

Short Paper

Exploring the Role of Video-Observed Therapy (VOT) in Improving Medication Adherence of Multidrug Resistant-Tuberculosis (MDR-TB) Patients in Rodriguez, Rizal: Qualitative Descriptive Study

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Abstract

This qualitative descriptive study explored the role of Video-Observed Therapy (VOT) in improving medication adherence among 10 multidrug-resistant tuberculosis patients (MDR-TB) who were declared cured upon successful completion of treatment at a selected rural health unit in Rizal, Philippines. A semi-structured interview was conducted to gather rich, detailed data from the informants. The study utilized Braun and Clarke's 6-step Thematic Analysis for generating five major themes, (1) Connected to Care: Strengthening TB Treatment through Communication and Technology, (2) A Push From Within: Ownership and Commitment in TB Treatment, (3) Patient-Control through Accessible and Remote Monitoring, (4) Factors That Contribute to the Usability of VOT Among Patients, and (5) Ease Depends on Access: Exploring Connectivity in the Use of VOT. These reflect the informants' perceptions and experiences towards VOT as a treatment modality. The researchers recommended further exploration of the use and value of VOT from a patient and healthcare perspective, a comparative study between Directly-Observed Therapy (DOT) and Video-Observed Therapy (VOT), barriers to using the modality, and understanding the implementation of VOT in other resource-limited settings.

Keywords – adherence, multidrug-resistant tuberculosis patients, assigned healthcare provider, video-observed therapy

INTRODUCTION

Tuberculosis (TB) is a communicable disease that requires strict adherence to a drug treatment regimen taken over several months (WHO, 2025). Despite being preventable and curable, TB returns as the leading cause of death from a single infectious agent after COVID-19. In 2023, the World Health Organization (WHO) reported 1.25 million TB-related deaths with 10.8 million new cases across all age groups. The burden of the disease is concentrated in low- and middle-income countries like the Philippines, which marked TB

as one of the top 10 causes of death among Filipinos, and a ranking of fourth among eight countries accounting for more than 2/3 of global TB cases.

In digital health and its emerging media, the WHO recommends implementation of Video-Observed Therapy (VOT) as a technological alternative to address the barriers of the standard strategy of TB control. These include but are not limited to factors such as inconvenience, reduced economic productivity, compromised quality of life, and complicated treatment compliance (Sazali et al., 2023).

Seeing through the gap, VOT transformed into a supportive modality in improving TB treatment adherence in the Philippines. It allows patients to record or live-stream medication intake using any digital device, enabling a remote monitoring system while reducing the demands of in-person supervision (CDC, 2024). Alongside these benefits are time-saving factors, flexibility, and fewer self-reported side effects (Sundaram et al., 2024).

In the Philippines, studies by Casalme et al. (2022) in Cavite showed better medication adherence and satisfaction, accompanied by a lower absence rate from their check-ups. While Begontes et al. (2023) observed a high satisfaction rate and recommendation from MDR-TB patients who used VOT in Cebu.

As VOT is already established and recommended by the WHO for treatment provision, most existing research materials and implementation experiences were accounted for only from resource-rich contexts. This study seeks to address this gap by exploring the role of VOT in improving treatment adherence of multidrug-resistant tuberculosis (MDR-TB) patients in a municipality in Rizal, Philippines. Specifically, it aims to describe patient perceptions and lived experiences with VOT as a treatment modality in a low-resource context.

LITERATURE REVIEW

TB is also known as *Mycobacterium tuberculosis*, an infectious disease that often affects the lungs (WHO, 2024). It is treatable with a strict regimen of antibiotics, usually ranging from 3 to 6 months. Many patients struggle to complete treatment because of its long duration and the accompanying side effects of medication. Incomplete adherence, however, can lead to the development of a more complex TB strain known as multidrug-resistant tuberculosis (CDC, 2025).

Globally, several factors contribute to the continued prevalence of TB, such as limited access to healthcare, poor medication adherence, and the emergence of MDR-TB (Ruan et al., 2025). In the Philippines, TB remains a major public health concern, particularly due to financial constraints, healthcare accessibility issues, and social stigma from individuals residing in lower-income municipalities (Macatangay et al., 2020; Paniagua-Saldarriaga et al., 2021).

To address these challenges, Video-Observed Therapy (VOT) has been established by the World Health Organization as an alternative to the traditional in-person treatment monitoring by the World Health Organization. This approach allows patients to perform remote medication monitoring through the transmission of either live (synchronous) or recorded (asynchronous) video footage via smartphones, tablets, or other digital devices (CDC, 2023). The objective of any new TB treatment support technique is to provide the same or higher standard of adherence monitoring as DOT while reducing the cost and burden for medical staff and patients. It addresses key barriers to tuberculosis treatment adherence, including transportation constraints, limited access to health services, and poor patient-provider communication (Casalme et al., 2022). The integration of digital health strategies in tuberculosis management via VOT shows strong potential to reduce treatment-related costs, minimize stigma, and alleviate healthcare system strain (Sundaram et al., 2024).

