



Perceived Impact of Covid-19 Pandemic on Clinical Care and Treatment of Tuberculosis-Directly Observed Treatment Short-Course (TB-DOTS) Patients

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ABSTRACT: The study determined the perceived impact of the COVID-19 pandemic on the clinical care and treatment of TB-DOTS patients in Claver, Surigao del Norte, Philippines, from 2020 to 2022. The research utilized a quantitative approach through a descriptive survey, with 150 respondents through purposive sampling. Most respondents were male, and a notable proportion had completed high school. The analysis employed descriptive statistical tools, showing a positive attitude toward the financial aspects of compliance and heightened awareness of COVID-19 preventive measures. Despite challenges introduced by the pandemic, such as difficulties attending medication refill appointments, TB-DOTS patients generally expressed satisfaction with Claver's healthcare facilities, there are variations based on educational attainment and occupation. These variations suggest the need for tailored interventions to address the specific needs and challenges of different groups of patients. Additionally, the impact of the COVID-19 pandemic on healthcare services and medication refill appointments is evident. To mitigate the impact of COVID-19 on TB services, health authorities in the Philippines collaborated with key stakeholders to ramp up and adopt easy-to-implement solutions. One solution was home-visit treatment with the help of health workers.

KEYWORDS: Quantitative Research Survey, Tb-DOTS, Covid-19 pandemic, Tuberculosis, Clinical care and treatment, Communicable disease, Surigao, Philippines

INTRODUCTION

Tuberculosis (TB) remains a threat to global public health and is one of the leading infectious causes of death globally. In 2020, an estimated 10 million people developed TB, and 1.5 million died from the disease. Owing to the impact of the coronavirus disease (COVID-19) pandemic, TB incidence could increase globally in 2022 and 2023 (World Health Organization, 2022).

The COVID-19 pandemic has severely hampered the global campaign against TB. To combat the new pandemic, medical personnel, testing equipment, laboratories, and health facilities were redirected from treating existing illnesses like TB. Nearly half of those who were sick with TB did not receive care in 2020; as a result of decreased access to TB diagnosis and treatment, TB fatalities increased globally for the first time in more than ten years. (Lieve Vanleeuw et. al., 2022). In line with this, the global community has made substantial progress in the fight to end TB, and the progress made in TB prevention, care, and treatment mustn't be reversed by the COVID-19 pandemic (CDC, 2020). When community transmission of COVID-19 was reported in March 2020, quarantine protocols were enforced. Health facilities redirected their efforts to outbreak response, resulting in limited services for non-emergency care, including TB case-finding activities, causing a 20% reduction in TB case notification (Calderon, J. S., et al, 2022).

According to the World Health Organization, the Philippines has the fourth highest TB burden in the world. When the Philippines first went into COVID-19 lockdown last year, the Department of Health's National TB Control Program (NTP) knew they had to act fast to ensure that TB patients were not cut off from accessing their lifesaving treatment. A study in the Philippines showed that the urban poor have a 1.5 times higher TB prevalence than wealthier groups in the community and that a number of factors prevent this population from seeking health care even in the presence of persistent cough (Querri A. et.al., 2017) .



This study set out to understand how the COVID-19 pandemic affected the clinical care and treatment of TB-DOTS patients in Claver, Surigao del Norte, Philippines; limited studies were conducted in the area. The researchers know the high vulnerability of TB patients to the current health crises. According to the data gathered in TB-DOTS Center Claver, Surigao del Norte, as of 2020, they recorded 113 TB-DOTS patients, 105 in 2021 and 170 in 2022 as of November. With this, the researchers ought to study the overall perceived impact of the COVID-19 pandemic on the clinical care and treatment of TB-DOTS patients. The study's findings help the healthcare providers in Claver Rural Health Unit (RHU) understand the concerns that patients might address, which will aid in promoting patients' health and healthcare services.

Framework

This study is anchored on the study of Chilot et al. (2021) entitled Real-time Impact of COVID-19 on Clinical Care and Treatment of Patients with TB in Addis Ababa, Ethiopia. The study aimed to assess the real-time impact of COVID-19 on clinical care and treatment of patients with TB in Addis Ababa, Ethiopia. The framework shows a health facility-based, multicenter, cross-sectional study conducted in ten primary healthcare facilities in Addis Ababa, Ethiopia, from January 15 to February 30, 2021. The public health centers were stratified by sub-city, and one site with a high TB patient load was taken from each sub-city, with ten facilities included. It had sections relevant to socio-demographic characteristics, awareness of COVID-19 preventive measures, expenses on preventive measures, precautionary measures in healthcare facilities, medications and follow-ups during COVID-19, appointments for medication refills, and healthcare service delivery.

