

Exploring Perspectives on Tuberculosis Preventive Treatment Completion among contacts and people with HIV in Khayelitsha, South Africa using the Health Belief Model

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Abstract

Background:

Tuberculosis (TB) preventive treatment (TPT) is recommended to prevent the development of active disease among high-risk groups, including close TB contacts and people living with HIV. However, TPT uptake and completion are suboptimal in high-incidence settings like South Africa. This study explored perspectives on TPT completion in Khayelitsha, a township in Cape Town.

Methods:

We conducted in-depth interviews with 20 participants at six primary healthcare facilities in Khayelitsha, purposively sampled to capture diverse perspectives on TPT completion. The sample included 12 caregivers of children who completed (n=7) or stopped TPT (n=5), and 8 adults who completed (n=5) or stopped (n=3) TPT. Thematic analysis used inductive coding to identify initial themes, which were organised deductively according to the Health Belief Model (HBM) constructs of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy.

Results:

While participants mostly recognised they were at risk of TB, perceived susceptibility was impaired by gaps in knowledge about transmission, including understanding that child contacts could develop TB. Perceived severity of TB was high and was also associated with TB-related stigma, which was driven by fears of infectiousness. Participants did not all perceive the benefits of TPT due to gaps in knowledge of TB and specifically TPT. Barriers included unpleasant medication taste, lack of child-friendly formulations, missed appointments due to work commitments, and negative experiences with healthcare providers, which affected TPT uptake and completion. Most participants received 6H; however, those receiving 3HP praised the shorter regimen. Cues to action are prompts to start or continue health behaviour, including support from health workers, such as CHWs. Participants who completed TPT reported high self-efficacy afterwards, whereas those who stopped TPT experienced low self-efficacy and identified opportunities for enhanced support.

Conclusions:

Strategies to address barriers to TPT uptake and completion include providing child-friendly formulations, improving healthcare experiences more broadly, and implementing practical support strategies. Greater involvement of CHWs with community TPT delivery and support could reduce barriers. Interventions should incorporate family-centred counselling and training for healthcare providers on approaches to strengthen TPT uptake and completion and reduce TB incidence in high-burden settings.

INTRODUCTION

Globally, tuberculosis (TB) remains a major public health threat, with an estimated 10.7 million new people becoming sick with TB globally in 2024 (1). In South Africa, TB continues to be the leading cause of death from infectious disease, despite being preventable and treatable (2). The National Department of Health has developed policies aimed at addressing the high burden of TB. These include increasing TB testing, as well as providing TB preventive treatment (TPT) (3). The new policies identify high-risk groups for targeted testing and TPT provision. It is recommended that all close contacts of people with TB, people living with HIV and people who have had TB in the last two years are tested, and those who test negative should be offered TPT to reduce their risk of developing active disease, while those who test positive should commence treatment promptly (3).

Evidence demonstrates that TPT is highly effective, reducing the incidence of active TB by up to 60% and TB-related mortality by more than one-third among adults and children living with HIV (4). TPT regimens include 6 or 12 months of daily isoniazid (6H or 12H) as well as shorter alternatives, such as 3 months of once-weekly isoniazid plus rifapentine (3HP) or 3 months of daily rifampicin plus isoniazid (3RH) (5). The uptake and completion of long TPT treatment courses, such as 6H and 12H, have historically been low, particularly among children (5). The shorter regimens have been shown to achieve higher uptake and completion rates with fewer adverse effects and are now recommended by the World Health Organisation (4) and the National Department of Health. Despite policy recommendations and increased availability in low and middle-income countries (LMIC) settings, uptake and completion of TPT rates remain low, limiting the impact of TPT (6).

Although the South African National TB Recovery Plan and the National Strategic Plan for HIV, TB, and STIs (2023–2028) provide clear and feasible recommendations to achieve TB control targets, many of the services are not yet fully implemented at the district level across South Africa's provinces (7). A new national TPT policy was released in 2023, but has faced delays in implementation in the Western Cape (7). Healthcare workers often lack training or awareness of updated guidelines, and gaps remain in community awareness about the importance of TB testing and preventive treatment (8). Ensuring effective contact tracing and testing, and timely initiation of TPT, is essential to curb TB transmission. Innovative, context-specific interventions are therefore urgently needed to build demand for TB testing and TPT services among close contacts and to strengthen the capacity of health workers to implement new policies effectively. To better understand these implementation challenges, this study used qualitative methods to explore perspectives of TB preventive therapy and support among caregivers of children and adults eligible for receiving TPT in Khayelitsha, Cape Town, Western Cape.

