treatment
   Data from community health centers show an increase in the number of patients undergoing treatment according to schedule from 67% before the intervention to 100% after the program's implementation. This demonstrates the effectiveness of educational approaches and direct assistance in motivating patients to be more compliant with their treatment regimens.
c. Cross-Sector Commitment
   There has been an increase in cross-sector involvement, such as village officials and community leaders, who play a role in supporting the sustainability of the program. This commitment is manifested in the form of local regulations (village regulations) that encourage community participation in TB control programs. Optimizing the role of cadres and families through education and digital technical guidance on DOTS management has proven effective in raising awareness of the importance of completing TB treatment. These results are in line with Marwah (2024), who states that increased perception of vulnerability and the benefits of action will influence individual health behavior (Marwah et al., 2024).

DOTS management implemented through a digital-based technical guidance approach for cadres and families has been proven to increase TB patient compliance with treatment. This reinforces the results of previous studies which state that direct supervision by officers or families can increase the success of TB therapy (Damayanti & Sofyan, 2022).

This activity also demonstrates the importance of synergy between parties, both from the health sector and outside the health sector, in supporting the success of this program. Active participation of cadres and local policy support, such as community health centers, are important factors in maintaining the sustainability of community-based interventions (Mau & Hartayu, 2023). Overall, this community service activity successfully optimized the role of cadres and families in TB control through digital-based DOTS management technical training. This activity not only trained cadres

to be independent in recording but also strengthened the TB treatment monitoring system at the primary level through a continuous educational and technical approach. The success of this program demonstrates that a community-based approach can be an effective strategy in improving patient adherence to treatment, particularly in supporting Indonesia's 2030 TB elimination program and facilitating reporting for cadres and officers (Syarif & Adiaksa, 2023).

Based on screening activities carried out in the Gedong Tataan Community Health Center area, Pesawaran District, Lampung Province, it was found that TB screening in the community successfully detected new cases that had not been detected previously. This demonstrates that active screening is crucial in TB control. The involvement of community health workers and families, equipped with education and digital technical guidance, enhances the effectiveness of TB patient monitoring. Through digital-based systems and communication groups, health workers can report more systematically patient compliance, while families feel more guided in accompanying patients. The digital-based approach has also proven to be more efficient in connecting patients, families, cadres, and health workers, thereby improving the sustainability of TB therapy. Lack of understanding about TB treatment management, including factors that can affect recovery such as irregular medication patterns, poor nutrition, and lifestyles that do not support the healing process, are factors that exacerbate this condition.

As is well known, tuberculosis is more likely to affect individuals with weak immune systems and is often found in people of productive age and the elderly (Sivashanmugam & Mahendran, 2025). One factor contributing to high rates of noncompliance is the lack of public knowledge about the mechanisms of TB transmission, the importance of taking medication on time, and the risk of drug resistance if treatment is not carried out consistently(Andrade-Sales et al., 2025). Additionally, unhealthy behaviors such as smoking, lack of physical activity, and low socioeconomic status further exacerbate non-compliance with TB therapy.

Knowledge is a key component in shaping public health behavior (Berahim et al., 2025). Through digital education and technical guidance activities, it is hoped that positive behavioral changes will occur that support increased adherence to TB treatment (Siagian, 2018). Health education on DOTS management is part of promotional and preventive efforts aimed at individuals and groups at high risk of TB.

Research (Hanafi et al., 2025), training was provided to increase the cadres' knowledge of their duties, measured through pretests and post-tests. The results showed a significant increase in knowledge, with an average pretest score of 58.9% and post-test scores reaching 85-90%. In addition, regular monitoring conducted by the cadres improved patient adherence, reduced the risk of transmission, and supported treatment success. This activity concluded that optimizing the role of PMO Cadres is effective in improving medication adherence in Tuberculosis patients and can serve as a model to be implemented in other areas to combat Tuberculosis

In this community service activity, direct counseling was provided to residents identified as having TB or being at high risk (Ahmad et al., 2025). The educational materials covered understanding TB, clinical symptoms, risk factors, prevention efforts, and the importance of completing treatment in

accordance with DOTS protocols The results of this activity showed an increase in community knowledge about TB and its treatment, both through pharmacological and non-pharmacological approaches, as well as increased motivation to maintain treatment adherence.

The provision of digital education and technical guidance has been proven to contribute positively to efforts to increase community compliance with TB treatment. In addition, this approach is also expected to encourage sustainable healthy behavior change among the people of Gedong Tataan Village, so that TB control and elimination can be achieved optimally through active community participation.

The results of community service activities show that education and digital technical guidance effectively enhance the understanding of health volunteers and the involvement of families in supporting Tuberculosis (TB) patients, in line with the DOTS concept, which emphasizes the importance of direct supervision to ensure treatment compliance. This is also in accordance with the Indonesian Ministry of Health policy (2022), which underscores the strategic role of volunteers and families in the success of the DOTS program. Based on the Health Promotion Model and the Diffusion of Innovation theory, empowerment through digital education can increase knowledge, motivation, and the adoption of healthy patient behaviors. These results align with previous studies, such as (Syahrir et al., 2025), which confirm that volunteer training, family support, and the use of digital media contribute to improved adherence and the success of TB treatment (Roberti et al., 2025). Thus, the integration of education and digital technology in DOTS management has been proven to strengthen the role of health cadres and families, improve therapy effectiveness, and support the national TB control strategy in the era of health transformation.

