AN IMPLEMENTATION RESEARCH TO IDENTIFY BARRIERS ASSOCIATED TO TREATMENT ADHERENCE FOR PATIENTS WITH DRUG-RESISTANT TUBERCULOSIS AT LAZARETTO HOSPITAL IN MOGADISHO.

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WHO TDR Post-graduate Scholarship Program

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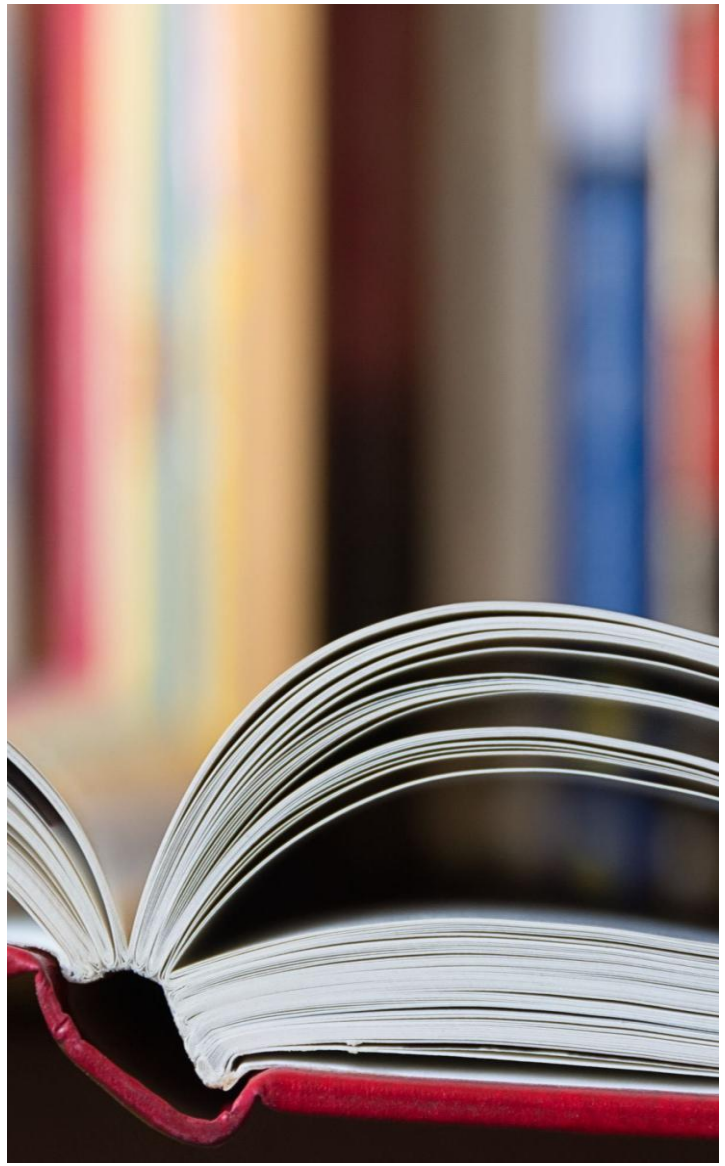
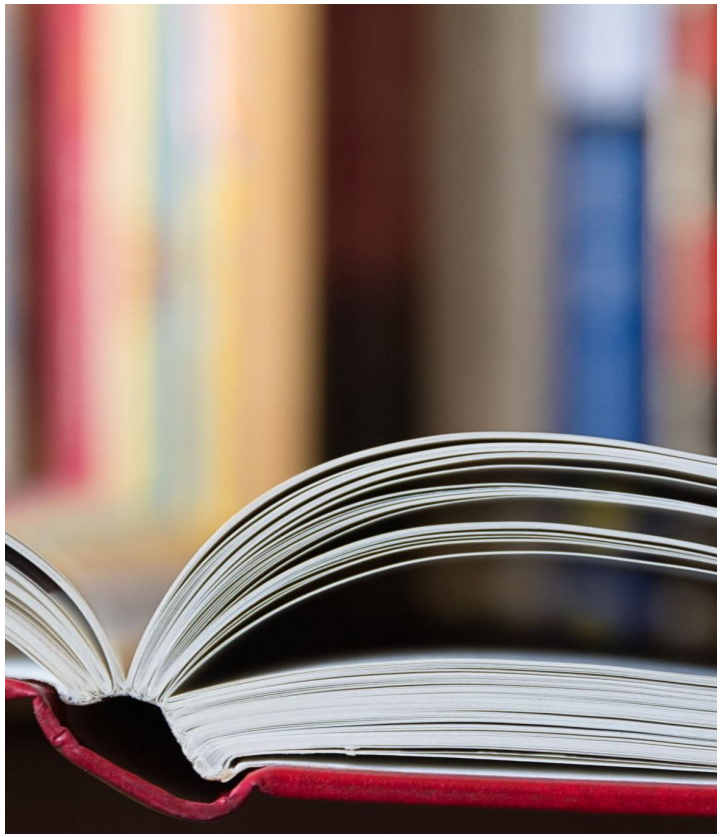


