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Non-Adherence to Anti-Tuberculosis Treatment and its Associated Factors among TB Patients at Tamavua Twomey Hospital, Suva

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Introduction

Mycobacterium tuberculosis (MTB), an infectious bacterial disease that most frequently affects the lungs but can harm any tissue, is the cause of Tuberculosis. MTB spreads between people through the respiratory system or airborne. Only around 10% of MTB infection sufferers develop active TB disease during their lifetime; the remaining 90% can control their infection successfully [1].

Drug resistance in TB is still a man-made occurrence [1]. It appears that spontaneous gene mutations in MTB make the germs resistant to the most widely used anti-TB medications [2]. The first cause of this is non-adherence to the prescribed therapy plans. A six-month regimen of four drugs is required for standard TB therapy (isoniazid, rifampicin, ethambutol, and pyrazinamide). Isoniazid and rifampicin are typically the first two medications to develop tolerance or resistance [3,4].

The WHO and Stop TB Partnership's directly observed therapy, short course (DOTS) approach, a set of policies combining the best practices for diagnosing and treating patients with TB, has received significant global support thanks to this data [5,6]. The direct observation of therapy (DOT), in which a healthcare professional personally witnesses the patient taking the medication, is one component of the DOTS strategy to control Tuberculosis. However, only one element of the standardized treatment, patient support, and supervision is promoted [7-9].

According to 2021, Tuberculosis (TB.) Global report, the COVID-19 pandemic in 2020/21 has continued to affect TB prevention and care services globally [6,7,9]. TB deaths increased for the first time in over a decade, and fewer people were diagnosed and treated or provided with TB preventive treatment, leaving more people undiagnosed or missing during this period [6].

An estimated 9.9 million people fell ill with TB in 2020, of which 5.8 million were notified, a number that has been declining very slowly in recent years [6]. Men (aged ≥15 years) accounted for 58%,

women accounted for 35%, and children (aged <15 years), 7% of the people who developed TB [6]. Among all those affected, 9% were people living with HIV. Drug-resistant TB continues to be a public health threat, and Multi-Drug Resistant/Rifampicin Resistant-TB (MDR / RR-TB) cases notified were 157,900. At the same time, the number of people who started treatment was 150,400 in 2020. There were an estimated 1.5 million TB deaths in 2020, including 214,000 among people with HIV [6].

As per the Western Pacific region, from the Global report in 2020/21, the TB incidence was 1.8 million in 2020, where about 1.1 million were notified, less than in 2018 and 2019 [10]. Among all those affected, 2% were people living with HIV. There were an estimated 87,000 TB deaths in 2020, including 5,900 among people with HIV [6].

In Fiji, an estimated 590 people fell ill with TB in 2020, of which 431 were notified, less than in 2019, with 472 notified. Men (aged ≥15 years) accounted for 44%, women accounted for 29%, and children accounted (aged <15 years) for 27% of the people who developed TB [6]. Among all those affected, 5% were people living with HIV. Drug-resistant TB remains a public health threat, and Multiple Drug Resistant TB/Rifampicin-resistant TB cases notified was 0 for 2020 but 4 in 2021, while the number started on treatment was 3 in 2021, and 1 succumbed [6,11]. There were an estimated 52 TB deaths in 2020. As per the justification for this study, in 2019, there were 35 patients out of 472 that were lost to follow-up or non-adherence to anti-TB medications.

Moreover, the percentage of pills reported as having been taken in the month before the data gathering period divided by the total number of prescribed medications was used to calculate non-adherence. Patients were deemed non-adherent if they missed 10% or more of the total dose that was given [2]. A definition or classification used in Fiji, as recommended by WHO, is interruption of treatment for two months or more.

In 2020, there were 86 out of 431, and last year, in 2021, there were 31 out of 342 cases notified as defaulted or non-adherence [6,11]. Furthermore, as individuals were unable to access the health facilities in Fiji due to the country's lockdown into confinement regions, which lasted for seven months in 2021, we can conclude that also due to COVID-19, the number of cases notified appears to be affected or reduced. People were consequently confined to their neighborhoods and did not receive their timely refills of anti-TB prescriptions, which contributed to non-adherence to TB medication [6,11].

