Journal of Asian Multicultural Research for Medical and Health Science Study
ISSN: 2708-972X
Vol. 3 No. 3, 2022 (page 065-076)
DOI: https://doi.org/10.47616/jamrmhss.v3i3.331

Implication of Covid-19 on the Prevalence of Tuberculosis in Gorontalo Regency

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Received: August 27, 2022 Received in Revised: September 24, 2022 Accepted: October 5, 2022

Abstract

Indonesia was declared to have contracted the Covid-19 disease in 2020. The central, provincial, and district/city governments, even the lowest government, namely the kelurahan/villages have responded, prepared, and took part in it. The type of research used is descriptive research aimed at describing the implications of the Covid-19 pandemic on the prevalence of tuberculosis in Gorontalo Regency. The types and sources of data used are primary and secondary data from the Health Service and its network and related sectors. The key informant is the unit leader and the person in charge of the program. The results of the study describe that the incidence of Covid-19 in Gorontalo Regency began to occur in April 2020, and infected 19 sub-districts and 21 puskesmas areas. The discovery and treatment of tuberculosis declined sharply. Before Covid-19 (2019) the findings and treatment were quite high reaching 85.79%, decreasing to 33.49% in 2020. The death rate increased from 10 people in 2019 to 17 people in 2020 and increased to 35 people in 2021. This is , has implications for the achievement of the national priority program "tuberculosis". This condition cannot be separated from the enforcement of activity and activity restrictions. The transfer of activity programs in the health sector is more focused on efforts to prevent and control Covid-19. The smart practice of the Limboto Public Health Center, known as POS PERBUKERS, is consistent in improving the findings and treatment of tuberculosis, even though they are in a state of Covid-19 pandemic.

Keywords: Covid-19; Implications; Tuberculosis

Introduction

The Corona Virus Disease (Covid-19) pandemic began in December 2019, and in March 2020, it was announced that Indonesia has been infected with Covid-19. Even the lowest level of government, known as the kelurahan or villages, have reacted, planned, and taken part in the participatory measures that have been taken. This includes central, provincial, and district or city administrations.

The prevalence of Corona Virus Disease, also known as Covid-19, has had an effect on a variety of arrangements, one of which is the provision of public services within the health sector. When beginning internet services, there are several factors to consider about behavior and service constraints. The phenomenon of eliminating temporary services is something that needs to be done. This includes requiring employees to do work from home (WFH), eliminating activities in places of worship, and asking people to stay at home and reduce economic activities outside the home because these things are considered to have a high risk. The strategy of the government includes not just social distancing but also the continuation of Physical Distancing and the implementation of Large-Scale Social Restrictions (PSBB).

Although both Covid-19 and TB are identified as illnesses that might cause respiratory symptoms such as cough, fever, and weakness, the start of symptoms can vary greatly between the two. In terms of prevention and control, there is not a significant difference between Covid-19 disease and tuberculosis because both are infectious diseases. The symptoms of Covid-19 disease appear after a few days, whereas the symptoms of tuberculosis appear gradually after infection occurs; this can take several weeks or even more (Udwadia et al., 2020). Via particles of water. According to Aditama, (2022) the Covid-19 prevention program, which includes testing, tracking, and treatment, the same things may also be done for tuberculosis (TB), and the use of masks can also obviously prevent the spread of both Covid-19 and tuberculosis.

During the Covid-19 pandemic, the order of detection and treatment of TB was also seen to be altered by the unwillingness of tuberculosis patients to seek treatment at health care institutions. This was a factor that was regarded to have an effect on the progression of the pandemic. According to Hakim (2020) Senior Program Manager for Stop TB Partnership Indonesia (STPI), the decline in the number of new cases of tuberculosis was extremely large. This is because many individuals who had tuberculosis were not detected and treated for the disease.

