INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
2022, Vol. 3, No. 9, 1749 – 1764
http://dx.doi.org/10.11594/ijmaber.03.09.15

Research Article

Factors Influencing Treatment Default among Direct Observed Treatment Short-Course Enrolled in Pulmonary Tuberculosis

Khadija S. Kasim[1], Magna Anissa E. Aming-Hayudini[2]*

[1]Integrated Provincial Health Office Sulu Provincial Hospital Philippines, 7400
[2]Graduate School/College of Nursing Mindanao State University-Sulu Philippines, 7400

Article history:
Submission September 2022
Revised September 2022
Accepted September 2022

**Corresponding author:*
E-mail:
anissaaminghayudini@gmail.com

ABSTRACT

The Direct Observed Treatment Short course is a therapeutic intervention implemented by the government to treat patients infected with tuberculosis. But treatment default is still a problem that results to an increasing mortality rate among enrolled clients. This study aims to determine the factors influencing treatment default among DOTS enrolled pulmonary tuberculosis in Jolo RHU. The objectives of the study were the following: knew the socio-demographic factors influencing treatment default among pulmonary tuberculosis patient in terms of educational attainment, occupation, and family income, the treatment regimen related factors influencing the treatment default among pulmonary tuberculosis patient in terms of duration of treatment, problem with tablets, social/economic factors, adverse effect, and availability of medicine, and the significant relationship when grouped according to profile. The respondents involved in various occupations and were earning between 1000 and below and up to 3001 to 5000. This study utilized Inferential- evaluative research design. The Inferential was through correlational approach and quantitative techniques in the analysis and interpretation of data gathered. The study used descriptive statistics such as: frequency, percentage, and weighted mean as a tools of analysis of the data collected.

The findings of the study revealed that most of the respondents' educational attainment were at elementary level with 20 respondents having 66.66%, secondary level with 9 respondents having 30%, and vocational graduate of 1 respondent with 3.3%. However, the respondents show in their occupation that majority were from vendors of 20 respondents having 66.66%, followed by laborers of 4 respondents having 13.335, tricycle drivers of 2 respondents having 6.66%, construction workers of 2 respondents having 6.66%, fisherman with 1 respondent having 3.33%, and street sweeper having 1 respondent with 3.33%. Lastly, majority of the respondents earning P1,000 and

How to cite:
Kasim, K. S. & Aming-Hayudini, M. A. E. (2022). Factors Influencing Treatment Default among Direct Observed Treatment Short-course Enrolled in Pulmonary Tuberculosis. *International Journal of Multidisciplinary: Applied Business and Education Research*. *3*(9), 1749 – 1764. doi: 10.11594/ijmaber.03.09.15

below were the highest defaulters. 25 respondents having a family income of P1,000 and below showing 83.33%, only 5 respondents earning P3,001 to 5,000 family income which shows 16.66%, and none of them were earning P1,000 – 3,000. Likewise, it was revealed that the respondents were *highly influenced* by the statement that the treatment duration is too long. Likewise, the statement that too many tablets at a time and that the tablet is big has a *high influenced* on their treatment default. For Social/Economic Factors, they were *moderately influenced* on poor access to a DOTS facility to geographical factors and cultural belief limits the choice of treatment. They cannot decide however that post-disaster scenario influences treatment default among pulmonary tuberculosis patients. Also, the respondents were *highly influenced* with the experienced of orange colored urine, pain at the injection site, and hearing impairment. But they are *moderately influenced* with the experienced of skin allergy, flu-like symptoms, impairment of visual acuity, and burning sensation in the feet. On the availability of medicine, they are *highly influenced* that medicine is always available at the center. An average of 4.67 confirms that they were highly influenced to the problem with tablets. The average of 3.88 confirms they were moderately influenced with the social/economic factors. An average of 4.15 confirms that they were moderately influenced with adverse effect of the treatment regimen. The overall average of 4.24 means denotes that the respon]dents were moderately influenced with all the treatment regimen related factors influencing treatment default among Pulmonary Tuberculosis patients.

Further, it was revealed in the result on the significant differences when the respondents were grouped in terms of profile resulted to L=.05, df=1 for numerator and df=16 for denominator, the ***F critical value is 4.49 therefore, the hypothesis is accepted*** and it was analyzed through ANOVA. Moreover, it was revealed that the result on the significant differences when respondents were grouped in terms of Educational Attainment, at α= .05, df=2 for numerator and df=27 for denominator, the ***F critical value is 6.49 therefore, the hypothesis is accepted***. Result also revealed that on the significant differences when the respondents are grouped according to Occupation, at α=.05, df=5 for numerator and df=24 for denominator, the ***F critical value is 4.49 therefore, the hypothesis is accepted***. In the same manner that the result on the significant differences when the respondents are grouped according to Income, at α= .05, df=5 for numerator and df=24 for denominator, the ***F critical value is 9.28 therefore, the hypothesis is accepted***.

Based on the findings of the study, it can be concluded that most of the pulmonary tuberculosis patient belong to the marginalized group of our society they only earn 1000 and below per month, in their early 30's in age, and less educated. Since the treatment regimen related factors has no relationship with the treatment default among pulmonary tuberculosis patients, other factors not mentioned in the study could cause the treatment default. Profiles do not have relationship to the treatment default among pulmonary tuberculosis patients. The participants in this study have given the assurance of the ethical consideration. They were informed that this study will address them

with highest respect of confidentiality and anonymity. It is also adhered that respondents were respected during the launching of the questionnaire.

The following recommendations are forwarded based on the conclusions of the study that factors must be examined which may have triggered the treatment default among pulmonary tuberculosis patients. Future research on the topic must investigate the role of RHU's in the treatment of pulmonary tuberculosis patient and the barangay health workers. Also an awareness seminar among the residents in their area of responsibility on the effect of defaulting treatment of pulmonary tuberculosis patient must conducted.