METHODS

Study design and team

We conducted a qualitative study to explore perspectives on TPT understanding and completion. In-depth interviews were conducted by a research team consisting of two trained TB survivors (one male and one female) affiliated with TB Proof, a TB advocacy non-governmental organisation (NGO), and one

male and one female research assistant from the implementing partner NGO (TB HIV Care). Interviews were held in isiXhosa, the primary language spoken by participants at the study site, which allowed them to express themselves with ease.

Study population and setting

We conducted 20 in-depth interviews with purposively selected participants representing diverse perspectives on TPT completion. Adult participants were recruited from six primary healthcare facilities in Khayelitsha, one of the largest townships in the Western Cape, which is home to over half a million residents, many of whom live in informal settlements and experience high levels of poverty and unemployment. Khayelitsha has one of the highest burdens of TB in the province (9). The sample comprised 8 adults (household contacts of a person with TB or people living with HIV) and 12 caregivers of children who were prescribed TPT. Of the adults, five completed TPT (three received 6H and two received 3HP), and three discontinued treatment (two started 6H and one started 3HP). Among the children, 7 completed TPT successfully (six received 6H and one received 3HP), while 5 discontinued treatment (four started 6H and one started 3HP). Participants were eligible for inclusion if they were receiving or had recently completed TPT and were in a high-risk group, as a close contact of a TB patient, or a person living with HIV. Children were not interviewed directly; instead, caregivers shared insights on their experiences supporting adherence. Participants were approached and recruited through clinic staff referrals and community health worker networks based on having received TPT. People unable to provide informed consent and not prescribed TPT during the study period were excluded.

Data Collection Process and Analysis

Interviews were conducted in person at healthcare facilities between October 2023 and December 2024. Each interview lasted between 30 and 60 minutes. The interview guide began with an explanation of the study objectives, followed by open-ended questions exploring experiences with TPT, perceived barriers and facilitators to treatment adherence, and suggestions for improving TPT services. Each interview was audio-recorded with participant consent, transcribed verbatim, and translated into English by a research transcriber for analysis. Final transcripts were reviewed by the interviewers to ensure accuracy. Interviewers held regular team discussions during data collection to debrief and reflect on preliminary insights and fieldnotes. All transcripts were anonymised using unique participant study numbers and categorised by age group, treatment uptake, and completion status. Transcripts were imported into ATLAS.ti 25 to facilitate systematic coding (10).

We initially used inductive coding and developed a coding scheme based on identified themes after review of the transcripts by multiple team members (RM, IS, JG, RRN), subsequently enabling RM (first author) to code the transcripts accordingly. To aid interpretation of the findings, we applied the Health Belief Model (HBM) as a framework used to understand and predict individual health behaviours (11). The data were analysed thematically, using a combination of deductive coding, informed by the study

objectives, existing literature, including the HBM constructs, and the initial themes identified through inductive coding. Analysis was conducted collaboratively by the research team to enhance rigour and consistency in theme development.

Ethical considerations

Ethical approval and regulatory clearances were obtained in accordance with the Declaration of Helsinki 2013 and the SA National Department of Health Guidelines (12). Ethical approval for this study was obtained from the Health Research Ethics Committee of Stellenbosch University (Ref. N20/10/113). Provincial approval was granted by the Western Cape Provincial Health Impact Assessment Committee (WC202307/050). All participants provided informed consent. We ensured that our manuscript includes all components listed in the consolidated criteria for reporting qualitative research (COREQ) checklist (Additional file 4) (13).

RESULTS

We present perceptions and behaviours influencing TPT completion, organised according to the constructs of the Health Belief Model (Fig. 1). The analysis identified key motivational and structural influences underlying TPT-related decisions, offering insights into both barriers and enablers of implementation in this high-TB burden setting. Respondents are identified by participant number (P), gender, age, role (adult or caregiver), and treatment outcome status.

1. Perceived Susceptibility of TB

Participants generally recognised that they were at risk of TB. However, they expressed uncertainty about transmission, including how infection happens within households and whether existing diagnostic tests were adequate. Some expressed concerns about ongoing exposure and recurrent TB after completing treatment:

There's a lot I want to know about TB. Since we were staying with children with TB, didn't we also get infected with it? Because they don't find it in the sputum, is there no other way we can do?