VOT utilizes two modalities: synchronous and asynchronous. In Synchronous Video-Observed Therapy (S-VOT), patients engage in a real-time consultation with their assigned healthcare provider via videoconferencing to communicate and discuss treatment progress and address any concerns (Tello-Cajiao et al., 2023). In contrast, Asynchronous Video-Observed Therapy (A-VOT) allows patients to take their medication at their convenience while being monitored remotely. This is facilitated through a device application that records and forwards recorded videos of patients taking their medication through their assigned HCPs (Garfein et al., 2024).

In the United States, Video-Observed Therapy (VOT) has demonstrated feasibility in urban settings, with improved medication monitoring compared to DOT (Perry et al., 2021). A study conducted in Shenzhen, China, also found higher treatment adherence and fewer treatment discontinuations (Guo et al., 2020). Importantly, its utility is not confined to urban contexts. Evidence from rural settings with limited internet connectivity in a study in Thailand indicates that VOT can also enhance treatment adherence. Although challenges such as limited smartphone access persist, supportive strategies, including notification systems, facilitate patient engagement (Kumwichar et al., 2021). Meanwhile, TB patients in low-income country settings like Cambodia found that familiarity with the interface resulted in an overall high willingness to use VOT (Rabinovich et al., 2020). In Cavite, Philippines, better medication adherence and satisfaction, accompanied by a lower absence rate from their check-ups, were also noted (Casalme et al., 2022). Collectively, these findings highlight the adaptability and effectiveness of VOT across both urban and resource-limited rural settings.

Factors that show acceptability of VOT as a treatment modality include convenience, as a study conducted in Finland showed patient satisfaction when it capacitates the youth and employees to record videos at the designated and agreed time of the day (Rajalhati et al., 2022). The patients found it time-saving and less burdensome because it eliminated the need to travel or to host the healthcare workers daily. Additionally, the healthcare

workers also appreciated this feature as it allowed them to monitor multiple patients daily (Kerschberger et al., 2024). It also reported easy reporting of medication adherence, enhanced patient-provider communication (Sekandi et al., 2023), and addressed patients' non-compliance problems through accountability checks (Lisboa Netto et al., 2024). Another note is that the platform interface, as well as easy-to-understand instructions such as the video-recording process or swallowing procedure, helped in the familiarity of the program (Ravenscroft et al., 2020).

This literature highlights TB as a persistent global and national health challenge, driven largely by barriers to treatment adherence. As such, VOT emerges as a viable and adaptable alternative, demonstrating its effectiveness across diverse settings, including both urban and resource-limited rural environments. Its capacity to address logistical, economic, and social barriers—while improving adherence—shows its value as a patient-centered intervention. Collectively, these findings support the integration of VOT into tuberculosis control programs as a scalable and context-responsive strategy for improving treatment outcomes.

METHODOLOGY

Study Design

This study used a qualitative-descriptive approach to determine the role of Video-Observed Therapy (VOT) in improving medication adherence of multidrug-resistant tuberculosis (MDR-TB) patients who were declared cured upon successful completion of treatment using this modality. Qualitative design was appropriate in this study because it describes the experiences, perspectives, and behavior of MDR-TB patients in VOT treatment (Tenny et al., 2022). This design allowed the researchers to gain a clear understanding of how VOT influences medication adherence in the chosen population. Under the qualitative study, the researchers used a Descriptive approach. According to Polit et al. (2022), a qualitative-descriptive approach allows for a comprehensive and rich description of the experiences depicted in easily understood language.

Population, Sample Size, and Sampling Technique

The target population of this study consisted of multidrug-resistant tuberculosis (MDR-TB) patients who had enrolled in Video-Observed Therapy (VOT) and were declared cured upon successful completion of treatment at a selected rural health unit in a barangay in Rodriguez, Rizal, namely: RHU A. From the target population, 10 informants were selected.

This sample size was determined through the principle of data saturation. Since informants have had direct experience with VOT, their perspectives were considered valuable and sufficient.

The study utilized purposive sampling, a non-probability sampling technique. Purposive sampling was considered well-suited to be used for this study since it allowed the selection of MDR-TB patients who had firsthand experience in using VOT as their mode of treatment monitoring, which ensured that the data collected were significant, reliable, meaningful, and sufficient. This meant that the informants could offer a thorough description of how VOT improved medication adherence.

The inclusion criteria included: (1) diagnosed with MDR-TB, (2) completed treatment with VOT as part of their TB management and met the criteria for cure, (3) able to provide informed consent, and (4) between the ages of 21 and 59 years old (GCS 15).

Research Instrument

The study employed a semi-structured interview questionnaire using an interview guide, developed based on existing literature that aligned with the study's research questions by using a modified version of Fred Davis' Technology Acceptance Model (TAM) with key constructs—Perceived Usefulness (PU) and Perceived Ease of Use (PEU)—translated into open-ended questions suitable for qualitative inquiry. All questions were validated by 5 community health nursing experts.