4. CONCLUSION

The conclusion of this community service activity is that community service carried out in the working area of the Gedong Tataan Community Health Center, Pesawaran Regency, Lampung Province, shows that efforts to optimize the role of cadres and families through education and technical guidance on digital DOTS (Directly Observed Treatment Shortcourse) management can make a positive contribution to skills in recording and treating tuberculosis (TB). This activity not only serves as a transfer of knowledge, but also as a form of assistance that strengthens the capacity of individuals and groups in facing the challenges of long-term TB treatment.

Through a participatory and communicative approach, program participants demonstrated increased knowledge about TB, the important role of completing treatment, and procedures in the DOTS program. In addition, active community involvement in education and technical simulations proved to strengthen the internal motivation of patients and health cadres in undergoing and accompanying the treatment process. Thus, this program has made a tangible contribution to strengthening community-based health care systems and supporting national efforts to eliminate TB. The following is an evaluation of the results of these activities:

a. 100% increase in cadre skills
b. 100% increase in treatment adherence
c. 100% increase in cadre empowerment for Digital DOTS management.

Covering

a. **Development of Interactive Digital Applications or Platforms**
   Researchers are advised to develop or utilize digital applications that are more interactive and easily accessible to health workers and patients' families, for example with features such as medication reminders, online consultations, and daily adherence reporting. In this way, digital education and technical guidance can continue sustainably and be well monitored.

b. **Evaluation of the Effectiveness and Long-Term Impact of Digital Programs**
   It is recommended that future researchers conduct longitudinal studies to evaluate the long-term effectiveness of digital education and technical guidance on treatment adherence and TB therapy success rates. The results of this evaluation can serve as a basis for evidence-based policy-making to strengthen DOTS programs at the community level.

Acknowledgements

We would like to express our gratitude to the community of Gedong Tataan, Pesawaran Regency, and Mitra Indonesia University for the facilities and administrative permits used in carrying out community service activities.

5. BIBLIOGRAPHY

Ahmad, R., Sheikh Ghadzi, S. M., Hyder Ali, I. A. Bin, Syed Sulaiman, S. A., & Khan, A. H. (2025). Pharmacist-Led Education Intervention To Improve Pulmonary Tuberculosis Treatment Adherence Through The Health Belief Model In Malaysia: A Study Protocol For A Randomized Controlled Trial. *Monaldi Archives For Chest Disease*. Https://Doi.Org/10.4081/Monaldi.2025.3474

Andrade-Sales, C., Simões-Castro, A. P., Mendonça-Cavalcante, P. A., Moreira-Sena, M. P., Tavares-Cohén, G. A., Brito-Alves, B. C., El-Awar, U. G., Pacheco-Lima, K. Y., Azevedo-Ribeiro, C. H. M., Fernandes-Vieira, J. L., & Pereira-Sena, L. W. (2025). Development And Validation Of A Digital Health Application To Support Tuberculosis Treatment Adherence. *Brazilian Journal Of Biology = Revista Brasleira De Biologia*, *85*, E296271. Https://Doi.Org/10.1590/1519-6984.296271

Berahim, R. I., Jusuf, H., & Pateda, S. M. (2025). The Effect Of M-Health Utilization With Audiovisual Education Approach On Treatment Adherence Behavior In Tuberculosis Patients. *Indonesian Journal Of Global Health Research*, *7*(2), 1113–1122. Https://Doi.Org/10.37287/Ijghr.V7i2.5893

Damanik, B. N., Yani, A., & Daulay, D. (2023). Analisis Pelaksanaan Strategi Directly Observed Treatment Shortcourse (Dots) Dalam Program Penanggulangan Tb Di Puskesmas Bromo Kecamatan Medan Denai Tahun 2023. *Kesehatan Deli Sumatera*, *1*(1), 1–8.

Damayanti, M., & Sofyan, O. (2022). Hubungan Tingkat Pendidikan Terhadap Tingkat Pengetahuan Masyarakat Di Dusun Sumberan Sedayu Bantul Tentang Pencegahan Covid-19 Bulan Januari 2021. *Majalah Farmaseutik*, *18*(2), 220–226.