(P02, female, 35 years, caregiver, completed 6-month TPT)

[...] wait, sorry, they won't be getting TB anytime soon now since they just completed their TB treatment/ journey? Because there's a friend of mine... she says she has TB again this year, she also had it last of last year.

(P02, female, 35 years, caregiver, completed 6-month TPT)

Most but not all participants recognised their own or their child's risk of developing TB. Awareness and concern about TB were heightened after someone had been sick with TB within the household, although

one participant mentioned not knowing.

"[...] I did not know that a child can get TB. I don't want to lie..., I thought it's only us older people that get it.

(P02, female, 35 years, caregiver, completed 6-month TPT)

Adults described being aware of an increased risk due to their health status, such as HIV co-infection. The association between TB and risk factors such as alcohol use or smoking was less clear and acknowledged as a knowledge gap by participants.

I don't know where does TB come from. I also want to know where does it come.... you find that a person who doesn't smoke and drink is infected by TB

(P04, female, 56 years, completed 6-month TPT)

2. Perceived Severity of TB

TB was viewed as a serious disease that could cause death if untreated. Participants equated TB with weight loss and weakness, reinforcing its severity in community perceptions. Some, however, noted that they knew TB was curable with proper treatment.

I was worried my child would lose weight because people with TB do.

(P05, female, 47 years, caregiver, completed 3-month TPT)

"When you have TB, you lose weight and become weak, but I know if you take treatment, you will be fine."

(P09, female, 27 years, stopped 6 month TPT)

Stigma related to TB affected participants' perceptions about TB and its seriousness, often due to enacted stigma from others due to concerns about becoming infected.

He was told not to play with other children because they feared he would infect them.

(P02, female, 35 years, caregiver, completed 6-month TPT)

[...]He would just see that wherever he is, people would just leave. So I think it's because of what was said about TB disease, so they are scared of it and getting infected when close to someone with TB.

(P03, female, 82 years, stopped 6-month TPT)

3. Perceived Benefits of TPT

Some participants recognised health benefits associated with accessing TPT, particularly those with HIV. However, participant understanding of the preventive nature of TPT to reduce disease risk did not

necessarily mean that they or their children completed TPT. Participants who received 3HP appreciated having a shorter treatment regimen.

What motivated me was, since I'm HIV positive, I was preventing myself from getting another disease, so I decided to take TPT and complete it so that I don't get TB.

(P18, female, 29 years, completed 6-month TPT)

They said, 'Thintela' [TPT] means protecting the baby from getting TB.

(P20, female, 32 years, caregiver, stopped 6-month TPT)

"I think the one for 3 months is fine"

(P05, female, 47 years, caregiver, completed 3-month TPT)

Prior knowledge of TPT specifically (rather than TB as an illness) was noted to be low, with one participant mentioning the possibility of using media platforms like radio or television to increase awareness.

It was my first time hearing about TPT. I don't know how I missed TPT in the past. But with TB and HIV I have heard about them in the radio, TV or in the community, not TPT.

(P 19, female, 46 years, stopped 6-month TPT)

4. Perceived Barriers to taking TPT

Gaps in understanding of TPT were mentioned by several participants, including those who stopped treatment, highlighting the importance of improved counselling and follow-up to understand the rationale for preventive treatment and the need for enhanced efforts to follow up with people who interrupt or stop treatment.

They said I must use thintela (TPT), I said maybe to prevent so that I no longer catch it, I couldn't understand. I still have my results they were negative, but they gave me TPT. Then I thought maybe it's prevent from getting TB. I really didn't understand because they got my results and they were negative which was good, they sent the results immediately, but they gave me TPT, the treatment of thintela (TPT), I really don't know.... I stopped all that medication, then I came back and reported to them but they didn't attend me.

(P19, female, 46 years, stopped 6-month TPT)

Perceived barriers included unpleasant medication taste, difficulties administering pills to children, lack of child-friendly formulations, and missed appointments due to work commitments weighed against perception of limited benefits when their child was otherwise well. Side effects such as nausea, fatigue and dizziness were commonly mentioned, leading some to discontinue or skip doses.

The thing is it's difficult to use the tablets, sometimes you forget, you see and after all we are humans, the child is so busy in the morning doing up and down and then you forget to give the child TPT, you see. I mean it's a struggle with the tablets.... The pill was too big and bitter for my child; he refused it.