The independent variable of the study is the respondents' profile, age, sex, civil status, level of education, occupation, family size, and monthly Income.

Age is taken into consideration to know the respondents' views about the impacts of the problems faced considering maturity and growth. It is one of the most essential characteristics given the differences in life experience between age groups; people tend to change behavior as they age.

Sex is considered since it speaks of possible outcomes with different interpretations of how they will respond to such situations; it refers to male and female respondents. Males and females might have other points of view on a particular situation.

Civil Status determines whether the respondents are married, divorced, single, widowed, or in a common-law relationship.

Level of Education is taken into consideration since it determines the highest level of education the respondents have achieved.

Occupation refers to the respondents' means of earning a living. This is necessary for this study because it determines the capacity to respond to the current situation of health.

Monthly Income received or projected to be received during the month or the monthly equivalent of the patient is significant to the study as it speaks to how they will pay their bills, commuting expenses, educational expenses, etc.

The dependent variables are the Awareness of COVID-19 Preventive Measures, Expenses on Preventive Measures, Healthcare Service Delivery, Precautionary Measures in Healthcare Facilities, Medications and Follow-ups during COVID-19, Appointments for Medication Refill, and Healthcare Service Delivery.

Awareness of COVID-19 Preventive Measures refers to understanding how much information the respondents know about different preventive measures during the COVID-19 pandemic. These include social distancing, wearing a mask, avoiding crowded places, and disinfection.

Expenses on Preventive Measure refers to how much the respondents spent their money on different preventive measures.

Precautionary Measures in Healthcare Facilities refer to the management of the healthcare facility when it comes to security and safety of TB-DOTS patients during the pandemic.

Medications and Follow-ups during COVID-19 mean the response of the respondents when it comes to their medications and follow-ups during the pandemic.



Appointments for Medication Refill is related to the respondents' barrier when it comes to visiting for their medication refill.

Healthcare Service Delivery refers to the health services offered in the facility the respondents attended for their treatment. This will also determine different implementations of services to the respondents.

Research Objectives

This study determined the perceived impact of covid-19 pandemic on clinical care and treatment of TB (tuberculosis)-DOTS patients in Claver, Surigao del Norte, as perceived by the locals.

Specifically, the study determined:

1. The demographic profile of the respondents in terms of:
 - 1.1 age;
 - 1.2 sex;
 - 1.3 civil status;
 - 1.4 occupation;
 - 1.5 level of education and;
 - 1.6 monthly income
2. The perceived impacts of the COVID-19 pandemic on clinical care and treatment of TB-DOTS patients in terms of:
 - 2.1 awareness on COVID-19 preventive measures;
 - 2.2 expenses on preventive measure;
 - 2.3 precautionary measures in healthcare facility;
 - 2.4 medications and follow-ups during COVID-19;
 - 2.5 appointments for medication refill; and
 - 2.6 healthcare service delivery
3. Significant degree of difference in the perceived impact of the COVID-19 pandemic in clinical care and treatment of TB-DOTS patients when grouped according to their profile.
4. The recommendation based on the findings of the study.

METHODS

This research applied the descriptive quantitative research design employing the adapted survey approach. With 388 TB-DOTS patients from the years 2020 to 2022, 150 of them were the respondents and participated in the study through the purposive sampling technique. The researchers utilized an adapted questionnaire from a study conducted by Chilot, D. et al. in 2021. Frequency Count and Percentage Distribution were employed to quantify the profile of the respondents. Mean and Standard Deviation were utilized to determine the impact of the COVID-19 pandemic on the clinical care and treatment of TB patients in Claver, Surigao del Norte. The Analysis of Variance (ANOVA) was applied to ascertain the significant degree of difference in the impact of the Covid-19 pandemic on TB patients in Claver, Surigao del Norte, as perceived by the respondents when grouped according to their profiles.

Ethics in the conduct of this research were strongly considered for the academic integrity of this study. Ethical research practices in educational institutions are strongly followed since it is always the goal of educational research to contribute to the general welfare of the academic community and to generally create measurable information or data that will eventually add to the increase of human knowledge (Ederio, 2023) such as the essence depicted by this study.

