Sociodemographic Profile, Clinical Factors and Quality of Life of Multi-Drug Resistant Tuberculosis Patients in Pampanga

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Abstract

The purpose of this study was to determine the significant relationship between sociodemographic profile, clinical factors, and quality of life of patients with multidrug-resistant tuberculosis in Pampanga. It focused on residents of Pampanga, ages 18-59 years old, who have been identified as having MDR-TB (multidrug-resistant tuberculosis). The findings of this study revealed that the sociodemographic profile has a significant correlation between the Quality of Life of Multidrug-Resistant Tuberculosis patients and the Clinical Factors and Quality of Life of Multidrug-Resistant Tuberculosis patients. The results showed that patients with higher educational backgrounds are more cautious and are more knowledgeable about the disease progression and transmission, thus having a higher quality of life, and the researchers concluded that the sociodemographic profile has a significant impact on the quality of life of MDR-TB patients. As the researchers analyzed the correlation of the variables, another research can be conducted to identify the other different variables that influence the four domains of QOL of MDR-TB patients.

Keywords: Sociodemographic profile; Clinical Factors; Quality of Life; Multi-drug Resistant Tuberculosis

1. INTRODUCTION

Tuberculosis (TB), among the world's most crucial health challenges, continues to be a significant public health concern and keeps people struggling to combat and control the disease. Mycobacterium tuberculosis, which causes TB, is an infectious human illness that mainly affects the lungs. TB is the second most common infectious killer, behind COVID-19, and the 13th largest cause of death overall (behind HIV/AIDS). The World Health Organization (WHO) predicted that 1.6 million persons would die from TB in 2021, with an expected 10.6 million patients developing the disease. TB FACTS reported 9,870,00 total TB incidences globally and 591,000 in the Philippines (Kanabus, 2022). Although TB is curable and preventable, and putting efforts to reduce its prevalence, TB is still a leading source of illness and mortality throughout the world. Eventually, some of the bacteria were able to withstand treatment and live, becoming what is known as drug-resistant TB and multidrug-resistant TB (MDR-TB). MDR-TB is defined by the WHO as tuberculosis

caused by Mycobacterium strains that have become resistant to many anti-tuberculosis treatments, including first-line TB therapies, rifampicin, and isoniazid. The second-line therapies, which are more costly and toxic than first-line medications, are used in the treatment of MDR-TB, which lasts for around two years. Several factors have been identified in the causation of MDR-TB, one of which is previous inadequate treatment of TB was not treated effectively due to the absence of inappropriate guidelines and inappropriate treatment for TB, such as antibiotic abuse.

On the other hand, due to the COVID-19 pandemic's effects on TB detection, there was an increase in incident cases. In 2021, the WHO predicted there would be 450,000 new cases of MDR-TB and reported 191,000 patients died due to MDR-TB globally. MDR TB still emerges as a growing concern for human health around the world, posing a threat to TB control, continuing to be a public health crisis, and influencing the overall functioning of affected individuals in their everyday lives. The term "quality of life" (QOL) is the degree of contentment and comfort that a person feels regarding their perception of their current situation in their lives. The scope to which the disease condition, as well as the treatments of MDR-TB patients that they are currently experiencing, may have an everyday impact on the patient's subjective impression of their physical, mental, and social well-being.

The Philippines has faced another challenge other than TB, which is the emergence of MDR-TB, probably due to non-compliance with the drug or treatment regimen for the usual six months for different reasons. Currently, TB treatments are too complicated and lengthy to be cured and could be toxic to health. Furthermore, treatment for MDR-TB is more complex, toxic, and expensive, which poses a significant challenge to the affected individuals that may also constitute to affect their contentment with their present condition.

Presently, there is a lack of locally available resources that best identify the relationship between the sociodemographic profile, clinical factors, and QOL of MDR-TB patients (Jaramillo et al., 2022). Consequently, the researcher aims to provide a study that intends to discover the correlation between the sociodemographic profile, clinical factors, and QOL of MDR-TB patients in Pampanga. The research question remained whether the sociodemographic variables (age, civil status, educational attainment, monthly income, occupation, religion, and sex) and clinical factors (type of TB, regimen, type of drug resistance, length of treatment, comorbidity, history of prior TB treatment, type of treatment facility, and the serious adverse events and AEs of special interest) cause an influence on the QOL of MDR-TB patients. The results of this study will assist researchers in better understanding the QOL of MDR-TB patients and their treatment outcomes by identifying whether there is a meaningful association between the said variables.

1.1 METHODOLOGY

This study utilized a correlational research design under non-experimental studies. Correlational research is the most common type of non-experimental research (Price et al., 2020). Correlational research made it easier to predict and explain how different factors relate to one another (Seeram, 2019). This approach entails measuring two variables (binary or continuous), analyzing the statistical relationship between them, and making little to no effort to control irrelevant variables. (Price et al., 2020). Consequently, the researchers aimed to determine if there was a significant relationship between MDR-TB patients' sociodemographic profile, clinical factors, and quality of life.

1.2 RESPONDENTS AND SETTING

The respondents of this study consisted of 128 MDR-TB positive patients (minimum of 105) from the province of Pampanga computed using a Raosoft sample size calculator with a 5% margin of error, 95% confidence level, and 143 total population. They are the ones who possess the necessary knowledge to respond to the topics brought up in the study.

To be a part of this study, the respondents have met the following criteria:
- Provided informed consent and must be between 18-59 years old
- Bonafide citizen of Pampanga
- Male or female that has confirmed diagnosis of MDR-TB

Sampling Method

The researchers used purposive sampling as a sampling method. The sampling method involves the researcher using their expertise to select a sample that is most useful for the research (McCombes, 2019). According to Elite Institute (2019), researchers believed that they could obtain a representative sample by using sound judgment. Hence, it saved time and money. It allowed the researchers to gather information from the most appropriate respondents, which led to better results.

1.3 RESEARCH INSTRUMENT

The researchers utilized the WHOQOL-BREF, a standardized questionnaire made by WHO; It is a World Health Organization-designed 26-item self-report questionnaire where the quality of life of a person is measured. This metric is intended to be cross-culturally applicable. n.d. (Addiction Research Center - UW-Madison). WHOQOL-BREF is a condensed version of the WHOQOL-367 that is suggested for use when time is limited or the workload on the respondent must be reduced. Camillone et al., 2020 used this survey in massive epidemiological investigations and research trials. This questionnaire assesses and addresses four domains of QOL: physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items).

Camille (2020) measured overall QOL and general health with two additional items. An initial score was determined using a rated 5-point Likert scale, with 1 being the lowest score and the highest score being 5. The mean score for each domain is computed, yielding an average score per field ranging from 4 to 20. Lastly, the mean of the domain score was then multiplied by four to create a scaled score, with a higher score indicating a higher quality of life. Multiplying each domain score by 4 makes every domain score multiplied by 4, and it becomes comparable to the original WHOQOL-367 scores.

The research instrument is a standardized WHOQOL-BREF questionnaire that was imperative to ensure its validation to know the perspective of the experts towards the variables involved. To accomplish this, the instrument underwent a Content Validation Index (CVI) process, wherein three experts—a psychometrician, a medical technologist, and a TB coordinator with expertise in capacity development—evaluated its content. Furthermore, the researchers sent an email to the WHO for permission to utilize the WHOQOL-BREF in the study. The questionnaire was not tested for reliability as it is standardized already.

1.4 DATA COLLECTION PROCEDURE

First, the researchers secured the necessary permissions to conduct the study by means of creating a letter asking permission from the Dean of the College of Nursing and Pharmacy to conduct research. The

researchers also requested a letter of endorsement from the director of DOH. Researchers had a scheduled appointment with DOH for the submission of the letter and attended several meetings to present the study. The letter of endorsement requests the permission of the DOH to lead the researchers with the list of different TB Facilities in Pampanga as their locale.

Upon approval, the researchers had a courtesy call on the STC nurses and, later, visited different facilities for the endorsement of questionnaires and the acquirement of consent from the respondents for their permission to participate in the study. Thereafter, dissemination and gathering of data to and from the whole province of Pampanga using both survey questionnaires and Google forms were done.

Each of the respondents was given the same questionnaires, focusing only on the residents of Pampanga who have positive MDR-TB and have met the inclusion criteria to participate in the study. During the gathering of the data, the researchers stayed within each facility to assist with any questions and concerns by the respondents. After dissemination, the retrieval of the Google forms and/or survey forms was analyzed and tabulated by the statistician for the results.