Although the research instruments are based on TAM, the themes in this study were generated inductively to capture participants' experiences without being restricted by predefined constructs. As such, a modified version of the Technology Acceptance Model is used to create relationships between the PU and PEU of those undergoing Video Observed Therapy, as this approach allows themes to emerge independently, but can be interpreted through the lens of TAM to reinforce the study's theoretical grounding. A modified TAM was adopted to reflect the context of VOT as an emerging technology, particularly in examining the perceived usefulness and perceived ease of use based on participants' experiences. Under PU and PEU, their relationship can then be interpreted as the behavior, willingness to accept, and proper use of the technology as a means of delivering or receiving care for those not able to undergo the standard Directly Observed Therapy short course regimen, like those with MDR-TB.

To ensure the tools were linguistically and culturally appropriate for the target population of the informants, the questionnaire was translated from English to Filipino (Tagalog) through a rigorous translation process by a Filipino language expert familiar with the cultural and linguistic nuances of the target population.

Data Collection

Data gathering began with a pre-initial visit to RHU A to gain an understanding of how Video-Observed Therapy (VOT) was being used for TB treatment. This included reviewing its history, standard operating procedures, patient enrollment, program graduates, and

current users. The visit also helped establish rapport with RHU staff, ensuring their support throughout the study.

Ethical clearance was then secured from the Trinity University of Asia – Institutional Ethics Review Committee (TUA-IERC), followed by formal approval from the municipality of Rodriguez and the Municipal Health Office. Once authorized, informant identification and initial screening for eligible individuals were facilitated by the RHU nurse, who had access to community records and applied the study's inclusion and exclusion criteria.

Upon arrival at RHU A, the informants underwent a second screening by the research team to confirm eligibility. The first 10 who met the criteria and provided consent were scheduled for face-to-face, semi-structured interviews. To maintain autonomy, written informed consent was obtained before data collection, ensuring participants were fully informed of the study's purpose, procedures, voluntary nature, and their right to withdraw at any time without consequences.

Data privacy was upheld by informing and asking consent from the participants to utilize audio-recordings for transcription purposes. The informants were also informed that these would be stored securely and made accessible only to the research team. Each interview lasted approximately 30 minutes and was conducted in a respectful and culturally sensitive manner.

Data collection was completed over two days. All interviews were transcribed verbatim and validated through member checking to ensure accuracy and credibility.

Data Analysis

Following data collection, the researchers employed Braun and Clarke's 6-step Thematic Analysis method to analyze the data gathered and to uncover patterns and themes based on the Technology Acceptance Model (TAM), namely Perceived Usefulness and Perceived Ease of Use. While PU and PEU guided the coding process, the final themes are presented independently to better reflect how these constructs emerged in the data.

The study launched with the collection of data through semi-structured interviews with the informants, which were audio-recorded and transcribed verbatim by the researchers. Then, the researchers engaged themselves with the data to achieve familiarization, recording initial observations and responses in an Excel sheet. Each entry included the corresponding informant number, key excerpts, and preliminary indications of how the data might align with the two TAM constructs. Next, the researchers proceeded to code the notes and extracts from the data. This was accomplished by labelling the initial observations to reflect key elements of the data relevant to the research questions. After data collection and initial coding, the researchers organized the data by their respective codes and sorted them by informant number. This step helped

the researchers in analyzing the data and creating subthemes under the specific TAM themes. Once the thematic analysis was completed, the results were contextualized and presented. Finally, member checking was done through the verification of the researchers' interpretation and understanding after the interview to strengthen the accuracy of findings. was completed over two days. All interviews were transcribed verbatim and validated through member checking to ensure accuracy and credibility.

RESULTS

This chapter presents the interpretation of narratives drawn from the semi-structured interviews conducted with ten (10) informants. Their responses were carefully examined to uncover patterns of meaning within their lived experiences. Guided by the key constructs of Perceived Usefulness (PU) and Perceived Ease of Use (PEU) from the Technology Acceptance Model (TAM), themes were generated from the responses of the informants. These themes reflect their perceptions and experiences toward the relevance of Video-Observed Therapy (VOT) in their treatment process. Each theme is further supported by key answers from the informants to ensure that the interpretation remains grounded in the data.

Sociodemographic Profile

A total of ten informants from Rural Health Unit A in Rodriguez, Rizal, who were diagnosed with multidrug-resistant tuberculosis (MDR-TB) and utilized Video-Observed Therapy (VOT), participated in the study. The informants ranged in age from 21 to 59 years old, with most belonging to the working-age population. The majority were unemployed or engaged in low-income occupations, while one informant was a student. Several participants reported having no stable source of income and relied on financial support from family members, indicating that most belonged to the lower socioeconomic group.