***Keywords**: Direct Observed Treatment Short-Course, Pulmonary Tuberculosis, Treatment Default*

Background

Tuberculosis is a chronic infectious disease caused by *Mycobacteriumtuberculosis,* a bacteria transmitted through airborne droplets from the sputum of persons with pulmonary tuberculosis while coughing or sneezing. It is a curable disease. However, if left untreated, it can lead to a disabling condition and even death. Also, partial treatment of cases may cause multi-drug resistance that can lead to non-cure. The researcher as a Nurse is interested to find out why the number of TB treatment default in Jolo-Sulu is increasing despite the effort of the government. She is motivated to find out what are factors of the treatment default in order to establish based line data that can be a basis of planning for a better intervention especially on the part of the DOH health personnel assign in some RHU in Jolo. In the study of Hayudini (2018), that one of the health preventive measures employed by health workers in Jolo, Sulu is immunization.

The World Health Organization's latest estimates stipulated that the Philippines is among the seven (7) countries with the highest number of people with tuberculosis. These is an estimated 581,000 Filipinos infected with TB. Unfortunately, almost 50% of these people have not yet been diagnosed or notified (WHO report 2003). This means that Tuberculosis is a major public health problem in the Philippines. In fact, according to report, Philippines in 1998 ranked sixth among the 10 leading causes of death and also sixth among the ten leading causes of illnesses. Although the mortality rate of tuberculosis has fallen in the past 20 years, from 69 deaths per 100,000population in 1975 to 38.3 deaths per 100,000 in 1997, still, at this rate, around 75 Filipinos die every day from tuberculosis. Deaths were higher among males (66 %) and among the productive age group 15-64 years old (60 %). The morbidity rate from tuberculosis shows amore variable trend although it has fallen from 314 cases per 100,000 populations in 1975 to179.6 cases per 100,000 populations in 1998. Globally, the Philippines is one of the 22 countries identified by the World Health Organization (WHO) as having a high burden of tuberculosis ranking at 8th worldwide. It ranks third in terms of new smear-positive TB notification rate in the WHO-Western Pacific Region (WHO report 2003).

There are set of procedures which ensures that patients complete their treatment. While effective anti-TB drugs are available in the country, there are still many TB patients who are not cured because they stop taking anti-TB drugs or take them irregularly. This may lead to chronic infectious illness, drug resistance, or death. The best way to prevent the occurrence of these events is through the regular intake of appropriate drugs for the prescribed duration. In 2010, TB was the 6th leading cause of mortality with a rate of 26.3 deaths for every 100,000 population and accounts for 5.1% of total deaths. This is slightly slower than the five-year average of 28.6 deaths per 100,000 populations. More males died (17,103) compared to females (7,611).

Treatment default is one of the biggest problems in the treatment of tuberculosis today. Treatment default is a serious problem in tuberculosis control. We may already find it difficult to adhere to a 7-day antibiotic treatment regimen in that case of a simple pneumonia. TB patients have to go through their treatment several times a week for at least half a year. Factors identified to be associated with treatment default are: Lack of knowledge about the disease, distance from the health post, partial or complete regression of symptoms in the first two months of treatment, the side effects associated with the medication, the absence of supervised treatment and poor quality of patient care at the Health Unit. Compounding this difficulty with the lack of education on the possible consequences of treatment default, which often exist among TB patients in the developing countries, only worsens the issue, which is cited to be the largest driver of drug resistance.

The results of this study contributed to a more holistic approach to the TB programming and policy in Jolo. More so, patients diagnosed with Tuberculosis who is undergoing treatment and those defaulted, had given the right to know the medication's effects and the right to medication compliance. In Health Care Ethics for Nurses book by Magna Anissa A. Hayudini (2021 p.4) states that respect for others is the highest form of treatment. The data enhanced the understanding of TB stakeholders and including the affected communities so that as further evaluated on the improvement of the current approaches in program and policy for TB prevention, treatment and care. In turn, contributes to the eventual elimination of TB in the country. Moreover, it also contributes to knowledge, and amplified the voices of communities affected by TB, which have so far been unheard. This aided future researchers, policymakers, program implementers, and medical professionals by providing them with a baseline on tackling similar studies in the Philippine setting.

Jolo is composed of eight Barangays, these are named as Alat, Asturias, Bus-Bus, Tulay, Walled City, San Raymundo, Chinese Pier and Takut-Takut. From 2019 there were 250 PTB patient registered in TB DOTS clinic of RHU Jolo. The researcher aimed in identifying the factors influencing treatment default among DOTS enrolled in Pulmonary Tuberculosis patient in Jolo as to contribute for a better planning intervention to control the extent of the disease and to guarantee the awareness of everyone regarding the disease.

Methods

This study made used ex post-facto research design specifically Inferential and multi case study. Also, it utilized descriptive-evaluative techniques to describe the process and impact of the development and implementation of a system such as knowing the data on existing program of the rural health unit on direct observed treatment short course with increase rate of defaulters. On the other hand correlational approach was also used to measure the variables and assess the statistical relationship between the treatment regimen to the factors that influence treatment default among DOTS enrolled in Jolo and the significant relationship between the treatment regimen to the sociodemographic profile of the respondents in terms of Educational Attainment, Occupation, and Family Income which according to Burns and Grove (1998) provide a portrayal of an individual, situation or group to discover new meaning describe what exists, determining the frequency with which something occurs and identify relationship without establishing casualty.