Treatment adherence to Tuberculosis (TB) medications is a critical component of the disease since interruption may result in persistent infectiousness. Non-adherence to anti-TB treatment results in increased length and severity of illness, death, disease transmission, and drug resistance. Non-adherence has a tremendous economic impact in terms of cost to patients and the health care system [12].

Furthermore, the socioeconomic status of TB patients is an essential factor influencing TB treatment adherence [13]. A study conducted in Ghana illustrated that default from TB treatment was significantly associated with income, ability to afford supplementary drugs, and availability of local support [14]. Literatures on the financial burden for tuberculosis patients in low- and middle-income countries indicated that financial barriers to accessing TB treatment and factors related to receiving attention from healthcare workers have also been identified as crucial factors in non-adherence and treatment default [15,16]. More similarly factors related to non-adherence to TB treatment among patients treated in Jayapura and younger age, a family history of TB treatment, difficulties in accessing health care or distance and cost were significant risk factors associated with poor adherence [17].

Although no research has been conducted in Fiji regarding factors that influence adherence to TB medications, various research done in other countries around the world confirm that the cultural beliefs and economic status of a TB patient have an impact on non-adherence to TB medications [18-20]. The aim of this study was to explore the patients' perceptions on TB treatment and the factors that influence the non-adherence during TB treatment at the Tamavua Twomey Hospital.

Methodology

This study utilizes a qualitative phenomenological research design. using semi-structured interviews guide. Using purposive sampling, twenty-eight

participants, 18 years and above, both male and female were recruited for the study who were diagnosed with Tuberculosis and attended the TB clinic at Tamavua Twomey Hospital, Suva, Fiji. The study had the ethical approval where the study participants provided their voluntary consent.

Results

Participants Demographic

Table 1: Demographic characteristics of study participants

Individual Information	Frequency (n=28)	Percentage (%) (n=28)
Age (years)		
18 -30	**12**	**42**
31 - 40	**7**	**25**
41- 50	**3**	**11**
51- 60	**3**	**11**
>61	**3**	**11**
Gender		
Male	17	61
Female	11	39
Ethnicity		
I-Taukei	23	82
Fijian of Indian Descent	1	4
Others	4	14
Religion		
Christian	27	96
Muslim	1	4
Hindu	0	0
Education Level		
Primary Level	2	7
Secondary Level	19	68
Tertiary Level	7	25
Marital Status		
Single	17	61
Married	10	36
Divorced	1	4
Occupation		
Civil Servant	2	7
Private Work	10	36
None	16	57

Of the majority (42%) of the respondents were within the age group 15-30 years old, 61% were male, 82% were of I-Taukei ethnicity, 96% were of the Christian religion, 68 % had a secondary level of education, 61% were single marital status, and 57% were unemployed.

Thematic Analysis

Table 2: Thematic responses of the participants

THEMES	SUB-THEMES	IDENTIFIED CODES
Knowledge level	Lack of Knowledge	I did not know how I got TB, don't know what TB is I am not sure about TB.
	Traditional Knowledge	Thought as "Kalou Ni draki" Regarded as Traditional sickness, local sickness like TB symptoms
Support Systems	Family Support	I depend on my relatives, relatives help me,
	Conducive clinic environment	Better environment, better environment than the public hospital, good food, clinic conditions similar to home
	Friendly health workers	Good staff, nurses' attitude boost recovery, good treatment from nurses,

Knowledge Level

Lack of knowledge

Many of the participants lacked knowledge of the causes of TB. For instance, some of the participants attributed the causes to the sharing of cigarettes and the lifting of heavy loads, which caused neck injury and subsequently developed into TB.