The implementation of the health protocol "washing hands, wearing masks, and maintaining distance," more commonly known as 3M, is a component of the government's strategy and policy. This protocol has implications for changes in behavior and day-to-day activities as well as the phenomenon of disease occurrence, including tuberculosis. The Director of Prevention and Control of Directly Infectious Diseases at the Indonesian Ministry of Health revealed that there was an anomaly in tuberculosis cases during the Covid-19 pandemic. This anomaly was that the percentage of tuberculosis case findings in 2018 and 2019 was 60 percent, but in 2020 the number of cases found decreased sharply to 30 percent. This occurred during the pandemic that was caused by the Covid-19 virus. On the other side, Qorry Amanda said that the Covid-19 epidemic has the potential to undo the progress that has been made in the effective treatment of tuberculosis (TB) in Indonesia over the course of the previous 20 years. The number of TB cases that reduced in 2020, which is purportedly not because the number of genuine patients decreased but rather because there was a lack of reporting or diagnosis as a result of limited access to health care. In order to stop the spread of TB and Covid-19 in medical institutions, the Health Protocol advocates for the establishment of reliable tuberculosis treatment services as soon as possible during the pandemic.

One of the elements that contributes to the spread of infectious illnesses via the air or by droplets is the usage of public transit, which is popular in many areas and utilized by people from all over the world. The absence of air exchange in public transportation contributes to the risk of disease transmission (Colvile et al., 2001). Everyone who is in the same car runs the chance of catching the sickness; the only persons who can prevent the disease from spreading are those who have a strong immune system. To now, the only method of prevention that is feasible in public transportation facilities is to educate passengers on proper coughing etiquette and encourage them to use masks, particularly ill passengers. During the Covid-19 epidemic, regular hand washing with soap is an important aspect of the Health regimen. This practice has a dual purpose in avoiding the spread of TB. It is necessary to prevent tuberculosis disease during a pandemic in order to maintain public health in order to stay healthy. This can be done by receiving immunizations with BCG (Bacillus Calmette-Guerin), cultivating proper cough etiquette, wearing masks when participating in activities, adopting a healthy lifestyle that includes engaging in regular exercise, eating nutritious food, and keeping the house clean and not damp. Other preventative measures include keeping the house clean and not allowing.

According to the World Health Organization (WHO), 10 million people will get infected with TB and 1.5 million will pass away from the disease in 2020. This is higher than the number of people who will die from HIV and malaria combined. The pandemic caused by the COVID-19 virus has made this situation even worse. The leadership of the G20 thinks that if TB is not eradicated by the year 2030, more than 31 million people would continue to lose their lives each year, which will result in a loss of US$18.5 trillion to the global economy between the years 2020 and 2050. In Indonesia, the number of TB patients who have been diagnosed with the disease and treated has decreased over the course of the last three years, going from 568,987 cases in 2019 to 393,323 cases in 2020 and 385,292 cases in 2021. (2021). In Indonesia, up to 91 percent of TB cases are pulmonary TB, which may spread to healthy persons who are in close proximity to the infected individual.

The epidemic that was caused by the Covid-19 virus has been going on for the last two years, prompting community-based TB control efforts to face considerable challenges. Case discovery and treatment of high TB cases have been carried out in a number of regions, including Banten, Gorontalo, DKI Jakarta, North Sulawesi, and West Sulawesi. These regions are among the most affected by the disease. The number of people who have contracted TB in Gorontalo Regency during the Covid-19 epidemic has been all over the place. In 2019, there were 130 new cases of TB for every 100,000 people in the population. This number fell to 48 new cases for every 100,000 people in 2020, and then it rose to 100 new cases for every 100,000 people in 2021.

Methods

The study that was conducted was of the descriptive kind, and its primary objective was to elucidate the effects that the Covid-19 pandemic had on the rate at which TB was prevalent in the Gorontalo Regency. The many kinds of data and where they come from, namely primary and secondary data. echelon 2, 3, officials, program coordinators, and program personnel in charge of the Gorontalo Regency Health Office and allied agencies are the "key informants" in this scenario. important information "key informant".

Data was gathered via the use of observation, in-depth interviews, examinations of published literature, and research of primary documents. The outcomes of the data collection that were carried out, in the form of primary and secondary data, were acquired, which were then processed, analyzed, and interpreted. In addition to this, material is given in a descriptive manner by presenting, explaining, and detailing in the form of narratives and tables the discoveries and issues that are being addressed.