1.5 DATA ANALYSIS

Encoding is the process of categorizing the collected non-numerical data into groups and assigning the numerical codes. Excel is a spreadsheet program that allows researchers to enter and analyze data. It can also be used in designing tables, graphs, and even infographics to present study findings efficiently (Brookfield, 2022). This helped to uncover as many relevant categories as possible for the findings of the study.

The frequency distribution is utilized to arrange and compile survey data through a tabular representation of the data regarding the sociodemographic, clinical factors, and quality of life of the respondents (Lavrakas, 2016).

Percentage distribution expresses each class' frequency as a percentage of the total frequency, which is equal to 367. The frequency in a data set is the total number of numbers in a given range or category. A percentage is the ratio of a certain number to all the other numbers in a set of data (Coleman, 2013).

This study utilized SPSS v. 23 software to analyse the data that was gathered through the survey. SPSS, which is the acronym for Statistical Package for the Social Sciences, was first made available in 1968. With the revolutionary piece of software SPSS, researchers can easily manage vital data. Working with data was a challenging and time-consuming activity, but this tool made handling and using data simple with the use of specific strategies. These methods were used to examine, modify, and create a distinct pattern between various data variables (Noels, 2018).

The researchers used inferential statistics that were determined by sampling and concluding populations. By using data from the experiment's sample, inferential statistics are utilized to distinguish between the treatment groups and formulate conclusions about a larger group of respondents (Kuhar, 2010).

To determine the magnitude and direction of the correlation between the independent and dependent variables, this study used Linear Regression Analysis. According to Kumari & Yadav (2018), linear regression analysis is a method of computing the value of a dependent variable from an independent variable using statistics. Linear regression measures and assesses the statistical link or relationship between two variables. A dependent variable is predicted using this modeling technique based on one or more independent

variables. It makes it possible to identify and describe the connections between various factors. Additionally, it permits the calculation of risk scores for individual prognostication and the identification of prognostically significant risk variables. This helped determine the relationship between the sociodemographic profile, clinical factors, and quality of MDR TB patients.

2. RESULTS

128 multidrug-resistant tuberculosis patients participated in the study. Table 1 shows the distribution of patients as to their demographic profile. Most of the respondents were 46 to 59 years old (39.06%), followed by those 36 to 45 years old (24.22%). Almost 70% were males, half were married, and 76.56% were Roman Catholic. Most of the participants reached high school level (31.25%), followed by high school graduates (24.22%) and college level of attainment (14.06%). More than half (55.47%) have no income, and 41.41% have an income of Php 15,999 and below.

Demographic profile	Frequency	Percentage
Age (in years)		
18 to 25	20	15.63
26 to 35	27	21.09
36 to 45	31	24.22
46 to 59	50	39.06
Sex		
Male	89	69.53
Female	39	30.47
Civil Status		
Single	56	43.75
Married	64	50.00
Separated	5	3.91
Divorced	0	0.00
Widowed	3	2.34
Religion		
Roman Catholic	98	76.56
Muslim	2	1.56
Iglesia ni Cristo	9	7.03
Christian	16	12.50
Evangelicals	0	0.00
Others	3	2.34
Educational Attainment		
None at all	4	3.13
Elementary Level	12	9.38
Elementary Graduate	15	11.72
High School Level	40	31.25
High School Graduate	31	24.22
College Level	18	14.06
College Graduate	8	6.25
Post Graduate	0	0.00
Monthly income		
No income	71	55.47

P 15,999 and below	53	41.41
P 16,000 to P 24,999	2	1.56
P 25,000 to P 34,999	1	0.78
P 35,000 to P 44,999	0	0.00
P 45, 000 and above	1	0.78

Table 2 presents the clinical profile of the respondents with multidrug-resistant TB. Almost 95% of the patients have pulmonary MDRTB, while only 5% have extrapulmonary MDRTB. Most (61,72%) of the respondents undergo Regimen 3: SSOR— Levofloxacin (Lfx) - Bedaquiline (Bdq) - Clofazimine (Cfz) - Prothionamide (Pto) - Ethambutol (E) - Pyrazinamide (Z) - High dose Isoniazid (HdH), followed by Regimen 4: SLOR FQ-S (22.66%) with treatments (Levofloxacin (Lfx) - Bedaquiline (Bdq) - Linezolid (Lzd) - Clofazimine (Cfz) - Levofloxacin (Lfx) - Linezolid (Lzd) - Clofazimine (Cfz), then those undergoing Individualized Treatment Regimen (ITR) composed of 10.16%, and lastly, 5.47% take Regimen 5: SLOR FQ-R—(Linezolid (Lzd) - Bedaquiline (Bdq) - Delamanid (Dlm) - Clofazimine (Cfz) - Cycloserine (Cs); Linezolid (Lzd) - Clofazimine (Cfz) - Cycloserine (Cs).

More than 50% of the respondents were being treated for 6 to 9 months, while 21.88% were in treatment for 17 to 20 months, and 13.28% were being treated for under 6 months. There were 47 patients (36.72%) who had comorbidity along with MDRTB, and among these, 41 (87.23%) had diabetes, while (12.77%) had hypertension.

More than 50% of the patients had a history of previous TB treatment, and the majority were home-based (90.63%). In terms of severe events experienced after the initiation of treatment, 39.84% had one, and among these, the most common is Peripheral neuropathy (27.45%).

Table 2. Clinical profile of multidrug-resistant tuberculosis patients

Clinical factors	Frequency	Percentage
Type of TB		
Pulmonary	121	94.53
Extrapulmonary	7	5.47
Regimen		
Regimen 3: SSOR	79	61.72
Regimen 4: SLOR FQ-S	29	22.66
Regimen 5: SLOR FQ-R	7	5.47
Individualized Treatment Regimen (ITR)	13	10.16
Length of being treated		
Below 6 months	17	13.28
6 to 9 months	69	53.91
10 to 12 months	4	3.13
13 to 16 months	9	7.03
17 to 20 months	28	21.88
More than 20 months	1	0.78
With comorbidity		
Yes	47	36.72
No	81	63.28
Comorbidity present [a]		
HIV/AIDS	2	4.26

Anemia	0	0.00
Diabetes	41	87.23
Hypertension	6	12.77
Chronic Kidney Disease (CKD)	3	6.38
Chronic Liver Disease	0	0.00
Undernourished: BMI of <18.5	1	2.13
Others	2	4.26
History of previous TB treatment		
Yes	68	53.13
No	60	46.88
Type of treatment facility		
Facility-based	9	7.03
Community-based	3	2.34
Home-based	116	90.63
Experienced severe events following treatment initiation		
Yes	51	39.84
No	77	60.16
Severe event experienced [a]		
Acute kidney injury (acute renal failure)	1	1.96
Hepatitis	3	5.88
Hypokalemia	1	1.96
Myelosuppression	3	5.88
Optic nerve disorder	0	0.00
Ototoxicity	0	0.00
Pancreatitis	0	0.00
Peripheral neuropathy	14	27.45
Prolonged QT interval	0	0.00
Psychiatric disorder and central nervous system toxicity	1	1.96
Others	33	64.71

[a] can have multiple answers; percentage not equal to 100%

Presented in Table 3 are the general quality of life and general health of the participants based on the WHOQOL-BREF. Majority (43.75%) were neither good nor poor in terms of quality of life, while 31.25% have good general QOL. In terms of general health, 40.63% answered neither satisfied nor dissatisfied, and 25.00% were satisfied. The median rating in both general QOL and health were 3, which corresponds to neither.

Table 3. General Quality of Life and General Health of the participants

Statement	Very poor (1)	Poor (2)	Neither (3)	Good (4)	Very good (5)	Md
B1 How would you rate your quality of life?	1 (0.78%)	14 (10.94%)	56 (43.75%)	40 (31.25%)	17 (13.28%)	3
Statement	Very	Dissatisfied	Neither	Satisfied	Very	

	dissatisfied (1)	(2)	(3)	(4)	Satisfied (5)	
B2 How satisfied are you with your health?	10 (7.81%)	23 (17.97%)	52 (40.63%)	32 (25.00%)	11 (8.59%)	3

Table 4 shows the responses on the physical health domain of the WHOQOL. Most (35.16%) of the patients feel physical pain to a moderate amount, while 28.13% feel this a little that it prevents them from doing what they do. Most were moderately having enough energy for everyday life (33.59%), neither in how well they were able to get around (36.72%), in their satisfaction with their sleep (37.50%), satisfaction with the ability to perform activities (34.38%), and capacity to work (38.28%). On the other hand, most participants need medical treatment to function in an extreme amount (42.97%), followed by those who need it very much (22.66%).