(P07, female, 41 years, caregiver, stopped 3-month TPT)

The reason I couldn't come again is because I'm always working and I saw my child that there's nothing wrong with my child and the girl that had TB was getting better and even gaining her weight back so I didn't see the reason to come back and I was told that her TB is not contagious anymore so I decided I won't go back to the clinic and also I became lazy too.

(P11, female, 32 years, caregiver, stopped 6-month TPT)

[...]since I was taking TB tablets (TPT) I was feeling dizzy, and very weak wanted to sleep all the time and I didn't have strengths to do things but I was forcing myself to do them, [...]

(P18, female, 29 years, completed 6-month TPT)

And sometimes they don't want the TB tablets because they say they make them vomit and they are tiring.

(P10, female, 38 years, caregiver, completed 6-month TPT)

Stigma and fear of discrimination also emerged as key barriers to TPT adherence. Some participants described how fear of being judged or rejected by others, particularly intimate partners, discouraged them from disclosing their treatment or continuing medication.

It's not easy for some people because some people are scared of discrimination. Let me make an example about my boyfriend, like let's say he was scared to tell me because he thought I was going to leave him, you see. So, it's not easy for them to disclose because some are scared of their partners leaving.

(P20, female, 32 years, caregiver, stopped 6-month TPT)

Participants described that their negative experiences with the nurses at the clinic contributed to challenges in continued TPT adherence, alongside structural health systems issues such as long waiting times and stigma related to TPT use.

I had to take time off work to go to the clinic; sometimes I just couldn't.

(P11, female, 32 years, caregiver, stopped 6-month TPT)

The nurses were rude, so I stopped going for the treatment.

(P15, female, 38 years, caregiver, stopped 6-month TPT)

males are tired by the attitude they get from the female nurses in the clinics, just imagine you just come through the door you get someone with attitude they will never be interested to come again after being assisted by someone with attitude.

(P12, female, 32 years, caregiver, completed 6-month TPT)

5. Cues to Action

Advice and support from health workers and CHWs played an important role in motivating TPT uptake and adherence. Participants described how counselling at the clinic increased their understanding of TPT's purpose and benefits, leading to their decision to start treatment. Clear explanations and reminders from nurses provided the confidence caregivers needed to give medication to their children daily.

"Usually it's the community healthcare workers [...] they say we must always open windows and doors and houses must be neat so that it's not easy to catch TB and then if there's someone in house who has TB the close contacts must go to their nearest clinic to get TPT."

(P14, female, 38 years, caregiver, completed 6-month TPT)

The nurse explained if I don't take TPT, I might get TB again.

(P14, female, 38 years, caregiver, completed 6-month TPT)

They told me to give him the medicine every day, and that helped me to remember.

(P06, female, 29 years, caregiver, completed 6 month TPT)

Participants valued CHW home visits for providing reminders, support, and follow-up to improve treatment uptake and completion. Some adults felt that regular check-ins would encourage them to continue treatment, especially when experiencing side effects or lacking motivation to attend clinics.

People are very lazy to go to the clinic, people go to the clinic once and never go back again. If the CHWs could visit every month and bring these tablets because people are scared to go and collect medication, and the CHWs should come back again and check if you are taking the [tablets] well and correctly because people take their medication and put in the drawer and not use it and they become more sick instead of getting better

(P14, female, 38 years, caregiver, completed 6-month TPT)

If CHWs came to check at home, people would finish their treatment.

(P08, female, 30 years, caregiver, completed 3-month TPT)

Family involvement emerged as an important motivator for adherence. Several caregivers described how support from relatives, such as reminders, encouragement, or even sharing the responsibility of giving medication with the children themselves, helped them stay consistent with TPT routines. This relational support acted as a cue to action, reinforcing counselling messages received at the clinic and fostering a sense of shared responsibility within households.

We were supporting each other at home, reminding one another to take the pills, especially when someone forgot... maybe another child will have a problem and not like this tablet.. she reminds me in the morning and say, 'pills mom', another child will not remind you.

(P13, female, 32 years, caregiver, completed 6-month TPT)

6. Self-Efficacy

Participants who completed TPT demonstrated confidence in their ability to adhere to treatment, often describing practical strategies they used to support adherence. These included mixing pills with food or milk to change the taste for children, setting reminders on their phones, and incorporating medication into daily routines. Some caregivers highlighted their determination to ensure their children completed TPT despite challenges.