This study was conducted at Barangays were an area mixed with tribes like Tausug and Sinama are residing. The respondents are supposedly taking anti-TB DOTS but unfortunately, they are not following the treatment course and regimen because of some reasons such as financial problems and accessibility to the RHU and many others.

The respondents or subjects were the patients of RHU Jolo particularly those who were diagnosed of Tuberculosis. This study was conducted in the year 2019 to 30 respondents who were purposely selected with their free time available and geographically accessible to the researcher.

Purposive sampling was used to obtain the expected subjects of thirty (30) respondents who are a treatment defaulter. Purposive sampling is a type of non-probability sampling

wherein the respondent of the study is selected by design or by choice, the person who is the most available at the time was taken as respondents until the desired number is reach (Lydia Monzon-Ybanez,1999).

The needed primary data of the study were collected using a validated survey questionnaire. First, the researcher asked three (3) experts to validate the questionnaire and has been tested for reliability to at least 10 participants. After which, the questionnaire is ready for data gathering.

The researcher follow protocol by getting the recommendations of the panel members to launch the data gathering after the proposal. And the researcher sought permission from the Graduate School Dean in the conduct of data gathering. Upon permitted, she went to the Barangay Chairman of each Barangay in Jolo and sought permission for the conduct of the study. After which the researcher started to gather data in RHU Jolo. In line to it, the researcher asked the RHU administrator of the list of the enrolled TB DOTS patients in Jolo. It was assured that the respondents were respected with utmost privacy.

A Survey Questionnaire that cover on the socio-demographic profile of the patient and a treatment regimen related factors that is formulated in English and translated to Tausug has served as research instrument for this study.

The survey questionnaire is composed of 3 parts. Part 1 is composed of questions on associated socio-demographic factors treatment default among TB DOTS enrolled. Part 2 is composed of questions seeking treatment regimen factors associated with treatment default. Part 3 is composed of questions to the treatment regimen utilize during treatment. A five-point Likert scale is utilized to obtain the result of the respondent in all part II and III of the survey questionnaires. The Researcher did not hire an assistant because she herself have conducted the survey to have a personal interaction with the respondents. The survey being a Multi case study must be done in a manner that the conduct of the survey will not look as self-threatening to the respondents. This is also to allow the questioning to be free flowing.

A focus group discussion (FGD) was conducted also among treatment defaulters for in depth understanding and amassed insights of some of the defaulters. With FGD the researcher was able to discover important details and information that addressed the prevailing problem of the treatment defaulting among TB patients.

Result and Discussion

Part I. Socio-Demographic Factors Influencing Treatment Default among PTB Patients

The Socio-Demographic Factors Influencing Treatment Default among PTB Patients in terms of Educational Attainment, Occupation and Family Income were presented in this part.

Table I displays the socio-demographic factors influencing treatment default among PTB Patients in terms of educational attainment, occupation, and family income.

As reflected in table 1 it shows that many of the respondents in their educational attainment were at elementary level with 20 respondents having 66.66%, secondary level with 9 respondents having 30%, and vocational graduate of 1 respondent with 3.3%. The data denotes that the respondents have a low-level of educational achievements.

According to the study cited in https://archpublichealth.biomedcentral.com. Patients with higher educational attainment have better health and lifespans compared to the less-educated individuals. It is believed that the health effects of education are at the grass roots-creating better overall self-awareness on personal health and improvement. However, WHO (2010) mentioned that if left untreated, each person with active TB can infect between 10 to 15 other persons in a year, (2/3 persons who don't get treatment will die). It is assumed that in a low burden country, emphasis and exposure to TB from either training and/or professional experience may be minimal. But with this case, people who have less knowledge were mostly affected. Compounding this difficulty with the lack of education on the possible consequences only worsens the issue.

Table 1. Frequency and Percentage of the Socio-Demographic Factors Influencing Treatment Default among PTB Patients in terms of Educational Attainment, Occupation and Family Income (n=30)

Socio-Demographic Factors	Frequency	Percentage
EDUCATIONAL ATTAINMENT:		
Elementary Level	20	66.66
Secondary Level	9	30
Vocational Graduate	1	3.3
OCCUPATION:		
Vendor	20	66.66
Tricycle Driver	2	6.66
Construction Worker	2	6.66
Laborer	4	13.33
Fisherman	1	3.33
Street Sweeper	1	3.33
FAMILY INCOME:		
₱1000 and Below	25	83.33
₱1001 to 3000	0	0
₱3001 to 5000	5	16.66

The table also illustrates the respondent's occupation in which majority were from vendors of 20 respondents having 66.66%, followed by laborers of 4 respondents having 13.335, tricycle drivers of 2 respondents having 6.66%, construction workers of 2 respondents having 6.66%, fisherman with 1 respondent having 3.33%, and street sweeper having 1 respondent with 3.33%. The findings indicate that most of the respondents' job were work that belong to salary grade which is low considered minimum wage and exposed to risk. Cognizant to this, according to OSHA, 1997 workers outside that are highly exposed may be at risk of having TB infection cited in https://archpublichealth.biomedcentral.com.

Further the table again manifests that majority of the respondents were earning P1,000 and below were the highest defaulters. 25 respondents having a family income of P1,000 and below showing 83.33%, only 5 respondents earning P3,001 to 5,000 family income which shows 16.66%, and none of them were earning P1,000 – 3,000. The data implies that that the salary of those respondents were also low or belong to the minimum wage. These findings find support on what is cited in Bmcpublichealth.biomedcentral.com, poverty is associated with increased risk of active tuberculosis disease. In their study revealed that lower household income remains statistically significant to poor treatment outcome compared to higher household income with favorable outcome.

Part II. Treatment Regimen Related Factors Influencing Treatment Default among PTB Patient

In this portion it explained the treatment regimen Related factors influencing treatment default among PTB Patient were in terms of duration of treatment, number of tablets taken per day, medication side effects, and availability of medicines at the health center.

