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Tuberculosis preventive treatment in a Brazilian prison: acceptability, completion, and perspectives of persons deprived of liberty and their family members

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Research Article

Keywords: Tuberculosis, Tuberculosis Preventive Treatment, Persons Deprived of Liberty, Incarceration, Treatment Adherence, Prison Health

Posted Date: April 6th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9247038/v1

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Additional Declarations: No competing interests reported.

Tuberculosis preventive treatment in a Brazilian prison: acceptability, completion, and perspectives of persons deprived of liberty and their family members

Abstract

Background: Tuberculosis (TB) poses a major public health challenge in carceral settings. In Brazil, persons deprived of liberty experience a TB risk 26 times that of the general population. Tuberculosis Preventive Treatment (TPT) is a critical yet underutilized strategy in prisons, in part due to limited empirical evidence to guide implementation.

Methods: We conducted a pilot TPT program using the 3HP regimen in a male prison in Campo Grande, Mato Grosso do Sul, Brazil. We assessed feasibility, acceptability, and factors influencing treatment adherence. We evaluated the TPT care cascade from eligibility through treatment completion. We also conducted focus groups with persons deprived of liberty who received TPT, as well as interviews with their family members, to examine understanding of TB infection and disease and to identify barriers and facilitators to TPT completion.

Results: Of 50 eligible individuals, 45 (90%) initiated TPT; of those who initiated, 37 (82.2%) completed treatment. The regimen was well tolerated, with 76% of participants reporting no side effects. Qualitative analysis revealed lack of knowledge around latent TB infection and substantial TB-associated fear and stigma; framing latent infection as "dormant bacteria" helped mitigate these concerns. Key facilitators of TPT initiation and completion included trust in and accompaniment by the healthcare team delivering TPT, and the desire to protect one's own health and others'. Many PDL expressed a preference for short-course regimens, including potential one-month options. Main barriers included peer stigma, treatment disruptions due to transfers and releases, and structural challenges including distrust of prison staff and difficulty accessing routine healthcare both in prison and in the community.

Conclusion: The 3HP regimen demonstrated high acceptability and completion among persons deprived of liberty in a Brazilian prison. Optimizing implementation will require complementary prison-wide efforts for TB education and destigmatization, administration by trusted healthcare professionals, and proactive follow-up to ensure treatment continuity after transfer and release.

Keywords: Tuberculosis, Tuberculosis Preventive Treatment, Persons Deprived of Liberty, Incarceration, Treatment Adherence, Prison Health

Background

Tuberculosis (TB) remains the leading cause of death from a single infectious agent [1]. People deprived of liberty (PDL) are at higher risk of tuberculosis than the general population [2,3]. In Brazil, an estimated 37% of all TB cases are attributed to incarceration [4]. Crowding, poor ventilation, and malnutrition contribute to the high risk of TB spread in carceral settings [5].

Tuberculosis preventive treatment (TPT) is highly effective in reducing the risk of progression from TB infection to active disease [6]. However, it remains underutilized, especially in prisons in low- and middle-income countries (LMICs) [7]. The World Health Organization guidelines for TPT include PDL as one of several priority groups for whom TPT "may be considered," but specific guidance for this population is lacking [8].

Most studies of TPT in carceral settings have been conducted in the United States and other high-income countries where TB burden is relatively low [9]. These studies generally report suboptimal completion rates for 6-9 month regimens, largely due to loss to follow up after release or transfer [9,10,11]. More recently, shorter regimens like 3HP (3 months of high-dose isoniazid and rifapentine) have shown substantially higher completion rates, including in high-burden prisons in Malawi and Pakistan [9,10,11]. Despite these advances, important gaps remain in understanding the TPT care cascade. To our knowledge, there have been no studies on TPT in prisons in Brazil, nor in the broader Latin American region. Moreover, there is a paucity of qualitative research on barriers and facilitators to TPT uptake and completion among PDL. Addressing these knowledge gaps is critical to guide effective implementation of TPT in prisons in Brazil and beyond.

In this study, we conducted a TPT pilot program among PDL in Campo Grande, Brazil. In addition to assessing rates of initiation and completion, we conducted focus groups with PDL and interviews with family members to examine motivations to initiate TPT, facilitators and barriers to completion, and more broadly, perceptions and experiences of TB infection, disease, and treatment.

