EAS Journal of Nursing and Midwifery
Abbreviated Key Title: EAS J Nurs Midwifery
ISSN: 2663-0966 (Print) & ISSN: 2663-6735 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-5 | Issue-5 | Sep-Oct -2023 | DOI: 10.36349/easjnm.2023.v05i05.001

Original Research Article

Factors Influencing Adherence to Pulmonary Tuberculosis Treatment among Adult Patients at St Francis' Hospital-Katete, Zambia

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Article History
Received: 26.07.2023
Accepted: 01.09.2023
Published: 13.09.2023

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Background:*** Pulmonary tuberculosis (PTB) is a contagious bacterial infection of the lungs caused by mycobacterium tuberculosis, also known as tubercle bacilli. The symptoms of PTB can appear gradually and vary in severity. Malnutrition, Human Immunodeficiency Virus (HIV) infection/Acquired Immunodeficiency Syndrome (AIDs), age (young and old), diabetes mellitus, substance abuse, low socioeconomic status, malignancies, and or overcrowding are some of the common risk factors for PTB. According to the Zambia Demographic Health Survey (ZDHS, 2021), Zambia's prevalence rate of PTB stood at 455 cases per 100,000 population. The World Health Organization (WHO) has recommended Direct Observation of Treatment (DOT) by a trained supervisor (WHO, 2019). However, implementing DOT in Zambia is challenging for both the patient and healthcare provider as it has been observed that a daily visit to a health facility for the first two months by PTB patients was very difficult for a range of reasons which included severe illness at the initiation of treatment, distance too far for walking, and high transportation costs. ***Objective***: The study aimed at determining Factors Influencing Adherence to Pulmonary Tuberculosis Treatment among Adult PTB Patients at St Francis' Hospital-Katete, Zambia. ***Methods and materials:*** Data was collected using a questionnaire and the study sample was one hundred (100) Adult PTB patients, who were selected by simple random sampling method. A quantitative descriptive cross-sectional study design was used. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 21. Chi-square test was used to determine the relationship between independent and dependent variables. ***Conclusion***: The study revealed a significant association between 'level of information and knowledge, individual motivational support, behavioural skill' and 'Adult PTB patients' adherence to PTB treatment'. Level of Information and knowledge (p-value 0.001), Individual motivational support (p-value 0.002), Behavioural skills (p-value 0.001).

Keywords: Daily Observation of Treatment, Adherence, Adult patients.

1.0 INTRODUCTION

Mycobacterium tuberculosis is a bacterium that infects approximately one-third of the world's population and only about 10% to 20% of people infected with the bacteria develop active PTB (WHO, 2020). A person with "latent PTB" has the bacteria but does not exhibit any symptoms. Although latent PTB is not contagious, it can progress to active PTB, particularly if a person's immune system is weakened by conditions such as HIV/AIDs (WHO, 2021). To contract PTB, a person must be in close contact with someone who has active PTB for an extended period of time. PTB treatment is based on whether a person has active or latent PTB. For people with latent PTB, a doctor will recommend preventive therapy, which typically entails taking an antibiotic called Isoniazid daily for 6-9 months (Centre for Disease Control, 2021). People with active PTB usually require a 6-month course of antibiotics, which include Isoniazid, Rifampin, Ethambutol, and Pyrazinamide "RHZE" (WHO, 2019). While some people with active PTB need to be hospitalized for a short period of time, many can be treated at home. Most people feel better after a few weeks of treatment and are no longer able to spread the infection. However, it is critical to complete the entire course of treatment exactly as prescribed by the doctor in order to prevent the disease from recurring and the bacteria becoming resistant to the drugs. Drug-resistant PTB is much more difficult to treat and can be extremely dangerous if passed on to others.

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PTB, like any other health condition, is better avoided than treated. There are a number of measures that can be implemented to reduce the spread of the infection, including Bacilli Calmette Guerin vaccination, early diagnosis and treatment, case finding or contact tracing, and avoiding overcrowding, which can be a source of bacterial transmission.