At first I used to crush it and mix it with water and give him but then he didn't want it when he saw the bottle he would cry, and then I took his baby bottle and mix the pill with the milk and the milk must not be too much and then I feed him in the morning before he eats a porridge.

(P14, female, 38 years, caregiver, completed 6-months TPT)

My child didn't have an easy journey on taking TPT but here in the clinic they were so impressed saying it's the first time they see a child who takes his medication like this one. Yes, he completed TPT, but it was very difficult, I don't want to lie. He even lost some weight and then regained his weight again he's alright now. But what I can tell you is it's not easy having a child on TB treatment.

(P02, female, 35 years, completed 6-months TPT)

Participants expressed varying levels of confidence in their ability to adhere to TPT. Confidence in adherence was strongly associated with understanding the treatment purpose, developing personal routines, using practical tools like pill organisers, and believing in their own capacity to complete the regimen. Those who completed TPT often described self-discipline and determination as key factors, reinforced by positive encouragement.

What motivated me was, since I'm HIV positive I was preventing myself from getting another disease so I decided to take (TPT) and complete it so that I don't get TB

(P18, female, 29 years, completed 6-months TPT)

I didn't want to be infected with TB and also since I'm taking diabetes pills even on the diabetes side I'm always up to date with my appointments, I'm not lazy to go to the clinic, I never miss my appointment because I know I have to take medication every now and then because they bring health to me, so even the TB pills (TPT) I was taking them in the same way knowing that at least I'm taking them for a certain time, and the ones for diabetes are for life so I'm not skipping them too.

(P18, female, 29 years completed 6-months TPT)

In contrast, participants who stopped treatment often described feeling overwhelmed by side effects or daily demands, lacking confidence in their ability to continue without additional support. These barriers were compounded by other social and structural issues such as food insecurity.

"Since I was taking TB tablets (TPT) I was feeling dizzy, and very weak, wanted to sleep all the time and I didn't have strength to do things but I was forcing myself to do them, and go to work. Sometimes I even forget to take the medication because sometimes I would not have something to eat for breakfast and I cannot take TPT on an empty stomach."

(P18, female, 29 years, completed 6-month TPT)

DISCUSSION

While adults and caregivers in Khayelitsha largely perceived TB as a disease they were at risk for our study identified multiple barriers that affected TPT completion. Participants mentioned gaps in their knowledge of TB, particularly related to the existence and rationale for TPT, highlighting the challenges of explaining and conveying the benefits of a preventive treatment to people who otherwise feel well. Improved counselling to emphasise the rationale and benefits of TPT, as well as better efforts to follow up with people on TPT, particularly after interruptions or stopping treatment, could improve TPT uptake and completion rates, for which CHWs could play an important role. TPT medication tolerability and side effects remain important ongoing barriers, particularly for children.

The majority of participants were prescribed 6 months of isoniazid. Our study emphasises the need to expand access to shorter regimens such as 3HP, introduce child-friendly formulations to improve acceptability due to current challenges such as the large size and bitter taste of isoniazid pills for children, which align with findings from studies in South Africa and Ethiopia, where difficulties administering 6H regimens to children resulted in low uptake and completion rates and poor acceptability among caregivers (14;15). In contrast, shorter regimens such as 3HP, which involves once-weekly dosing of isoniazid and rifapentine for three months, have been shown to improve treatment uptake and completion due to reduced pill burden and duration (16). A study from Peru found that caregivers thought child-friendly formulations were more important than regimen duration (17). Fear of side effects was another barrier identified, reflecting a previous study highlighting caregivers' and adults' concerns about the side effects (18). Structural barriers such as long clinic waiting times, missed workdays, and transport costs were additional reasons for non-completion, consistent with studies from

Cambodia reporting that economic constraints limit TPT adherence (19). The Perceptions and Practicalities Approach (PAPA) highlights the importance of addressing environmental and social factors that create opportunities to strengthen health care delivery (20). Practical and structural solutions, including child-friendly formulations, shorter regimens, and differentiated care delivery, could improve uptake and access to TPT.