Methods

Study overview

This prospective, mixed methods study included three stages: a pilot TPT program for PDL in a Brazilian prison, focus group discussions with PDL who received TPT, and interviews with family members of PDL who received TPT.

Study population and recruitment

We conducted a TPT pilot program among PDL in a male maximum security prison, Instituto Penal de Campo Grande, in Mato Grosso do Sul, Brazil. Participants were recruited during routine mass screenings for active TB disease carried out as part of a separate, ongoing study.

PDL were eligible for inclusion if they that met the following criteria: 1) a positive result on the interferon-gamma release assay (IGRA) indicating TB infection, 2) self-reported smoking (>1 pack/day), 3) self-reported contact with someone with TB in the same cell. Individuals who met these inclusion criteria received information about this study and were invited to participate. Individuals were subsequently excluded if they tested positive for active TB disease through GeneXpert Ultra testing, chest radiography, and clinical evaluation. Research assistants emphasized that participation in any or all parts of the study was voluntary and would not influence their involvement in the other TB screening study, their sentence, or any other aspect of their incarceration.

We additionally recruited family members for qualitative interviews. PDL were invited to provide contact information of family members, who were then contacted by phone and invited to participate in an interview at a location of their choosing, with clarification that participation was voluntary.

Both the PDL and the family members who agreed to participate signed a free and informed consent form before the provision of treatment and data collection.

TPT and follow-up procedures

All participants received the 3HP regimen (12 weekly doses of isoniazid 900mg + rifapentin 900mg). Treatment was self-administered, with four weeks of medication distributed

at a time. Treatment completion was defined as a total of 12 doses taken in an interval of 12 to 15 weeks, as recommended by the Brazilian Ministry of Health guidelines for latent TB infection (LTBI) [12]. Participants were evaluated in follow-up medical and nursing consultations to monitor for potential adverse reactions. After the 3-month treatment period, a structured questionnaire was administered to collect information on adherence and treatment experience.

Some individuals were transferred to other prisons or released from prison before initiating or completing treatment. Those who were transferred to a nearby prison in the same city, Centro Penal Agroindustrial da Gameleira (CPAIG), were accompanied by the study nurse to support treatment completion. All other participants, both those transferred and those released, were considered lost to follow-up.

Focus groups with PDL

We conducted two focus groups with PDL who remained in the same prison. Focus groups lasted 90 minutes and took place in a separate, enclosed multipurpose room in the prison, with no surveillance by prison staff. The sessions were moderated by two facilitators trained in qualitative methods who had not been involved in any of the prior study procedures. The discussions also included two observers: the study nurse and one other study team member who had not previously been participant-facing.

The focus groups followed a pre-specified list of questions (Supplementary Materials 1). Questions were organized into three main domains: (1) knowledge and perceptions of TB infection and disease; (2) facilitators and barriers influencing the decision to start TPT; and (3) facilitators and barriers to continuing and completing treatment. Focus groups were audio recorded and transcribed, with participant perspectives de-identified. Sociodemographic questionnaires were administered at the beginning of the focus groups.

Qualitative interviews with family members

1:1 interviews were conducted in-person by the study nurse in a location of the family member's choosing. Interviews followed a pre-specified list of questions (Supplementary Materials 2). Interviews lasted approximately 40 minutes and were audio-recorded,

transcribed, and de-identified. Following the interview, family members also completed a sociodemographic questionnaire.

Data management and analysis

Participant data were stored in REDCap. Descriptive statistical analyses included calculation of medians and interquartile ranges for variables such as age and time incarcerated. Qualitative data analysis followed the thematic content analysis method proposed by Minayo (2005) [13], comprising three stages: pre-analysis, material exploration, and treatment and interpretation of results. Transcripts were uploaded to MaxQDA24 [14] and coded independently by two researchers. Throughout the analysis, codes were organized into thematic areas, resulting in specific categories and subcategories. Triangulation was achieved through interactive discussions with focus group facilitators and observers, as well as validation of coding through preliminary results presented at study team meetings. All transcripts underwent multiple rounds of review by the research team to ensure coherence and analytic reliability. The overarching aim was to structure themes hierarchically, with subcategories aligned to major themes to strengthen conceptual clarity.