2.0 OBJECTIVES

The general objective of the study was to determine factors that influence adult PTB patients' adherence to PTB treatment at St. Francis Hospital in Katete, Zambia. The specific objectives were to assess the level of information and knowledge adult PTB patients have on PTB at St. Francis Hospital in Katete, establish individual's motivational support towards adherence to PTB treatment by adult PTB patients at St. Francis Hospital in Katete and to identify the behavioural skills by adult PTB patients during PTB treatment at St Francis Hospital in Katete, Zambia.

3.0 METHODS

The structured administered questionnaire was developed and used. For data collection, the researcher administered a closed-ended questionnaire. The questionnaire had demographic data and then, it was divided into three sections. Section 1 assessed the respondents' level of information and knowledge adult PTB patients had on PTB treatment. Section 2 was based on establishment of motivational support towards adherence to adult PTB treatment by adult PTB patients. Section 3 was used to identify the behavioural skills by adult PTB patients during PTB treatment.

3.1 DATA ANALYSIS

The researcher checked and coded the data for completeness and consistency before analysing it. The Statistical Package for Social Scientists (SPSS) version 21 software was used to collect the data. Microsoft excel was also used for graphical representations. To identify the factors that influence PTB treatment adherence, a descriptive analysis was performed. Cross tabulations were used to quantitatively analyse the relationship between multiple variables. Cross tabulations are also known as Contingency tables or cross tables. The variables were grouped together to enable the researcher understand the correlation between different variables. The independent variables were information and knowledge, individual's motivational support and behavioural skills.

3.2 EHICAL CONSIDERATIONS

Ethical clearance was sought from ERES with reference *No 2023-Feb-013* to collect data. Permission was obtained from the Medical Superintendent for St Francis Hospital, Katete, Zambia. Informed written consents were obtained from each participant, and confidentiality was maintained at all levels. A participant information sheet was given to all participants so that the study could be clear. Participation in the study was voluntary, without coercion, and each participant had the right to withdraw from the study anytime without repurcations or prejudice treatment of any kind.

4.0 RESULTS

4.1 Social demographic characteristics

Figure 2 below shows that male participants were 52(52%) and females were 48(48%). Figure 1 below shows that the majority of participants were aged between 25-30 while the elderly participants aged 45-50 years were 11(11%). Figure 3 shows 37 (37%) of the participants were single while 8(8%) were widowed. Figure 4 shows that 30(30%) of the participants had not attained any form of education while 19 (19%) had attained secondary education. The Majority 88(88%) of the participants were Christians while the minority 3(3%) didn't have a religious denomination. Concerning information and knowledge of PTB, 60(60%) of the participants indicated that PTB is an infectious disease that affects the respiratory system while the minority 12(12%) of the respondents indicated that PTB is bad air that a person breathes in and it's not infectious.