Table 2 presents the treatment regimen related factors influencing treatment default among PTB Patient in terms of duration of treatment, number of tablets taken per day, medication side effects, and availability of medicines at the health center.

Table 2. Treatment Regimen Related Factors Influencing Treatment Default among PTB Patient in terms of Duration of Treatment, Number of Tablets taken per Day, Medication Side Effects, and Availability of Medicines at the Health Center (n=30)

ITEMS	WEIGHTED MEAN	INTERPRETATION
DURATION OF TREATMENT		
1. Treatment duration is too long.	4.72	Highly influenced
PROBLEM WITH TABLETS		
2. Too many tablets to take at a time.	4.67	Highly influenced
3. Tablet is big.	4.67	Highly influenced
SOCIAL/ECONOMIC FACTORS		
4. Poor access to DOTS facilities due to geographical factors.	4.27	Moderately influenced
5. Cultural belief that limits the choice of treatment.	4.11	Moderately influenced
6. Post-disaster scenario (flood, fire, etc.)	3.27	Cannot decide
ADVERSE EFFECT		
7. Experienced skin allergy reaction.	4.05	Moderately influenced
8. Experienced orange colored urine.	4.67	Highly influenced
9. Experienced flu-like symptoms.	4.22	Moderately influenced
10. Experienced pain at the injection site.	4.50	Highly influenced
11. Experienced hearing impairment.	4.50	Highly influenced
12. Experienced anemia.	3.67	Moderately influenced
13. Experienced impairment of visual acuity.	4.00	Moderately influenced
14. Experienced burning sensation in the feet.	3.56	Moderately influenced
AVAILABILITY OF MEDICINE		
15. Medicine is always available at the center.	4.78	Highly influenced

This shows treatment duration is too long. This denotes those respondents affected by the length of time that medication takes. There being impatient can be attributed with the fact that they have to support a family and they do not want their job to be hampered by their medication. This was corroborated what is cited in https://www.ncbi.nlm.nih.gov, that regular and complete medication intake gives individual tuberculosis patient the best chance of cure and protects them from the spread of tuberculosis. It is best to regularly supervise the patient when taking the medication in the term specified for them.

Likewise, the statement that too many tablets at a time and that the tablet is big has a *high influenced* the respondent's treatment default. This indicates the fear of people under medications taking so many tablets and the size also of the tablets affected them. This was supported by what is mentioned in https://www.health.nsw.gov.au, that medication must be taken until the health care practitioner tells the patient to stop which influence the patients to feel dismayed on the number of medications to be taken. One of the respondents has mentioned, *"In taud sin ubat inumon ko, malisuh nako minom"*(Too many tablets to take and it discouraged me).

For Social/Economic Factors, they are *moderately influenced* that poor access to a DOTS facilities to geographical factors and cultural belief limits the choice of treatment. One of the respondent mentioned, "*Malayuh in bay namuh pa center" (*My house is far from the center). There is nothing controversial in this findings as the research also show that socio-economic factors have big influenced in the decision of people. This is corollary to what was discussed also in https://bmcpublichealth.biomedcentral.com. That social and economic drivers associated with tuberculosis that correlates to stigma and discrimination. Economic drivers include poverty and financial constraints may hinder the patient's eagerness to go to hospitals or centers.

Other findings seen in the data presented in the table was that respondents cannot decide however that post-disaster scenario influences treatment default among pulmonary tuberculosis patients. This indicates that post disaster scenario caused by fortuitous events like floods, typhoons, etc. has least influence on people. This can be attributed to the reality that Joloanos were in difficult situation by living in a conflict sensitive area for so long.

Also, the respondents were *highly influenced* that they experienced orange colored urine, pain at the injection site, and hearing impairment. But they are *moderately influenced* that they experienced skin allergy, flu-like symptoms, impairment of visual acuity, and burning sensation in the feet. This implied that that taking medicine has different effect to people. That state that medications have occasionally side effects to some people but not a cause of concern which others may experience it as unusual symptoms or feel unwell.

On the availability of medicine, they are *highly influenced* that medicine is always available at the center. This indicates that people will be affected by the availability of the medicines that they can access easily in the center. The data further implied that having a low income to buy medicine would deter people suffering from TB to maintain the treatment. In other words, people would prepare to buy basic needs of the family rather than buy medicine. Thus, it is important for the government to make medicine available in the center for those suffering from TB so that they will not be having a dilemma to get medicine if it is free. Also in order that areas like Sulu will not be deprived of the required medicine for sickness like TB.

In addition, according to BMC Public Health (2011), factors associated with default from treatment among tuberculosis patients are its side effects, the cost of treatment, less social support or may cause stigma, and less government policy. However, some may find it as an obstacle to the control of TB is failure to complete the lengthy treatment for 6 months. Active TB disease is treated with a standard 6-month course of 4 antimicrobial drugs that are provided with information, supervision, and support to the patient by a health worker. Without such support, treatment adherence can be difficult, and the disease can spread.

Factors like expensive treatment and side effects may cause treatment default. The DOTS approach includes standard regimens of first-line drugs to patient and which cost as little as US$10 per patient. Unfortunately, TB resistance of the most effective DOTS drugs has developed at sites in both industrialized and developing countries, causing approximately 460,000 cases of multidrug- resistant TB (MDR-TB) per year. Second-line antibiotics, which tend to be more expensive or more difficult to take, can effectively treat many cases of MDR-TB. "DOTS-Plus" programmed, which use combinations of drugs to treat MDR-TB, are therefore becoming increasingly important in controlling TB worldwide. A recent study found DOTS-Plus strategies is cost-effective, but cure rates of MDR-TB were relatively low.