Table 1. Sociodemographic Profile of Informants

Informants	Age	Occupation	Household Monthly Income
I-01 (Informant #1)	47	Siomai Wrapper	₱3,000.00
I-02 (Informant #2)	59	Tricycle Driver	₱10, 000.00
I-03 (Informant #3)	21	Milktea Server	₱5,600.00
I-04 (Informant #4)	41	Unemployed	₱5,000.00
I-05 (Informant #5)	50	Unemployed	₱6,000.00
I-06(Informant #6)	21	Student	₱20,000.00
I-07 (Informant #7)	31	Carpenter	₱18,000.00
I-08 (Informant #8)	35	Unemployed	₱12,000.00
I-09 (Informant #9)	54	Unemployed	₱14,000.00
I-10 (Informant #10)	23	Student	₱20,000.00

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Theme 1: Connected to Care: Strengthening TB Treatment through Communication and Technology

Perceived Usefulness in the Technology Acceptance Model (TAM) refers to the extent to which a user believes that using a particular technology will improve an individual's job performance. Informants in this study identified VOT as useful for its capacity to maintain open lines of communication between patients and their assigned healthcare providers.

“You can ask sir [RHU nurse] for help when you forget anything. That's what he told me; I can just message him anytime.” (Translated from Tagalog to English)
I-01

“There is contact with the RHU nurse so it's quick when I have a question, I can just send them a message, and they always reply.” (Translated from Tagalog to English)
I-10

The informants' statements highlight how VOT functioned beyond being a simple monitoring tool. Patients perceived it as an accessible communication channel with health providers, particularly RHU nurses. The ability to directly message nurses for clarification or guidance created a sense of reassurance and immediate support.

“When I don't send a video, sir [RHU nurse] would always remind me on chat [...] In a way, communication was easier if I had concerns. I also felt more supported by the nurse and doctors.” (Translated from Tagalog to English)
I-03

“Sometimes, when I get delayed in sending videos, sir [RHU nurse] would message me immediately and remind me of my pending video.” (Translated from Tagalog to English)
I-07

The narratives also show how VOT acted as a practical reminder system that helped patients stay on track with their medication.

Overall, the ease of reaching out and receiving timely responses fostered a sense of trust, accountability, and emotional security, which makes them feel that they were not alone in their treatment journey.

Theme 2: A Push from Within: Ownership and Commitment in TB Treatment

Among the informants in this study, VOT was perceived as useful because it served as a daily mechanism that helped the informants grow more responsible and accountable in their respective TB treatment. In this context, accountability refers to how the informants were able to consistently comply with treatment requirements.

“And sir [RHU nurse] said, we might repeat our treatment if we miss our medication so it is really necessary to send videos. Even if I took my medication but I did not record and send a video, he would not accept it and I’m considered absent.” (Translated from Tagalog to English)

I-02

“It’s because I know I need to send a video everyday, so I can say that I took my medication. It’s important so I don’t forget.” (Translated from Tagalog to English)

I-05

Informants describe video submission as proof of attendance in taking medication. When a video is not submitted, it is automatically counted as a missed dose and may compromise treatment progress, enhancing their sense of accountability. These informants demonstrated a clear understanding of the importance of sending videos, as well as the potential consequences of noncompliance.

“Basically, recording the videos really helped me take my medicine every day, it made sure I didn’t forget.” (Translated from Tagalog to English)

I-07

“It was very effective, this method doesn't let you forget to take the medicine because it is sent everyday.” (Translated from Tagalog to English)

I-10

They further shared that this daily task served as a reminder of their treatment responsibilities and strengthened their commitment to follow through. Even among those who occasionally encountered challenges in submitting videos on time, efforts were made to promptly communicate with the RHU nurse to explain their situation—reflecting a proactive attitude and a heightened sense of ownership over their treatment journey.

Theme 3: Patient-Control through Accessible and Remote Monitoring

Informants perceived VOT as useful because it allowed them to fulfill treatment requirements conveniently and with greater flexibility.

Aside from what the informants reported, it was also learned that RHU A also offered flexibility through opening various windows of time in sending videos to accommodate patients with time constraints due to work or other personal commitments. A grace period was also set by the RHU nurse for patients who did not send within the given time frame.

“...I felt more in control with my schedule since I don’t need to go to the center anymore.” (Translated from Tagalog to English)
I-01

“It became easier to fit into my schedule because it’s really easy to do. Just 5 minutes and it’s done. I had more control over my time.” (Translated from Tagalog to English)
I-03

Informants described Video-Observed Therapy (VOT) as a highly convenient approach that eased the burden of daily treatment routines. Many expressed a sense of relief and control over their schedules, as they no longer needed to travel to the health center so often and were able to balance responsibilities.

“By only needing to go to the RHU to get my medication and recording videos at home for monitoring helped me manage my time more effectively.” (Translated from Tagalog to English)
I-06

“VOT is really more convenient for me. Like in situations when I experience side effects—if I can’t even stand up, I won’t be able to go to the RHU anymore. But with VOT, at least I can just inform sir that I’ve already taken my meds instead of needing to go all the way there.” (Translated from Tagalog to English)
I-07

Several participants also shared that the ability to take videos from the comfort of their homes helped them maintain consistency in treatment, even during times of physical discomfort or medication side effects. Rather than forcing themselves to commute while feeling unwell, they were still able to complete the monitoring process remotely.

