



## Treatment Hesitancy and Treatment Adherence Among Patients with Multidrug-Resistant Tuberculosis: A Correlational Study

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### Abstract

Multidrug-resistant tuberculosis (MDR-TB) presents substantial challenges to treatment completion because patients may encounter financial constraints, treatment burden, uncertainty, and varying levels of social and informational support. This study examined treatment hesitancy and treatment adherence among patients with MDR-TB and determined the relationship between specific hesitancy indicators and overall treatment adherence. A descriptive-correlational research design was employed using survey data from 26 MDR-TB patients who participated in the study. The instrument measured treatment hesitancy and treatment adherence, while descriptive statistics, reliability analysis, and Spearman's rank correlation were used to analyze the data. Findings showed that respondents generally demonstrated favorable perceptions toward several aspects of treatment adherence, particularly those associated with healthcare-provider support, treatment schedules, and interaction with healthcare personnel. Treatment-hesitancy responses also indicated concerns related to affordability and alternative treatment options. Among the treatment-hesitancy indicators, family or household support was moderately and positively associated with consolidated treatment adherence ( $\rho = .457$ ,  $p = .019$ ), while being well-informed through consultation and follow-up was likewise moderately and positively associated with adherence ( $\rho = .425$ ,  $p = .030$ ). Most other hesitancy indicators were not statistically significant. The findings suggest that patient understanding, supportive interpersonal relationships, and clear treatment guidance may be particularly relevant to sustained treatment adherence among MDR-TB patients. These results support patient-centered interventions that strengthen communication, education, and social support throughout the treatment process.

**Keywords:** *multidrug-resistant tuberculosis; treatment adherence; treatment hesitancy; patient support; health communication; treatment behavior*

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### 1. Introduction

Tuberculosis remains a major public-health concern, particularly in settings where delayed diagnosis, interrupted treatment, and limited access to sustained care contribute to continued transmission and the emergence of drug-resistant forms of the disease. Multidrug-resistant tuberculosis (MDR-TB) is especially challenging because it involves resistance to the principal first-line anti-tuberculosis drugs and typically requires more complex, prolonged, and burdensome treatment. MDR-TB management is complicated not only by the clinical demands of treatment but also by the social, financial, and behavioral conditions that shape patients' willingness and ability to remain in care.

In the Philippine context, treatment loss to follow-up has been a persistent problem in MDR-TB management. Earlier program experience showed that despite increasing numbers of patients entering treatment, treatment success did not consistently improve, and previous Philippine research identified patient-level, healthcare-setting, diagnostic, and treatment-related conditions as contributors to loss to follow-up (Tupasi et al., 2016). These concerns are particularly significant because incomplete or interrupted treatment may undermine disease control and may expose patients to greater risk of adverse outcomes.

Treatment hesitancy in MDR-TB is shaped by several interconnected considerations. The source literature identifies medication burden, adverse effects, affordability, treatment duration, access to reliable information, and patients' perceptions of treatment as relevant concerns. MDR-TB treatment may impose substantial physical and psychological demands, and treatment-related adverse effects can influence how patients perceive the acceptability and sustainability of the prescribed regimen (Ausi et al., 2021; Prasad et al., 2018). Misinformation and limited health literacy may also complicate treatment decisions by affecting patients' understanding of tuberculosis and its treatment (Chen et al., 2018; Scherer et al., 2021).

Treatment adherence, in turn, extends beyond medication-taking behavior. Adherence is embedded in broader socioeconomic, cultural, informational, and healthcare-system conditions. Financial burden can interfere with continued treatment, particularly among patients with limited household resources, while geographic access to health services and the availability of appropriately located facilities may also influence utilization of care (Flores et al., 2021; Florentino et al., 2022). Patient-provider interaction is likewise important because effective communication, trust, and the ability of healthcare professionals to adapt information to the patient's level of understanding can influence treatment-related behavior (Aibana et al., 2020; Drossman & Ruddy, 2020).

Social and informational support may be especially relevant in sustaining treatment. Health literacy, cultural beliefs, patient autonomy, and communication with healthcare professionals can influence patients' willingness to manage chronic conditions and participate actively in treatment (Calimag, 2020; Khariroh & Abdullah, 2022; Shahin et al., 2019). These considerations suggest that treatment adherence in MDR-TB should not be viewed solely as an individual act of compliance, but rather as a behavioral outcome influenced by the interaction of patient perceptions, social support, treatment burden, and healthcare delivery.