Introduction

Adherence with treatment is an important factor which can influence the outcome of that treatment. Adherence has been defined as the extent to which a person's behavior. corresponds with agreed recommendations from a healthcare provider (WHO, 2003) (1)

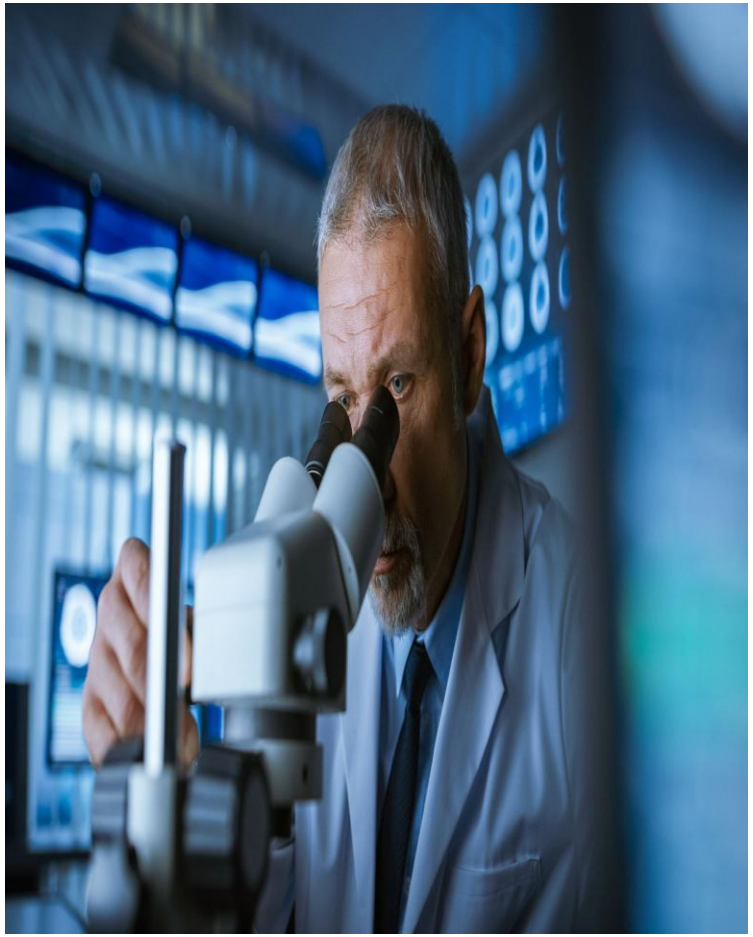
Tuberculosis (TB) is an infectious disease that most often affects the lungs. TB is caused by a type of bacteria. It spreads through the air when infected people cough, sneeze or spit.



Introduction

Multidrug-resistant tuberculosis (MDR-TB) is a form of tuberculosis (TB) infection caused by bacteria that are resistant to treatment with at least two of the most powerful first-line anti-TB medications (drugs): isoniazid and rifampicin

Background



Globally World Health Organization (WHO)’s End TB Strategy. There were approximately 465,000 cases and 182,000 deaths from MDR/RR-TB worldwide in 2019

Africa: in 2023 as reported by WHO African region Drug resistant TB, both rifampicin resistant and multi-drug resistant, is a growing burden, affecting 450 000 and 77 000 people in the region respectively. Of these cases 53% were from Nigeria and South Africa

Somalia: The 2021 Global TB report indicated that there was a marginal increase in the estimated TB incidence in Somalia, from 258 per 100 000 people in 2018 to 259 per 100 000 in 2020. An estimated 6.2% annual reported TB cases in Somalia have drug-resistant TB

Rational

MDR-TB is a dangerous airborne disease that is resistant to at least two of the most potent first-line anti-TB medications.

In Somalia, treatment adherence faces significant barriers due to various challenges, including insufficient education and awareness, socioeconomic and sociocultural barriers, and the limited capacity of the healthcare system.

The aim of this study is to identify the barriers to treatment adherence and to highlight areas for improvement.

Research Objective

1. To examine the barriers associated with treatment Adherence in Drug-Resistant Tuberculosis at Lazaretto Hospital in Mogadishu
2. To identify major enablers for continued adherence to treatment among drug resistant tuberculosis patient at Lazaretto Hospital in Mogadishu
3. To propose interventions for improved treatment adherence to treatment among MDR TB cases based on findings.

Research Questions

- What are the barriers associated with treatment Adherence in Drug-Resistant Tuberculosis Lazaretto hospital Mogadishu.?
- What are the major enablers for continued adherence to treatment among drug resistant tuberculosis patients at Lazaretto Hospital in Mogadishu ?
- How the treatment adherence among patients with drug-resistant tuberculosis can be improved ?

Methodology

The methods of this study were mixed methods approach combining both qualitative and quantitative method.

Sampling Techniques and sample size

This study employed probability sampling of a finite group of registered patients the selected procedure in this study was simple random sampling technique to select the participants who were diagnosed with RR, MDR TB and admitted in Lazaretto Hospital MDR department.