Theme 4: Factors That Contribute to the Usability of VOT Among Patients

Technological literacy allowed learning this treatment modality more easily and seamlessly because minimal effort was needed to accomplish VOT. This led to understanding the instructions with ease, which poses unnecessary confusion and the need for repeated explanations for the benefit of its users.

The informants described the process of using VOT as simple and easy. The system was first introduced to them by their assigned healthcare provider in their rural health unit. This included instructions to record videos in a clear, well-lit setting, showing their face before stating their name and current time and date. After, they were to display the medication on hand, take it, and consequently show the insides of their mouth to confirm adherence. Videos were then sent to the RHU nurse for further verification. Accompanying family members were also taught using the teach-back method.

“It was really easy and clear. You just take a video while taking the medicine, then send it through Messenger.” (Translated from Tagalog to English)
I-03

“I wasn't really confused, because it's just sent through Facebook Messenger.”
“ Yes, since I have to do it daily, I got used to it.”
(Translated from Tagalog to English)
I-09

Many informants shared confidence in using VOT because they had prior experience with the technological skill required to deliver the task at hand, in this case, sending proof of their daily medication adherence in the form of a recorded video through a messaging platform. The informants also compared the process to sending a text message, which was easy for them, and so made the daily routine more approachable.

“That's (because of VOT) how I learned to use Messenger. But, I can't learn everything because of my age and limited memory.” (Translated from Tagalog to English)
I-02

On the other hand, some informants also shared that although they found it difficult at first, they were eventually able to adjust. Others also stated that learning happened gradually. Some took a day to adjust, some received help from family members, while others still acknowledged personal limitations due to age or memory that was approached through the guidance of the RHU nurse and their respective families.

“Yes, the [RHU nurse] demonstrated to us how to do it.” (Translated from Tagalog to English)
I-02

“I was able to understand how to use it immediately, as [the RHU nurse] had previously instructed another patient and later taught me as well.” (Translated from Tagalog to English)
I-09

Other respondents found VOT easy due to the clear instructions that guided them through the process without issues. This simplicity enabled consistent adherence, allowing them to accurately follow the steps and submit the required videos to their healthcare provider.

Theme 5: Ease Depends on Access: Exploring Connectivity in the Use of VOT

Having a strong and reliable network connectivity is a key factor in accomplishing VOT, as it is remotely recorded and sent to their assigned healthcare providers using a good network connectivity.

“I didn’t really face any more problems, we had good signal strength as well, especially since we have WiFi at our house.” (Translated from Tagalog to English)
I-06

“There were times where I didn't have any load so I could only send the video the next morning.” (Translated from Tagalog to English)
I-07

Most informants shared that they have strong network connections, which helped them face minimal to no problems at all in using VOT.

However, some informants did encounter occasional signal issues like weak signals and poor connectivity. These, however, were overcome by relying on shared connections or purchasing mobile data. These experiences reflect that while connectivity varied, it was rarely a major barrier, and most were able to manage it effectively.

DISCUSSION

As VOT is an emerging technology in the Philippines, describing the experiences and perceptions of patients who have used this modality for their TB treatment aims to provide valuable insights into its role in supporting medication adherence.

The first theme, *Connected to Care: Strengthening TB Treatment through Communication and Technology*, discussed improved communication with their assigned healthcare provider. Many informants appreciated the regular reminders from their assigned healthcare provider and shared how easy it was to reach out to the RHU nurse about their treatment-related concerns and receive prompt responses. Interestingly, this

insight appears to contradict the narrative presented by Casalme et al. (2022), who previously reported low-quality communication between patients and service centers. In contrast, the current study highlights how VOT facilitated high-quality and responsive communication between patients and healthcare providers. Supporting this perspective, Sekandi et al. (2023) identified SMS reminders and timely patient-provider communication as key factors of adherence within remote care programs.

The second theme, *A Push From Within: Ownership and Commitment in TB Treatment*, emphasized accountability. VOT requires a video submission as proof of attendance; it would be counted as a missed dose. These structured demands were understood by the informants, and so they were able to comply. In turn, VOT emerged as an anchor that kept the informants engaged, self-aware, and motivated in TB management. A study conducted by Amoo et al. (2024) showed that VOT allows for prompt identification of missed doses and provides the supplementary support needed to ensure sustained adherence. This engagement helps keep patients on track with their treatment regimen and leads to successful treatment outcomes. Lisboa Netto et al. (2024) further explained that VOT increases patient satisfaction, especially for those with a history of noncompliance, as issues can be addressed without the need for follow-up visits.

The third theme, *Patient-Control through Accessible and Remote Monitoring*, showed how reducing frequent visits to the RHU saves both time and effort for the informants. Since the treatment regimen may cause side effects or discomfort, the simplicity of remote monitoring made the process feel more manageable and less disruptive to their daily life. Flexibility in schedules was also an appreciated feature of the modality. These insights were supported by Tello-Cajiao et al. (2023), who noted that convenience was a major advantage of VOT as it eliminated the need to travel daily to their health institutions. Similarly, Kerschberger et al. (2024) and Chen et al. (2023) both recognized VOT as a convenient approach for supporting treatment adherence and emphasized that this modality reduces travel time, costs, and allows remote treatment monitoring. Sekandi et al. (2023) also noted that flexibility in treatment modality plays a crucial role in patient engagement, especially in rural areas.