Results

Participant characteristics

Among 55 PDL invited to participate, 53 (96.4%) consented and were enrolled. Three participants (5.7%) were subsequently excluded due to active TB disease or radiographic findings suggestive of TB, resulting in 50 individuals eligible for TPT. The median age of participants was 36 years, and the median duration of incarceration was 42 months (**Table 1**). Most participants self-identified as mixed race (80%). Educational attainment was low, with 71.1% reporting fewer than eight years of formal education. Most participants' marital status was single (62.2%), and fewer than half (42.2%) reported receiving visits from family members, most commonly on a monthly basis (78.9%).

Table 1. Clinical and sociodemographic characteristics of PDL who initiated TPT (n=45).

Characteristic	N (%)
Total	45
Median age (interquartile range)	36 (30-40)
Race/color	
Black	4 (8.9)
White	5 (11.1)
Mixed	36 (80)
Years of education	
> 8 years	13 (28.9)
≤ 8 years (less than secondary education)	32 (71.1)
Marital status	
Divorced	3 (6.7)
In a stable union	5 (11.1)
Married	9 (20)
Single	28 (62.2)
Median months incarcerated (interquartile range)	42 (40-50)
Receives visits	19 (42.2)
Frequency of visits	
Yearly	4 (21.1)
Monthly	15 (78.9)
Contact with a TB-infected cellmate	28 (62.2)
Presence of BCG (Bacilo de Calmette-Guérin) vaccination scar	42 (93.3)

Ten family members were enrolled and participated in qualitative interviews. Their median age was 55 years, all were women, and most were mothers (70%) (**Table 2**). Most reported having been informed by their family member about the study (70%), and half reported visiting their family member in prison.

Table 2. Sociodemographic characteristics of the family members interviewed (n=10).

Variables	N (%)
Total	10
Median age (interquartile range)	55 (50-60)
Race/color	
Black	2 (20)
White	3 (30)
Mixed	5 (50)
Years of education	
> 8 years	5 (50)
≤ 8 years (less than secondary education)	5 (50)
Marital status	
Widowed	1 (10)
In a stable union	1 (10)
Single	2 (20)
Divorced	2 (20)
Married	4 (40)
Relationship to the patient	
Wife	1 (10)
Sister	2 (20)
Mother	7 (70)
Receives governments benefits	2 (20)
Occupation	
Attendant	1 (10)
Community health worker	1 (10)
Homemaker	2 (20)
Retired	2 (20)
Cleaner	4 (40)
Housing status	
Rented	4 (21,1)
Owned	15 (78,9)
Visited the prison	5 (50)
Informed about the relative's treatment	7 (70)
Access to healthcare	6 (60)

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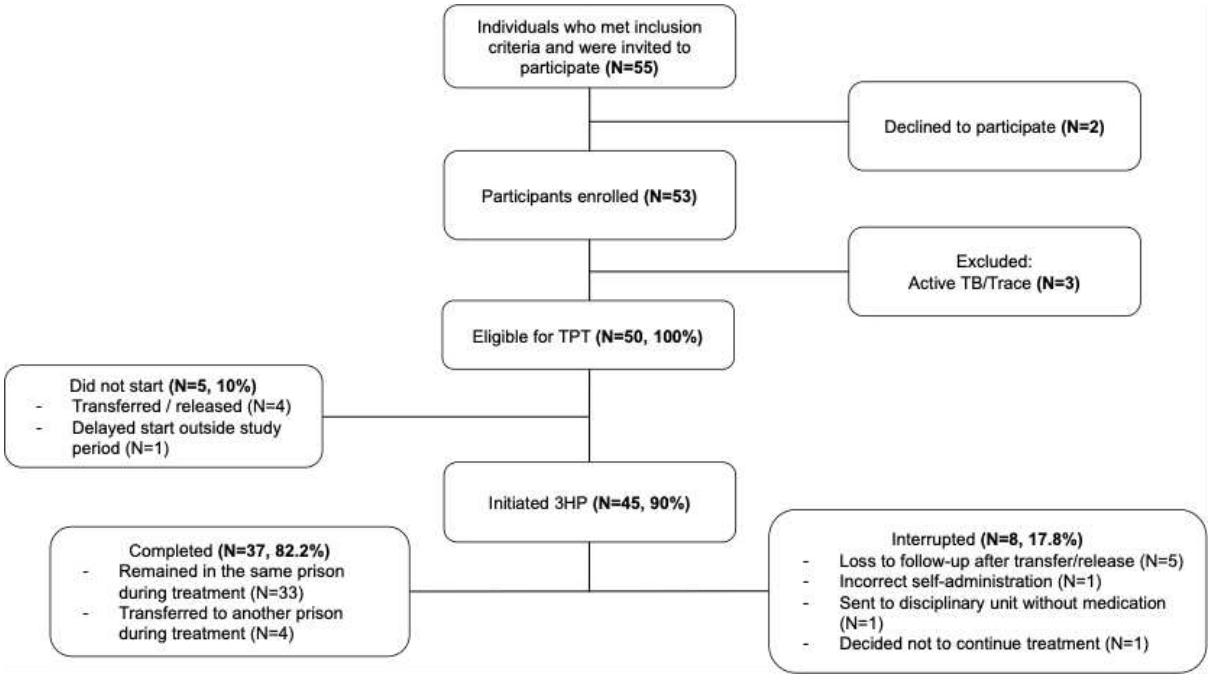