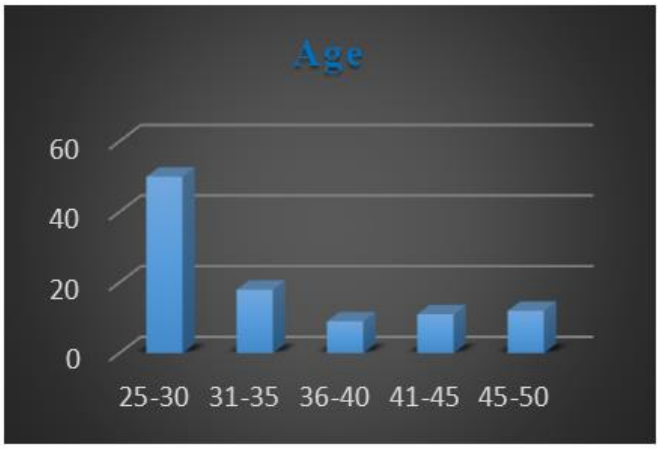

Figure 1: Age

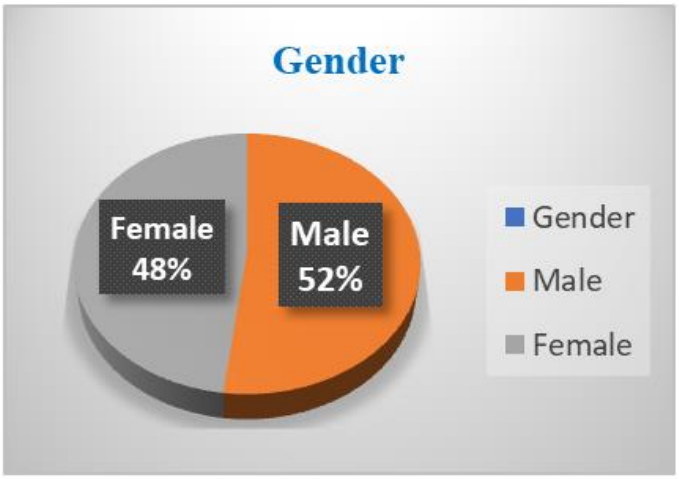

Figure 2: Gender

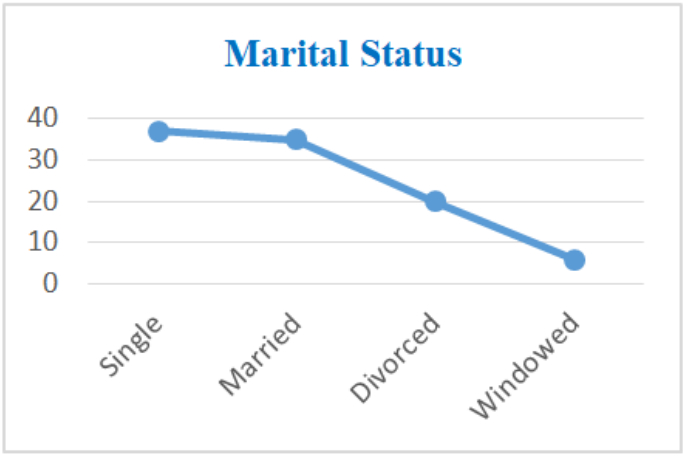

Figure 3: Marital status

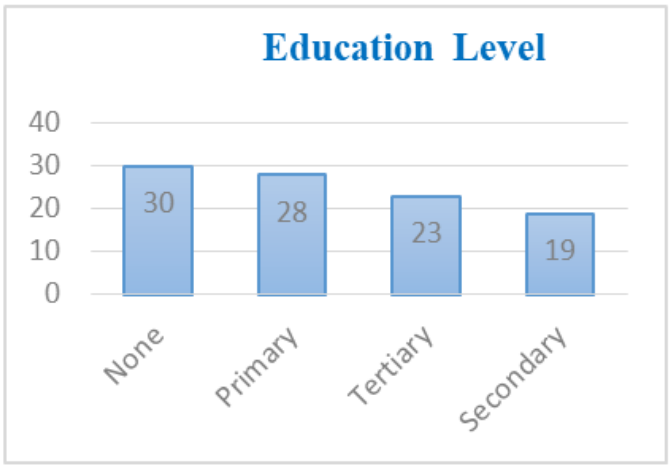

Figure 4: Educational level

4.2 Information and Knowledge of Pulmonary tuberculosis

The majority 60 (60%) of the participants in figure 5 below indicated that PTB is an infectious disease that affects the respiratory system while the minority 12(12%) indicated that PTB is bad air that a person breaths in and it's not infectious. 28 (28%) of the participants defined PTB as a disease that causes wasting.