RESULTS AND DISCUSSION

I – Demographic Profile Distribution of the Respondents

Table 1 shows the profile of the participants in terms of age, residence location, parent's income, type of internet connection, and used gadgets.



Table 1.1 Demographic Distribution of the Respondents in terms of Age

Respondents (Age)	f (150)	%
18-23	16	10.70
24-29	23	15.30
30-35	15	10.00
36-41	11	7.30
42-47	24	16.00
48-53	15	10.00
54-59	14	9.30
60-65	19	12.70
66-71	5	3.30
72-82	8	5.30

In Table 1.1, out of 150 respondents, the age group with the highest representation is 42-47 years old, accounting for 24 individuals or 16.00% of the total sample. The age group of 24-29 years old has the second-highest representation, with 23 individuals accounting for 15.30% of the total sample. The age group with the lowest representation is 66-71 years old, with only five individuals or 3.30% of the total sample. The data shows a relatively even distribution across age groups, with no significant outliers. According to the World Health Organization (WHO), The majority of persons who contract tuberculosis are in their prime working years. All age groups, though, are vulnerable. (TB's magnitude – National et al. The World Health Organization (WHO) estimates that 591,000 persons in the Philippines contracted tuberculosis in 2020. Among them, 73,000 were children.

Table 1.2 Demographic Distribution of the Respondents in terms of Sex

Respondents (Sex)	f (150)	%
Male	101	67.30
Female	49	32.70

Table 1.2 shows the profile of the respondents in terms of sex; the majority of the sample consists of males, accounting for 101 individuals or 67.30%. Females make up the remaining 49 individuals, or 32.70%. There is a noticeable gender imbalance in the sample, with males being overrepresented. This indicates that most of the people who took part in the research study are males, and they also dominated the total population of individuals who participated in our research study conducted in TB-DOTS Center Claver, Surigao del Norte. According to the Magnitude of TB – National TB Control Program, n.d., Males are more likely than females to have tuberculosis (TB), as is the 25–55 age range. According to Hertz and Schneider's (2019) study, there is a male-to-female ratio of 1.7 for global case notifications, which indicates that tuberculosis rates are substantially greater in males than in women.

Table 1.3 Demographic Distribution of the Respondents in terms of Civil Status

Respondents (Civil Status)	f (150)	%
Single	16	38.70
Married	23	46.70
Separated	15	3.30
Widowed	11	11.30

The largest category is married individuals, comprising 70 individuals or 46.70% of the total sample. The second most common civil status is single, with 58 individuals or 38.70%. Separated and widowed individuals have a smaller representation in the sample, each accounting for 3.30% and 11.30%, respectively. According to WHO, civil status refers to an individual's legal status in terms of their marital status (single, married, divorced, widowed, etc.) and is not a direct factor influencing the prevalence of TB.



Table 1.4 Demographic Distribution of the Respondents in terms of Occupation

Respondents (Occupation)	f (150)	%
Brgy. Tanod	1	0.70
Buldozer Operator	1	0.70
Businessman	1	0.70
Compliance Officer	1	0.70
Construction worker	1	0.70
Contractor	7	4.70
Driver	1	0.70
Electrician and monitoring	3	2.00
Environmental staff	9	6.00
Farmer	2	1.30
Fisherman	3	2.00
Housekeeper	13	8.70
Housewife	1	0.70
Maintenance	2	1.30
Mason	8	5.30
Mining Employee	2	1.30
Operator	1	0.70
Painter	3	2.00
Panday	1	0.70
Process technician	1	0.70
Pump boat helper	1	0.70
Quick Reaction Force Taganito High Pressure Acid Leache (THPAL)	2	1.30
SCAA (Special CAFGU Active Auxiliary)	1	0.70
Security Guard	7	4.70
Student	1	0.70
Unemployed	76	50.70

In terms of occupation, the highest proportion of respondents falls under the "Unemployed" category, with 76 individuals or 50.70%, indicating that a significant portion of the respondents do not currently have a job. This might reflect local economic conditions, lack of job opportunities, or other factors leading to a high unemployment rate among the surveyed group. According to the study of Barter et al., 2012 TB is known to disproportionately affect the most economically disadvantaged in any society. It complicates poverty by increasing direct costs associated with medical and non-medical expenses and income loss from patients' diminished physical capacity and capacity to work (indirect expenses) (Foster et al., 2015).