The present study examined treatment hesitancy and treatment adherence among MDR-TB patients receiving treatment in Santa Ana, Manila. It specifically described respondents' demographic characteristics, treatment-hesitancy indicators, treatment-adherence indicators, and the relationships between individual hesitancy indicators and consolidated treatment adherence.

### *Objectives of the Study*

This study aimed to examine treatment hesitancy and treatment adherence among patients with multidrug-resistant tuberculosis and to determine the relationship between specific treatment-hesitancy indicators and overall treatment adherence. Specifically, it sought to:

1. describe the respondents in terms of age, sex, educational attainment, and employment status;
2. determine the patterns of treatment hesitancy among patients with MDR-TB;
3. determine the patterns of treatment adherence among patients with MDR-TB; and
4. assess the relationship between treatment-hesitancy indicators and treatment adherence.

## **2. Review of Related Literature**

### *2.1 MDR-TB Treatment Burden and Treatment Challenges*

Multidrug-resistant tuberculosis presents a more complex treatment burden than drug-susceptible tuberculosis because therapeutic regimens may involve longer treatment periods, multiple medications, adverse drug reactions, and greater monitoring requirements. Prasad et al. (2018) described MDR-TB as a significant challenge to tuberculosis control because treatment is costly, prolonged, and dependent on drugs that may produce substantial adverse effects. The burden of treatment is therefore not limited to disease severity itself; it also includes the physical and psychological demands created by the therapeutic regimen.

Adverse drug reactions may directly shape patients' experience of MDR-TB treatment. Ausi et al. (2021) reported that adverse reactions associated with drug-resistant tuberculosis therapy can impair physical, psychological, and social dimensions of quality of life. Specific therapies may also produce clinically important effects. Pratama et al. (2021), for example, identified anemia among MDR-TB patients receiving linezolid, while Wrohan et al. (2021) documented ototoxic effects such as hearing loss, tinnitus, and vertigo among patients exposed to particular treatment regimens. The psychological burden is also relevant; Alene et al. (2018) found that depression, anxiety, and psychosis occur among patients undergoing MDR-TB treatment.

Comparable evidence from health-professions students likewise shows that sustained health-related demands can coexist with substantial distress and burnout, underscoring the broader relevance of psychological burden when interpreting prolonged treatment experiences, although this population is distinct from MDR-TB patients (Quinto et al., 2025).

Treatment design itself has consequently become an important component of MDR-TB management. Ahmad et al. (2018) found improved treatment outcomes associated with newer or later-generation drugs such as linezolid, fluoroquinolones, bedaquiline, clofazimine, and carbapenems. Lofranco et al. (2022), in a Philippine setting, reported that a nine-month MDR-TB regimen was generally effective and safe and contributed to programmatic experience with shorter treatment approaches. Nevertheless, loss to follow-up remained a concern even under the shortened regimen. This suggests that regimen improvement may reduce some barriers but does not eliminate the behavioral and social conditions affecting treatment continuation.

The broader treatment environment is equally important. Tiberi et al. (2021) emphasized the need for shorter regimens, adequate drug availability, universal access, and greater social protection for patients. MDR-TB control therefore requires

not only effective medicines but also reliable access to resistance testing, clinical services, follow-up care, and health-system capacity to maintain continuity of treatment.

## ***2.2 Treatment Hesitancy, Information, and Patient Perceptions***

Treatment hesitancy may emerge when patients experience uncertainty, competing beliefs, perceived treatment burden, or inadequate information regarding their condition and prescribed therapy. Scherer et al. (2021) found that susceptibility to online health misinformation may extend across different health topics and may affect individuals' healthcare decisions. Chen et al. (2018) similarly reported that individuals with lower health literacy may rely more heavily on social media and informal sources of health information rather than healthcare professionals or established medical sources.

In a Philippine community-health setting, Temporada et al. (2025) found that awareness showed only weak associations with preventive practice, while attitudes were much more strongly related to practice, illustrating that health knowledge by itself may not fully translate into sustained behavior.