Https://Doi.Org/10.22146/Farmaseutik.V18i2.70171

Hanafi, W., Wospakrik, F., Iyai, M., & Srianingsih, S. (2025). Optimalisasi Peran Kader Pmo (Pengawasan Menelan Obat) Dalam Kepatuhan Minum Obat Pada Penderita Tuberkulosis Paru. *Jurnal Lentera*, *5*(1), 28–40. Https://Doi.Org/10.57267/Lentera.V5i1.421

Hayudini, M. A. A., Pangandaman, H. K., Mai-Alauya, S. A., Rosario Macarambon, R. Del, Macalaba, S. P., Ali, N. A., Mukattil, N. P., Uddin, T. S., Salve, M. M., Abdulhan, M. S., Asiddaud, F., & Tan, N. F. A. (2025). Effectiveness Of The Dots Program In Enhancing Management Of Pulmonary Tuberculosis: A Systematic Review. *Frontiers In Health Informatics*, *14*(2), 44–51. Https://Research.Ebsco.Com/Linkprocessor/Plink?Id=78361b2b-2bb5-3581-80ff-949801285135

Marwah, M., Rekawati, E., Nursasi, A. Y., & Sari, I. P. (2024). Edukasi Kesehatan Memengaruhi Perilaku Pencegahan Penularan Tuberkulosis: A Systematic Review. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, *16*(2), 365–374. Https://Doi.Org/10.34011/Juriskesbdg.V16i2.2534

Mau, M. Y., & Hartayu, T. (2023). Success Factors In Improving Patients' Adherence To Tuberculosis Treatment Program: Case Study In Sleman, Yogyakarta, Indonesia. *Journal Of Pharmaceutical Sciences And Community*, *20*(2), 191–200. Https://Doi.Org/10.24071/Jpsc.005770

N.L, N., & Arda, D. (2022). Pemberdayaan Masyarakat Dalam Upaya Pencegahan Penyakit Tuberculosis Paru. *Abdimas Polsaka*, *1*, 12–15. Https://Doi.Org/10.35816/Abdimaspolsaka.V1i1.6

Nela, A. S. (2025). *Pemberdayaan Masyarakat Berisiko Tinggi Melalui Edukasi Dan Bimbingan Teknis Manajemen Dots Dalam Upaya Meningkatkan Kepatuhan Terhadap Pengobatan Tb*. *7*, 147–154.

Roberti, J., Morelli, D. M., Aguilar-Vidrio, O. A., Suyanto, A., Carmiol-Rodriguez, P., Tolentino, A., Chen-Liang, E., Sprecher, J., Rubinstein, F., & Iribarren, S. (2025). Improving Tuberculosis Treatment Adherence: A Qualitative Study Of Patients' Perspectives From A Pragmatic Trial Of The Tuberculosis Treatment Support Tools Intervention. *Bmj Open* , *15*(9), 1–10. Https://Doi.Org/10.1136/Bmjopen-2024-095878

Siagian, E. (2018). Tuberculosis Patient Adherence To Treatment And Transmission To Home Contact Family Members. *Abstract Proceedings International Scholars Conference*, *6*(1), 66. Https://Doi.Org/10.35974/Isc.V6i1.1333

Sivashanmugam, M., & Mahendran, R. (2025). A Qualitative Study On The Barriers To Tuberculosis Treatment Adherence Using Digital Adherence Technologies (Dats). *Indian Journal Of Medical Research*, *161*(4), 354–361. Https://Doi.Org/10.25259/Ijmr_1644_2024

Sri Indarswari, N. M. A. R., Sutema, I. A. M. P., & Bakta, I. M. (2022). The Effect Of Online-Based Education On Treatment Attitudes And Medication Adherence Of Tuberculosis Patients At The Denpasar City Health Center. *Journal Pharmaceutical Science And Application*, *4*(2), 82. Https://Doi.Org/10.24843/Jpsa.2022.V04.I02.P06

Subbaraman, R., De Mondesert, L., Musiimenta, A., Pai, M., Mayer, K. H., Thomas, B. E., & Haberer, J. (2018). Digital Adherence Technologies For The Management Of Tuberculosis Therapy: Mapping The Landscape

And Research Priorities. *Bmj Global Health*, *3*(5), E001018. Https://Doi.Org/10.1136/Bmjgh-2018-001018

Susanti, A. I., Nuraini, A., Ferdian, D., Nurparidah, R., & Jayanti, E. D. (2023). Penguatan Kader Dengan Literasi Digital Dalam Pencatatan Dan Pelaporan Berbasis Aplikasi Iposyandu. *Media Karya Kesehatan*, *6*(2), 284–299.

Susanti, E. L., Senen, P., Hasnaini, A., & Senen, P. (2024). *Karakteristik Dan Analisis Risiko Kasus Tuberkulosis Di Karakteristik Dan Analisis Risiko Kasus Tuberkulosis Di Puskesmas Senen , Jakarta Pusat Tahun 2023*. *8*(2). Https://Doi.Org/10.7454/Epidkes.V8i2.1130

Syahrir, S., Ninef, V. I., Bhwa, D. A. V. P., Suluamu, M., & Jesus, B. L. H. De. (2025). The Role Of Nurses In Improving Medication Adherence Among Pulmonary Tuberculosis Patients: A Phenomenological Study. *Indogenius*, *4*(2), 301–308. Https://Doi.Org/10.56359/Igj.V4i2.585

Syarif, S., & Adiaksa, B. W. (2023). Effect Of Health Education On Family Independence Level Caring For Tuberculosis Sufferers Dots Program. *Jurnal Ilmiah Kesehatan Sandi Husada*, *12*(1), 269–275. Https://Doi.Org/10.35816/Jiskh.V12i1.1047