Sample size determination

$$\frac{N}{1+Ne^2}$$

Where:

n=sample size

N=target population

e=level of significance/marginal error

N=275

e=0.5%=0.05

$$n = \frac{275}{1+275(0.05)^2} \quad \textbf{=163}$$

The sample size of 163 patients is included in this study survey and interview participants were MDR-TB management staff including doctors, nurses, laboratory technicians, pharmacists, medical supervisor and focal person.

Table of of sampled per drug resistant type.

Type of Dr	No of patients	No of patients selected
RR	41	24
MDR	234	139
Total	275	163

Data Collection Tools

In this mixed methods implementation research the flowing tools were used for data collection Review of medical records, structured survey questionnaire, interview, focus group discussion.

Structured questionnaire prepared in English language was used for quantitative data collection and interview guides in Somali language were used for qualitative data collection with the help of audio records and hospital registers

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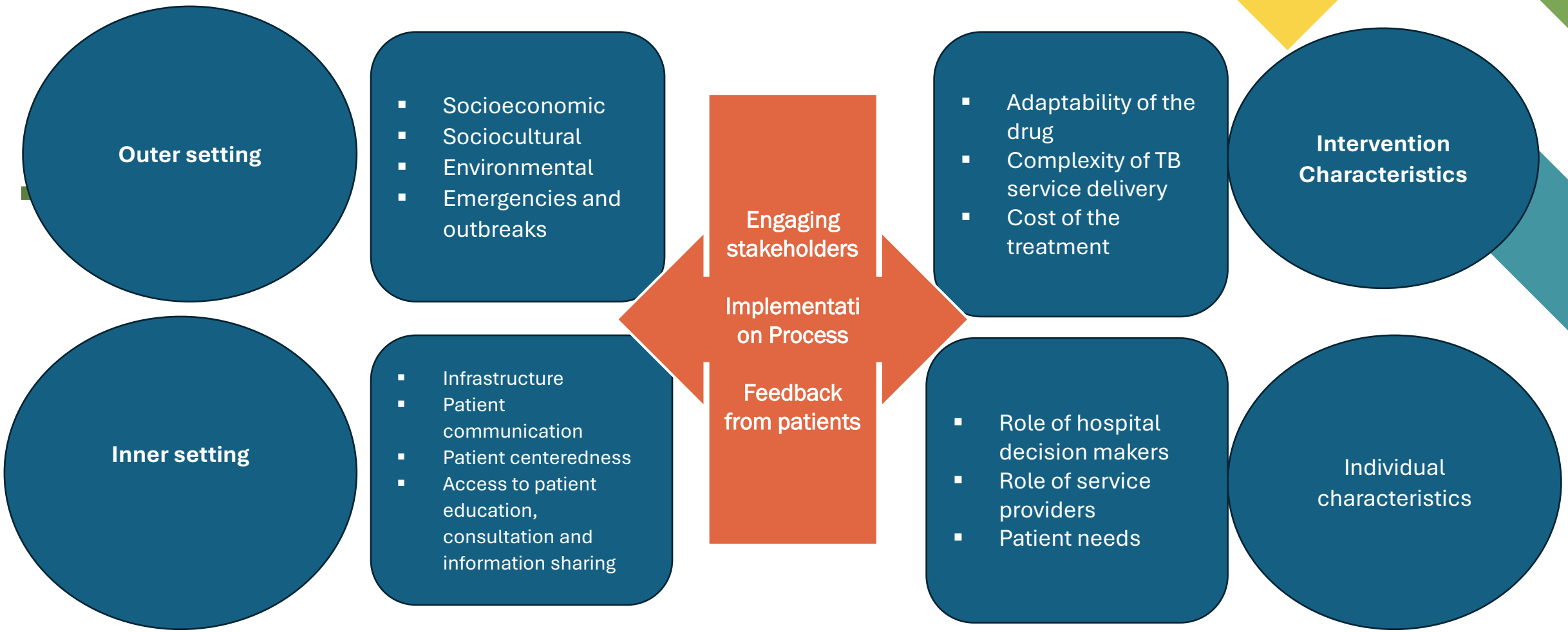
Data Collection Tools Cont.....

The questionnaire had Five parts, the first one was socio-demographic characteristics, and the 2nd medical history of patients, 3rd Barriers associated to drug resistant tuberculosis treatment adherence the 4th was Knowledge and awareness assessment questions related MDR TB treatment adherence, the 5th one was Substance abuse that can hinder treatment adherence.

Data Analysis

The data analyzing was used software (statistical package for social science SPSS. Version 25).