"I believe smoking causes TB because I never smoked before, and since I started smoking in 2020, I suddenly developed symptoms of TB, so it's usually transmitted via sharing of cigarette" (VL, 26 yrs)

"I believe my grandson got TB from lifting heavy bags from the plantation, may be injured one nerve in the neck which developed into TB." (VS, 74 yrs)

Traditional Knowledge

Many of the participants expressed traditional knowledge as the cause of TB because some of the TB symptoms are similar to some of their local illnesses. Accordingly, participants explained their situations as follows.

"My reaction the first time I had the symptoms as I thought I had "Kalou Ni Draki" (traditional sickness from Ra province which also has weight loss as the symptoms), so I went to Ra and then I came back to Suva and check in one of the health facilities and was diagnosed with TB I did not know anything about TB" (KV, 32yrs)

"Some people had told me that it was a traditional sickness called "Kalou ni draki" (from the province of Ra, believed this was the sickness of weight loss), but a lady from the village that identifies this traditional illness says that if you also have hair loss, then you have the sickness" (K. N 23yrs old)

Support Systems

The support systems for TB patients include family support, a conducive clinic environment, and friendly health workers.

Family support

The family support received by TB patients was regarded as necessary in their recovery. Some respondents explained how their families' support enabled them to access transport for their regular medical check-ups.

"I had good family support; when I got discharged from here (CWMH), I was staying in a far place in Nadi, which is right in the interior, and I was attending the clinic in Tamavua, so I was getting transport for a cost of $150.00. However, because I had good family support, they could bring me to the clinic and take me back despite the distance and the financial cost. I had a good family support. So, the transport hire was $150.00 from where I was staying and from Tamavua to attend the clinic. Because I was hiring my vehicle, it was $300.00/ day. Just transport alone……" (VQ, 39yrs)

"I had very good support from my family. First, my two siblings are both working, so they were both supporting me financially" (JN, 35yrs)

Conducive Clinic Environment

Friendly medical staff and a welcoming clinic setting were crucial for patients' recovery. Participants expressed the healthcare facility environment as refreshing and regarded the healthcare workers as supportive.

"So, when I was moved to the Twomey Hospital, with the nurses and doctors, you know, it was a friendly environment, and the hospital environment had fresh air, and we could move around more freely. The doctors and the nurses were more helpful." (SH, 45yrs)

"So far, everything has been good, and I like the service provided by the clinic and the ward. For me, the staff are accommodating and effective during my admission and attending the clinic." (WV, 46yrs)

Friendly Health Workers

Most of the research participants in the study area expressed concerns about the attitudes of healthcare professionals acting as an incentive and strong support for seeking healthcare and TB services. These included the respect, friendliness, and kind words used by healthcare professionals. One of the respondents described how medical personnel treated them while providing TB services,

"So far, everything has been good from the clinic for me. I have been communicating well with staff in the clinic, and they have also explained everything well to me." (JN, 35yrs)

In support of what JN said above, another respondent explained why he preferred to come to TB clinic at Tamavua Twomey Hospital.

"I prefer coming up and attending the TB clinic here at Tamavua Twomey Hospital since all the staff here are well versed with TB, and they know the patients well" (S.W, 55 yrs)

Discussion

This study's findings show participants lacked knowledge of the causes and mode of transition of TB, with some of them confusing TB with AIDS. In contrast, others thought TB was only caused by direct physical trauma and not transmitted from one

person to another. This could be due to inadequate TB education among the study area's patients. Increasing the knowledge on TB is essential since it would enable patients to seek early health care for early intervention and prevent worsening their health conditions [21,22]. Healthcare workers are supposed to provide participants with the information needed to improve their knowledge of TB, but this was limited in the study area. This might have contributed to increasing patients' non-adherence to TB medication because some of the patients were unaware of the effect of stopping their medications. Studies have identified inadequate knowledge and misconceptions of patients on disease causes and symptoms as reasons for stopping their TB medications [23].