Figure 1: Flowchart of study participants.

TPT outcomes

Of the 50 PDL eligible for TPT, five (10%) did not initiate treatment (**Figure 1**). Of these, four were transferred to other facilities or released from prison prior to receiving the first dose, and one experienced a delay in medication delivery beyond the study period; this participant was subsequently referred for follow-up with prison healthcare staff. Of the 45 individuals who initiated TPT, 37 (82.2%) completed treatment. Among the eight individuals who did not complete treatment, reasons included loss to follow-up due to release or transfer to a prison in another municipality (n=5), transfer to a disciplinary unit that prevented access to medication (n=1), incorrect self-administration of medication (n=1), and decision not to continue treatment (n=1).

Among participants who completed TPT, four (11%) were transferred to a prison in the same municipality, where they continued to be accompanied through treatment. Intra-prison movements were common, with 54% of participants completing TPT experiencing movements to other cells or housing units during treatment.

Treatment was generally well tolerated. Among participants who completed TPT, 76% reported no side effects. Mild side effects were reported by 24% and included abdominal pain, nausea, vomiting, diarrhea, and skin reactions. Satisfaction with treatment was high: 70% rated their experience as between 8-10 on a 10-point scale; 24% did not provide a response; and 6% (n=2) were dissatisfied and rated 5-6. Reasons provided for non-response and dissatisfaction included side effects and the inconvenience of treatment.

Overview of qualitative themes

Analysis of focus group discussions with PDL and interviews with family members revealed several recurring themes that were organized into categories and subcategories, summarized in **Table 3**. For each category and subcategory, we present key findings and illustrative quotes, translated to English.

Table 3. Key themes emerging in focus group discussions with PDL and interviews with family members.

Category	Subcategory
1. Knowledge and perceptions about TB/LTBI	**1.1** Knowledge, fear, and stigma surrounding TB **1.2** Understanding and perceptions of LTBI
2. Facilitators and barriers to treatment initiation and completion	**2.1** Motivation to protect one's health and others' **2.2** Respect and trust in TPT providers **2.3** Treatment regimen and side effects **2.4** Stigma and prejudice among other PDL **2.5** Difficulty in accessing healthcare in prison and in the community **2.6** Continuity of treatment after release

Category 1. Knowledge and perceptions about TB/LTBI

Participants' understandings of TB infection and disease were overwhelmingly shaped by fear, stigma, and limited prior knowledge. While explanations provided by the research team improved understanding of LTBI and its distinction from active TB disease, it remained associated with the social and emotional meanings and severity attached to active TB.

1.1 Knowledge, fear, and stigma surrounding TB

TB was consistently described as a serious, debilitating, and often fatal disease. Participants recalled experiences of witnessing severe illness and death from TB in prison.

> "The end of tuberculosis is sad…Man, you see the way he ended up? He turned kinda green, skinny, but… So, you've got tuberculosis?…God forbid, it tortures the person." (PDL)

> "He had been in prison for 17 years. […] He kept thinning and thinning, if you looked, you could practically see all his organs...On a Thursday, they decided to hospitalize him. It didn't work. On Friday, he died with us." (PDL)

Family members similarly framed TB as historically associated with inevitability and death:

> "TB is a very sad disease. Thank God now there's treatment. Thank God now you can be cured. 'Cause before… TB was a condemnation… TB was a death sentence." (FAMILY)

Beyond severity, TB was described as deeply stigmatized, provoking fear and avoidance. Participants emphasized that TB elicited stronger social rejection than other serious illnesses, including HIV:

> "Ah, I have HIV and stuff… It's better than saying 'I have tuberculosis', wow, it's like people get shocked, the person with it, it seems that just by talking to them, they'll catch it." (PDL)

Family members echoed this perception, describing fear and misinformation about transmission:

> "I think people also have some prejudice, about people who have tuberculosis…Being around, having a relationship with the person, right? People get scared, 'cause they don't know very well, then they think they're gonna catch it just by touching." (FAMILY)

> "Cause people today, if you say you have [TB], right away... They don't even try to find out what it's about, right? They just run away from the person." (FAMILY)

1.2 Understanding and perceptions of LTBI

PDL and family members described strong emotional reactions to the diagnosis of LTB. Because LTBI was unfamiliar, many participants initially interpreted it through their existing understanding of TB. For many, the initial response was shock and a desire to escape the diagnosis.

> "When I got the news, the point was what? To make this thing disappear, right? To not have that news anymore, 'cause it's not normal news, right?" (PDL)

Family members similarly described hearing secondhand about the diagnosis as initially overwhelming and catastrophic:

> "When they said tuberculosis, to me it was like…the end of the world, you know?... When he told me he was diagnosed with tuberculosis. I was kinda in shock. I didn't know how to act. I didn't know what to say to him." (FAMILY)

These accounts demonstrate the limited baseline knowledge about LTBI prior to the study. Several participants initially interpreted "latent" TB as a more dangerous form of TB.

> “When I was called, she told me. My God, I have latent tuberculosis, I said, damn, it must be an even worse type of tuberculosis, really. Latent, damn. It’s in your blood, but it’s not showing up, I said oh my God. ‘Cause I had already heard many times that tuberculosis doesn’t always show up in the phlegm.” (PDL)

Participants reported that the study team’s explanation was essential in shifting their understanding. Participants described learning that the infection could be present without being “awake,” and that preventive treatment could keep it from developing into active TB disease. This “sleeping bacteria” concept was repeated as a way to make sense of prevention and non-transmissibility in LTBI.

> “We did a bunch of tests and then they told us we had a bacteria inside us that wasn't awake, then they said we'd take a pill so it wouldn't develop.” (PDL)

> “This disease is incubated, it's not transmissible. That's the word she told me and I never forgot it, but it's not transmissible, if you do the treatment, it's only for precaution, so this disease doesn't develop.” (PDL)

Family members sometimes reported receiving the same explanation secondhand from their loved one in prison, reflecting information sharing beyond the prison setting.

> “He explained to me that he did the test and had the bacteria… Then he said that it needed treatment, because it was asleep … so it wouldn't wake up. ‘Cause, then, it also wouldn't transmit. That I didn't need to worry, it wouldn't transmit.” (FAMILY)

Category 2. Facilitators and barriers to treatment initiation and completion

Treatment initiation and completion were supported by a motivation to protect one's own health and others' and were reinforced by positive experiences with healthcare providers administering TPT, clear explanations, and practical features of

shorter TPT regimens. Meanwhile, stigma from other PDL, side effects, and disruptions from transfers or release hindered treatment engagement.

2.1 Motivation to protect one's health and others'

A major facilitator to treatment initiation and completion was a motivation for prevention and cure, often framed as a straightforward imperative.

> "I decided because it's better to do the treatment and it works, than in 10, 20 years something happens, then TB comes, then it's worse." (PDL)

> "The disease has to be treated, right? If it's light or heavy, it has to be treated." (PDL)

For some, this motivation was expressed urgently, tied to survival and dignity. Participants referenced having witnessed advanced TB and deaths, fueling their desire to survive incarceration and leave prison healthy.

> "I wanna get out of here alive, not in a coffin (…) I wanna get out of here cured." (PDL)

Many participants also described a motivation to protect others, especially family members.

> "It's a disease that, from the moment you start treating, it's not at risk of transmitting to anyone else. But from the moment you don't treat it properly, then it runs the risk of spreading." (PDL)

> "I don't wanna transmit it, since I have family, I have grandkids. And me getting close to him, poor guy, such an innocent person, I wouldn't be able to hug him, play with him, no." (PDL)

Participants also reflected on the absence of these motivations among some other PDL. They described how the challenges of incarceration could lead some individuals to abandon concern for their own health and deny treatment.