The median of all statements under the physical health domain is 3, which corresponds to neither, except for the statement on needing medical treatment to function, which has a median of 4, corresponding to very much needed.

Table 4. Physical Health domain of WHOQOL-BREF of the participants

Statement	Not at all (1)	A little (2)	A moderate amount (3)	Very much (4)	An extreme amount (5)	Md
B3 To what extent do you feel that physical pain prevents you from doing what you need to do?	17 (13.28%)	36 (28.13%)	45 (35.16%)	16 (12.50%)	14 (10.94%)	3
B4 How much do you need any medical treatment to function in your daily life?	6 (4.69%)	12 (9.38%)	26 (20.31%)	29 (22.66%)	55 (42.97%)	4

Statement	Not at all (1)	A little (2)	Moderately (3)	Mostly (4)	Completely (5)	
B10 Do you have enough energy for everyday life?	4 (3.13%)	25 (19.53%)	43 (33.59%)	37 (28.91%)	19 (14.84%)	3

Statement	Very poor (1)	Poor (2)	Neither (3)	Good (4)	Very good (5)	
B15 How well are you able to get around?	10 (7.81%)	37 (28.91%)	47 (36.72%)	20 (15.63%)	14 (10.94%)	3

Statement	Very dissatisfied (1)	Dissatisfied (2)	Neither (3)	Satisfied (4)	Very Satisfied (5)	
B16 How satisfied are you with your sleep	6 (4.69%)	27 (21.09%)	48 (37.50%)	32 (25.00%)	15 (11.72%)	3
B17 How satisfied are you with your ability to perform your daily living activities?	5 (3.91%)	30 (23.44%)	44 (34.38%)	30 (23.44%)	19 (14.84%)	3
B18 How satisfied are you with your capacity for work?	4 (3.13%)	26 (20.31%)	49 (38.28%)	33 (25.78%)	16 (12.50%)	3

The responses on the psychological domain are presented in Table 5. The majority enjoy life (28.13%) and feel life is meaningful (32.81%) to an extreme amount. However, most were able to concentrate on a moderate amount (35.16%). The majority also mostly accept their bodily appearance (28.91%). The majority were neither satisfied nor dissatisfied with themselves (32.81%), while 37.50% seldom had negative feelings of a blue mood, despair, anxiety, or depression.

The median score for enjoying life and feeling it to be meaningful is 4, which corresponds to very much, while a median of 3 was observed in being able to concentrate, which corresponds to a moderate amount. Generally, the patients were able to accept their body appearance mostly (median of 4), were satisfied with themselves (median of 4), and neither quite often felt negative feelings (median of 3).

Table 5. Psychological domain of WHOQOL-BREF of the participants

Statement	Not at all (1)	A little (2)	A moderate amount (3)	Very much (4)	An extreme amount (5)	Md
B5 How much do you enjoy life?	4 (3.13%)	27 (21.09%)	29 (22.66%)	32 (25.00%)	36 (28.13%)	4
B6 To what extent do you feel your life to be meaningful?	1 (0.78%)	22 (17.19%)	30 (23.44%)	33 (25.78%)	42 (32.81%)	4
B7 How well are you able to concentrate?	3 (2.34%)	21 (16.41%)	45 (35.16%)	40 (31.25%)	19 (14.84%)	3
Statement	Not at all	A little	Moderately	Mostly	Completely	
B11 Are you able to accept your bodily appearance?	7 (5.47%)	20 (15.63%)	33 (25.78%)	37 (28.91%)	31 (24.22%)	4
Statement	Very dissatisfied (1)	Dissatisfied (2)	Neither (3)	Satisfied (4)	Very Satisfied (5)	
B19 How satisfied are you with yourself?	4 (3.13%)	14 (10.94%)	42 (32.81%)	37 (28.91%)	31 (24.22%)	4
Statement	Never (1)	Seldom (2)	Quite often (3)	Very often (4)	Always (5)	
B26 How often do you have negative feelings such as blue mood, despair, anxiety, depression?	13 (10.16%)	48 (37.50%)	38 (29.69%)	17 (13.28%)	12 (9.38%)	3

On Table 6 are the results on the social relationship domain. Most patients were very satisfied with their personal relationships (46.09%), while the majority were neither satisfied nor dissatisfied with their sex life and support from their friends (32.03%).

In general, the patients were satisfied (median of 4) in the personal relationships, while neither in the sex life and support from friends (median of 3).

Table 6. Social relationships domain of WHOQOL-BREF of the participants

Statement	Very dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied	Md
B20 How satisfied are you with your personal	2 (1.56%)	13 (10.16%)	34 (26.56%)	20 (15.63%)	59 (46.09%)	4

relationships?						
B21 How satisfied are you with your sex life?	21 (16.41%)	19 (14.84%)	41 (32.03%)	20 (15.63%)	27 (21.09%)	3
B22 How satisfied are with the support you get from your friends?	6 (4.69%)	18 (14.06%)	41 (32.03%)	37 (28.91%)	26 (20.31%)	3

The responses on the environment domain are presented in Table 7. The majority of the patients feel very much safe in their daily life (35.94%), and very much feel that their physical environment is healthy (30.47%). The information that they need is moderately available in their daily life (29.69%), and they moderately have opportunity for leisure activities (32.03%). On the other hand, they have only a little money to meet their needs (40.63%). They are satisfied with the condition of the place they are living in (32.81%), while the majority are very satisfied with their access to health services (43.75%). Most of the respondents were neither satisfied nor dissatisfied with their transport (26.56%).

In general, the patients were very much feeling safe (median of 4), while feeling healthy in a moderate amount (median of 3). They moderately have available information, and opportunity for leisure activities (median of 3), and a little money for their needs (median of 2). The patients were satisfied (median of 4) in their living place, access to health services, and transport.

Table 7. Environment domain of WHOQOL-BREF of the participants

Statement	Not at all	A little	A moderate amount	Very much	An extreme amount	Md
B8 How safe do you feel in your daily life?	4 (3.13%)	19 (14.84%)	30 (23.44%)	46 (35.94%)	29 (22.66%)	4
B9 How healthy is your physical environment?	5 (3.91%)	28 (21.88%)	32 (25.00%)	39 (30.47%)	24 (18.75%)	3

Statement	Not at all	A little	Moderately	Mostly	Completely	
B12 Have you enough money to meet your needs?	16 (12.50%)	52 (40.63%)	37 (28.91%)	19 (14.84%)	4 (3.13%)	2
B13 How available to you is the information that you need in your daily-to-day life?	8 (6.25%)	24 (18.75%)	38 (29.69%)	31 (24.22%)	27 (21.09%)	3
B14 To what extent do you have the opportunity for leisure activities?	5 (3.91%)	36 (28.13%)	41 (32.03%)	30 (23.44%)	16 (12.50%)	3

Statement	Very dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied	
B23 How satisfied are you with the condition of your living place?	2 (1.56%)	15 (11.72%)	33 (25.78%)	42 (32.81%)	36 (28.13%)	4
B24 How satisfied are you with your access to health services?	4 (3.13%)	10 (7.81%)	21 (16.41%)	37 (28.91%)	56 (43.75%)	4
B25 How satisfied are you with your transport?	2 (1.56%)	21 (16.41%)	34 (26.56%)	41 (3.03%)	30 (23.44%)	4

Table 8 shows the mean scores of the domain of WHOQOL-BREF of the patients with MDR-TB. The highest possible score is 100 in all domains. The domain with the highest mean score was psychological (Mn=62.88, SD=17.63), followed by social relationships (Mn=62.77, SD=21.33). Next is the quality of life in terms of the environment, with a mean equal to 61.88 (SD=18.68). Lastly, the patients have the lowest QOL on physical health, with a mean of 50.80 (SD=15.95).

Table 8. Mean WHOQOL scores

Domain	Mean	SD
Physical health	50.80	15.95
Psychological	62.88	17.63
Social relationships	62.77	21.33
Environment	61.88	18.68

To determine the factors affecting general quality of life, a regression analysis was done. Table 9 presents the final regression model for the general quality of life. Age, educational attainment, and regimen were the variables that affected general QOL. Compared with 18 to 25 years old, those 26 to 35 years old have lower general QOL by 0.37 (p=0.044). Moreover, those with college education have 0.91 higher general QOL score compared with those with no formal education (p=0.005). Lastly, those taking regimen 5 have lower general QOL, by 0.87, compared to those who take regimen 3.