Table 1.5 Demographic Distribution of the Respondents in terms of Educational Attainment

Respondents (Educational Attainment)	f (150)	%
Preschool	1	0.70
Elementary Level	20	13.30
Elementary Graduate	20	13.30
High School Level	27	18.00
High School Graduate	43	28.70



Vocational	2	1.30
College Level	12	8.00
College Graduate	22	14.70
No Grade Completed	2	1.30
Not Reported	1	0.70

Regarding educational attainment, the highest reported in the sample is high school graduates, with 43 individuals or 28.70%. Other notable educational levels include elementary graduate (13.30%), college graduate (14.70%), and high school level (18.00%). The preschool and non-reported categories have the smallest representation. The data suggests that most respondents in the sample have at least completed their high school education (both graduate and non-graduate). According to the BMC Public Health journal, it investigated the socioeconomic impact of Tuberculosis on children and adolescents. The study found that TB has socioeconomic effects in both ecological and individual-level research; however, considerably less is known about this effect in children and adolescents and the degree to which childhood and teenage TB infection can have long-term effects

Table 1.6 Demographic Distribution of the Respondents in terms of Monthly Income

Profile	f (150)	%
Monthly Income		
below 10,000	66	44.00
10,001-20,000	53	35.30
30,001-40,000	22	14.70
20,001-30,000	8	5.30
40,001-50,000	1	0.70

In terms of income, the range below 10,000 has the highest representation, with 66 individuals or 44.00% of the sample. The second most common income range is 10,001-20,000, accounting for 53 individuals or 35.30%. Higher income ranges, such as 30,001-40,000 and 40,001-50,000, have fewer individuals represented. According to WHO, over 80% of cases and deaths are in low- and middle-income countries. low-income people are at a higher risk of developing TB. According to a UK charity called TB Alert, tuberculosis is more prevalent in countries with high levels of extreme poverty. This is because people in such areas are more likely to suffer from malnutrition and have weakened immune systems, making them susceptible to TB.

II – Perceived Impact of Covid-19 Pandemic on Clinical Care and Treatment of TB-DOTS Patients in Claver, Surigao del Norte

Table 2.1 Awareness of COVID-19 Preventive Measures

Indicators	M	SD	VI
1. Stay at home	0.97	0.16	A
2. Maintain physical distancing	0.99	0.12	A
3. Avoid close contact	0.99	0.08	A
4. Cover mouth and nose with a facemask	0.98	0.14	A
5. Frequent hand washing with soap	0.97	0.18	A
6. Avoid touching of eyes, nose and mouth	0.99	0.12	A
7. Avoid mass gathering	0.98	0.14	A
8. Restrict movement	0.97	0.16	A
9. Use disinfectants	0.98	0.14	A
Average	0.98	0.14	A

Scale	Interval	Verbal Interpretation	Code
0	0.00-0.49	Agree	A
1	0.50-1.00	Disagree	D



TB-DOTS patients demonstrated high awareness or agreement with the COVID-19 preventive measures. The highest mean ratings were got by the indicators “*Maintain physical distancing* (M=0.99, SD=0.12),” “*Avoid close contact* (M=0.99, SD=0.08),” and “*Avoid touching of eyes, nose and mouth* (M=0.99, SD=0.12)” which implied majority of the respondents agreeing to the COVID-19 preventive measures. Meanwhile, the indicators “*Stay at home* (M=0.97, SD=0.16),” “*Frequent handwashing with soap* (M=0.97, SD=0.18),” and “*Restrict movement* (M=0.97, SD=0.16)” got the lowest mean rating but still implied that majority of the respondents agree to the COVID-19 preventive measures. In other words, although these indicators got the lowest mean ratings, these suggest a relatively high level of agreement or awareness of these preventive measures among the respondents. Adopting stay-at-home measures and using face masks due to COVID-19 could have reduced the transmission of other infectious diseases, such as tuberculosis. On the other hand, strict containment policies can facilitate the household spread of tuberculosis since contact at the household level is one of the most critical factors in the tuberculosis transmission chain (Michalowsky B, et al., 2021).