Additionally, many of the patients regard TB as a traditional sickness, which could increase non-adherence to medications by pushing individuals to seek alternative traditional medicines instead of seeking healthcare treatment. This highlights the role norms and traditions play within various communities, impacting how people behave and make decisions regarding their health [24]. Thus, participants' poor health-seeking tendencies, which are influenced by their cultural ideologies and views, may contribute to the non-adherence of TB medications among patients [25]. Traditional practices significantly impact the immediate factors that determine the survival of TB patients, and they also influence beliefs about the disease's etiology [26]. This study adds to knowledge by emphasizing the need to create awareness of TB since this could improve early healthcare-seeking behavior among patients and possibly improve medication adherence.

This study revealed existing support systems that could improve medication adherence among TB patients, thereby improving their health conditions. These were the health workers' friendly nature, conducive clinic environment, and family support. Like this study, health workers' attitudes have been identified as essential to improving the health status of patients. For instance, the friendly nature of the healthcare workers in the study area encouraged some TB patients to patronize the healthcare facilities for treatment, thereby improving medication adherence. Another study has recommended good communication skills as part of the counseling package for patients to improve adherence to their treatment regimens [27].

Furthermore, family support was vital in improving medication adherence among patients in the study area. Thus, the financial support provided by family members enabled patients to access the TB clinic for care since most of them were unemployed. Studies have established family members' important role in caring for the sick [28].

Other studies have recommended family involvement in catering to individuals who are sick for fast recovery. In some circumstances, the families consider these roles obligations [29]. Poor social support can lead to poor medication compliance, worsening existing health conditions [30]. Another important support system is the conducive clinic environment experienced by the study participants, which can potentially contribute to improving medication adherence among patients in the study area. Therefore, the need to intensify the welcoming and conducive environment of care in the TB clinic is needed since most of the study participants recognize the need to respond quickly to their health issues when they encounter such a welcoming environment. This study, therefore, highlights the need to provide an enabling environment for TB patients to improve adherence and enhance their health conditions.

Strengths and Limitations

This study has provided a baseline of information on the knowledge level of TB patients and the challenges and barriers they face that contribute to non-adherence to TB drugs for appropriate intervention by relevant stakeholders. Also, the existing support systems have been identified as helpful in improving TB patients' recovery in the study area. As the first study to be conducted in Fiji, the study has also opened possibilities for additional investigation in the same field.

This study cannot be generalized because it used a purposive sampling technique to choose participants for the in-depth interviews. This is due to the fact that people's opinions vary from place to place. Nevertheless, this study has given detailed and contextualized information to understand problems

with TB patients' adherence to TB treatments, their knowledge level, and challenges for adequate interventions.

Study Implications

The results of this study offer healthcare professionals and health managers at the TB Unit, Tamavua Twomey Hospital, a greater understanding of the factors that contribute to non-adherence to TB drugs, which could guide policies and Standard Operating Procedures address problems with TB patients' adherence to TB medications. It will enable different parties involved in healthcare facilities' administration to comprehend TB patients' experiences and how those experiences affect their health-seeking behavior.

Recommendations

The findings provide valuable insights to health professionals in disseminating TB-related health information to those with the disease, ensuring TB patients receive adequate care in healthcare facilities, and emphasizing supervision and monitoring adherence to TB treatment. Moreover, the challenges discovered can improve the care plan for managing TB patients.

Conclusion

The results of this study offer healthcare professionals and health managers a greater understanding of the factors that contribute to non-adherence to TB drugs, which could guide policies and Standard Operating Procedures intended to address problems with TB patients' adherence to TB medications. It will enable different parties involved in healthcare facilities' administration to comprehend TB patients' experiences and how those experiences affect their health-seeking behavior.

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Credit Author Statement

Emosi Bayanivalu: Conceptualization, Investigation, Methodology, Data Curation, Validation, Formal Analysis, Visualization, Writing- And Original Draft Preparation And Project Administration.

Eunice Okyere: Conceptualization, Methodology, Validation, Writing - Review & Editing, Supervision.

Keresi Bako: Conceptualization, Writing - Review & Editing, Supervision.

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Conflicts of Interest

Emosi Bayanivalu was funded Privately.

Eunice Okyere is a faculty member at Fiji National University.

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