In the context of tuberculosis, informational conditions can influence whether patients understand the necessity, duration, and expected outcomes of treatment. Silva and de Queiroz Mello (2022) emphasized the importance of educational programs that address misconceptions and improve knowledge regarding tuberculosis and its treatment. Patient education is therefore relevant to reducing uncertainty surrounding treatment participation and supporting informed decision-making.

Evidence from a short-term digital self-monitoring intervention similarly suggests that structured health information and repeated self-observation may support engagement with health behavior even when measurable outcome changes are modest, although the evidence comes from a nonclinical student population (San Juan et al., 2026).

Hesitancy may also reflect patients' evaluation of treatment alternatives, side effects, and perceived affordability. Adverse drug reactions can influence perceptions of treatment acceptability, while prolonged treatment may increase fatigue or uncertainty about continued participation. Health literacy and patient autonomy further complicate these decisions. Shahin et al. (2019) found that personal and cultural beliefs can influence medication adherence in chronic illness, while Calimag (2020) identified different health-literacy perspectives among Filipino patients. Khariroh and Abdullah (2022) likewise emphasized patient autonomy in tuberculosis treatment. These findings suggest that hesitancy may be better understood as an interaction between knowledge, perceived treatment burden, cultural interpretation, and confidence in the treatment process.

A related behavioral distinction appears in research on controlled motivation: participation can remain observable under external or internalized pressure without necessarily reflecting autonomous willingness, suggesting caution in equating continued involvement with fully internalized commitment (Borinaga et al., 2026).

## ***2.3 Treatment Adherence, Social Support, and Patient-Provider Interaction***

Treatment adherence is a multidimensional behavioral outcome rather than simply obedience to medical instructions. Long-term adherence may require medication-taking, sustained interaction with the healthcare system, symptom monitoring, and continued participation in treatment despite inconvenience or adverse effects.

Patient-provider interaction is particularly important in this process. Aibana et al. (2020) reported that poor patient-provider interaction may constitute a barrier to tuberculosis treatment adherence, whereas interactions characterized by mutual respect, trust, and collaborative decision-making can strengthen patients' willingness to continue treatment. Drossman and Ruddy (2020) similarly emphasized the importance of effective patient-provider relationships and communication.

Patient-centered healthcare frameworks likewise emphasize that communication quality, empathy, trust, and the interpretation of patient experience are consequential dimensions of care that may be obscured when attention is limited to standardized performance indicators alone (Atento, Quinto, Espelita, & San Juan, 2025).

Social relationships outside the clinical setting may also influence adherence. MDR-TB treatment may interfere with work, family responsibilities, and ordinary social life. Patients undergoing prolonged treatment may therefore benefit from family or household support that helps them endure practical and psychological difficulties associated with therapy. Adherence is consequently shaped by the interaction between individual commitment, provider communication, and the patient's immediate social environment.

Although developed in geriatric caregiving rather than tuberculosis treatment, Quinto, Bermido, and Atento (2026) similarly characterize support as extending beyond functional assistance to relational, emotional, and identity-related dimensions, reinforcing the broader importance of sustained interpersonal support in demanding health contexts.

## ***2.4 Socioeconomic and Health-System Barriers to Treatment***

Financial and structural barriers are recurring themes in tuberculosis treatment. MDR-TB disproportionately affects populations with limited resources, while treatment itself can generate direct and indirect economic burdens. Florentino et

al. (2022) found that catastrophic costs remain an important concern among tuberculosis-affected households in the Philippines despite treatment programs and social-protection mechanisms.

Economic burden extends beyond the direct cost of medicines. Patients may incur transportation expenses, consultation costs, lost wages, and productivity losses associated with repeated clinic attendance and prolonged treatment. Tomeny et al. (2020) described coping strategies such as borrowing money, selling assets, or leaving school when tuberculosis-related costs become difficult to manage.

Access to health facilities constitutes another structural consideration. Flores et al. (2021) demonstrated the importance of health-facility location in improving healthcare access in the Philippine setting. Uneven distribution of health services may increase the practical burden of continued treatment, particularly for patients who must repeatedly travel for consultations, monitoring, or medicine collection. Socioeconomic circumstances therefore intersect with healthcare access and treatment burden in shaping adherence.

Philippine healthcare implementation research likewise identifies staffing, budget, equipment, and documentation demands as concrete capacity constraints that can shape institutional delivery even when healthcare personnel hold favorable attitudes toward quality improvement (Garcia & Atento, 2026).