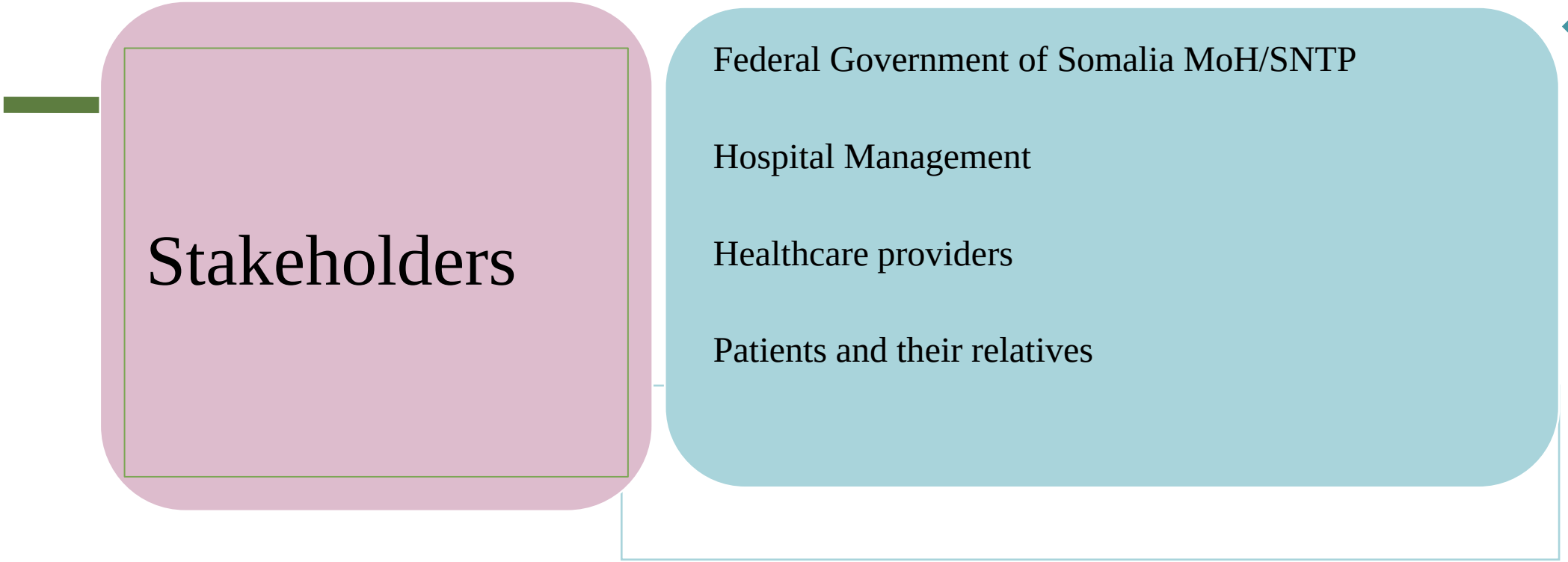
CFIR Domains



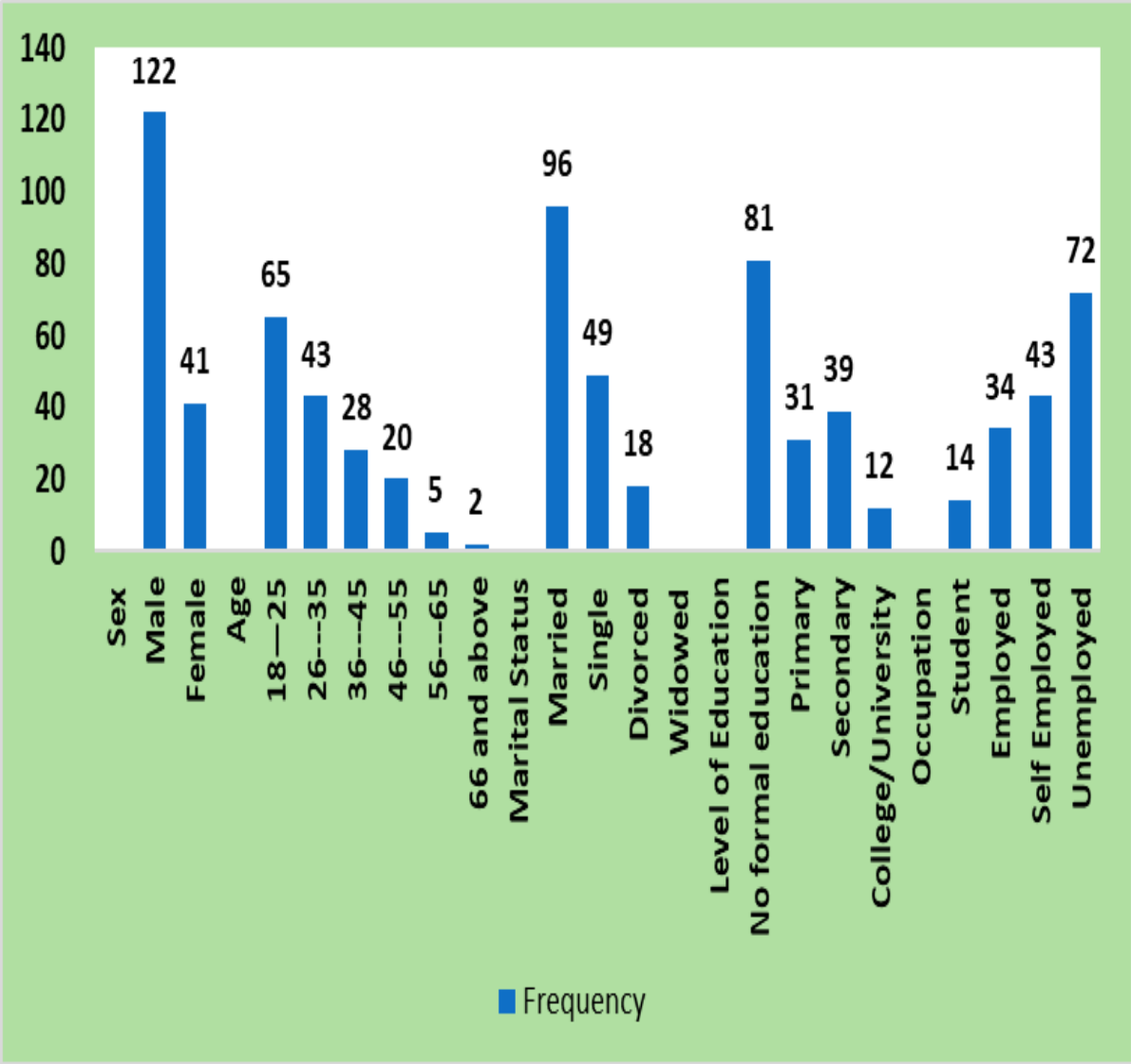
Context Analysis	
Socioeconomic Context	▪ Most patients with MDR-TB in Mogadishu come from poor families, making the indirect costs of treatment making the indirect costs of treatment. lost income, transportation, nutrition. ▪ Despite free access to medications, the long-term financial burden of regular hospital visits make it difficult for patients to remain adherent throughout the lengthy treatment course. ▪ Economic insecurity is a key driver of both delayed care-seeking and treatment discontinuation in Somalia
Healthcare Infrastructure at Lazaretto Hospital	▪ Lazaretto Hospital is one of the main referral hospitals for TB care in Mogadishu but it faces resource shortages typical of the Somali health system, It provides diagnosis, treatment, and limited support services and Healthcare workers often struggle many challenges.