Results and Discussion

Number of Cases of Covid-19

Table 1. Gorontalo Regency Covid-19 Case Incidence Rate 2020-2021

No	**Year**	**Population**	**Number of Cases**	**Die**	**Morbidity Rate Per 1000 Population**	**Death Rate (%)**
1	***2***	***3***	***4***	***5***	***6***	***7***
1	2020	379844	1110	26	2,92	2,34
2	2021	375902	2017	111	5,37	5,50

Data Source: Secondary Data Processed

The incidence of COVID-19 cases in 2020 is 1110 people or an incident rate of 2.92 per 1000 population and a death rate of 26 people (CFR: 2.34%). In 2021 Covid-19 will still continue with a morbidity rate of 1110 people or an incident rate of 2017 people or an incident rate of 5.37 per 1000 population and a death rate of 111 people (CFR: 5.50%).

Incidence Rate of Tuberculosis Cases

The incidence of tuberculosis cases or known TB disease in 2019 was 1419 people, with the achievement of findings and treatment of 85.79% and the morbidity rate of 3.76 per 1000 population. In 2020 the incidence of tuberculosis cases was 1669 people, with the achievement of findings and treatment of 559 people by 33.49% and the morbidity rate of 1.47 per 1000 population. The number of tuberculosis cases in 2021 was 852 people from the target of 1652 people and/or 51.57% and the tuberculosis prevalence rate was 2.27 per 1000 population (see table 2).

Table 2. Incidence Rates of Tuberculosis Cases in Gorontalo Regency 2019-2021

No.	**Year**	**Population**	**Number of Targets**	**Number of Cases**		**Morbidity Rate Per 1000 Population**
				Absolute	**Percent**	
1	*2*	*3*	*4*	*5*	*6*	*7*
1	2019	377084	1654	1419	85,79	3,76
2	2020	379844	1669	559	33,49	1,47
3	2021	375902	1652	852	51,57	2,27

Data Source: Dor Secondary Processed

Number of Covid-19 Cases Based on Puskesmas Qualifications

Table 3. Number of Covid-19 and Tuberculosis Cases Based on the Qualifications of the Urban Health Center of Gorontalo Regency in 2020

No.	**Phc**	**Number of Residents**	**Number of Covid-19 Cases**		**Number of tuberculosis cases**	
			Absolute	**Per 1000 Inhabitants**	**Absolute**	**Per 1000 Inhabitants**
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Limboto	47.477	326	6,87	39	0,8
2	West Limboto	24.091	69	2,86	49	2,0
3	Pond	12.660	91	7,19	18	1,4
4	Blue Lake	27.734	179	6,45	77	2,8
5	Tibawa	27.561	59	2,14	15	0,5
Regency		139.523	724	5,19	198	1,4

Data Source: Secondary Data Processed

The number of people who were diagnosed with Covid-19 in 2020 was 724, with an incident rate of 5.19 per 1000 population. These cases were dispersed across the area of urban qualification health centers, including the following: the Limboto health center, which had 6.87 cases per 1000 population; the Telaga Biru health center, which had 6.45 cases per 1000 population; and the Limboto Barat and Tibawa health centers, which each had above 2 cases per 1000 population.

In the service area of urban health facilities, there are a total of 198 cases of TB, which equates to a prevalence rate of 1.4 cases for every 1000 people. The region around the Telaga Health Center had the greatest case finding, with 2.8 cases per 1000 people in the population.

It is not always the case that the number of instances of Covid-19 that occurred in the work area of urban health centers is directly proportional to the number of TB patients that were found in that region. According to the Telaga Biru Health Center, the incidence of Covid-19 is 6.45 cases per 1000 people, while the prevalence of TB is 2.8 cases per 1000 people. The stated prevalence of TB in the region around the Limboto Health Center is just 0.8 cases per 1000 people, which is much lower than the recorded incidence of Covid-19, which is 6.87 cases per 1000 people.