Table 2.1. Summary on the Treatment Regimen Related Factors Influencing Treatment Default among Pulmonary Tuberculosis Patient in terms of duration of treatment, Number of tablets taken per day, Medications side effects, and Availability of medicines at the health center

Factors	Weighted Mean	Interpretation
Duration of Treatment	4.72	Highly influenced
Problem with tablets	4.67	Highly influenced
Social/Economic Factors	3.88	Moderately influenced
Adverse effect	4.15	Moderately influenced
Availability of medicine	4.78	Highly influenced
Overall average	4.24	Moderately influenced

As reflected in the table, there was an average of 4.67 which confirms that respondents were highly influenced to the problem with tablets. Also, as glimpsed in the table that there was an average of 3.88 which confirms that respondents were moderately influenced with the social/economic factors. Further as manifested in the table there was an average of 4.15 which confirms that respondents were moderately influenced with the adverse effect of the treatment regimen. The overall average of 4.24 means signify that the respondents were moderately influenced with all the treatment regimen related factors influencing treatment default among Pulmonary Tuberculosis patients.

The findings corroborated by the Eastern Mediterranean Health Journal that emphasized, that treatment default is interrupted. In their study, the significant reasons of default are associated to rural residence, DOH interventions are not adhered, having side-effects from treatment and having a multidrug.

Part IV. Test of Correlations Between the Treatment Regimen to the Factors that Influence Treatment default among DOTS enrolled in Jolo

Table 3 present the test of *correlations* between the treatment regimen to the factors that influence treatment default among DOTS enrolled in Jolo.

Table 3. Test of Correlations Between the Treatment Regimen to the Factors that Influence Treatment default among DOTS enrolled in Jolo

		Sum of Squares	Df	Mean Square	F	Sig	Decision Ho
Treatment duration is too long Groups	Between Groups	.500	1	.500	1.565	.229	Accept
	Within Groups	5.11	6	.319			
	Total	5.611	17				
Too many tablets take at A time	Between Groups	.899	1	.889	1.561	.229	Accept
	Within Groups	9.111	6				
	Total	10.000	17	.569			
Tablet is big	Between Groups	.889	1	.889	1.561	.229	Accept
	Within Groups	9.111	6	.569			
	Total	10.000	17				
Poor access to DOTS Facilities due to Geographical barriers	Between Groups	1.389	1	1.389	5.263	.036	Accept
	Within Groups	4.222	6	.264			
	Total	5.611	17				
Post disaster scenario (flood, fire, etc)	Between Groups	.222	1	.222	.308	.587	Accept
	Within Groups	11.556	6	.722			
	Total	11.778	17				
Experienced skin allergy	Between Groups	.500	1	.500	.275	.607	Accept
	Within Groups	29.111	6	1.819			
	Total	29.611	17				
Experienced orange Colored urine	Between Groups	2.722	1	2.722	1.960	.181	Accept
	Within Groups	22.222	6	1.389			
	Total	24.944	17				
Experienced flu-like Symptoms	Between Groups	.222	1	.222	.615	.444	Accept
	Within Groups	5.778	6	.361			
	Total	6.000	17				
Experienced pain at the Injection site	Between Groups	.056	1	.056	.085	.774	Accept
	Within Groups	10.444	6	.653			
	Total	10.500	17				
Experienced hearing Impairment	Between Groups	.056	1	0.56	.105	.750	Accept
	Within Groups	8.444	6	.528			

		Sum of Squares	Df	Mean Square	F	Sig	Decision Ho
	Total	8.500	17				
Experienced Anemia	Between Groups	.222	1	.222	.094	.763	Accept
	Within Groups	37.778	6	2.361			
	Total	38.000	17				
Experienced impairment Of visual acuity	Between Groups	2.000	1	2.000	1.143	.301	Accept
	Within Groups	28.000	6	1.750			
	Total	30.000	17				
Experienced burning Sensation in the feet	Between Groups	.222	1	.222	.098	.758	Accept
	Within Groups	36.222	6	2.264			
	Total	36.444	17				
Medicine is always Available in the center	Between Groups	.056	1	.056	.364	.555	Accept
	Within Groups	2.444	6	.153			
	Total	2.500	17				

Table 3 shows the result on the significant relationship when the respondents are grouped according to profile. At L=.05, df=1 for numerator and df=16 for denominator, the ***F critical value is 4.49 therefore, the hypothesis is accepted***. F test was used to determine the group of variables if they are significant. The value has tested to be smaller than F-critical value. According to www.statisticshowto.com, if you get a large F value, it means significant. Based on the result, poor access to DOTS facilities due to geographical barriers posted a significant difference on the treatment regimen factors influencing treatment default among Pulmonary Tuberculosis patients. The computed F value of 5.263 is greater than the F critical value 4.49. Hence, the significant relationship of the respondents was grouped according to profile. The rest of the factors influencing treatment default among Pulmonary Tuberculosis patients showed no significant relationship since most of the computed F value using SPSS ranges from 0.085 to 1.960 which is lesser than the F critical value of 4. 49, it means that this critical value says 95% of confidence level. According to www.chegg.com, that F statistics is a statistic that is determined by an ANOVA test. It determines the significance of the group variables.

It was stated in https://erj.ersjournals.com, the treatment regimen would be implemented in a simple and streamlined manner without need for drug-susceptibility testing and refine the patient's needs to a resistance profile.