Context Analysis	
Healthcare System and Policy Context	▪ The healthcare system in Somalia is under-resourced, with limited infrastructure, healthcare personnel, and medical supplies. Lazaretto Hospital faces many of these challenges, affecting the quality and continuity of care ▪ 60% of healthcare cost is out of pocket. ▪ Although the Somali government, in collaboration with international partners, has implemented several policies and guidelines for TB and DR-TB treatment, gaps in policy enforcement, funding, and resource distribution hinder the full realization of these interventions
Social-Cultural Context	▪ In Somalia many patients rely on traditional healing methods and only seek hospital treatment in advanced stages of illness. ▪ Social stigma surrounding TB and its association with poverty or infectiousness could also the challenges of adherence, as patients may face discrimination or social isolation
Environmental Factors	▪ The ongoing conflict and political instability in Somalia have severely affected health service delivery, including DR-TB programs. ▪ inadequate transportation, security concerns, affect access healthcare services.

Stakeholder Analysis



Results of Demographic Characteristics.



Demographic characteristics of study participants, Sex: Most of the sample consists of males (74.8%), and the smaller proportion with (25.2%) were female. Age: the majority of the age group is 18–25 years (39.9%), followed by 26–35 years (26.4%). Marital Status: the largest respondents in the sample (58.9%), followed by single individuals (31.1%). A smaller proportion were divorced (11%).

Results

Level of Education: Nearly half of the sample has no formal education 81 (49.7%), 31 and 49 with the percentage of (19% and 23.9%) were primary and secondary level respectively while the rest have varying level of education, with the smallest group having a college or university (44.2%).