Table 4. Number of Covid-19 and Tuberculosis Cases Based on the Qualifications of rural health centers in Gorontalo Regency in 2020

No	**Phc**	**Number of Residents**	**Number of Cases Covid-19**		**Number of Tuberculosis Cases**	
			Abasolute	**Per 1000 Inhabitant s**	**Absolute**	**Per 1000 Inhabitants**
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Pilohayanga	8.645	16	1,85	17	2,0
2	Tilango	13.566	56	4,13	52	3,8
3	Telaga Jaya	10.724	44	4,10	15	1,4
4	Batudaa	14.297	46	3,22	40	2,8
5	Tabongo	18.504	27	1,46	41	2,2
6	Dungalio	16.053	14	0,87	30	1,9
7	Bongomeme	20.050	7	0,35	37	1,8
8	Buhu	12.939	19	1,47	17	1,3
9	Pulubala	24.139	23	0,95	14	0,6
10	Boliyohuto	16.598	40	2,41	36	2,2
11	Tolangohula	22.557	33	1,46	17	0,8
12	Mootilango	18.827	14	0,74	32	1,7
Regency		196.899	339	1,72	348	1,8

Data Source: Sekunde Data Processed

The incidence of Covid-19 in the rural qualification puskesmas area in 2020 was highest at the Tilango health center at 4.13 per 1000 population, then the Telaga Jaya health center 4.10 per 1000 population and the Batudaa health center 3.22 per 1000 population.

The highest prevalence of tuberculosis cases was in the Tilango Public Health Center area of 3.8 per 1000 population, Batudaa 2.8 per 1000 population and puskesmas and the lowest was Pulubala Public Health Center 0.6 per 1000 population and Tolangohula Public Health Center 0.8 per 1000 population.

The incidence of Covid-19 and the prevalence of tuberculosis is above the district average for the qualifications of rural health centers, namely Telaga Jaya, Tilango, Batudaa, Boliyohuto and Pilohanga health centers for Covid-19 cases and prevalence above the district average, namely Tilango, Pilohayango, and puskesmas Batudaa.

Table 5. Number of Covid-19 and Tuberculosis Cases Based on Qualifications for Remote/Very Remote Health Centers in Gorontalo Regency in 2020

No.	Phc	Number of Residents	Number of Covid-19 Cases		Number of Tuberculosis Cases	
			Absolute	Per 1000 Inhabitants	Absolute	Per 1000 Inhabitants
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Batudaa Beach	12.297	16	1,30	1	0,1
2	Biluhu	8.571	4	0,47	8	0,9
3	Asparaga	13.067	13	0,99	10	0,8
4	Bilato	9.487	14	1,48	10	1,1
Regency		43.422	47	1,08	29	0,7

Data Source: Secondary Data Processed

The incidence of COVID-19 in the remote/very remote qualification puskesmas area in 2020 was the highest in the Batudaa beach health center with 16 cases and/or 1.30 per 1000 population and the Bilato health center with 14 cases and/or 1.48 per 1000 population and the lowest was Puskesmas Biluhu with 4 cases and/or 0.47 per 1000 population The highest prevalence of tuberculosis was found in Puskesmas with 10 cases (1.1 per 1000 population) and the lowest was Batudaa Pantai Health Center with 1 case (0.1 per 1000 population).

The incidence of covid-19 in the area of the urban qualification health center in 2021 was the highest in the Telaga health center with 167 cases (13.35 per 1000 population), Telaga Biru 285 cases (10.40 per 1000 population) and the lowest was in the Limboto Barat health center area. a total of 106 cases (4.45 per 1000 population).

The highest prevalence of tuberculosis occurred in the Limboto Public Health Center area as many as 183 cases (3.90 per 1000 population), Telaga 47 cases (3.76 per 1000 population) and the lowest was found in the Tibawa Public Health Center working area with 43 cases or 1.58 per 1000 population.