> "Because of the fact that we're…where we are today, there are many who, how can I say… like, they give up on their own life, because they know they have the disease, but 'ah, I'm already dead, already buried in this place, I won't treat myself'. Then, through them…it spreads to many other people, right?...Then they end up infecting many who are close to them, right?" (PDL)

2.2 Respect and trust in TPT providers

A central facilitator of treatment engagement was experiencing positive healthcare interactions with TPT providers characterized by respect and attention. Participants highlighted how these interactions fostered willingness to initiate and complete treatment, in contrast to their typical experiences of being dismissed, disrespected, or neglected in prison.

> "If we were treated the same way we're treated by the team that comes today, right? With attention, with, like, politeness, you know? Because whether we like it or not, there are several people who come and treat us like garbage for the population, because we're in prison…so they treat us like, whatever, nobody cares." (PDL)

Participants also emphasized detailed explanations and voluntary participation as important for engagement.

> "It was well explained. Everything in detail… It was always very good, for me." (PDL)

> "The information was very clear, you know? They gave some support to read as well, because it was of your own free will to do the treatment, nothing mandatory.." (PDL)

Participants explicitly distinguished their interactions with TPT providers from those with the prison system, highlighting how institutional mistrust could undermine treatment engagement, and how efforts to garner trust could make a meaningful difference.

303 “If it were up to them [the prison system]…if it depended on them, I believe it
304 wouldn’t finish, but if it depends on you, I would finish it.” (PDL)

305 “Because the treatment…inside the prison itself, it’s pretty bad. Not for
306 tuberculosis, which is good now, with this x-ray [referencing other TB screening
307 activities conducted by the research team]...it has encouraged many people
308 already.” (PDL)

309 “It makes a big difference… this team coming to do the treatment, the follow-up.”
310 (PDL)

311 ***2.3 Treatment regimen and side effects***

312 Participants reported that practical features supported treatment continuation,
313 especially the regularity of medication delivery and the shorter three-month TPT regimen,
314 which they preferred because it helped avoid the longer six-month treatment for active TB.

315 “I don’t find anything that has to be changed [about the treatment]...it’s three pills
316 with the vitamin…nothing’s missing, right…before your pills run out, they already
317 bring more…the schedule is regular.” (PDL)

318 “Because back then it was six months, it was already strong. Then it was reduced
319 to three.” (PDL)

320 When presented with the features of the one-month, daily 1HP regimen as a
321 hypothetical alternative, many participants expressed a preference for the shorter
322 duration and felt that daily dosing would be easier to remember than weekly 3HP.
323 However, some questioned the effectiveness of a treatment lasting only one month.

324 ““One month would be better, in my opinion…if it could be shorter, of course it’d
325 be better.” (PDL)

> “I think one month, I think it’s more effective, you know why? Because every day you’re going to be taking it, digesting that medicine. I think it’ll give better results than once a week.” (PDL)

> “But if the treatment lasts three months, will it also be effective in one month?” (PDL)

Finally, although the regimen was well tolerated by most participants, some participants reported side effects that discouraged treatment continuation.

> “I took the medicine, then on Wednesday afternoon I was already saying, my God, what a strong medicine, I don’t know if it happened to you guys, but with me. On Thursday it felt like I had been beaten up, then on Friday I started getting better. Then when it got to the third to the fourth week, I started having allergies." (PDL)

> “No, it wasn’t a difficulty, but an effect that happened at the time I was taking the medicine…I used to take the medicine, and I felt like vomiting, but then I ate something, and it eased.” (PDL)

2.4 Stigma and prejudice among other PDL

Participants described experiencing stigma from other PDL, particularly within the cell, driven in part by limited understanding of latent TB infection. Stigma was often triggered when cellmates learned of the diagnosis or observed delivery of the medication, leading to questioning, judgment, and exclusion.

> “People stay close by…you can notice that they’re there, listening to see if he has tuberculosis, and knowing that you’re being discriminated against, this really affects the person’s mind.” (PDL)

> “When I got the medicine myself, everyone started asking me, what’s that for?…I told

the truth, I said I have tuberculosis, but it's sleeping in the body, some were staring at me like that." (PDL)

"'You have tuberculosis,' no. Until you explain it…No, this one doesn't transmit, it's in the blood, we're going to take the medicine once a week. Then, no, you have tuberculosis, don't come near, don't smoke with me." (PDL)

2.5 Difficulty in accessing healthcare in prison and in the community

Both PDL and family members described structural deficiencies in accessing healthcare within the prison that could impede TPT completion in a routine care context.