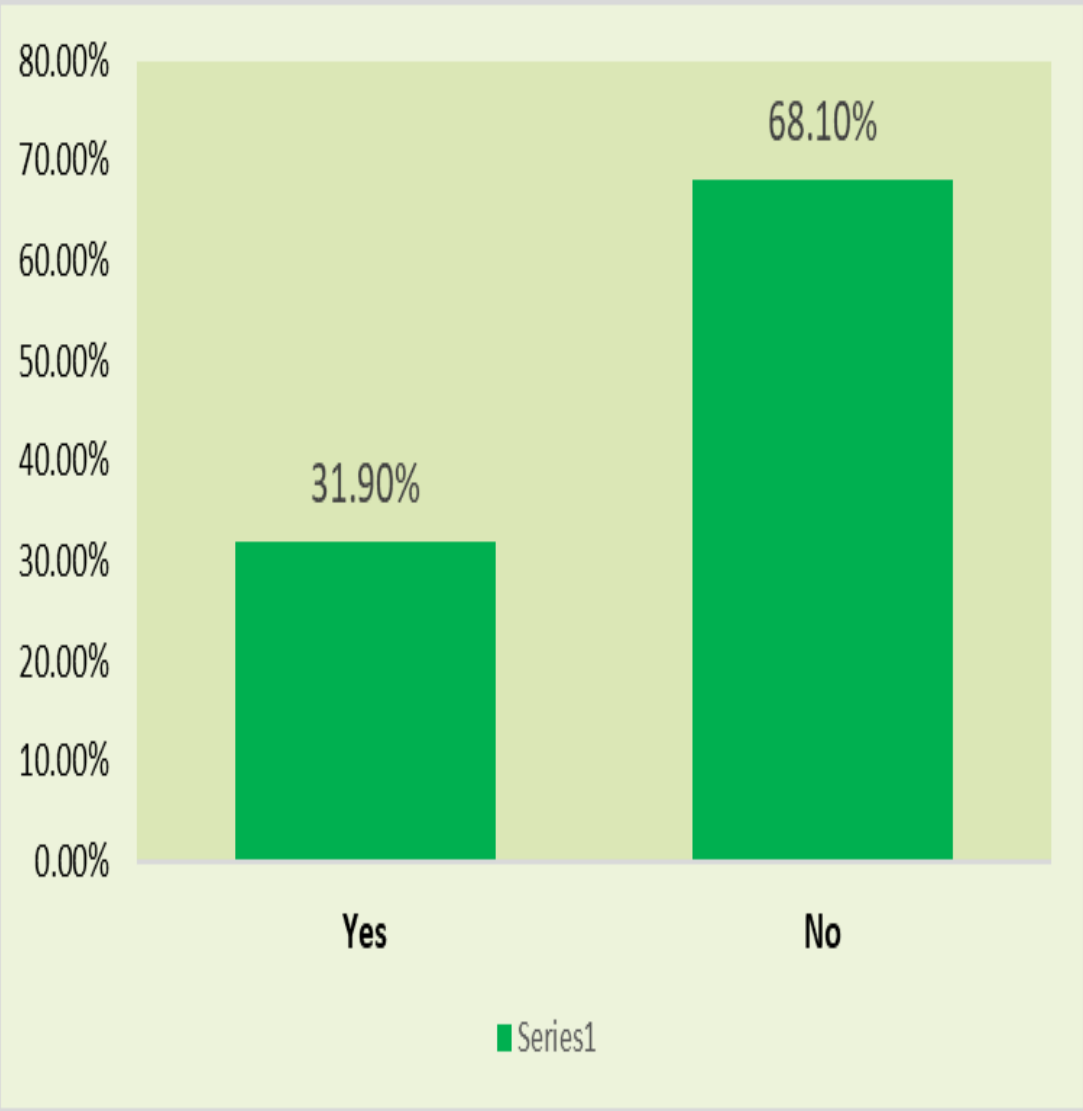
Treatment Characteristics

Distribution of patients according to their time of registration

	Number	Percentage
Less than 3 months ago	58	35.6%
3 months to 6 months ago	56	34.4%
7 months to 12 months	47	28.8%
13 months to 18 months	2	1.2%
Total	163	100%

The above Table presents information about the time registered respondents at the Lazaretto Drug Resistant TB Hospital. 70% of patients were registered with in the last 6 months indicating that the hospital has been very actively in enrolling new patients. The remaining 30% of registrations occurred between 7 to 12 months ago.

Results: History of previous treatment for TB



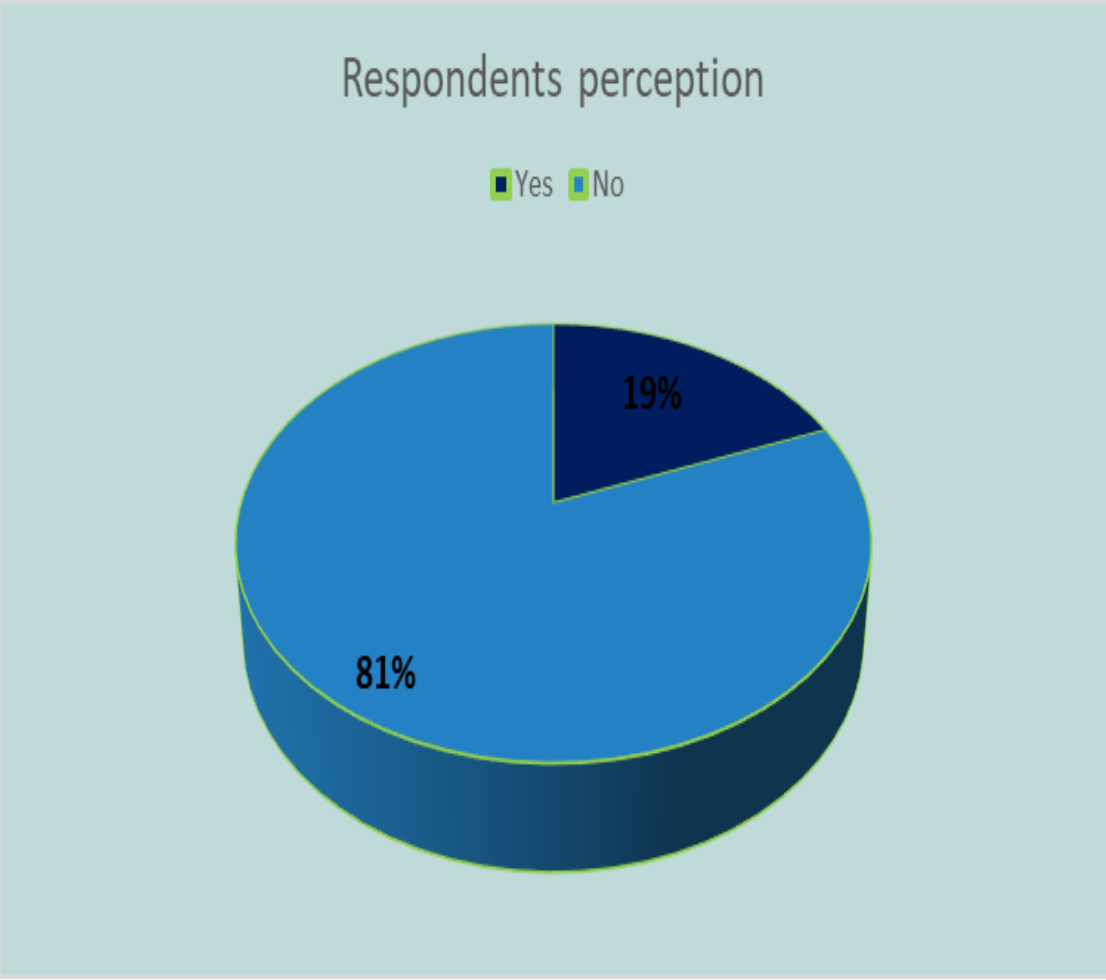
This chart shows that the 68.1% of the respondents have not undergone previous TB treatment while 31.9% of them have undergone previous TB treatment. This indicates that a significant proportion of sample had a history of Tuberculosis treatment. This also imply that the hospital is dealing with large numbers of news case