Table 4. Test of Correlations Between the Treatment Regimen to the Demographic Profile of the respondents in terms of Educational Attainment, Occupation, and Family Income

		Sum of Squares	df	Mean Square	F	Sig.	Decision Ho
The Health Care Provider are explaining the side effect of TB Medicine. * Educational Attainment	Between Groups	1.678	2	.839	1.044	.366	Accept
	Within Groups	21.689	27	.803			
	Total	23.367	29				
The patient has packed of knowledge about what might happen if the patient forgets to take the medicine. * Educational Attainment	Between Groups	.444	2	.222	.285	.754	Accept
	Within Groups	21.022	27	.779			
	Total	21.467	29				

		Sum of Squares	df	Mean Square	F	Sig.	Decision Ho
The Doctor will decide which medicines are best for the patient, and how long the patient must take them to be cured. * Educational Attainment	Between Groups	.444	2	.222	.285	.754	Accept
	Within Groups	21.022	27	.779			
	Total	21.467	29				
The patient will need to take medicine for as long as your doctor tells you, even if the patient is not sick. * Educational Attainment	Between Groups	3.267	2	1.633	2.423	.108	Accept
	Within Groups	18.200	27	.674			
	Total	21.467	29				
The patient feels better after only a few weeks of treatment. * Educational Attainment	Between Groups	.878	2	.439	.680	.515	Accept
	Within Groups	17.422	27	.645			
	Total	18.300	29				

Table 4 Presents the result on the significant relationship when the respondents are grouped according to Educational Attainment. At α= .05, df=2 for numerator and df=27 for denominator, the ***F critical value is 6.49 therefore, the hypothesis is accepted***. F test was used to determine the group of variables if they are significant. The value has tested to be smaller than F-critical value. According to www.statisticshowto.com, if you get a large F value, it means significant. Based on the result, all of the factors influencing treatment regimen among Pulmonary Tuberculosis patients showed no significant differences since all of the computed F value using SPSS ranges from 0.680 to 2.423 which is lesser than the F critical value of 6.49, it means that this critical value says 95% of confidence level.

According to www.chegg.com, that F statistics is a statistic that is determined by an ANOVA test. It determines the significance of the group variables.

In the study cited in https://journals.plos.org, that information on education, employment and income are indicators of drug deprivation.

Table 5. Test of Correlations Between the Treatment Regimen grouped according to Occupation

		Sum of Squares	df	Mean Square	F	Sig.
The Health Care Provider are explaining the side effect of TB Medicine. * Occupation	Between Groups	4.067	5	.813	1.011	.433
	Within Groups	19.300	24	.804		
	Total	23.367	29			
The patient has packed of knowledge about what might happen if the patient forgets to take the medicine. * Occupation	Between Groups	2.667	5	.533	.681	.642
	Within Groups	18.800	24	.783		
	Total	21.467	29			
The Doctor will decide which medicines are best for the patient, and how long the patient must take them to be cured. * Occupation	Between Groups	2.667	5	.533	.681	.642
	Within Groups	18.800	24	.783		
	Total	21.467	29			

		Sum of Squares	df	Mean Square	F	Sig.
The patient will need to take medicine for as long as your doctor tells you, even if the patient is not sick. * Occupation	Between Groups	3.267	5	.653	.862	.521
	Within Groups	18.200	24	.758		
	Total	21.467	29			
The patient feels better after only a few weeks of treatment. * Occupation	Between Groups	1.850	5	.370	.540	.744
	Within Groups	16.450	24	.685		
	Total	18.300	29			

Table 5 presents the result on the significant relationship when the respondents are grouped according to Occupation. At α=.05, df=5 for numerator and df=24 for denominator, the ***F critical value is 4.49 therefore, the hypothesis is accepted***. F test was used to determine the group of variables if they are significant. The value has tested to be smaller than F-critical value. According to www.statisticshowto.com, if you get a large F value, it means significant. Based on the result, all the factors influencing treatment regimen among Pulmonary Tuberculosis patients showed no significant differences since all the computed F value using SPSS ranges from 0.540 to 1.011 which is lesser than the F critical value of 4.49, it means that this critical value says 95% of confidence level. According to www.chegg.com, that F statistics is a statistic that is determined by an ANOVA test. It determines the significance of the group variables.

In https://journals.plos.org barriers in the access, diagnosis, and treatment completion for tuberculosis patients in central and western Nepal, has continue to experience barriers for treatment regimen dues to health services, occupation, income and educational attainment of the patients.

Table 6. Test of Correlation Between the Treatment Regimen grouped according to Family Income

		Sum of Squares	Df	Mean Square	F	Sig.	Decision Ho
The Health Care Provider are explaining the side effect of TB Medicine. * Family Income	Between Groups	1.127	1	1.127	1.418	.244	Accept
	Within Groups	22.240	28	.794			
	Total	23.367	29				
The patient has packed of knowledge about what might happen if the patient forgets to take the medicine. * Family Income	Between Groups	1.707	1	1.707	2.418	.131	Accept
	Within Groups	19.760	28	.706			
	Total	21.467	29				
The Doctor will decide which medicines are best for the patient, and how long the patient must take them to be cured. * Family Income	Between Groups	1.707	1	1.707	2.418	.131	Accept
	Within Groups	19.760	28	.706			
	Total	21.467	29				
The patient will need to take medicine for as long as your doctor tells you, even if the patient is not sick. * Family Income	Between Groups	1.307	1	1.307	1.815	.189	Accept
	Within Groups	20.160	28	.720			
	Total	21.467	29				

		Sum of Squares	Df	Mean Square	F	Sig.	Decision Ho
The patient feels better after only a few weeks of treatment. * Family Income	Between Groups	.060	1	.060	.092	.764	Accept
	Within Groups	18.240	28	.651			
	Total	18.300	29				

Table 6 reflects the result on the significant relationship when the respondents are grouped according to Income. At α= .05, df=5 for numerator and df=24 for denominator, the ***F critical value is 9.28 therefore, the hypothesis is accepted***. F test was used to determine the group of variables if they are significant. The value has tested to be smaller than F-critical value.