The need for strengthened health worker counselling, specifically about TPT benefits and side effects and CHW support emerged as key enablers of TPT uptake and adherence. Currently, TPT in the Western Cape is provided through public sector clinics, which are resource-constrained, with staff not always aware of new policies or motivated to implement them, and having insufficient time to counsel TB patients or follow up on their contacts. Malaka et al. (2024) reported that only 30% of patients in Gauteng Province completed the recommended 12-month TPT course, which falls far below the national target of 85%, and highlighted the lack of treatment supporters (21). While the clinic-based model benefits from the oversight of trained health professionals, it remains constrained by patient accessibility issues (22). Norton et al. (2023) emphasised that alternative, community-based approaches such as home screening and follow-up by community health workers could enhance TPT reach and adherence (23).

Participants suggested that CHW home visits could provide reminders and encouragement, addressing some of the structural and psychosocial barriers to uptake and completion. This is supported by evidence from Uganda showing that CHW-led follow-up improved treatment adherence and reduced loss to follow-up in TB preventive treatment programmes (24). Enhancing patient engagement through CHW-led home visits would ideally be coupled with addressing structural barriers, such as reducing clinic waiting times and transport costs. A recent trial showed that home-based contact management by CHWs may increase the number of children initiated on TPT (25), and another pragmatic study showed that offering TPT services in community settings could increase treatment and care cascade uptake and completion, highlighting the potential benefits of moving away from clinic-based TPT delivery (26). Participants recommended that targeted community awareness and education campaigns are needed to improve knowledge of TPT and its benefits, reduce misconceptions about side effects, and increase acceptance of TPT within the community. Implementing these strategies may support South Africa's efforts to reduce TB incidence and achieve national TB control targets.

In addition to health system and medication-related challenges, family and caregiver support emerged as important enabling factors for TPT uptake and completion. Relational encouragement, shared routines, and emotional reinforcement helped participants sustain adherence even when facing fatigue or side effects. These findings highlight the value of integrating family-centred approaches into counselling and follow-up interventions, complementing the role of CHWs in adherence support. Further research is needed to identify and optimise family-centred care approaches (27).

A strength of this study was the inclusion of both caregivers and adult patients, providing diverse perspectives on TPT implementation challenges. However, findings are limited to one urban district in

South Africa and may not be generalisable to rural or other settings. Since participants were referred by health workers, social desirability bias may have influenced participant responses, although we purposively sampled both participants who had completed and stopped TPT, and interviews were conducted in local languages by trained TB survivor researchers to minimise this potential bias.

CONCLUSIONS

Barriers to TPT uptake and completion were substantial, including inadequate counselling, gaps in knowledge, challenges with medication formulations, fear of side effects, structural constraints of clinic-based care, and negative healthcare experiences. While shorter regimens such as 3HP were viewed as more acceptable due to reduced pill burden and treatment duration, the majority of participants were prescribed the six-month 6H regimen. Addressing these barriers through strengthened health worker counselling, family-centred counselling, integration of community health worker support via home visits, and expanded community awareness campaigns can enhance TPT uptake and completion. Effective implementation of these strategies could advance national TB control objectives and reduce TB incidence in South Africa.

Abbreviations

3HP

3 months of weekly isoniazid and rifapentine

3RH

3 months of daily rifampicin and isoniazid

6H

6 months of daily isoniazid

ART

Antiretroviral therapy

CHW

Community health worker

HIV

Human immunodeficiency virus

HBM

Health Belief Model

PAPA

Perceptions and Practicalities Approach

PLHIV

People living with HIV

TPT

TB Preventive Treatment

TB

Tuberculosis

Declarations

Ethics approval and consent to participate:

Ethical approval was obtained from the Health Research Ethics Committee of Stellenbosch University (Ref. N20/10/113). Provincial approval was granted by the Western Cape Provincial Health Impact Assessment Committee (WC202307/050). All participants provided informed consent and confidentiality was maintained.

Consent for publication:

All participants provided informed consent. All authors have consented to publication.

Availability of data and materials:

All data supporting the findings of this study are available within the paper and its Supplementary Information.

Competing Interests:

None to report

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Authors' contributions:

RM: study design; first draft of the manuscript, data collection, data analysis, and conceptualisation. CJ: Project manager, data collection and conceptualisation. GM: Data collection, review the manuscript. PT: Data collection and review of the manuscript. SB: Transcription of the record from Xhosa to English. PG: Data collection. CB: Conceptualisation. HH: Review the manuscript. DM: Data collection. AB: Conceptualisation. MG: Project administration. HW: Conceptualisation, finding acquisition review the manuscript. IS: Funding acquisition, project manager, study design and reviewing the manuscript. JD: Developed the interview guide study design review the manuscript. RC: Finding acquisition, study design and reviewing the manuscript. RN: Funding acquisition, study design, guidance regarding data analysis, manuscript writing and editing, prepared the figure and reviewed the manuscript. All the authors reviewed and approved the final version of the manuscript for submission

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Conflicts of Interest:

None to report.