"The system too, it's packed, overcrowded so I can't really blame the system itself… it's not that they don't want to, it's because there are few workers too, a staff member comes once or twice a week." (PDL)

"Healthcare inside there is precarious, right? He has a judge's authorization for treatment inside there. But they don't follow it…Like, for medication, for getting an escort, to take him to the doctor. They don't take him." (FAMILY)

Family members also reported difficulties in accessing healthcare in the community that could impede treatment continuation and follow-up after release.

"Our healthcare today is precarious. Both inside…and outside, when he gets out too, it won't be easy. Because for us, who are out here, it's hard. You schedule an exam and it takes years to be seen. Even to see a general doctor. You go there today, only get an appointment for next month. And if you're dying, you die." (FAMILY)

"I went by SUS [Brazil's unified health system], asked for this MRI and it's been two years now. I'm still waiting, it's in the system and I still haven't been called, haven't been seen." (FAMILY)

2.6 Continuity of treatment after release

When asked about challenges that might arise if they had been released during treatment, participants anticipated that continuity of care would be fragile. They described the post-release period as overwhelming and suggested that competing priorities could lead to forgetting or deprioritizing treatment.

> "When you've been in prison for a long time, when you get out…there are many things. I won't say we're irresponsible. But many times there's so much going on, that you end up forgetting." (PDL)

Family members similarly predicted postponement or avoidance once the person was no longer in a controlled environment. They also expressed uncertainty about how access would work in the community, reflecting limited knowledge of health system navigation.

> "I think that inside, because he has access like that, and there's nowhere else to go. Out here we already say, oh, you have to go do the treatment. Then he's like, oh I'll go later, oh stop nagging. It would be like that." (FAMILY)

> "I don't know how the access is… for this kind of treatment. I don't know how it works." (FAMILY)

Participants proposed several solutions, emphasizing that documented referral and proactive outreach from local health units could increase accountability and facilitate follow-up after release.

> "'I was there in prison, doing treatment for latent tuberculosis.' They wouldn't give a shit about me. Now if I had a referral, it would get much better, a letter…with the referral and all." (PDL)

> "A communication from inside the [health] system…Having a health unit locate the inmate's residence would be a more viable way to have control and even

follow-up so that the inmate who gained his freedom, he can manage to complete his treatment." (PDL)

Discussion

This study evaluated adherence to the 3HP regimen for TPT among PDL in Brazil and identified key facilitators and barriers to treatment completion. We observed a high completion rate (82%) among those who initiated treatment, driven by motivations for health prevention and supported by trust in the study team. At the same time, we identified challenges to scaling up TPT in prison settings, including carceral mobility, limited understanding of latent TB infection, stigma among PDL, and barriers to routine healthcare access during incarceration and after release. Overall, these findings suggest that short-course TPT is highly acceptable and feasible in Brazilian prisons, provided that programs enlist trusted healthcare professionals, ensure continuity of care across transfers and release, and incorporate prison-wide TB education and destigmatization efforts.

To our knowledge, this is the first published study to report TPT adherence among PDL in Latin America. Acceptability was high, with 96% of eligible PDL agreeing to participate, driven in part by strong motivations to prevent TB after witnessing severe illness and death. Such motivations may be particularly salient in high-burden prison settings, where structural conditions heighten risk and impede timely diagnosis and treatment [5]. Moreover, the high completion rate (82%) is consistent with findings from other low- and middle-income countries, including Malawi and Pakistan, where short-course regimens achieved completion rates above 80%, outperforming 6-9 month regimens [9,10,11]. In this study, participants expressed interest in even shorter regimens such as 1HP, aligning with WHO guidance suggesting its potential utility for individuals released from prison due to limited opportunities for follow-up [8]. Further research is needed to assess acceptability and completion of 1HP among PDL and post-release populations.

Positive experiences with healthcare providers emerged as important facilitators of TPT initiation and completion. While prior studies have shown that positive patient-provider

relationships improve TB treatment adherence [15,16,17,18,19], their role in shaping treatment engagement among PDL has been less studied. In this study, participants valued the clear explanations and consistent follow-up from the TPT providers and distinguished their positive perceptions of healthcare staff on the research team from perceived deficiencies in the prison system and negative experiences with prison staff. The preference for healthcare professionals external to the prison system is consistent with findings from the United States and Canada showing greater distrust of prison health staff than of community-based providers, particularly in the context of COVID-19 vaccination [20,21,22]. Together these findings indicate that accompaniment from trusted healthcare professionals–potentially external to the prison system–is critical for promoting TPT adherence among PDL.