According to www.statisticshowto.com, if you get a large F value, it means significant. Based on the result, all of the factors influencing treatment regimen among Pulmonary Tuberculosis patients showed no significant relationship since all of the computed F value using SPSS ranges from 0.092 to 2.418 which is lesser than the F critical value of 9.28, it means that this critical value says 95% of confidence level. According to www.chegg.com, that F statistics is a statistic that is determined by an ANOVA test. It determines the significance of the group variables.

In https://bmcpublichealth.biomedcentral.com, poverty is associated with increased risk of tuberculosis in relation to household income. The treatment is difficult when the patient has low income.

The result of the study simply implies that the treatment regimen factors influence treatment default among Pulmonary Tuberculosis Patients. Furthermore, it implies that the profile of the respondents does not make a difference on the treatment default among Pulmonary Tuberculosis patients. It is believed that tuberculosis is treated to be effective if it's not interrupted. According to www.uptodate.com (2021), Adherence to treatment is critical for cure of individual patients, controlling spread of infection, and minimizing the development of drug resistance.

Conclusion

This research aimed the factors influencing treatment default among DOTS enrolled Pulmonary Tuberculosis patients in Jolo. Specifically, this sought the following questions: What is the socio-demographic profile of the respondents in terms of Educational Attainment, Occupation, and Family Income? What are the factors that influence treatment default among DOTS enrolled in Jolo? What is the treatment regimen of PTB in RHU Jolo? Is there a significant relationship between the treatment regimen to the factors that influence treatment default among DOTS enrolled in Jolo? Is there a significant relationship between the treatment regimen to the socio-demographic profile of the respondents in terms of Educational Attainment, Occupation, and Family Income?

This study utilized ex post-facto research design specifically Inferential and multi case study. Also, it made used of descriptive-evaluative techniques as well as correlational approach to describe the process and impact of the development and implementation of a system such as knowing the data on existing program of the rural health unit on direct observed treatment short course with increase rate of defaulters. This study was conducted in Barangays were an area mixed with tribes like Tausug and Sinama. The respondents are supposedly taking anti-TB DOTS but unfortunately, they are not following the treatment course and regimen because of some reasons such as financial problems and accessibility to the RHU and many others.

The needed primary data of the study were collected using a validated survey questionnaire. The survey questionnaire is composed of 3 parts. Part 1 is composed of questions on associated socio-demographic factors treatment default among TB DOTS enrolled. Part 2 is composed of questions seeking treatment regimen factors associated with treatment default. Part 3 is composed of questions to the treatment regimen utilize during treatment. A five-point Likert scale is utilized to obtain the result of the respondent in all part II and III of the survey

questionnaires. A focus group discussion (FGD) was conducted also among treatment defaulters for in depth understanding and amassed insights of some of the defaulters. With FGD the researcher was able to discover important details and information that addressed the prevailing problem of the treatment defaulting among TB patients.

The Scale of 5 was interpreted as Highly Influenced. The Scale of 4 was interpreted as Moderately Influenced, The Scale of 3 was interpreted as Cannot Decide, The Scale of 2 was interpreted as Not Influenced, and the Scale of 1 was interpreted as Not Highly Influenced. Statistical tools were applied according to the recommendations of the panel statistician. The researcher applied Statistical Package for Social Sciences (SPSS) version 20. Frequency and percentage distributions, means, and standard deviations were used for problem that needs descriptive analysis.

It was revealed, that majority of the respondent's/subject's educational attainment were at elementary level with 20 respondents having 66.66%, secondary level with 9 respondents having 30%, and vocational graduate of 1 respondent with 3.3%. It is assumed that in a low burden country, emphasis, and exposure to TB from either training and/or professional experience may be minimal. But with this case, people who have less knowledge were mostly affected. Compounding this difficulty with the lack of education on the possible consequences only worsens the issue.

Other finding was that the respondent's occupation revealed that majority were vendors of 20 respondents having 66.66%, followed by laborers of 4 respondents having 13.335, tricycle drivers of 2 respondents having 6.66%, construction workers of 2 respondents having 6.66%, fisherman with 1 respondent having 3.33%, and street sweeper having 1 respondent with 3.33%.

Also, data shows that majority of the respondents whose earning is P1,000 and below were the highest defaulters. 25 respondents having a family income of P1,000 and below showing 83.33%, only 5 respondents earning P3,001 to 5,000 family income which shows 16.66%, and none of them were earning P1,000 – 3,000.

Further, the treatment regimen related factors influencing treatment default among pulmonary tuberculosis patients revealed that there is no significant relationship on the treatment regimen related factors influencing treatment default when the respondents were grouped in terms of profile. The average of 4.67 confirms they highly influenced to the problem with tablets. The average of 3.88 confirms they moderately influenced with the social/economic factors. The average of 4.15 confirms they moderately influenced with adverse effect of the treatment regimen. The overall average of 4.24 means that that the respondents moderately influenced with all the treatment regimen related factors influencing treatment default among Pulmonary Tuberculosis patients.

Moreover, it was found out that there was no significant relationship when the respondents are grouped according to profile. At L=.05, df=1 for numerator and df=16 for denominator, the ***F critical value is 4.49 therefore, the hypothesis is accepted***. The table 4 resulted on the significant relationship when the respondents are grouped according to Educational Attainment. At α= .05, df=2 for numerator and df=27 for denominator, the ***F critical value is 6.49 therefore, the hypothesis is accepted***. In table V, explained the result on the significant relationship when the respondents are grouped according to Occupation. At α=.05, df=5 for numerator and df=24 for denominator, the ***F critical value is 4.49 therefore, the hypothesis is accepted***. F test was used to determine the group of variables if they are significant. The value has tested to be smaller than F-critical value. According to www.statisticshowto.com, if you get a large F value, it means significant. Based on the result, all the factors influencing treatment regimen among Pulmonary Tuberculosis patients showed no significant differences since all of the computed F value using SPSS ranges from 0.540 to 1.011 which is lesser than the F critical value of 4.49, it means that this critical value says 95% of confidence level.