The fourth theme, *Factors That Contribute to the Usability of VOT Among Patients*, describes the technological literacy required. While the instructions were simple, they were also clearly demonstrated by the RHU nurse, not just to the informants, but also to their accompanying families. Others, however, stated that learning happened gradually. These shared experiences reflect a learning curve that, once overcome, allowed them to engage with the platform more comfortably. In support of this, a study by McCrossan et al. (2022) found that participants described VOT as easy to use and beneficial. Reported advantages included routine-building, skill development, and increased independence. The platform's user-friendly design, combined with participants' ability to navigate its technological features, contributed to these positive outcomes. Similarly, a study by M Al Daajani et al. (2023) showed that participants who clearly understood the instructions

provided through smartphone-based VOT demonstrated significantly higher medication adherence.

The fifth theme, *Ease Depends on Access: Exploring Connectivity in the Use of VOT*, acknowledges the importance of reliable network connectivity. As videos were recorded remotely, it would be ideal to have a stable connection. Informants shared the availability of the Internet, while those who encountered signal issues relied on shared connections or mobile data. This showed that while connectivity varied, it was rarely a major barrier, and most were able to manage it effectively. Based on the study of Kumwichar et al. (2021), asynchronous VOT was intentionally designed for rural areas with limited internet connectivity, making it a flexible solution even in places with unstable signals.

CONCLUSIONS AND RECOMMENDATIONS

This qualitative study explored the experiences of informants in utilizing Video-Observed Therapy (VOT) as part of their Tuberculosis treatment. The findings suggest that VOT as a treatment modality may be perceived as practical and supportive in promoting medication adherence among its users. Informants of the study also described how VOT supported their treatment journey by (1) maintaining open and efficient lines of communication with their assigned healthcare provider, (2) being more committed in their treatment process, (3) accommodating a more convenient and flexible approach in routine monitoring, (4) being able to follow simple instructions of the modality and, (5) accessing use with only minimal disruptions.

Therefore, VOT is more than just a technical innovation; it is a reimagining of Tuberculosis care. Beyond simply offering a digital alternative to in-person monitoring, VOT redefines the treatment experience by focusing on a more patient-centered care and approach so patients can take an active role in their own healing process.

In line, the researchers recommend future researchers to (1) conduct a comparative study between Directly-Observed Therapy (DOT) and Video-Observed Therapy (VOT), (2) explore perspectives of healthcare workers in its implementation, and (3) examine barriers encountered by VOT users.

IMPLICATIONS

The findings of this study carry several implications for Tuberculosis care and digital health interventions.

First, the integration of Video-Observed Therapy (VOT) demonstrates that digital tools can function not only as monitoring mechanisms but also as sources of motivation, accountability, and patient engagement. This suggests that incorporating structured digital reminders and real-time communication can significantly improve adherence in long-term treatment regimens.

Second, the study highlights the value of patient-centered approaches in TB management. VOT provides flexibility and convenience, reducing the burden of frequent clinic visits while accommodating personal schedules and health limitations. This underscores the potential of VOT to enhance the quality of care by aligning treatment requirements with patients' daily lives.

Third, the findings point to the importance of infrastructure and accessibility. Stable internet connectivity and clear, user-friendly instructions are essential to maximize VOT's effectiveness. Addressing these requirements can bridge gaps in rural and underserved areas, ensuring that digital health solutions are equitable and inclusive.

Finally, this study implies that VOT has the potential to inform broader applications of digital health technology. By demonstrating its practicality and perceived usefulness in Tuberculosis treatment, VOT may serve as a model for future digital interventions aimed at strengthening adherence, accountability, and patient-provider communication in other chronic or long-term treatment contexts.

LIMITATIONS

This study has some potential limitations. The small sample size and focus on a single rural health unit may limit generalizability. Data were based on participants' self-reported experiences, which may be influenced by personal perceptions. Additionally, all participants completed their MDR-TB treatment using Video-Observed Therapy (VOT), so the study may not fully reflect the experiences of patients who had difficulty with treatment or did not complete it using VOT.

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DECLARATIONS

Conflict of Interest

The study was conducted without any funding from any institution.

Informed Consent

All informants provided written informed consent after being briefed on the study's purpose, risks, and benefits, and no identifying information was collected.

Ethics Approval

The research was cleared and ethically approved by Trinity University of Asia's Institutional Ethics Review Committee (TUA-IERC) on June 26, 2025.