At a broader systems level, Philippine health-workforce analysis has also emphasized that workforce maldistribution, pipeline fragility, competency gaps, and retention pressures can constrain service capacity despite the presence of a substantial nominal supply of trained professionals (Atento, Quinto, & Espelita, 2025).

Conceptual work on integrated health and business analytics further argues that healthcare outcomes depend partly on the alignment of data, organizational capability, decision quality, governance, and cross-functional coordination rather than on clinical resources alone (Atento, Quinto, Espelita, & Castaneda, 2025).

Related synthesis of Philippine health-professions education similarly treats resource availability, clinical-placement capacity, workforce preparation, and institutional leadership as interdependent constraints, reinforcing the value of viewing treatment continuity within a wider health-system capacity framework (Bermido et al., 2025).

## **2.5 Synthesis and Research Gap**

The reviewed literature indicates that MDR-TB adherence and hesitancy arise from the interaction of clinical, behavioral, socioeconomic, informational, and healthcare-system factors. Prolonged treatment and adverse drug reactions can reduce quality of life and increase the burden associated with therapy (Alene et al., 2018; Ausi et al., 2021; Prasad et al., 2018). Health literacy, misinformation, cultural beliefs, and patient autonomy may affect how treatment is understood and evaluated (Chen et al., 2018; Khariroh & Abdullah, 2022; Scherer et al., 2021; Shahin et al., 2019). At the same time, treatment adherence may be strengthened by respectful patient-provider relationships and effective communication (Aibana et al., 2020; Drossman & Ruddy, 2020), while economic hardship and healthcare access create additional constraints (Flores et al., 2021; Florentino et al., 2022; Tomeny et al., 2020). Much of this literature treats these influences separately or examines adherence and treatment barriers in broader tuberculosis populations. The relationship between specific manifestations of treatment hesitancy and treatment adherence among MDR-TB patients in a localized Philippine treatment setting remains less clearly described. The present study addresses this gap by examining how individual treatment-hesitancy indicators relate to overall treatment adherence among MDR-TB patients receiving treatment in Manila.

## **3. Methodology**

### **3.1 Research Design**

The study employed a descriptive-correlational quantitative research design to examine treatment hesitancy and treatment adherence among patients with multidrug-resistant tuberculosis. The design was used to describe respondents' treatment-related perceptions and determine whether specific treatment-hesitancy indicators were associated with treatment adherence without manipulating the variables or establishing causal relationships.

### **3.2 Study Setting and Respondents**

The study was conducted among MDR-TB patients associated with the Arsenio H. Lacson Health Center in Santa Ana, Manila. The completed dataset comprised 26 respondents. Eligibility requirements included being 25-65 years old, having confirmed MDR-TB, being resistant to isoniazid and rifampicin, having begun MDR-TB treatment under the TB-DOTS program at the study site, voluntarily agreeing to participate, and providing signed informed consent. The study excluded patients with other forms of tuberculosis, pregnant patients, individuals with liver disease, HIV, renal failure, and patients undergoing chemotherapy.

### **3.3 Sampling**

The study initially planned to recruit respondents through simple random sampling from an MDR-TB patient population of approximately 100 at the study site. Although the original methodology identified a planned sample of 80, the

completed analytical dataset contained 26 eligible respondents. The source manuscript does not provide a documented explanation for the difference between the planned and achieved sample; therefore, the present article reports only the realized analytical sample.

### 3.4 Research Instrument

Data were collected using a structured survey questionnaire containing 20 treatment-related items divided between treatment hesitancy and treatment adherence. The items were developed and modified from the literature reviewed by the researchers and used a five-point Likert-type response format. The questionnaire underwent expert validation by two registered medical technologists with academic research experience and a statistician. Internal consistency was assessed using Cronbach's alpha. The treatment-hesitancy scale yielded  $\alpha = .664$ , indicating comparatively limited internal consistency and supporting cautious interpretation of hesitancy as a multidimensional construct.

### 3.5 Data Gathering Procedure

Prior to data collection, the researchers sought authorization from the appropriate personnel associated with the study site. Eligible MDR-TB patients were informed of the purpose of the study and the nature of the questionnaire. Participants who agreed to join signed an informed-consent form before answering the survey. Confidentiality was maintained throughout the data-gathering process, and completed questionnaires were retained for encoding and statistical analysis.