And lastly, findings revealed that there was no significant relationship when the respondents are grouped according to Income. At α= .05, df=5 for numerator and df=24 for denominator, the ***F critical value is 9.28 therefore, the***

hypothesis is accepted. F test was used to determine the group of variables if they are significant. The value has tested to be smaller than F-critical value.

Based on the findings of the study, it can be concluded that most of the pulmonary tuberculosis patient belong to the marginalized group of our society they only earn 1000 and below per month, and less educated. Since the treatment regimen related factors do not influence treatment default among pulmonary tuberculosis patients, other factors not mentioned in the study could cause the treatment default. Profiles has no relationship to the treatment default among pulmonary tuberculosis patients.

The result of the study simply implies that the treatment regimen factors influence treatment default among Pulmonary Tuberculosis Patients. Furthermore, it implies that the profile of the respondents does not make a difference on the treatment default among Pulmonary Tuberculosis patients. It is believed that tuberculosis is treated to be effective if it's not interrupted. According to www.uptodate.com (2021), Adherence to treatment is critical for cure of individual patients, controlling spread of infection, and minimizing the development of drug resistance.

Recommendation

The following recommendations are forwarded based on the conclusions of the study: The findings of the study depicted that there are factors that influenced the PTB on their defaults, thus it is highly suggested that Barangay Health workers should conduct an awareness seminar among the residents in their area of responsibility on the effect of defaulting treatment of pulmonary tuberculosis patient. There is a need to strengthens information dissemination to engage the clients to be proactive in TB DOTS program of the Department of Health.

It is also best way to maintain environmental cleanliness in the community of Jolo, Sulu as it may cause environmental risks effects. Relevant to the study of Hayudini, Jaddani and Habibun (2022) that practices on waste disposal is very essential to sustain and ensure sanitation hence preventing airborne diseases like Tuberculosis.

The study shows also that most of the hypothesis were accepted as profile and factors on defaults seems not to be related to the defaults in the treatment regimen, thus it is highly suggested to the government to improve the delivery of social services particularly targeting educational interventions that can reduce inequalities and improve health.

The finding of the study cannot be said to be conclusive so that the researcher would like to recommend for further study the following Topic: 1. Other factors not mentioned in the study should be examined which may have triggered the treatment default among pulmonary tuberculosis patients. 2. Future research on the same topic should investigate the role of RHU's in the treatment of pulmonary tuberculosis patient

References

Comparison of Pulmonary TB DOTS clinic medication before and after the introduction of daily DOTS treatment and attitudes of treatment defaulters in the Western Division of the Gambia. https://en.m.wikipedia.org/wiki/DOTS -Directly Observed Treatment Short Course www.ncbi.nlm.nih.gov/pmc/articles/PMC2956295/

Factors Affecting Compliance to Tuberculosis Treatment in Andara Kavango Region Namibia -by KudakwasheChani.

Factors associated with default from treatment among tuberculosis patients' in nairobi province, Kenya: A case control study. www.ncbi.nlm.nih.gov/pmc/articles/PMC2503662/ -Factors affecting therapeutic compliance: A review from the patient's perspective bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-11-696.

Factors Associated with Loss to Follow-up during Treatment for Multidrug-Resistant Tuberculosis, the Philippines, 2012–2014 - by Thelma E. Tupasi, Anna Marie Celina G. Garfin, Medical-Surgical Nursing - Brunner and Suddarth's textbook).

Hayudini, Magna Anissa Edding-Aming, RN, RM, LPT, MAN, MPA, DPA (2021). *"Health Care Ethics for Nurses* 1st Edition page 24: copyright 2021 ISSN No: 9781105771415

Hayudini, Magna Anissa Edding-Aming RN, RM, LPT, MAN, MPA, DPA (2018). *Preventive Health CareMeasures and Health Promotion Implemented by Public Health*

Officials in Mainland Sulu. Retrieved from: https://ijhss.net/index.php/ijhss/article/view/466

Hayudini, Magna Anissa A., Jaddani, Mohammad Tusof T. and Habibun, Salta I. (2022). *Practices on Waste Disposal and Its Environmental Effects*. Retrieved from http://dx.doi.org/10.11594/ijmaber.03.08.19

National Tuberculosis Control Program Manual of procedure 5th edition.

Risk factors for default from tuberculosis treatment in HIV-infected individuals www.ncbi.nlm.nih.gov/pmc/articles/PMC3373579/ - Factors Associated with Tuberculosis Treatment Default in an Endemic Area of the Brazilian Amazon bmcinfectdis.biomedcentral.com/articles/10.1186/1471-2334-11-351.

Treatment Default www.who.int/mediacentre/factsheets/fs104/en/-Tuberculosis. www.ncbi.nlm.nih.gov/pmc/articles/PMC3974736/ - Treatment Default amongst Patients with Tuberculosis www.tbhelp.org/?page_id=876.

https://www.osha.gov/federalregister. Occupational Exposure to Tuberculosis.

https://bmcpublichealth.Biomedcentral.com. Factors Associated with default from treatment among tuberculosis patients in Nairobi province, Kenya: A case control study.

https://www.emro.who.int.disease. Disease and Treatment related factors associated with tuberculosis.

https://www.statistichowto.com. F Statistic/F Value: Definition and How to Run an F-test