REFERENCES

- Amoo, O., Kareithi, D., Tijani, B., Onuigbo, T., Karera, S., Oladejo, B., Oraegbu, J., Ezike, J., Adekoya, A., Sani, M., David, N., Audu, R., & Salako, B. (2024). Video observed therapy device improves probability of tuberculosis therapy adherence; a randomised clinical trial at a TB reference clinic in Lagos. *Research Square* (Research Square). <https://doi.org/10.21203/rs.3.rs-4468501/v1>
- Begontes, A., Melchor, G., Lim, A., Araneta, V. E. (2023). Patient satisfaction with the utilization of Video Observed Therapy (VOT) at the Vicente Sotto Memorial Medical Center (VSMMC), Cebu City, Programmatic Management of Drug-Resistant Tuberculosis Satellite Treatment Center (PMDT STC) during the COVID-19 pandemic. *Population Medicine*, 5(Supplement), A578. <https://doi.org/10.18332/popmed/165465>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Casalme, D. J., Marcelo, D. B., Cuesta, D. M. D., Tonquin, M., Frias, M. V., & Gler, M. T. (2022, August 1). *Feasibility and acceptability of asynchronous VOT among patients with MDR-TB*. GreenPrints. https://greenprints.dlshsi.edu.ph/faculty_scholarly_works/296/
- Centers for Disease Control and Prevention. (2025, January 8). *Treatment for TB disease*. Centers for Disease Control and Prevention. <https://www.cdc.gov/tb/topic/treatment/tbdisease.html>
- Centers for Disease Control and Prevention. (2024). *Video directly observed therapy (vDOT)*. U.S. Department of Health & Human Services. <https://www.cdc.gov/tb/hcp/treatment/vdot.html>
- Chen, E. C., Owaisi, R., Goldschmidt, L., Maimets, I. K., & Daftary, A. (2023). Patient Perceptions of video directly observed therapy for tuberculosis: a systematic review. *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*, 35, 100406. <https://doi.org/10.1016/j.jctube.2023.100406>
- Garfein, R. S., Liu, L., Cepeda, J., Graves, S., San Miguel, S., Antonio, A., Cuevas-Mota, J., Mercer, V., Miller, M., Catanzaro, D. G., Rios, P., Raab, F., & Benson, C. A. (2024, March 26). Asynchronous video directly observed therapy to monitor short-course latent tuberculosis infection treatment: Results of a randomized controlled trial.

- Open forum infectious diseases.
<https://pmc.ncbi.nlm.nih.gov/articles/PMC11045025/>
- Guo, X., Yang, Y., Takiff, H. E., Zhu, M., Ma, J., Zhong, T., Fan, Y., Wang, J., & Liu, S. (2020). A comprehensive app that improves tuberculosis treatment management through Video-Observed Therapy: Usability Study. *JMIR Mhealth and Uhealth*, 8(7), e17658. <https://doi.org/10.2196/17658>
- Kerschberger, B., Daka, M., Shongwe, B., Dlamini, T., Ngwenya, S., Danbakli, C., Mamba, B., Nxumalo, B., Sibanda, J., Dube, S., Dlamini, L. M., Mabhena, E., Mukooza, E., Crumley, I., Ciglenecki, I., & Vambe, D. (2024). The introduction of video-enabled directly observed therapy (video-DOT) for patients with drug-resistant TB disease in Eswatini amid the COVID-19 pandemic – a retrospective cohort study. *BMC Health Services Research*, 24(1). <https://doi.org/10.1186/s12913-024-11151-4>
- Kumwihar, P., Chongsuvivatwong, V., & Prappre, T. (2021). Development of a Video-Observed Therapy System to Improve Monitoring of Tuberculosis Treatment in Thailand: Mixed-Methods Study. *JMIR Formative Research*, 5(7), e29463. <https://doi.org/10.2196/29463>
- Lisboa Netto, T. A., Diniz, B. D., Odutola, P. O., Dantas, C. R., Freitas, M. M., Hefford, P. M., & Bes, T. M. (2024). Video-observed therapy (VOT) vs directly observed therapy (DOT) for tuberculosis treatment: A systematic review on adherence, cost of treatment observation, time spent observing treatment, and patient satisfaction. *PLOS Neglected Tropical Diseases*, 18(10), e0012565. <https://doi.org/10.1371/journal.pntd.0012565>
- Macatangay, I. O. D., Liao, S. A. S. P., Dadural, J. J. A., Gagui, F. J. S., Galas, A. J. A., San Antonio, R. D. F. A., & Pinlac, P. A. V. (2020). Factors associated with treatment outcome of patients with pulmonary tuberculosis in the Philippines, 2015 to 2016. *Acta Medica Philippina*, 54(5).
- M Al Daajani, M., J Alsaifi, A., M Algarni, A., L Moawwad, A., A Osman, A., Y A Algaali, K., Abdalaziz, M., A Halwani, M. Aldajani, S., M. H. Mohammed, N., S Alshamrani, H., N Alshahrani, M., M Albostani, G., G Alshammari, N., S Alzahrani, R., O Alsomali, S., & Assiri, I. (2023). Use of Smartphone-Based Video Directly Observed Therapy to Increase Tuberculosis Medication Adherence: An Interventional Study. *Galen Medical Journal*, 12, e3067. <https://doi.org/10.31661/gmj.v12i.3067>
- McCrossan, P., O'Donoghue, D., McElnay, J. C., & Shields, M. D. (2022). The use of remote video directly observed therapy to improve both inhaler technique and adherence to asthma medications. *Frontiers in Public Health*, 10, 965629.
- Paniagua-Saldarriaga, L. A., Pelissari, D. M., & Rueda, Z. V. (2021). Factors Associated with Unsuccessful Outcomes of Tuberculosis Treatment in 125 Municipalities in Colombia, 2014 to 2016. *The American Journal of Tropical Medicine and Hygiene*, 105(5), 1326–1334. <https://doi.org/10.4269/ajtmh.20-1063>
- Perry, A., Chitnis, A., Chin, A., Hoffmann, C., Chang, L., Robinson, M., Maltas, G., Munk, E., & Shah, M. (2021). Real-world implementation of video-observed therapy in an urban TB program in the United States. *The international journal of tuberculosis and lung disease: the official journal of the International Union against Tuberculosis and Lung Disease*, 25(8), 655–661. <https://doi.org/10.5588/ijtld.21.0170>