Results: Reported side effects due to MDR TB treatment.

Reported side effects	Number	Percentage
Yes	154	94.5%
No	9	5.5%
Total	163	100.0

The above table indicates 154 of the of the hospital patients with the percentage of (94.5%) reported experiencing side effects from their MDR TB treatment. This shows that side effects are frequent issue for those undergoing this treatment regimen. Only 9 respondents with the percentage of (5.5) answered they did not experience any side effects.

Respondents' perception on side effects affecting adherence



This pie chart shows that 81% percent of participants do not perceive side effects as affecting their adherence to treatment while 19% believe that side effects impact their adherence.

Results History of previous treatment for TB

Level of knowledge	Number	Percentage
Very knowledgeable	9	5.5%
Moderately knowledgeable	35	21.5%
Slightly knowledgeable	42	25.8%
No knowledge	77	47.2%
Total	163	100.0%

The table provides information related to the level of knowledge for MDR TB most of the participants (47.2%) reported they do not have knowledge about MDR TB at all, (21.5%) of participants think themselves moderately knowledgeable and (25.8%) are slightly knowledgeable while only very small proportion of participants (5.5%) consider they very knowledgeable indicating that knowledge rate suggests a low level of awareness and understanding of MDR-TB among participants

Discussion

The study found that the majority of patients undergoing MDR TB treatment were male (74.8%) and young adults aged 18–25 (39.9%). This aligns with global trends indicating that TB predominantly affects younger populations in developing countries due to higher exposure rates and lower socioeconomic status.

Nearly half of the participants (49.7%) had no formal education, a factor commonly associated with poor health literacy and understanding of the disease. Limited education may affect patients' ability to comprehend the importance of strict adherence to MDR TB treatment

The study indicates that 70% of the patients had been registered within the past six months, reflecting an influx of new patients and the hospital's active role in managing MDR TB. However, a significant challenge is the high rate of reported side effects

The study identified significant socioeconomic barriers, such as transportation expenses (61.3%) and lack of social support (9.2%). These barriers are consistent with the broader literature on TB in resource-limited settings.

Conclusions

This study identified various barriers to treatment adherence for MDR TB patients at Lazaretto Hospital, including socio-demographic, medical, socioeconomic, cultural, and health system-related challenges. To address these barriers requires a multidimensional approach that combines patient education, health system strengthening, and community engagement. By implementing these strategies, healthcare providers and policymakers can improve adherence rates, ultimately reducing the burden of MDR TB in Mogadishu and beyond.

Recommendations based on the findings

Patient Education

- Employ multimedia strategies to spread information about MDR-TB, using platforms such as social media, radio, and community outreach programs to reach a broader audience.
- Utilize voice messages through ring back tones with concise messages about MDR-TB symptoms and prevention to raise awareness and promote public health education

Health System Barriers

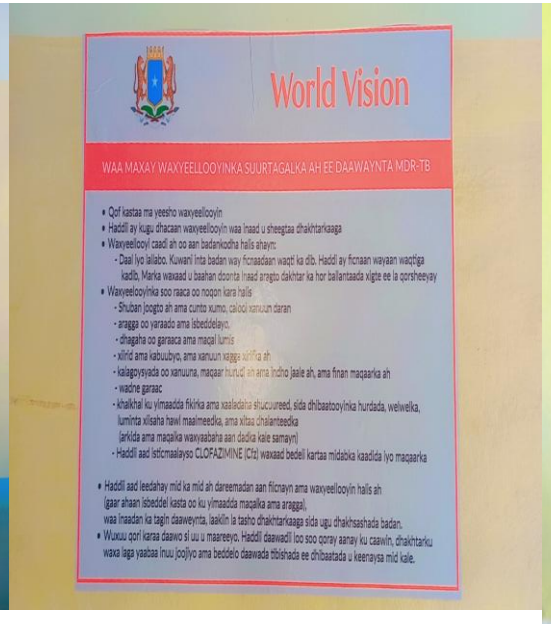
- providing additional training for healthcare providers and ensuring timely payment of staff salaries to boost morale and reduce patient waiting times
- Construct and improve adequate waiting areas that are clean, safe, and ensure separate spaces for healthcare workers and patients