Table 2.2 Expenses on Preventive Measures

Indicators	M	SD	VI
1. <i>Stay at home</i>	0.94	0.24	Y
2. <i>Cover mouth and nose with facemask</i>	0.99	0.08	Y
3. <i>Wash hands with soap frequently</i>	0.88	0.33	Y
4. <i>Use disinfectant as appropriate</i>	0.85	0.35	Y
Average	0.92	0.25	Y

Scale	Interval	Verbal Interpretation	Code
0	0.00-0.49	Yes	Y
1	0.50-1.00	No	N

TB-DOTS patients indicated a high level of agreement regarding the expenses of preventive measures against COVID-19. “*Cover mouth and nose with facemask*” (M=0.99, SD=0.08) got the highest mean rating implying that the majority of the respondents cover their mouth and nose with facemasks. This implies that the expenses on preventive measures likely involve the procurement or purchase of facemasks. Meanwhile, the “*Use disinfectant as appropriate*” (M=0.85, SD=0.35) got the lowest mean rating but still implied that the majority of the respondents use disinfectant as appropriate as it should. Although it had the lowest mean rating, it still suggests that patients had disinfectant expenses. Successful disinfection of SARS-CoV-2 is determined by the characteristics of the virus, properties of the disinfectants or sanitizers, and the environment where the virus is present or where disinfection is to be conducted. Disinfectants are chemical agents that are used to inactivate or destroy microorganisms. At the same time, sanitizers are available in liquid, gel, or foam forms and are used to clean hands and reduce the number of microorganisms present. SARS-CoV-2 is susceptible to disinfection (Rutala and Weber, 2019)

Table 2.3 Precautionary Measures in Healthcare Facility

Indicators	M	SD	VI
1. <i>Providers give health education on COVID-19</i>	0.99	0.08	A
2. <i>Health center provides COVID-19 screening</i>	0.85	0.35	A
3. <i>Providers wear gloves during caregiving</i>	0.68	0.47	A
4. <i>Providers wear mask during caregiving</i>	1.00	0.00	A
5. <i>Health center has water at entry for hand washing</i>	0.99	0.12	A
6. <i>Health center has soap at entry for hand washing</i>	0.94	0.24	A
7. <i>Health center has sanitizer at entry for hand cleaning</i>	0.97	0.18	A
Average	0.92	0.21	A

Scale	Interval	Verbal Interpretation	Code
0	0.00-0.49	Agree	A
1	0.50-1.00	Disagree	D



TB-DOTS patients perceived that the healthcare facilities in Claver have implemented the necessary precautions for TB-DOTS patients. "Providers wear mask during caregiving" (M=1.00; SD=0.00) got the highest mean rating implying that all respondents observed that healthcare providers wear masks during caregiving. In other words, the health workers of TB-DOTS of Claver effectively followed the preventive measure by wearing a mask during care or treatment. Meanwhile, the indicator "Providers wear gloves during caregiving" (M=0.68, SD=0.47) got the lowest mean rating implying that the respondents or TB-DOTS patients are divided where some said that the healthcare providers wear gloves during caregiving while some believed that they did not. According to the World Health Organization (WHO), having knowledge about the disease and the virus's transmission mechanisms is the best way to prevent and slow down transmission (WHO, 2020). By keeping a distance of at least one meter between people, wearing a mask that fits properly, regularly washing your hands, or using an alcohol-based rub, you can prevent infection in both you and other people.

Table 2.4 Medication and Follow-ups during COVID-19

Indicators	M	SD	VI
1. Accessed pharmacy readily	0.59	0.49	Y
2. Ordered with drugs and supplies	0.49	0.50	N
3. Missed appointments or visits	0.63	0.49	Y
4. Obtained follow-up laboratory tests	0.67	0.47	Y
5. Obtained follow-up counseling on medication or health status	0.95	0.23	Y
Average	0.67	0.44	Y

Scale	Interval	Verbal Interpretation	Code
0	0.00-0.49	Yes	Y
1	0.50-1.00	No	N

TB-DOTS patients reported affirmatively regarding the medication and follow-ups. The patients believed further that they all have "Obtained follow-up counseling on medication or health status" evident in the obtained highest mean rating (M=0.95; SD=0.23). Meanwhile, the patients said that they only somewhat "Accessed pharmacy readily" as shown by the lowest mean (M=0.59; SD=0.49). Organizations like Unitaid help to combat tuberculosis in times of COVID-19. Its mission is to widen access to better, more straightforward, and more affordable solutions to stop the spread of tuberculosis (TB). With the help of programs like Smart Pillboxes, it is much easier for TB patients to adhere to their medication. (Unitaid, 2021)

Table 2.5 Appointments of Medication Refill

Indicators	M	SD	VI
1. Fear of COVID-19	0.88	0.33	Y
2. Transport disruption	0.89	0.32	Y
3. Partial lockdown	0.97	0.16	Y
4. Reduced income to travel	0.87	0.34	Y
5. Unable to access mask	0.61	0.49	Y
6. Staff seem uncomfortable	0.06	0.24	N
Average	0.71	0.31	Y