- Polit, D. F., & Beck, C. (2022). *Essentials of Nursing Research: Appraising Evidence for Research Practice* (10th ed.). Wolters Kluwer.
- Rabinovich, L., Molton, J. S., Ooi, W. T., Paton, N. I., Batra, S., & Yoong, J. (2020). Perceptions and acceptability of digital interventions among tuberculosis patients in Cambodia: Qualitative study of video-based directly observed therapy. *Journal of Medical Internet Research*, 22(7), e16856. <https://doi.org/10.2196/16856>
- Ravenscroft, L., Kettle, S., Persian, R., Ruda, S., Severin, L., Doltu, S., Schenck, B., & Loewenstein, G. (2020). Video-observed therapy and medication adherence for tuberculosis patients: Randomised controlled trial in Moldova. *European Respiratory Journal*, 56(2), 2000493. <https://doi.org/10.1183/13993003.00493-2020>
- Rajalahti, I., Kreivi, H. R., Ollgren, J., & Vasankari, T. (2022). Asynchronous video-supported treatment of tuberculosis is well adopted in a real-world setting: An observational study comparing two distinct applications. *Infectious Diseases*, 55(4), 303–306. <https://doi.org/10.1080/23744235.2022.2160492>
- Ruan, S.-J., Liu, Z., Mao, Z., Meng, T., Li, J., Ke, X., Liu, X.-H., Li, G.-B., Chen, J.-F., & Wang, X.-F. (2025). Determinants of tuberculosis mortality in urban residents: A hospital-based cohort study in China. *Clinical Epidemiology and Global Health*, 32, 101934. <https://doi.org/10.1016/j.cegh.2025.101934>
- Sazali, M. F., Rahim, S. S. S. A., Mohammad, A. H., Kadir, F., Payus, A. O., Avoi, R., Jeffree, M. S., Omar, A., Ibrahim, M. Y., Atil, A., Tuah, N. M., Dapari, R., Lansing, M. G., Rahim, A. A. A., & Azhar, Z. I. (2023). Improving tuberculosis medication adherence: The potential of integrating digital technology and health belief model. *Tuberculosis & Respiratory Diseases*, 86(2), 82–93. <https://doi.org/10.4046/trd.2022.0148>
- Sekandi, J. N., McDonald, A., Nakkonde, D., Zalwango, S., Kasiita, V., Kaggwa, P., Kakaire, R., Atuyambe, L., & Buregyeya, E. (2023). Acceptability, usefulness, and ease of use of an enhanced video directly observed treatment system for supporting patients with tuberculosis in Kampala, Uganda: Explanatory qualitative study. *JMIR Formative Research*, 7, e46203. <https://doi.org/10.2196/46203>
- Shania, F., & Paramarta, V. (2024). Analysis of technology acceptance model (TAM) on the use of electronic medical records in hospitals. *Jurnal Indonesia Sosial Sains*, 5(12), 3190–3196. <https://doi.org/10.59141/jiss.v5i12.1520>
- Sundaram, K. K., Zaki, R. A., Shankar, D., Hoe, V., Ahmad, N. A. R., Kuan, W. C., & Anhar, A. B. N. (2024). Effectiveness of video-observed therapy in tuberculosis management: A systematic review. *Cureus*. <https://doi.org/10.7759/cureus.71610>
- Tello-Cajiao, M., Mosquera-Hernández, J., Ardila, S., Romero-Rosas, N., Parra Lara, L., Niño-Ramírez, Y., Luna, L., & Garcia-Goez, J. (2023). Synchronous video-supported treatment for tuberculosis in Cali, Colombia: An implementation study. *Health Policy and Technology*, 12, 100747. <https://doi.org/10.1016/j.hlpt.2023.100747>
- Tenny, S., Brannan, J. M., & Brannan, G. D. (2022). Qualitative study. In *StatPearls*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK470395/>
- World Health Organization. (2025). *Tuberculosis*. <https://www.who.int/news-room/fact-sheets/detail/tuberculosis>

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