### 3.6 Data Analysis

Frequencies and percentages were used to summarize respondents' demographic characteristics. Means, standard deviations, and distributional characteristics were used to describe responses to the treatment-hesitancy and treatment-adherence items. Cronbach's alpha was used to assess internal consistency. Spearman's rank correlation coefficient was used to determine the relationship between individual treatment-hesitancy indicators and consolidated treatment adherence. Statistical significance was evaluated at the .05 level.

### 3.7 Ethical Considerations

Participation was voluntary, and respondents were informed of their right to withdraw from the study. Participants provided informed consent, and confidentiality was maintained by assigning identification numbers rather than reporting respondents' names. The thesis also contains documentation of institutional ethics review among its appendices.

## 4. Results and Discussion

### 4.1 Respondent Characteristics

The completed dataset consisted of 26 patients with MDR-TB. Fifteen respondents (57.7%) were male and 11 (42.3%) were female. Respondents ranged from 25 to 64 years old, with those aged 25-29 comprising the largest age group at 34.6%. Educational attainment was predominantly high school level (38.5%), followed by college undergraduate (34.6%), college graduate (15.4%), and elementary education (11.5%). Most respondents were unemployed (65.4%), while 26.9% were employed and 7.7% were students. These characteristics provide context for interpreting treatment-related findings, particularly those concerning affordability and access, but the study did not test demographic subgroup differences.

### 4.2 Treatment Hesitancy

Table 1 summarizes the treatment-hesitancy indicators. The highest mean was observed for having a clear understanding of how the MDR-TB treatment program works (TH4,  $M = 4.58$ ), followed by being well-informed through consultation and follow-up (TH10,  $M = 4.31$ ), having sufficient medication knowledge (TH7,  $M = 4.25$ ), and having family or household support throughout treatment (TH1,  $M = 4.19$ ). The lowest mean occurred for affordability of MDR-TB treatment despite increased expenses (TH6,  $M = 2.19$ ), indicating that financial capacity was a notable concern.

**Table 1.** Descriptive Results for Treatment-Hesitancy Indicators

| Indicator | Abbreviated statement                                   | n  | Mean | SD   |
|-----------|---------------------------------------------------------|----|------|------|
| TH1       | Family/household support throughout treatment           | 26 | 4.19 | 1.36 |
| TH2       | Religious/personal beliefs influence treatment decision | 26 | 3.27 | 1.61 |
| TH3       | Sought easier alternative care/self-medication          | 26 | 2.92 | 1.57 |
| TH4       | Clear understanding                                     | 26 | 4.58 | 0.58 |

| Indicator | Abbreviated statement                                  | n  | Mean | SD   |
|-----------|--------------------------------------------------------|----|------|------|
|           | of the MDR-TB program                                  |    |      |      |
| TH5       | Lack of fear regarding possible side effects           | 26 | 3.65 | 1.32 |
| TH6       | Ability to afford treatment despite increased expenses | 26 | 2.19 | 1.39 |
| TH7       | Sufficient knowledge about medication                  | 24 | 4.25 | 0.94 |
| TH8       | Belief that adverse effects will not occur             | 26 | 3.12 | 1.31 |
| TH9       | Expectation of completing treatment without difficulty | 26 | 4.19 | 0.94 |
| TH10      | Well-informed through consultations/follow-up          | 26 | 4.31 | 0.88 |

*Note. TH7 contained two missing responses in the original dataset.*

The treatment-hesitancy scale yielded Cronbach's alpha = .664. Because the items cover family support, beliefs, alternative care, knowledge, side-effect perceptions, affordability, and follow-up information, the scale should be interpreted cautiously as a broad set of related but distinct treatment-hesitancy indicators.

#### 4.3 Treatment Adherence

Respondents generally reported favorable perceptions of provider-related aspects of adherence. The highest mean occurred for assistance from healthcare providers in following medication instructions (TA9, M = 4.48), followed by physician attentiveness (TA8, M = 4.44), intention to continue treatment (TA10, M = 4.40), providers addressing patient concerns (TA7, M = 4.36), and confidence in interactions with healthcare providers (TA3, M = 4.35). The lowest means were observed for sufficient money for follow-up examination (TA6, M = 2.24) and managing treatment through home remedies or internet information (TA5, M = 2.32).