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Figures

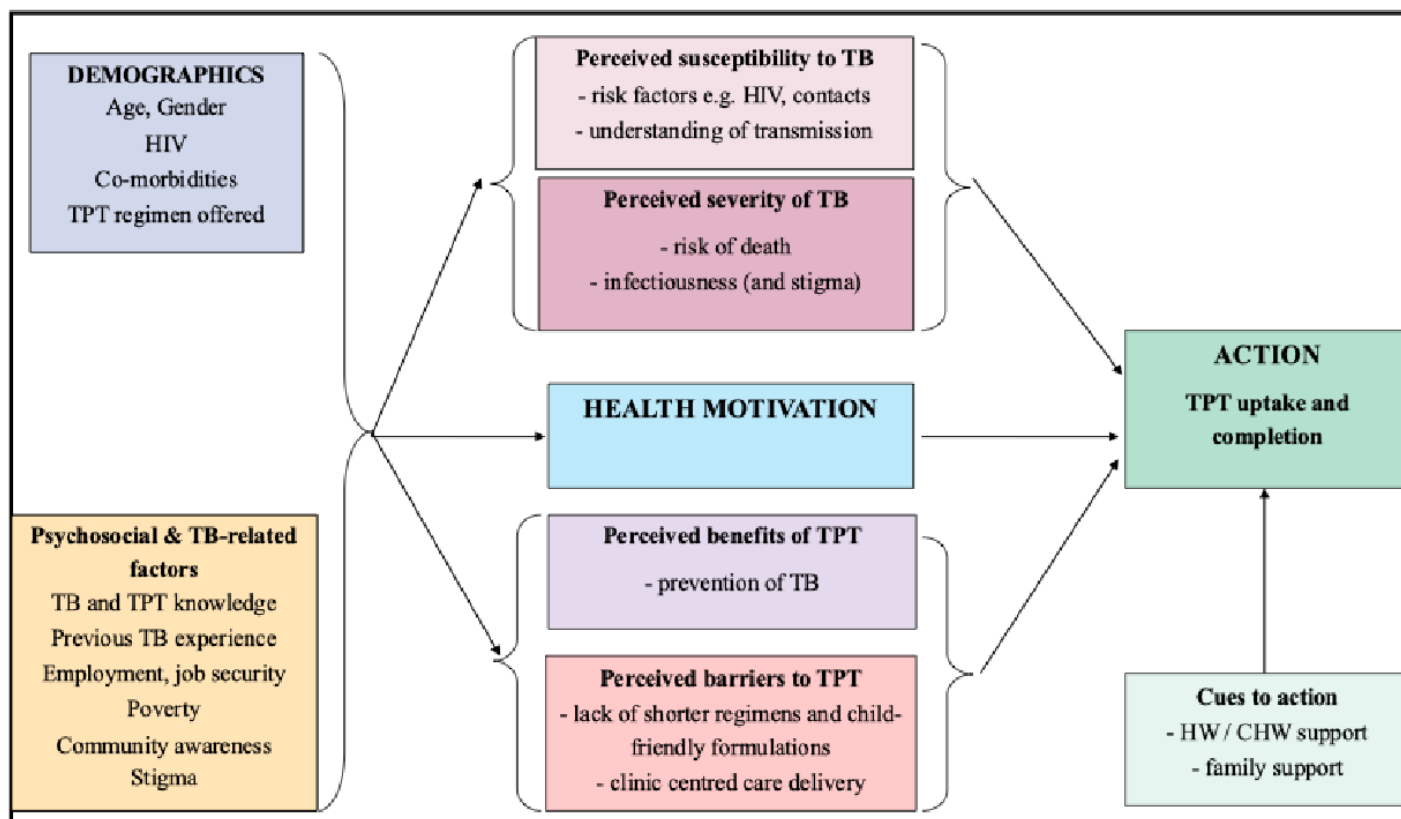


Figure 1

Health Belief Model applied to TPT, adapted from Abraham C & Sheraan P, 2015.