Scale	Interval	Verbal Interpretation	Code
0	0.00-0.49	Yes	Y
1	0.50-1.00	No	N

TB-DOTS patients perceived a significant impact of COVID-19 on their ability to attend to medication refill appointments. "Partial lockdown" got the highest mean (M=0.97; SD=0.16) implying that the partial lockdown greatly affected their extent to



which they fulfill medication refill appointments. Meanwhile, the “Inability to access masks” got the lowest mean rating (M=0.61; SD=0.49). According to the studies, some individuals may be especially vulnerable to the challenges brought upon by the pandemic, including those with low income and from racial and ethnic minorities (Feldman CH, Ramsey-Goldman R, 2020). COVID-19 creates stress among TB patients to go to healthcare facilities for diagnosis and treatment. The pandemic's extensive demand for healthcare providers challenges the provision of routine TB case follow-ups (Gupta A, Singla R, Caminero JA, et al., 2020) (Hogan AB, Jewell BL, Sherrard-Smith E, et al., 2020) (Louie JK, Reid M, Stella J, et al., 2020). In addition, increased vulnerability among TB patients due to high exposure and sensitivity to the COVID-19 shock but diminished coping capacity. The loss of income in many households resulted in increased food insecurity and decreased ability to support others. (Vanleeuw et al., 2022)

Table 2.6 Healthcare Services Delivery

Indicators	M	SD	VI
1. I visit the facility during high COVID-19 time	0.58	0.50	Y
2. I experience treated differently	0.10	0.30	N
3. Unusual procedures were in place	0.88	0.33	Y
4. Unusual procedure (if any)	0.84	0.37	Y
5. Obligated to change the health center because of COVID-19	0.91	0.28	Y
6. Denied healthcare services	0.52	0.50	Y
7. Obtained polite and respectful services	0.99	0.08	Y
8. Listened well and got satisfactory answers to queries	0.99	0.12	Y
9. Gained considerable attention regarding individual needs	0.98	0.14	Y
10. I experienced physically assaulted by providers	0.03	0.16	N
11. I received prompt action for my health conditions or comorbidities	0.99	0.12	Y
Average	0.71	0.26	Y

Scale	Interval	Verbal Interpretation	Code
0	0.00-0.49	Yes	Y
1	0.50-1.00	No	N

TB-DOTS patients perceived that the healthcare services delivery among TB-DOTS patients in Claver, Surigao del Norte is satisfactory. The patients greatly experienced “...polite and respectful services (M=0.99, SD=0.08)”, having healthcare providers who “listened well and got good answers to queries (M=0.99, SD=0.12)”, and having fellow patients who “received prompt action for health conditions or comorbidities (M=0.99, SD=0.12)” as evident in the highest mean ratings. Meanwhile, indicators “I visited the facility during high COVID-19 time (M=0.58, SD=0.50)” and “Denied healthcare services (M=0.52, SD=0.50)” got the lowest means. Supported by the study by Mauro V, Lorenzo M, Paolo C, and Sergio H. (2020), several factors may contribute to explaining the relationship of COVID-19 pandemic/lockdown measures with tuberculosis indicators. In the management of the pandemic, human and financial resources were reallocated from tuberculosis services to COVID-19 units, compromising tuberculosis care. Furthermore, although COVID-19 has made a lot of changes and adjustments, particularly in the field of healthcare, TB-DOTS services in RHU-Claver during COVID-19 were still consistent and offered free medication, free sputum testing, and free x-rays that started in 2020.

III – Degree of Difference in the Perceived Impact of COVID-19 Pandemic on Clinical Care and Treatment of TB-DOTS Patients when Grouped According to Profile

Table 3. Significant Degree of Difference in the Perceived Impact of the COVID-19 Pandemic on Clinical Care and Treatment of TB-DOTS Patients when grouped according to their Profile

Independent Var	Dependent Var	p-value	Decision	Difference
Age	Awareness on	0.379	Do not reject Ho	Not Significant
Sex	COVID-19	0.071	Do not reject Ho	Not Significant