Table 9. Regression analysis on General Quality of Life (Final regression model)

Variable	Coef.	SE	p-value	95% CI
Age				
18 to 25 years old	(base)			
26 to 35 years old	-0.37	0.18	0.044	-0.74 to -0.01
Educational attainment				
No formal education	(base)			
College graduate	0.91	0.32	0.005	0.29 to 1.54
Regimen				
Regimen 3: SSOR	(base)			
Regimen 5: SLOR FQ-R	-0.87	0.34	0.011	-1.54 to 0.21

The final regression model for the health-related QOL is shown in Table 10. Regimen, length of time being treated, history of precious treatment for TB, and type of treatment facility were the significant variables affecting general health. Compared to regimen 3, those taking regimen 5 have lower QOL (by 0.72), while those taking an individualized treatment regimen have lower QOL by 0.78. Those being treated for 6 to 9 months have lower health-related QOL (by 0.57) compared to those being treated for below 6 months. Moreover, those with no history of TB treatment have higher health-related QOL (by 0.34) compared to those with a history. Lastly, those in community-based treatment facilities have lower health QOL (by 1.85) compared to those in facility-based facilities.

Table 10. Regression analysis on Health-related Quality of Life (Final regression model)

Variable	Coef.	SE	p-value	95% CI
Regimen				
Regimen 3: SSOR	(base)			
Regimen 5: SLOR FQ-	-0.72	0.24	0.004	-1.20 to -0.24

R				
Individualized Treatment Regimen	-0.78	0.32	0.014	-1.41 to -0.16
Length of being treated				
Below 6 months	(base)			
6 to 9 months	-0.57	0.21	0.008	-0.98 to -0.15
History of previous TB treatment				
With history	(base)			
No history	0.34	0.17	0.049	0.001 to 0.68
Type of treatment facility				
Facility-based	(base)			
Community-based	-1.85	0.57	0.001	-2.98 to -0.73

Table 11 presents the regression analysis on the physical health domain of the WHOQOL. Monthly income and type of treatment facility were the demographic and clinical factors that have significant relationship with the physical health QOL. Compared to those with no income, those who earn Php 15,999 and below have 5.74 higher physical health QOL, while those with Php 45,000 and above income have 45.29 higher QOL. Those in the community-based facility have lower QOL (by 27.54) compared to those on facility-based.

Table 11. Regression analysis on Physical Health domain (Final regression model)

Variable	Coef.	SE	p-value	95% CI
Monthly income				
No income	(base)			
Php 15,999 and below	5.74	2.68	0.034	0.43 to 11.06
Php 45,000 and above	45.29	14.97	0.003	15.66 to 74.92
Type of treatment facility				
Facility-based	(base)			
Community-based	-27.54	8.71	0.002	-44.79 to -10.29

Table 12 is the final regression model for factors affecting psychological domain. Civil status, religion, and monthly income were the demographic variables that affected psychological QOL while history of previous TB treatment, and type of treatment facility were the clinical factors that affected psychological QOL. Those widowed have higher (by 24.75) QOL than those single, Muslims have lower (by 36.92) QOL compared with Roman Catholic, and those with income of Php 45,000 and above have higher QOL (by 48.09) compared with those with no income. Moreover, those with no history of TB treatment have higher psychological QOL (by 8.98), and those dome-based have higher psychological QOL compared to those in facility-based (by 13.66).

Table 12. Regression analysis on Psychological domain (Final regression model)

Variable	Coef.	SE	p-value	95% CI
Civil Status				
Single	(base)			
Widowed	24.75	10.25	0.017	4.44 to 45.05
Religion				
Roman Catholic	(base)			

Muslim	-36.92	12.59	0.004	-61.83 to -12.00
Monthly income				
No income	(base)			
Php 45,000 and above	48.09	16.70	0.005	15.03 to 81.15
History of previous TB treatment				
With history	(base)			
No history	8.98	2.97	0.003	3.10 to 14.85
Type of treatment facility				
Facility-based	(base)			
Home-based	13.66	5.20	0.010	3.36 to 23.95

Tabled 13 shows the final regression model on social relationship QOL. Highest educational attainment, sex, and presence of comorbidity are significant predictors of social relationship QOL. Compared to those with no formal schooling, those who reached elementary level have 12.26 lower QOL, while college graduates have 17.90 higher QOL. Females have higher social relationship QOL (by 9.50), and those with no comorbidity have 7.66 higher social relationship QOL.

Table 13. Regression analysis on Social Relationship domain (Final regression model)

Variable	Coef.	SE	p-value	95% CI
Educational attainment				
None at all	(base)			
Elementary level	-12.26	6.14	0.048	-24.42 to -0.10
College graduate	17.90	7.55	0.019	2.95 to 32.85
Sex				
Male	(base)			
Female	9.50	3.89	0.016	1.80 to 17.20
Presence of comorbidity				
With	(base)			
Without	7.66	3.79	0.046	0.15 to 15.16

The final regression model for environment QOL is shown in Table 14. Educational attainment and type of treatment facility were the significant predictors for the environment domain of the WHOQOL. College graduates have 16.20 higher QOL compared to those with no schooling. Furthermore, those home-based treatments have higher environmental quality of life (by 12.39) compared to those in facilities.

Table 14. Regression analysis on Environment domain (Final regression model)

Variable	Coef.	SE	p-value	95% CI
Educational attainment				
None at all	(base)			
College graduate	16.20	6.69	0.017	2.96 to 29.44
Type of treatment facility				
Facility-based	(base)			
Home-based	12.39	5.56	0.028	1.39 to 23.39

3. DISCUSSION

Problem Objective 1: Describe the respondents' sociodemographic profile in terms of their civil status, age, level of education, religion, and monthly income.

MDR-TB is more prevalent in persons under the age of 45. Patients under 45 years old had a 1.19 higher success than elderly patients. Comorbidity conditions and manifestations make it more difficult to diagnose and manage patients as they get older. Biological and psychological changes in older patients could damage the clearance of microbial mechanisms and reduce the body's immune reaction. Over 45 MDR-TB patients are prone to have regimen failure rates that are two times greater than average and even three times greater than in patients over 65. Age-related decreased intestinal function and motility is linked to lower medication absorption. Due to decreased kidney and liver purposes for drug clearance, medication interactions, and adverse reactions are also more common. A retroactive analysis conducted in a referral hospital of Italians discovered that the presence of cavities on a chest x-ray and risk factors for TB (alcohol intake, immunosuppressive drugs, malnutrition, and diabetes mellitus) were warning signs of poor TB results in elderly individuals (Soeroto et al., 2021). The TB epidemic is particularly dangerous to the elderly, and as individuals age, the alert rate gradually increases. The reactivation of dormant lesions is linked to the majority of elderly TB infections. These lesions have returned to life as a result of immune system alterations brought on by aging. The mortality rate from tuberculosis is still greater in people over the age of 65. Numerous variables combine in the aged population to make TB a particular problem. Aging-related immunodeficiency, the possibility of further immunosuppressive diseases associated with other comorbidities, and possible interactions between anti-tuberculosis treatments and other supplementary medications. Additionally, there aren't many particular statistics about TB in older people (J Clin Med, 2021).

The majority of studies and reporting data on widespread TB indicate greater rates of TB in men than in women, as is well-documented in the literature. This worldwide average, meanwhile, obscures the diversity among nations, regions, and cultures. Differences in biology (such as sex hormones and genetic make-up), sociocultural risk factors (such as stigma and income level), behavioral danger factors (such as indoor air pollution, occupational smoking, and alcohol exposure), and health-related behaviors are some of the possible reasons for the greater rates of TB in men (Trop Med Infect Dis, 2023). Undiagnosed TB is prevalent among males, which has a higher percentage; males male missed cases are twice greater compared to women in nations with moderate to low wages. Additionally, once identified, men often experience lower treatment outcomes than women. Around 10 million new cases of TB were recorded in 2018, with 6.3 million males as well as 3.7 million female cases. (McQuaid et al., 2020).

It has been discovered that married persons experience greater success with TB treatment than single ones. The correlation between MDR-TB and other variables was not observed. Assume that factors other than marital status, such as educational background and degree of awareness, have a significant role in figuring out how well any medicine regimen will work, particularly in the event of a longer-term therapy like tuberculosis. Even though the risk of infection with tuberculosis is elevated among highly concentrated families, several recent research have discovered that population structure and family size play a significant role in medication resistance. Additionally, the likelihood of recurrent infections and co-infections is higher among families who live in highly populated regions. (Siddik et al., 2018). Being married was another significant predictor of a poor treatment outcome; this conclusion was in contrast to a prior study that claimed that being single was a risk factor for death in MDR-TB patients. It could be challenging for patients to systematically manage their prescriptions because earning a living and taking care of the family comes before personal care (Javid et al., 2018).