**Table 2.** *Descriptive Results for Treatment-Adherence Indicators*

| Indicator | Abbreviated statement                             | n  | Mean | SD   |
|-----------|---------------------------------------------------|----|------|------|
| TA1       | Ease of travel to the treatment facility          | 26 | 3.81 | 1.30 |
| TA2       | Treatment program and work/class schedule         | 26 | 4.23 | 0.71 |
| TA3       | Confidence interacting with healthcare providers  | 26 | 4.35 | 0.89 |
| TA4       | Social or financial support from family           | 26 | 3.46 | 1.56 |
| TA5       | Managing treatment through home remedies/internet | 25 | 2.32 | 1.28 |
| TA6       | Sufficient money for follow-up examination        | 25 | 2.24 | 1.27 |
| TA7       | Provider addresses concerns and expectations      | 25 | 4.36 | 0.91 |
| TA8       | Physician is attentive and interacts              | 25 | 4.44 | 0.92 |

| Indicator | Abbreviated statement                         | n  | Mean | SD   |
|-----------|-----------------------------------------------|----|------|------|
|           | positively                                    |    |      |      |
| TA9       | Provider assists with medication instructions | 25 | 4.48 | 0.87 |
| TA10      | Intention to continue the treatment program   | 25 | 4.40 | 0.91 |

The original results reported an overall average item mean of 3.809. The source manuscript contains an internal inconsistency in the exact Cronbach's alpha reported for the treatment-adherence scale; consequently, the present consolidated manuscript does not reproduce a definitive adherence reliability coefficient pending verification of the original statistical output.

#### 4.4 Relationship Between Treatment Hesitancy and Treatment Adherence

Spearman's rank correlation was used to examine the relationship between each treatment-hesitancy indicator and consolidated treatment adherence. Only two indicators reached statistical significance at the .05 level: family or household support throughout treatment (TH1,  $\rho = .457$ ,  $p = .019$ ) and being well-informed through consultation and follow-up (TH10,  $\rho = .425$ ,  $p = .030$ ). Both relationships were moderate and positive. The remaining eight indicators were not statistically significant.

**Table 3.** Relationship Between Treatment-Hesitancy Indicators and Consolidated Treatment Adherence

| Hesitancy indicator | Spearman's rho | p    | Association        | Significance    |
|---------------------|----------------|------|--------------------|-----------------|
| TH1                 | .457           | .019 | Moderate positive  | Significant     |
| TH2                 | .084           | .684 | Very weak positive | Not significant |
| TH3                 | -.320          | .111 | Weak negative      | Not significant |
| TH4                 | .064           | .755 | Very weak positive | Not significant |
| TH5                 | .127           | .538 | Very weak positive | Not significant |
| TH6                 | -.097          | .638 | Very weak negative | Not significant |
| TH7                 | .282           | .182 | Weak positive      | Not significant |
| TH8                 | .237           | .243 | Weak positive      | Not significant |
| TH9                 | .162           | .429 | Very weak positive | Not significant |
| TH10                | .425           | .030 | Moderate positive  | Significant     |

Note. Statistical significance evaluated at  $\alpha = .05$ .

The findings do not support a broad claim that treatment hesitancy as a whole was strongly related to adherence. Rather, specific interpersonal and informational indicators were associated with adherence. Because the design was correlational, the coefficients should be interpreted as associations rather than evidence of causation.

#### 4.5 Discussion

Three broad patterns emerge from the findings. First, respondents generally reported favorable levels of treatment knowledge and engagement with the formal MDR-TB treatment program. Clear understanding of the program, medication knowledge, follow-up information, and confidence in completing treatment all received relatively high ratings. These patterns are consistent with literature emphasizing health literacy and accurate treatment information as important components of treatment engagement (Chen et al., 2018; Silva & de Queiroz Mello, 2022).

Second, the results reveal a persistent economic dimension. Affordability was among the weakest treatment-hesitancy indicators, and the adherence item concerning having enough money for follow-up consultation likewise received one of the lowest means. This convergence suggests that economic burden remained salient even among respondents already enrolled in treatment. The finding is consistent with Florentino et al. (2022), who documented substantial tuberculosis-related costs among Philippine households, and with Tomeny et al. (2020), who described the broader economic consequences of TB treatment.