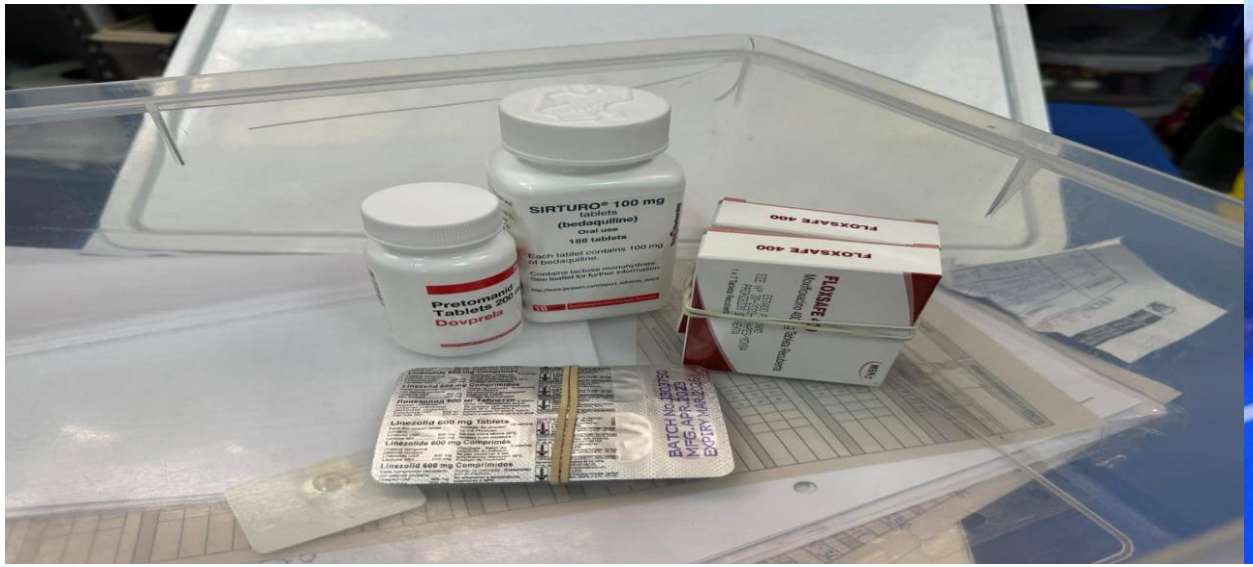
Recommendations based on the findings

Strengthen Financial Support Mechanisms

- Provide sufficient and well-equipped inpatient care for patients from other regions and distant districts to reduce the need for transportation and minimize indirect costs associated with treatment
- This not only prevents patients from discontinuing treatment due to financial challenges but also helps limit the spread of MDR-TB, as patients will avoid using public transportation

Some field pictures were inserted here





Approval Letters

Somali Federal Republic
Ministry of Health & Human Services

ETHICAL APPROVAL

This is to certify that the proposal submitted by:

Principle Investigator: Kulmie Mohamud Abdulle

Reference No:

Ref/MOHHS/DGO/1141/Feb2024

Full project Title:

An Implementation Research to identify barriers associated to treatment Adherence for Patients with Drug-Resistant Tuberculosis at Lazaretto Hospital Mogadishu

To be undertaken:

Mogadishu Somalia

Starting Date: 20th /October/2023 Finishing Date: 30th/June/2024

For the proposed period of research

Has been approved by the Research & ethical committee at the Ministry of Health on the 10/ February /2024

Director of Policy & Planning **Secretary**

Chairman

WASAARADDA CAAFIMAADKA & DADKA — MINISTRY OF HEALTH — JAMHUURIYADDA FEDERAALKA SOOMAALIYA — SOMALI FED. REPUBLIC — WASAARADDA CAAFIMAADKA & DADKA

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OFFICE OF VICE-PRESIDENT, RESEARCH

MINISTRY OF HEALTH
FEDERAL GOVERNMENT OF SOMALIA
MOGADISHU

FEB, 06 2024

Mr. Kulmie Mohamud Abdulle
Graduate student
Faculty of Health Science
Department of Puplic Health
Galkayo University

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN HOSPITAL

I am pleased to inform you that the above referenced for Ethical Approval of research has been approved on behalf of University Research Ethics Review Committee. This approved is in effect for twenty-four months from the above date. Any changes in the procedures affecting interaction with human subjects should be reported to the the University research Ethics Review Committee. Significant changes will require the submission of a revised request for Ethical Approval of Research. This approval is in effect only while you are a registered Galkayo University studuent.

Best wishes for success in this research

Sincerely,

Mr. Abdirizak Khalif Adan, member
University Research Ethics Review Committee

CC: Dr. Qasim Moallim H.
Dhiblawe, Chairman

Signature:

GU — JAMCADDA GALKAYO

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Thank you

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