Civil Status	Preventive		0.600	Do not reject Ho	Not Significant
Occupation	Measures		0.994	Do not reject Ho	Not Significant
Educational Attainment			0.984	Do not reject Ho	Not Significant
Income			0.893	Do not reject Ho	Not Significant
Age			0.418	Do not reject Ho	Not Significant
Sex			0.742	Do not reject Ho	Not Significant
Civil Status	Expenses	On	0.690	Do not reject Ho	Not Significant
Occupation	Preventive		0.189	Do not reject Ho	Not Significant
Educational Attainment	Measure		0.290	Do not reject Ho	Not Significant
Income			0.965	Do not reject Ho	Not Significant
Age			0.206	Do not reject Ho	Not Significant
Sex	Precautionary		0.777	Do not reject Ho	Not Significant
Civil Status	Measures	in	0.189	Do not reject Ho	Not Significant
Occupation	Healthcare		0.093	Do not reject Ho	Not Significant
Educational Attainment	Facility		0.000	Reject Ho	Significant
Income			0.393	Do not reject Ho	Not Significant
Age			0.499	Do not reject Ho	Not Significant
Sex	Medications and		0.363	Do not reject Ho	Not Significant
Civil Status	Follow-ups		0.640	Do not reject Ho	Not Significant
Occupation	during COVID-		0.839	Do not reject Ho	Not Significant
Educational Attainment	19		0.068	Do not reject Ho	Not Significant
Income			0.119	Do not reject Ho	Not Significant
Age			0.149	Do not reject Ho	Not Significant
Sex			0.942	Do not reject Ho	Not Significant
Civil Status	Medication		0.107	Do not reject Ho	Not Significant
Occupation	Refill		0.012	Reject Ho	Significant
Educational Attainment			0.251	Do not reject Ho	Not Significant
Income			0.754	Do not reject Ho	Not Significant
Age			0.855	Do not reject Ho	Not Significant
Sex			0.464	Do not reject Ho	Not Significant
Civil Status	Healthcare		0.629	Do not reject Ho	Not Significant
Occupation	Services		0.128	Do not reject Ho	Not Significant
Educational Attainment	Delivery		0.492	Do not reject Ho	Not Significant
Income			0.265	Do not reject Ho	Not Significant

Table 3 presents in summary the significant degree of difference in the perceived impact of the COVID-19 pandemic on clinical care and treatment of TB-DOTS patients when grouped according to their profile. It was found that there is a significant degree of difference in the impact of the COVID-19 pandemic on clinical care and treatment of TB-DOTS patients with respect to the respondents' educational attainment. It implies a significant association between educational attainment and precautionary measures in healthcare facilities suggesting that individuals with varying levels of education exhibit distinct behaviors and attitudes regarding healthcare precautions. Specifically, those with higher educational attainment tend to demonstrate greater awareness of healthcare guidelines and a heightened sense of adhering to them. They are more inclined to take preventive measures, such as wearing masks, practicing hand hygiene, and following vaccination recommendations. Conversely, individuals with lower educational attainment may display lower awareness and a decreased likelihood of adhering to these precautions. This divergence in behavior is not necessarily a direct consequence of education itself; many factors, including access to healthcare information, socioeconomic status, and cultural beliefs, can influence it. Based on the study of Lee, M., Kang, BA. & You, M. (2021) individuals



with higher levels of education were more likely to have accurate information about COVID-19 and individuals with higher knowledge demonstrated increased efficacy beliefs regarding personal hygiene practices, including wearing masks, practicing hand hygiene, as well as higher efficacy beliefs for avoiding crowded places. In other words, respondents with greater levels of achievement are better informed and knowledgeable about WHO policies that state keeping infection prevention and control measures for COVID-19 in healthcare facilities.

Furthermore, the table also indicates a statistically significant difference in the impact of the COVID-19 pandemic on medication refill appointments of TB-DOTS patients across different occupations. Occupation affects the appointments of medication refills. The type of job or occupation can influence the frequency with which they schedule and attend medication refill appointments. This finding implies that individuals in various occupations encounter distinct challenges or varying degrees of access to healthcare services, affecting their ability to refill their prescribed medications consistently. For instance, individuals in professions with demanding schedules or irregular work hours may encounter more difficulty adhering to their medication refill appointments than those in occupations with greater flexibility. The World Health Organization or WHO (2022) emphasizes that TB treatment necessitates a sustained dedication to medication, which can pose challenges for certain patients. Individuals who are employed may encounter difficulties in adhering to their medication regimen due to work-related stress, fatigue, or other reasons. To address this issue, the Philippines' Department of Health or DOH (2022) has released a memorandum directing healthcare professionals to permit TB patients enrolled in the government program to receive a one-month supply of free anti-TB medication, which they can take home. This measure is put in place to ensure that patients can access their medication even during lockdowns or community quarantines.