Lack of awareness regarding the disease's danger and mode of transmission is caused by a lack of education, which is one of the predisposing factors that affects the occurrence of pulmonary TB disease. Therefore, understanding issues connected to pulmonary TB is influenced by one's level of education. Someone will attempt to reduce the risk of exposure to and passing on pulmonary TB with enough understanding (Rusnoto et al., 2020). The researchers discovered key factors that expanded the danger of death were sensations of being deserted or rebuffed by God or of being deserted by one's confidence in the local area. It was additionally observed to be hindering that a few patients accepted their disease was brought about by Satan. Those resources can be used as a source of support for religious individuals who can reconnect with God and their spiritual feelings. However, people who are unhappy with their spirituality may be harming their health (CBC, 2001). Due to the notion that sickness is a result of sin, some studies contend that religious affiliation may have a negative impact on health outcomes. The notion that sickness is the result of sin's punishment served as a mediator between religious views, greater vegetable intake, religious actions, reduced binge drinking, and higher binge drinking. Individually, religious beliefs and actions were not linked to the idea that sickness is a kind of retribution for sin, but when these factors were taken into account, religious views were shown to be positively linked and religious activities to be negatively linked. This analysis focused on the differences between the two types of religious engagement in terms of religious beliefs and practices (Holt et al., 2014).

Poor people are disproportionately affected by MDR-TB, which forces them into a disastrous cycle of poverty and disease. As a result, patients put off starting or finishing their treatments because of their financial situation. Low enrollment and treatment success rates around the world are difficult issues that encourage the spread of drug resistance, unneeded MDR-TB transmission, and high mortality. Therefore, it is critical to estimate the cost of MDR-TB on households to direct focused actions for reducing these issues (Wang et al., 2020). Despite the fact that all TB patients face a significant socioeconomic impact from the disease, the financial burden of MDR-TB is concerning. When a patient is the family's primary provider, the result of missed income and additional expenses is frequently devastating. Patients with TB incur expenses for housing, food, and income loss in addition to paying for relevant medical care (Van Den Hof et al., 2016).

Problem Objective 2: Describe the Clinical Factors on MDRTB patients in terms of Type of TB, Regimen, Length of Treatment, Comorbidity, History of Previous TB Treatment, Type of Facility, Serious Adverse Events, and AEs of Special Interest

In comparison to treatment for drug-susceptible TB, treatments for MDR TB can be more time-consuming, costly, and ineffective. It also results in greater adverse drug reactions. Pyrazinamide, kanamycin, levofloxacin, prothionamide, and cycloserine make up the standard therapy protocol for MDR tuberculosis in the Philippines; the prolonged stage continues for more than 6 months, and the ongoing phase continues for another >12 months (Tupasi, 2016).

A meta-analysis describing the management of RR/MDR-TB without documented resistance to either fluoroquinolones or second-line injectables discovered that the standardized shorter regimen had a higher unadjusted gathered rate of treatment success than individualized longer regimens composed according to 2016 WHO guidelines. They discovered that the standardized shorter regimen was associated with a greater likelihood of bacteriological failure or relapse, especially when medication resistance to ethambutol, prothionamide/ethionamide, and pyrazinamide is present in adjusted analyses. According to one study, 83.7% of STR patients experienced successful therapy and treatment outcomes. This was consistent with the 2,625 MDR-TB patients who received STR and had a therapeutic success rate of 80% (Abidi et al., 2020).
Many tuberculosis patients also have concomitant conditions that can affect their quality of life. Particularly,

there is frequently a connection to diabetes. In research from northern India, people with diabetes suffering from TB reported worse quality of life at the beginning of their therapy than those who did not have diabetes (Aggarwal, 2019).

Patients with a history of TB therapy had a 21 times higher risk of developing MDR-TB than those without one, according to a study by Workicho.

In a systematic review, patients enrolled in standardized treatment regimens had a high proportion of ineffective treatment outcomes (43%) (Kibret et al., 2017).

Individuals with drug-susceptible tuberculosis (TB) tolerate their medications well and experience few side effects. However, there are numerous known side effects of drugs used to treat tuberculosis that are multidrug-resistant (MDR-TB). The study discovered that 95 (37.1%) of the 256 patients experienced one or more adverse reactions. These adverse reactions led to the withdrawal of one or more drugs from 44 of the patients (17.2%) who received personalized therapy plans. The most frequent adverse reactions included GI impairment (18.4%), mental problems (5.5%), arthritis (4.7%), hepatitis (3.9%), peripheral nerve damage (3.1%), hypothyroidism (2.3%), epileptic attacks (2%), dermatology complications (2%), eye damage (1.6%), and kidney damage (1.2%). Still, 220 (84.9%) of the people suffering from MDR-TB responded well to the medication. (Yang, 2017).

Problem Objective 3: Describe the quality of life of multidrug-resistant tuberculosis patients as to: General QOL, Health-related QOL, Physical health, Psychological, Social Relationships, and Environment

The overall state of health and living quality of the participants is based on the WHOQOL-BREF. The majority (43.75%) were neither good nor poor in terms of quality of life, while 31.25% had good general QOL. In terms of general health, 40.63% answered neither satisfied nor dissatisfied, and 25.00% were satisfied. It is complex, which makes it difficult to precisely estimate the degree of QOL because MDR-TB affects all QOL dimensions and significantly increases patient morbidity. Patients may experience pain not just as a result of the MDR-T symptoms but also as a result of the general decline in their quality of life (QOL). Despite this, limited research has been conducted about how patients perceive their health and illnesses. QOL encompasses the physical, social, psychological, economic, spiritual, and other dimensions and is a vast, complex, multidimensional concept. As a result, it is challenging to define and quantify, although it can be broadly defined as people's beliefs of their place in the world concerning the culture and value systems they live in as well as their objectives, expectations, standards, and other goals (Aggarwal, 2019). The median rating in both general QOL and health were 3, which corresponds to neither.

Physical health domain of the WHOQOL. Most (35.16%) of the patients feel physical pain to a moderate amount, while 28.13% feel this a little, that it prevents them from doing what they do. Multidrug-resistant tuberculosis patients may experience physical pain and have diminished functional abilities as a result of taking drugs that cause adverse reactions and/or pain perception. (Furin, 2018). Most were moderately having enough energy for everyday life (33.59%). Some medications cause adverse effects of MDR-TB treatment, causing fatigue and exhaustion that can result in moderate energy levels (Thomas et al., 2016) and in their ability to move around (36.72%). The incidence of sleep disruption and its related determinants among TB patients, which had previously been documented only through sporadic epidemiological reporting of sleep disturbance in TB patients, is seldom taken into consideration. Patients with MDR-TB have spoken of prejudice, shame, and fear of spreading the disease, which might cause them to isolate themselves (Alene et al., 2018). It may be due to the stress that they experienced with MDR-TB and

lack of companionship, which prevents them from receiving the emotional assistance they require to sleep soundly (Liu et al., 2022). Neither satisfaction with the ability to perform activities (34.38%) nor neither satisfaction in capacity to work (38.28%), 25.78% were satisfied with their capacity to work. According to a study, after a few weeks of treatment, it should begin to feel better, and the doctor might inform you that you are no longer contagious. When that happens, MDR-TB patients can get back to their regular activities while taking safety precautions, including work, school, and regular social life. The ability to work, engage in daily activities, or engage in sexual activity shouldn't be impacted by the medications taken for treatment (Dersarkissan, 2022). On the other hand, most participants need medical treatment to function in an extreme amount (42.97%), followed by those who need it very much (22.66%). MDR-TB can be treated, and patients can be cured; on the other hand, they could get worse without proper treatment. Compliance with the treatment regimen is vital; it could have a major impact not only on the quality of life of patients but also on their life expectancy. Treatment for MDR-TB aims to improve and heal the patient as well as stop the spread of MDR-TB to other persons. In comparison, the median of all statements under the physical health domain is 3, which corresponds to neither, except for the statement on needing medical treatment to function, which has a median of 4, corresponding to very much needed.