Third, the strongest pattern concerns interpersonal and informational support. Respondents gave high ratings to healthcare-provider attentiveness, assistance with medication instructions, the handling of patient concerns, and confidence in provider interactions. More importantly, the inferential analysis identified family support and being well-informed through clinical consultations and follow-up as the only hesitancy indicators significantly associated with overall adherence. This is consistent with Aibana et al. (2020), who emphasized trust, communication, and collaborative patient-provider relationships in tuberculosis adherence.

The family-support finding further suggests that adherence cannot be conceptualized exclusively as an individual behavioral choice. Family members or partners may provide encouragement, logistical assistance, financial help, reminders, or emotional support during a prolonged treatment course. At the same time, eight of the ten treatment-hesitancy indicators were not significantly associated with consolidated adherence. The study therefore supports a differentiated interpretation rather than a generalized claim that all dimensions of treatment hesitancy relate to adherence.

The limited achieved sample also reduces the precision and generalizability of the inferential findings. The results should therefore be interpreted as evidence from the participating MDR-TB patients rather than as population-level estimates for all MDR-TB patients in Manila or the Philippines.

## **5. Conclusions, Recommendations, and Implications**

### **5.1 Conclusions**

The study found that respondents generally demonstrated favorable perceptions toward several aspects of MDR-TB treatment, particularly those involving understanding of the treatment program, medication knowledge, follow-up information, and continued engagement with healthcare providers. Affordability, however, emerged as an important concern.

Treatment-adherence responses were especially favorable for healthcare-provider assistance, attentiveness, responsiveness to patient concerns, and interaction during treatment. In contrast, sufficient money for follow-up examinations and independent treatment through home remedies or internet-based information received comparatively low ratings.

Only two treatment-hesitancy indicators were significantly associated with consolidated treatment adherence. Family or household support throughout treatment showed a moderate positive association with adherence ( $\rho = .457$ ,  $p = .019$ ), while being well-informed through physician consultation and follow-up was also moderately and positively associated with adherence ( $\rho = .425$ ,  $p = .030$ ). The remaining eight indicators were not statistically significant.

The findings therefore suggest that specific interpersonal and informational dimensions, particularly family support and effective clinical follow-up, are associated with better adherence among the respondents studied. These conclusions should be interpreted within the limits of the achieved sample of 26 participants.

### **5.2 Recommendations**

1. Healthcare providers and treatment programs should strengthen patient education throughout the MDR-TB treatment course. Follow-up discussions should reinforce medication instructions, expected treatment duration, possible adverse effects, and the importance of continuing the prescribed regimen.
2. Where appropriate and with patient consent, treatment programs should incorporate family or household support more deliberately into treatment education and follow-up planning because family support was significantly associated with adherence.
3. Treatment programs should consider strengthening referral mechanisms for available social-protection assistance, transportation support, financial counseling, or other locally available patient-support services, particularly because affordability and funds for follow-up examinations emerged as concerns.
4. Healthcare providers should maintain patient-centered communication that is understandable, respectful, and responsive to the patient's level of health literacy and treatment-related concerns.
5. Future research should replicate the study using a larger achieved sample and, where feasible, multiple treatment centers. Future work should also refine the treatment-hesitancy measure by examining family support, health literacy, affordability, beliefs, side-effect concerns, and alternative-care preferences as distinct domains.

### **5.3 Implications of the Study**

From a clinical perspective, the findings suggest that treatment adherence in MDR-TB may depend not only on medication availability or regimen design but also on how patients are supported throughout the treatment process. Information provided during consultations and follow-up examinations appears particularly relevant because the corresponding indicator was significantly associated with overall adherence.

From a family and community-health perspective, the significant relationship between family or household support and adherence indicates that MDR-TB treatment takes place within a social environment. Family members may provide encouragement, transportation, financial assistance, reminders, or emotional support during a prolonged treatment course.

From a health-system perspective, the findings highlight the continuing importance of affordability. Formal access to treatment does not necessarily eliminate the economic burden associated with continued care.

The findings also have a measurement implication. The treatment-hesitancy scale showed comparatively limited internal consistency, suggesting that treatment hesitancy may be multidimensional. Family support, treatment knowledge,

financial capacity, personal beliefs, alternative-care preferences, and perceptions of adverse effects may therefore be better treated as related but analytically distinct domains in future research.

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