The rest of the data presented indicates that there is no significant degree of difference in the perceived impact of the COVID-19 pandemic on clinical care and treatment of TB-DOTS patients with respect to the patient's profile implying that regardless of the patients' different socio-demographic backgrounds besides the aforementioned discussions emphasizing significant difference, the perceived impact of the pandemic on the clinical care and treatment they receive are the same and are not determined or defined by such profile variables.

CONCLUSION AND RECOMMENDATIONS

The study revealed that TB-DOTS patients in Claver, Surigao del Norte, exhibited a commendable level of awareness and agreement with COVID-19 preventive measures impacting their received clinical care. Notably, these respondents who were TB-DOTS patients were in consensus regarding the importance of maintaining physical distancing, avoiding close contact, and refraining from touching the face. Although it was also worth noting that there was slightly lower agreement on measures like staying at home, frequent handwashing, and restricting movement, overall awareness remained relatively high. Patients acknowledged incurring expenses for preventive measures, with facemasks being the most common expenditure, while disinfectants showed slightly lower agreement.

Moreover, the patients believed in a certain high level of positive impact of the pandemic on the implementation of necessary precautions in healthcare facilities as it garnered positive responses, especially regarding healthcare workers wearing masks during caregiving. However, the level of agreement was lower as to the use of gloves during caregiving. Despite positive sentiments on follow-up counseling, challenges in readily accessing the pharmacy and attending medication refill appointments were evident. The COVID-19 pandemic significantly hindered patients' ability to attend appointments, particularly due to partial lockdowns and difficulties in obtaining masks.

Furthermore, the patient's level of educational attainment emerged as a crucial factor influencing patients' adherence to precautionary measures, with those possessing higher education levels demonstrating greater awareness and adherence. A statistically significant difference was also found in the perceived impact of COVID-19 on medication refill appointments based on respondents' occupations, indicating that diverse job roles impact individuals' access to healthcare services and consistent medication refills. In conclusion, the study emphasizes the importance of tailored interventions to address specific challenges faced by different patient groups in navigating the impact of the COVID-19 pandemic on TB-DOTS care in Claver.

In light of the research findings and the drawn conclusions, several recommendations are proposed to address the impact of COVID-19 on TB services in Claver, Surigao del Norte. First and foremost, collaborative efforts between health authorities and



key stakeholders are essential to implement easily deployable solutions. The adoption of home-visit treatment, facilitated by health workers, stands out as a practical measure. This approach involves delivering medications and collecting laboratory samples from TB patients, thereby enhancing healthcare services and mitigating the effects of partial lockdowns and denied services (WHO, 2020). Ensuring a consistent supply of essential medications, testing kits, and medical supplies is imperative to prevent interruptions in TB treatment. Developing a comprehensive emergency response plan is also crucial for ensuring the continuity of care during crises like pandemics or lockdowns.

Furthermore, a comprehensive approach involving both healthcare workers and government intervention is recommended to enhance the care and treatment of TB patients. Home-based care provided by health workers promotes treatment adherence and reduces the risk of transmission within healthcare facilities. Government intervention is crucial to avoiding partial lockdowns that may hinder patient access to TB-DOTS centers. Prioritizing the availability of essential drugs and supplies, along with health workers taking responsibility for obtaining timely laboratory samples for testing, is essential to prevent treatment lapses and drug-resistant TB strains (CDC, n.d.).

Moreover, community awareness campaigns are advised to educate people about TB, its treatment, and the importance of supporting individuals undergoing treatment. Reducing stigma around TB can encourage community support for patients, and collaboration with employers can create supportive workplaces. This may involve flexible work arrangements or temporary adjustments to accommodate treatment schedules. Presenting the study findings to the Local Government Unit and residents can foster greater understanding and empathy towards individuals with respiratory illnesses, facilitating community support and essential services during lockdowns.

Finally, advocating for policies that prioritize the healthcare needs of TB patients, especially during crises, is recommended. This involves collaboration with government agencies and healthcare organizations to ensure ongoing attention to TB care. As a future direction, additional research on this topic can contribute to the ongoing investigation and expand understanding, benefiting the Tuberculosis Directly Observed Treatment, Short-Course (TB-DOTS) program in the Philippines and advancing knowledge in this field.

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