The responses on the psychological domain are based on the WHOQOL-BREF. The majority enjoy life (28.13%) and feel life is meaningful (32.81%) to an extreme amount. However, most were able to concentrate on a moderate amount (35.16%). The majority also mostly accept their bodily appearance (28.91%). The majority were neither satisfied nor dissatisfied with themselves (32.81%). While 37.50% of patients seldom ever experience unpleasant emotions like depression, worry, or despair. Mental health problems are more prevalent in MDR-TB patients, like anxiety and depression. Adverse mental health reactions can result from the complicated treatments' side effects. When patients first learned they had MDR-TB, feelings of helplessness and fear were the most common feelings expressed. Medication nonadherence was influenced by mental health conditions. Poor treatment outcomes were a result of treatment nonadherence (Grenard et al., 2015). The median score for enjoying life and feeling it to be meaningful is 4, which corresponds to very much, while a median of 3 was observed in being able to concentrate, which corresponds to a moderate amount. Generally, the patients were able to accept their body appearance mostly (median of 4), were satisfied with themselves (median of 4), and neither quite often felt negative feelings (median of 3).

The responses on the social relationship domain are based on the WHOQOL-BREF. Most patients were very satisfied with their relationships (46.09%); according to studies, social support has an impact on TB patients' quality of life. Patients who receive adequate emotional assistance from their loved ones, friends, and the community likely have a greater quality of life. Isolation is more likely to occur in patients who have insufficient social support. A patient's capacity to cope with difficulties and lessen the strain of their role transition will develop with strong social support, which will also boost social competence and life satisfaction. This decreases the likelihood of psychological discomfort (Chen et al., 2021). While the majority were neither satisfied nor dissatisfied with their sex life and support from their friends (32.03%). An MDR-TB patient can continue with their sex life while being treated. However, at the beginning of the treatment, the medication can cause side effects, including pain and fatigue, wherein you can be so tired that sex does not interest the patient anymore. In general, the patients were satisfied (median of 4) in their relationships, while neither in their sex life nor support from friends (median of 3).

The majority of the patients feel very much safe in their daily life (35.94%) and very much feel that their physical environment is healthy (30.47%). Since most of the respondents were home-based treatment, the majority of MDR-TB patients feel safe and have a healthy environment. According to the research of Horter et al. (2014), stating, Home-Based treatment and care were acceptable to patients and their families, as well as healthcare workers, and were seen as a preferred method of treatment over hospital-based. Since it is

perceived as safe, conducive to recovery, and enables more psychological support due to the family and friends and felt connectivity compared to hospital admission-related emotions of isolation and loneliness. On the other hand, they have only a little money to meet their needs (40.63%). The financial burden was one of the barriers and problems encountered by MDR-TB patients. Direct medical expenditures and income loss were the major causes of the requirement for transportation owing to the distance to public health services, food assistance, and patient challenges connected to their drug prices (Pradipta et al., 2021). The information that they need is moderately available in their daily life (29.69%). One of the most significant problems with MDR-TB is the lack of awareness among individuals. One of the factors also most of the respondents 39.06% for ages 46-59 years old and 31.25 are high school graduates. Most of them are unaware of the signs and how it spreads, which delays diagnosis and treatment. Additionally, TB carries a stigma that discourages patients from getting medical attention. Lack of information causes underuse of health services, delays in seeking a diagnosis, and poor treatment compliance among TB patients. Enhancing the dissemination of MDRTB public awareness and health promotion is crucial to raising awareness of MDR-TB (Matakanye et al., 2021). Patients have moderate opportunities for leisure activities (32.03%), such as performing exercises. It may take time to recover from MDR-TB, affecting daily life activities. If patients start to feel improvement and feel comfortable, they often increase the intensity levels of their leisure activities, including bicycling and light jogging (Locker, 2020). They are satisfied with the condition of the place they are living (32.81%) since most of the respondents have home-based treatment. The majority of the respondents are very satisfied when it comes to their access to health services (43.75%). The Department of Health's NTP (National TB Control Program) offers different services or program components that seek to deliver patient-responsive health services, lower catastrophic costs, and lower tuberculosis mortality and incidence in the nation (DOH, 2023). Patients are neither satisfied nor dissatisfied with their transportation (26.56%). Patients who received transportation assistance had much lower incomes than those who did not. For those with poor, low-income TB patients, the transportation subsidy plays a crucial role in enabling their access to the treatment regimen and treatment completion (Zhao et al., 2013).

In general, the patients were very much feeling safe (median of 4) while feeling healthy in a moderate amount (median of 3). They moderately have available information, an opportunity for leisure activities (median of 3), and a little money for their needs (median of 2). The patients were satisfied (median of 4) with their living place, access to health services, and transport.

Problem Objective 4: Relationship between sociodemographic profile, clinical factors, and quality of life

General QOL

Sociodemographic Profile

As shown in the results, TB patients around the age range of 26-35 have a lower General QOL than TB patients that are around the age range of 18-25. As most people are aware, during a person's aging process, a person's health declines. The study by Juliasih et al. (2020), which claimed that age affects general health since people's health problems deteriorate as they age, supports the conclusion that was made.

Based on the results, patients who graduated college have a higher General QOL than patients who do not have educational attainment. Education is important because it gives us information and ideas about different aspects of life. This result was supported by the study of Juliasih et al. (2020), where it was stated that the degree of education was a significant predictor of life satisfaction. A person with higher education is more open to fresh knowledge. The capacity to take in knowledge affects how well one thinks, especially the capacity to overcome difficulties like emotional difficulties. Higher-educated people have better

comprehension, which enables them to solve problems since they possess fundamental information, logical skills, emotional self-control, and social skills. Education can therefore increase a person's ability to transcend emotional limitations.

Clinical Factors

According to the results, patients who take regimen 5 have lower General QOL than patients who take regimen 3. According to Mase and Chorba (2019), the new 2019 World Health Organization (WHO) DR-TB recommendations allow for a lengthier MDR-TB regimen that lasts at least 18 months and may be either standardized or personalized. A shorter MDR-TB regimen that is often standardized and given for 9 to 12 months can be used for MDR/RR-TB. Regimen 5 requires a lengthier treatment period than 5 5 5 22 Regimen 3. Longer treatment durations can be intellectually and emotionally taxing for patients, reducing their overall well-being and lowering their QoL.

Health-related QOL

Clinical Factors

As shown in the results, patients who have no history of TB treatment have a higher Health QOL than patients who have a treatment history of TB. Mamani et al. (2014) state that after six months of treatment with possible hazardous medications, anti-TB-related side effects such as isoniazid-induced liver dysfunction or rifampicin-induced leukopenia may happen, which may decrease the health QOL. Additionally, it was discovered that individuals with pulmonary TB had poorer health quality of life compared to those without the disease and that related variables were infection focus size, white blood cell counts, comorbidities, increased ALT, and illness duration.

The results state that patients who take regimen 4 have lower Health QOL than patients who take regimen 3. Shafer et al. (2013) explained that the risk of hazardous effects did not differ significantly between regimen 4 and regimen 3. However, the combination of nucleoside analogs utilized in the initial regimen significantly increased the risk of adverse reactions, with a greater likelihood of peripheral neuropathy, pancreatitis, and hepatic enzyme abnormalities in subjects who started therapy with didanosine and stavudine than in subjects who started therapy with zidovudine and lamivudine. Regimen 4 may be more likely to cause drug interactions with other drugs that a patient is taking for coexisting health issues. These interactions might have negative consequences and complicate HRQoL. Furthermore, if a patient on regimen 4 has additional comorbidities or underlying health problems, the combined strain of managing numerous diseases might lower HRQoL.

According to the results, patients who get treatments facility-based have a higher QOL than patients who get treatments community-based. According to Loveday et al. (2015), community-based treatment facilities had lower survival rates than facility-based. Due to the fact that experienced doctors at the centralized hospital (facility-based) had more access to more sophisticated laboratories and other examinations, this gives them the advantage of being able to spot patients who did not respond to treatment more rapidly.

Based on the results, patients who take the Individualized Treatment Regimen (ITR) have lower Health QOL than patients who take regimen 3. Dookie et al. (2020)'s study focuses on the treatment of MDR-TB utilizing individualized treatment regimens based on WGS prediction of drug susceptibility to the infecting bacterium. The study emphasizes the difficulties associated with the absence of suitable diagnostics to guide the administration of the conventional MDR-TB regimen. It was found that treatment initiation based on the current diagnostic process may result in patients receiving poor care, amplifying resistance, and

increasing the likelihood of DR-TB transmission. Individualized treatment regimens may also include more sophisticated dose schedules and changes based on the response of patients to therapy or medication susceptibility test findings. This intricacy can be overwhelming, increasing the patient's stress and anxiety and severely impacting their HRQOL.