TB-related stigma also shaped experiences with diagnosis and treatment. Stigma stemmed from fear of TB, limited understanding of latent infection, and concerns about transmission. Both PDL and family members described fearful initial reactions to diagnosis. Furthermore, stigma from other PDL negatively affected mental health and social relationships. Such stigmatizing responses were often triggered by visible medication delivery within prison housing units, highlighting structural challenges specific to the prison setting that undermine patient privacy. These findings underscore the importance of pairing TB screening and treatment efforts with prison-wide education and destigmatization initiatives.

Prison transfers and releases were another major barrier disrupting the cascade of care. Prior work found that transfers between prisons and release to the community are associated with a significantly increased risk of unfavorable outcomes for active TB treatment in Brazil [23]. In the present study, 10% of eligible individuals did not initiate TPT due to transfers or releases, and among those who initiated, most instances of non-completion were due to transfers or releases. However, participants who were transferred within the same municipality and accompanied by the study nurse all completed treatment, suggesting that follow-up by a trusted health professional can effectively support adherence. To support continuity of care after release, participants suggested that proactive outreach from community health units could be an effective strategy. Future research should assess whether structured linkage and follow-up

by trusted providers can improve treatment continuity during the transition from prison to community.

This study incorporated the perspectives of family members, recognizing that families may influence, and be influenced by, the decisions and experiences of PDL. In Brazil, 75% of PDL in 2025 had registered visitors, and more than five million prison visits were recorded in the first half of 2025 alone [24]. A previous study found that PDL in Brazil rely on family members to send medications, and that fear of transmitting infections during visits motivates PDL to better care for their own health [25]. In the present study, family members exhibited a general lack of understanding about TB, which was concerning given potential exposure during visits and after release. At the same time, many family members exhibited awareness of the treatment that PDL had received and conveyed explanations about TPT aligned with those provided by the study team to PDL, suggesting that PDL actively share health information with family members. These findings highlight the importance of integrating families into prison health education and infection prevention efforts.

This study has several limitations. The sample, restricted to 50 PDL in male prisons and 10 family members in one Brazilian municipality, may have limited generalizability to PDL and family members in other regions. Due to logistical constraints, focus groups included only individuals who remained in the same prison and completed treatment, lacking perspectives from those who discontinued treatment or were transferred or released. We attempted to partially mitigate this bias by asking hypothetical questions about transfer or release scenarios. Nevertheless, losses due to transfers or releases hindered a complete understanding of post-transfer and post-release barriers, and additional research is needed to understand other contributors to treatment discontinuation. Social desirability may have led focus group participants to emphasize positive aspects and minimize criticism of treatment. Future research could implement and evaluate prison-wide TPT programs across multiple sites, include post-release follow-up, and use methods such as anonymous questionnaires to reduce social desirability bias.

Conclusion

This study found high acceptability and adherence to TPT among PDL in Brazil, driven by personal motivations for prevention, trust in healthcare providers administering TPT, and continued follow-up, but constrained by stigma, lack of knowledge, and prison mobility. Scaling up TPT in prisons and after release may be an important strategy to complement systematic TB screening in prisons and advance toward population-wide TB elimination. Such efforts should include education and destigmatization programs for PDL and their families, as well as actions to improve continuity of care for individuals transferred or released during treatment.

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DECLARATIONS

Human ethics and consent to participate

The study received ethical approval from the Research Ethics Committee (CEP) of the Federal University of Mato Grosso do Sul (UFMS) (Opinion No. 5.833.210, CAAE 6032322.6.0000.0021), the Brazilian National Research Ethics Commission (CONEP #3.780.580, CAAE 26612019.5.0000.0021), and the Stanford University Institutional Review Board (IRB #74877). All participants provided written informed consent.

Funding

This study was supported by the National Institute of Allergy and Infectious Diseases (NIAID), the U.S. Department of State's Bureau of Educational and Cultural Affairs, and Brazil's National Council for Scientific and Technological Development (CNPq). The funders had no role in study design, data collection and analysis, manuscript preparation, or decision to publish.

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