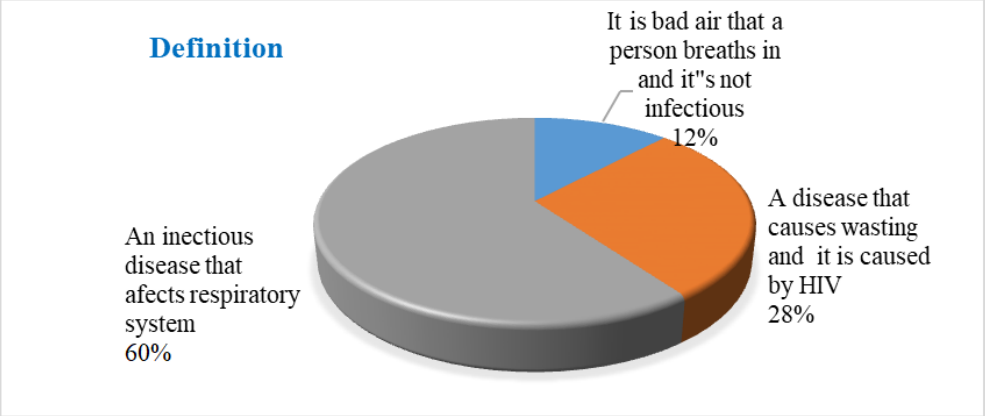

Figure 5: Definition of PTB

4.3 Pulmonary tuberculosis category

Table 1 below shows that the 63(63%) of the participants indicated that they were in newly diagnosed category of PTB, while the minority 4(4%) of the participants were diagnosed in MDR category of PTB.

Table 1: PTB category

Characteristic	Frequency	Percentage
PTB category		
Newly diagnosed	63	63%
Relapse	33	33%
MDR (Multidrug-Resistant)	4	4%
Total	100	100%

4.4 Adherence to PTB treatment

Table 2 shows that 69 (69%) participants were taking PTB medication as advised while the 22(22%) participants did not adhere to advice on taking treatment. 9(9%) participants indicated that there was no correlation with advice and recovering from PTB.

Table 2: Adherence to PTB treatment

Characteristic	Frequency	Percentage
Taking PTB medication as advised	69	69%
Not following PTB medication as advised	22	22%
No correlation with advice and recovering from PTB treatment	9	9%
Total	100	100%

4.5 Taking the drug on a daily basis

Table 3 below shows that 81(81%) of the participants were taking the drugs on daily basis while 19(19%) were not taking the drug on daily basis.

Table 3: Taking drug on daily basis

Characteristic	Frequency	Percentage
Taking the drug on a daily basis daily		
Yes	81	81%
No	19	19%
Total	100	100%

4.6 Individual's motivational support

The table below shows that 50(50%) of the participants were motivated by family support to adhere to PTB treatment while 6(6%) indicated that they were motivated by food supplements given at the clinic as they collected their drugs. 48(48%) participants agreed that DOT regimen was important while 12(12%) participants didn't agree that DOT regimen was important. 65(65%) participants indicated that the 4-fixed dose combination reduced the pill 35(35%) participants indicated that the 4-fixed dose combination did not reduce the pill burden. Furthermore 76(76%) participants indicated that PTB medication improved their quality of life while 4(24%) indicated that PTB medication does not improve their quality of life.

Table 4: Individual's motivation support

Characteristic	Frequencies	Percentage
What motives you to adhere to PTB Treatment		
Family support	50	50%
Adherent Support	44	44%
Food supplements	6	6%
Total	100	100%
Is DOT regimen PTB important?		
I agree	48	48%
I strongly Agree	40	40%
I don't agree	12	12%
Total	100	100%
Has the 4fixed dose combination reduced the pill burden?		
True	65	65%
False	35	35%
Total	100	100%
PTB medication improves quality of life		
True	76	76%
False	24	24%
Total	100	100%

4.7 Respondent's responses to behavioural

Table 5 below shows that 54(54%) participants agreed to taking PTB medication promptly as directed by the health care providers while 8(8%) participants didn't agree to taking PTB medication promptly as directed by the health care providers. Furthermore 49(49%) participants agreed that missing PTB medication could lead to disease progression, while 10(10%) didn't agree that missing PTB medication could lead to disease progression as they believed in other causes of PTB. The data presentation also showed that 65(65%) participants agreed that they found it difficult to take medication without a reminder, while 35(35%) participants stated that they did not need any reminder for them to take medication.