As shown in the results, patients who had treatment for 6-9 months have a lower Health QOL than patients who had treatment for less than 6 months. This is supported by Jaber (2016), which states that TB patients who took medication for more than 6 months had poorer MCS at three-time points than those who finished therapy earlier than 6 months; this means that they have a lower HRQOL. If the therapy period exceeds 6 months, the treatment is prolonged. The duration of treatment will affect the HRQOL; more than 6 months of therapy can result in a low MCS score in TB patients, which can potentially contribute to a poor treatment outcome.

Physical QOL

Sociodemographic profile

As shown in the results, patients with income have a higher Physical QOL than patients with no income. Money is very important in this world. Money helps you buy and fix almost everything. When it comes to treatments, especially the ones that cost a lot, people with income have an advantage in those situations. They have access to different types of treatments that they can have for them to heal. Research by Dasa et al. (2018) provides evidence that almost all of the patients in both categories had ceased working as a result of fatigue and had significant financial constraints. Patients experienced extreme weakness or fatigue before or at the start of therapy. But, because of the anti-TB medication and as it progressed, all of the patients said their physical mobility improved. Also, a study by Aggarwal (2019) showed that TB therapy results in a progressive increase in QOL, with physical function, role-motional, bodily discomfort, and general health domain ratings equivalent to healthy persons following treatment. This shows that having an income that can be used for treatments will surely be a big help in medicating MDRTB.

Clinical Factors

Based on the results, patients who get treatments facility-based have a higher QOL than patients who get treatments community-based. A study by Pu et al. (2019) states that Tuberculosis patient management is critical for improving treatment adherence. Regular monitoring and supervision by healthcare personnel are usually required for facility-based treatment. The final analysis comprised 638 PTB patients in total. Nearly 30% of the patients were ethnic minorities. More than 30% of patients were from areas with a high TB incidence, and 24.9% were noncompliant with therapy. Only 37.1% of patients received TPM administered by LHWs throughout the treatment period under the integrated TB control paradigm. Facility-based involves reviewing treatment progress, controlling any adverse effects, and ensuring adherence to the specified pharmaceutical schedule. This explains that community-based treatment lacks the same level of careful supervision, which can result in insufficient monitoring of treatment results, delayed discovery of problems, and inappropriate management of side effects. These variables may have a detrimental influence on the physical QOL of TB patients.

Psychological QOL

Sociodemographic profile

In the results of the study, TB patients who are widowed showed a higher score in psychological QOL than those who are single. This showed that TB patients who experienced being married at a point in their lives have higher psychological QOL than those who are single. The study conducted by Moudi (2020)

showed that seniors who were married had a decreased risk of depression than seniors who were never married.

It is shown in the study that Muslim patients have a significantly lower psychological QOL of -36.91 compared to those patients who are Roman Catholics. This is in line with a study by Tornu and Quarcoopome (2022), where although they did not specify what religion, they stated that TB patients who mainly receive from religious institutions result in a lower QOL not only in the psychological domain but in all four domains of QOL.

As given by the results, it was shown that having higher monthly salary results in a higher psychological QOL. This is similar to what Rafiq et al. (2022) stated in their study. Their findings indicate that the QOL score improved as income level increased. Though they did not correlate the monthly income to psychological QOL, they correlated it to health-related QOL, where it was studied that TB patients with a monthly income of greater than 750 USD or approximately 41,000 PHP have the highest QOL score. This is due to the financial burden brought by the treatment of the medical condition; where according to a study by Aggarwal (2019), Many patients and their families experience the financial burden of the disease, which is brought on by the expense of treatment as well as indirectly through wage loss. According to research conducted in Thailand, Older people with TB usually had to sell up their possessions or take out loans to cover the costs associated with the disease's detection and management.

Clinical Factors

As shown in the results, those individuals who have never had TB therapy before have a high psychological QOL compared to those patients who have previous TB treatment. The research by Mamani et al. (2014) claims that having the standard six-month treatment before their current treatment, TB patients in Pakistan experienced fear, isolation from the community and family due to the viral nature of TB infection, and disappointment which resulted in potential depression which lowers the psychological QOL of TB patients.

As seen in the results, it is discovered that those TB patients who have treatment at their homes have a higher psychological QOL than those who are being treated in facilities. In the research of Pazouki Movakher (2021), where they found that having home-based pulmonary rehabilitation nursing care leads to a significantly higher QOL of patients due to the decreased frequency of rehospitalization and severity of their disease.

Social QOL

Sociodemographic Profile

The results shown in the study state that TB patients who are female have a higher social QOL than men. This is validated in a study by Salehitali et al. (2019), where compared to males, women, urban residents, and extrapulmonary TB patients all had considerably higher mean QOL ratings. This is further supported by a study by Jankowska-Polanska et al. (2015), stating that in the study, 50% of women were employed (compared to 19% of males), but 50% of men were eligible for unemployment benefits (compared to 18.4% of women). 55.3% of women lived with their families, compared to 47.6% of males who were single.

It was determined from the study's findings those respondents whose highest educational attainment have lower social QOL than those who have not studied at all, while those who have graduated college have a higher social QOL compared to those who did not attend school in their entire life. Unlike the study that

showed education as a significant predictor of social QOL, it has been related instead to psychological QOL. In accordance with the study of Juliasih (2020), having higher educational attainment may result in a higher psychological QOL due to the capacity to take in information that affects one's manner of thinking, especially their capacity to deal with challenges like emotional difficulties. Higher educated people often have greater information and can solve difficulties because they have foundational knowledge, reasoning skills, emotional self-control, and interpersonal skills. As a result, education can increase a person's capacity to go above emotional constraints.

Clinical Factors

Based on the results of the study, it shows that people without comorbidity have a higher social QOL than those who have comorbidity. This is considered to be aligned with the study of Juliasih et al. (2020); in addition to the TB itself, comorbidities cause TB patients to have additional symptoms and suffering. The patient's QOL is impacted by the number of symptoms they experience. The deterioration of the patient's physical condition and an increasing number of symptoms are factors that are closely related to a decrease in social QOL due to a possible decline of interactions with friends and more hours of stay at home to recuperate or prevent the worsening of the present health condition of the patients.

Environmental QOL

Sociodemographic Profile

The results of the study show that TB patients who have graduated college have higher environmental QOL than those who did not. This is due to the evidence found by Wang et al. (2022) that greater levels of pro-environmental attitudes and practices are connected with educational achievement. Further investigation suggests that the route via which education has an impact on pro-environmental attitudes and actions is the learning of environmental knowledge.

Clinical Factors

It is also shown in the results that having home-based treatment also results in a higher environmental QOL compared to facility-based treatments. According to Al-Surimi et al. (2019), Despite the scant number of studies on the QOL of home healthcare (HHC) patients and the impact of such programs on QOL, earlier research demonstrated that access to HHC services had a positive impact on all QOL categories. This shows that having treatment at home signifies a higher environmental QOL due to the presence of the TB patient, which could lead to the need for a cleaner environment that would facilitate a faster recovery. That is, individuals who had cleaner homes than those who had more cluttered homes reported being in better health, as supported by a study (Aliouche, 2022).

3.1 SUMMARY

In summary, in terms of sociodemographic profile, treatment failure rates are two times greater between the ages of 46 to 59 years old, probably as a result of the decline in physical functioning. Due to the behavioral characteristics (that includes smoking, drinking, polluted air, and occupational exposure), sociocultural variables (such as stigma, 92 economic level, and health-oriented behaviors), and treatment results, patients tended to be mostly male. However, being married and illiteracy-related ignorance were also important predictors of poor treatment success. Financial difficulties are another concern, and as a result, patients frequently stop and restart their treatments at various times.

On the other hand, based on the Clinical Profile of MDR-TB patients, most respondents have pulmonary MDR-TB, undergo at-home treatment, and go through this type of MDR-TB treatment regimen (Regimen 3: SSOR and 6–9 months). Patients who have previously had TB therapy are more prone to develop

MDR-TB. On the contrary, they have not suffered significant side effects after starting treatment, and they often have no concomitant conditions.

Regarding the physical mobility of MDR-TB patients, factors like medications, side effects, and adverse responses have an impact on their energy levels, skills, and activities. For most participants to perform at their highest levels, medical care is required.

In terms of the psychological domain, MDR-TB patients have positive thoughts and views and feel satisfied with their life, accepting of their bodies and with themselves. While they frequently experience unpleasant emotions and have a limited ability to concentrate, this is likely due to anxiety, powerlessness, and unsatisfactory treatment outcomes.