Table 5: Responses to behavioural skills

Characteristic	Frequencies	Percentage
When I take PTB medication promptly as directed by the healthcare provider, I will have a healthy life.		
I agree	54	54%
Strongly agree	38	38%
I don't agree	8	8%
Total	100	100%
Missing PTB Medication leads to disease progression		
I agree	49	49%
I strongly Agree	41	41%
I don't agree	10	10%
Total	100	100%
It is difficult for me to take my PTB medication when someone is watching?		
True	65	65%
False	35	35%
Total	100	100%
PTB medication improves quality of life		
True	76	76%
False	24	24%
Total	100	100%
I found it found it difficult to take medication without a reminder		
I agree	32	32%
I strongly agree	21	21%
I don't agree	47	47%
Total	100	100%
I stopped taking PTB Medication when I experienced side effects		
I agree	39	39%
I strongly agree	21	21%
I don't agree	40	40%
Total	100	100%

5.0 DISCUSSION

5.1 Demographic data

There was a predominance of male adult patients which could imply that male patients are more at risk of contracting PTB than female patients. The study has also shown that gender is a factor in determining adherence to PTB treatment by PTB patients. Furthermore, the study has shown that the level of education is not the main factor to avoid contracting PTB as the data showed that the majority of patients (88%) had attained secondary education. The study has also shown that some patients did not adhere to treatment of PTB due to was that some of the patients still didn't adhere to treatment due pill burden, long distances to access drugs, poor road network, long period of taking medication (6 months) and lack of motivation such as food supplements.

5.2 Participant's level of knowledge

The study has shown that some clients were not adhering to treatment regardless of them being knowledgeable on the consequences of not adhering to treatment, though others had little or no knowledge on the importance of taking PTB medication. The study findings are consistent with a study done by Hashim *et al*., (2018) in Malaysia on the impact of knowledge on adherence to PTB treatment: which revealed that there was positive correlation between the knowledgeable clients and the adherence rates to PTB treatment. Similarly, a study done by Tachfouti *et al*., (2021) on the impact of knowledge and attitudes on adherence to PTB treatment: A case-control study in a Moroccan region revealed that poor knowledge on PTB influenced adherence to treatment by PTB patients.

5.3 Individual motivation support

The study revealed that 41% of the respondents had good social support towards adherence to PTB treatment. The study findings are similar to a study done by Kateta (2018) on knowledge, attitudes and practices of patients diagnosed with PTB which revealed that adherence to PTB treatment was also dependent on family support who encouraged the patients to follow their doctors' advice. The study shown alluded to the fact that family members were willing to remind patients to take their PTB medicines. This indicated good social support towards the patients and most of them adhered to PTB treatment.

5.4 Behavioural skills

The study revealed that 32 participants had a positive attitude towards adherence to PTB treatment without a reminder. However, from this study conducted, it has been noted that some clients were poor at adhering to PTB treatment due to poor behavioural skills towards treatment. The study findings are consistent with a study by Mweemba *et al*., (2018) who conducted a study on knowledge, attitude and compliance with PTB Treatment, Lusaka, Zambia and the results of the study revealed that majority of the respondents (89.4%) had positive attitude towards PTB treatment, rating high in all the attitude subscales. The study therefore has revealed that not all patients have poor attitude and stigma towards PTB treatment.

6.0 LIMITATIONS OF THE STUDY

- The research was costly on part of the researcher since it was not funded therefore, it was not easy to carry out.
- Time limitation-The researcher is a full employee of the Ministry of Health with very.
- Busy schedule and this delayed her to complete the study as scheduled.
- Distance between supervisor and Researcher- The study was conducted from Eastern province which is more than 300kms from Lusaka where the supervisor was based

7.0 CONCLUSION

The main purpose of this study was to determine Factors Influencing Adherence to Pulmonary Tuberculosis Treatment among Adults PTB patients at St Francis' Hospital, Katete, Zambia. The study has shown that the level of information and knowledge yielded a p-value of 0.001, individual motivational support -p-value 0.002 and behavioural skills -p-value 0.001. This clearly shows that there was a great association between independent and dependent variables under study.

8.0 ACKNOWLEDGEMENT

I am indebted to acknowledge my supervisor Mr Mwaka Clayson Simoonga for his dedicated guidance and supervision. I am equally obliged to thank all the participants' s in this study especially the adult PTB patients at respective two study sites.

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Cite This Article: Loveness M. Chisumpa & Mwaka Clayson (2023). Factors Influencing Adherence to Pulmonary Tuberculosis Treatment among Adult Patients at St Francis' Hospital-Katete, Zambia. *EAS J Nurs Midwifery*, *5*(5), 59-65.