Regarding the social domain, patients reported being content with their intimate connections but only in moderation with their sex life or the support of friends. Since their family, friends, and the community provide enough social support.

Since patients were treated at home, they had a sense of security and belonging, which improved their quality of life and allowed them to obtain transportation and health care. The patients are content since they are receiving enough services. However, patients express only moderate satisfaction with the availability of information and the chance to engage in leisure activities, maybe as a result of pharmaceutical side effects that influence their activities and result in poor treatment compliance.

4. CONCLUSION

The study, entitled "Sociodemographic Profile, Clinical Factors, and Quality of Life of Multidrug-resistant Tuberculosis Patients in Pampanga," emphasizes the significant role of demographic profile and clinical profile about the context of the Quality of Life of MDR-TB patients. The results of this study show if these previously mentioned variables affect the Quality of Life of MDR-TB patients.

In terms of the demographic profile, MDR-TB respondents are predominantly those in their middle age ranging from 46-59 years old, who are mostly in their productive years and tend to have treatment failures which makes them more at risk of developing resistance. Residents in Pampanga are predominantly Roman Catholic, especially in Kapampangan People. Male respondents outnumbered females since most of them engaged in risky behavior. A greater majority of the respondents are already married and have no income since most of them depend only on their support system and have only reached high school level.

Concerning the clinical factors, most of the respondents have Pulmonary MDRTB, which affects only the lungs. The greater majority of them underwent Regimen 3: 5 6 SSOR (Standard Short all Oral Regimen) and were being treated for 6 to 9 months, which is the standard medication regimen and length of treatment. Predominantly, the respondents have no comorbidity, while the remaining 47 patients have a comorbidity (mostly are diabetic). The greater majority of them had a history of previous treatment and were home-based treatment.

In regards to the General QoL, two factors (those who are 26-35 years old and those taking Regimen 5) are significant to lower QOL. It has been found that as age increases, the more likely the body deteriorates, which may have a significant effect on treatment failures, leading to a stronger and longer duration of treatment. While one factor (those who are college graduates) is significant to higher QOL. Educational attainment gives a degree of satisfaction and knowledge to overcome challenges. This study concludes that

age, educational attainment, and regimen are significant predictors of the General QOL of MDR-TB patients.

In regards to the Health Related QOL, four factors of environment (those taking Regimen 5 and Individualized Treatment regimen, being treated for 6 to 9 months and in community-based) are significant to lower QOL, while the other factor (patients that do not undergo previous TB treatment history) is significant for higher QOL. As the results stated, patients who have undergone previous TB treatment have lower QOL since they have already undergone the first standard treatment and have a significant effect on the overall body function. This study concludes that the history of TB treatment, regimen, type of treatment facility, and length of treatment are significant predictors of Health-related QOL of MDR-TB patients.

When it comes to the physical domain of quality of life, individuals with incomes of Php 15,999 or less and Php 45,000 or more have a substantial impact on greater QOL, while those receiving treatment in community-based facilities have a large impact on lower QOL. One of the barriers faced by the patients was financial constraints which may be more likely to have an impact on the treatment processes (medication and transportation). On the other hand, community-based treatment also restricts patients in their mobility and functional capacity; this is due to the lack of supervision and inappropriate management. The results of this study indicate that the kind of medical unit and monthly income are significant predictors of Physical Domain in MDR-TB patients.

In regards to the Psychological Domain of QOL, five factors of the psychological domain (Widowed, Roman Catholic, those with income of Php 45,000 and above, no history of TB treatment, and home-based treatment) are significant to higher QOL. It has been found that those patients who have already experienced being married, have enough financial income, no previous history of treatment, and have home-based treatment have an impact on the well-being of patients; that is, they are less likely to feel constraints, stress, isolation, and fear. This study concludes that the history of TB treatment, civil status, type of treatment facility, religion, and monthly income are significant predictors of the Psychological Domain of MDR-TB patients.

In terms of Social Relationship to QOL, three factors of social relationship (College Graduates, Females, and those with no comorbidity) are significant to higher QOL. It appears that patients who attain higher education and females are more likely to socialize and have a good support system and interpersonal skills. On the other hand, patients who do not have comorbidity are less likely to be confined in one place and experience fewer symptoms compared to those who have. This study concludes that the Social Relationship Domain of MDR-TB patients is significantly predicted by educational attainment, sex, and the presence of comorbidity.

In regards to the Environmental Domain of QOL, two factors of environment (College Graduates and Home-Based Treatment) are significant to higher QOL. It has been found that patients who have knowledge and awareness are more likely to engage in managing their surroundings, and those who are home-based treatment are given an environment that is safe and has a sense of belongingness. This study concludes that the type of treatment facility and educational attainment are important indicators of the patients' Environmental Domain.

With regards to the correlation between the sociodemographic profile and patients' QOL, all of a sociodemographic profile's components (Age, Civil Status, Religion, Educational Attainment, Monthly Income) have a significant effect on the QOL of MDR-TB patients. Specifically, Age and Educational Attainment affect the General QOL; while the Physical QOL is significantly predicted by Monthly Income; on the other hand, Civil Status, Religion, and Monthly income are significant predictors of Psychological

QOL; Sex and Educational Attainment both strongly predict the Social Relationship QOL; Last but not the least, Educational Attainment also significantly influences the Environmental QOL. Because there is a strong correlation between the sociodemographic profile and the quality of life of people with multidrug-resistant tuberculosis, we reject the null hypothesis.

Whereas, in the correlation of clinical factors and QOL of patients, the included factors under clinical profile (Regimen, Length of treatment, History of Previous Treatment, Type of Treatment Facility, Presence of Comorbidity) have a significant effect on the QOL of MDR-TB patients. Specifically, General QOL is significantly predicted by the Type of Regimen; while the Length of Treatment, Type of Regimen, and Type of Treatment Facility greatly influence Health-Related QOL; there is a significant correlation between Clinical Factors and Quality of Life in Multidrug-Resistant Tuberculosis, with the Psychological QOL significantly predicted by History of TB treatment and Type of Treatment Facility, the Social QOL significantly influenced by Comorbidity, and the Environmental QOL strongly predicted by the Type of Treatment Facility. Thus, we reject the second Null Hypothesis. Patients face many challenges other than the disease itself; this simply indicates that as the sociodemographic profile and clinical factors improve, so is the QOL of patients, and vice versa.

4.1 RECOMMENDATIONS

Relative to the findings of the study, the researchers would like to suggest the following:

- To the patients, regular adherence to the treatment regimen is necessary for complete recovery. In cases when they feel sick due to the side effects, we advise that you consult with your healthcare provider.
- To the Program Coordinators, the results of the study suggest the need to enumerate ways how to improve the quality of life of MDR-TB patients. This implies that healthcare interventions for the management of MDR-TB should not only focus on curing the disease itself but can consider all domains of the patient's QOL.
- To the Program Coordinators, provide promotional activities such as programs about strategies emphasizing the importance of self-management and support systems for MDR-TB patients and their overall health. That will most likely increase the QoL of MDR-TB patients.
- For future researchers, another research can be done to identify other variables that affect the four domains of QOL of MDR-TB patients. These factors will then be carefully studied to further enhance the services to improve the quality of life of MDR-TB patients.
- To the future researchers since this study was conducted in only one province, it is recommended that future researchers replicate this research on a regional or even national level. Having a wider scope of respondents in terms of location and the incorporation of additional variables such as Occupation, Stigma and Discrimination, and Client satisfaction may be crucial for the aspect of the Sociodemographic profile, clinical factors, and quality of life of multidrug-resistant tuberculosis patients.

IMPLICATIONS TO THE NURSING PRACTICE

Important benefits to numerous groups involved in nursing practice and education are made from the study's findings. The results of this study demonstrate that the clinical features and sociodemographic profile affect the level of quality of life (QoL) of MDR-TB patients. These data could be used to develop and carry out interventions addressing the best strategy for MDR-TB, with a focus on how to enhance the QOL.

The results of this investigation show the importance of integrating physiologic, psychosocial, and socioeconomic interventions to improve patient care and support and lessen the poor outcomes brought about by the sociodemographic and clinical determinants of QOL. Thus, the standard living profile must be

considered a key element in the care of people with MDR-TB.

Thus, with this strategy, nurses will be able to provide complete management, enhancing the overall health of patients. To offer MDR-TB patients complete care, the quality-of-life profile must be taken into account as a metric for treatment effectiveness. Nurses are essential in assisting patients with MDR-TB. Patients who seek assistance and need medical aid should receive efficient and qualified care.as supported by a study (Aliouche, 2022).

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