Table 6. Number of Covid-19 and Tuberculosis Cases Based on the Qualifications of the Urban Health Center of Gorontalo Regency in 2021

No.	Qualification of Puskesmas	Population	Number of Cases Covid-19		Number of Tuberculosis Cases	
			Absolute	Per 1000 Inhabitants	Absolute	Per 1000 Inhabitants
1	***2***	***3***	***4***	***5***	6	7
1	Limboto	46.931	464	9,89	183	3,90
2	Limboto arat	23.813	106	4,45	69	2,90
3	Pond	12.514	167	13,35	47	3,76
4	Blue Lake	27.415	285	10,40	100	3,65
5	Tibawa	27.243	228	8,37	43	1,58
Regency		137.916	1250	9,06	442	3,20

Data Source: Secondary Data Processed

Table 7. Number of Covid-19 and Tuberculosis Cases Based on the Qualifications of rural health centers in Gorontalo Regency in 2021

No.	Qulaification of Puskesmas	Population	Number of Cases Covid-19		Number of Tuberculosis Cases	
			Absolute	Per 1000 Inhabitants	Absolute	Per 1000 Inhabitants
1	*2*		*3*	*4*	*5*	*6*
1	Pilohayanga	8.545	26	3,04	34	3,98
2	Tialngo	13.409	133	9,92	60	4,47
3	Telaga Jaya	10.601	112	10,57	33	3,11
4	Batudaa	14.132	65	4,60	42	2,97
5	Tabongo	18.290	78	4,26	45	2,46
6	Dungalio	16.312	64	3,92	29	1,78
7	Bongomeme	19.818	35	1,77	20	1,01
8	Buhu	12.790	9	0,70	15	1,17
9	Pulubala	23.860	109	4,57	32	1,34
10	Boliyohuto	16.406	82	5,00	25	1,52
11	Tolangohula	22.296	62	2,78	4	0,18
12	Mootilango	18.610	24	1,29	15	0,81
Regency		195.069	799	4,10	354	1,81

Data Source: Secondary Data Processed

The highest incidence of COVID-19 in Puskesmas areas with rural qualifications in 2021 occurred at Telaga Jaya Health Center with 112 cases (10.57 per 1000 population), Tilango 133 cases (9.92 per 1000 population) and the lowest was in the Buhu Public Health Center area. as many as 9 cases (0.70 per 1000 population).

The highest prevalence of tuberculosis occurred in the Tilango health center with 60 cases (4.47 per 1000 population), Pilohayanga 34 cases (3.98 per 1000 population). And the lowest was in the working area of the Tolangohula Public Health Center as many as 4 cases (0.18 per 1000 population).

Table 8. Number of Covid-19 and Tuberculosis Cases Based on the Qualifications of Remote/Very Remote Puskesmas in Gorontalo Regency in 2021

No.	Qulaification of Puskesmas	Population	Number of Cases Covid-19		Number of Tuberculosis Cases	
			Absolute	Per 1000 Inhabitants	Absolute	Per 1000 inhabitants
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Batudaa Beach	12.154	16	1,32	11	0,91
2	Biluhu	8.471	9	1,06	18	2,12
3	Asparaga	12.915	11	0,85	9	0,70
4	Bilato	9.377	22	2,35	18	1,92
Regency		42.917	58	1,35	56	1,30

Source of dara : Secondary Data Processed

The incidence of covid-19 in the area of the Health Center qualification Remote/very Remote In 2021, the highest occurred at the Bilato Health Center with 22 cases (2.35 per 1000 population), Batudaa Beach 16 cases (1.32 per 1000 population) and the lowest was in the area Asparaga health center as many as 11 cases (0.85 per 1000 population).

The highest prevalence of tuberculosis occurred in the Biluhu Public Health Center area with 18 cases (2.12 per 1000 population), Bilato 18 cases (1.92 per 1000 population) and the lowest was in the Asparaga Public Health Center working area with 9 cases (0.70 per 1000 population).

Covid-19 Incident Rate

The Corona Virus Disease (Covid-19) pandemic is caused by the Corona virus severe acute respiratory syndrome (SARS-Cov-2). This case was first identified on March 2, 2020 from a Japanese citizen temporarily in Indonesia. On March 14, 2020, the Indonesian government declared the Covid-19 pandemic a national disaster.

The Covid-19 incident took place so quickly and spread throughout the Indonesian archipelago, knowing no administrative boundaries, including Gorontalo Province and Gorontalo Regency.

The first Covid-19 case in Gorontalo Regency was found in Telaga District in April 2020, gradually spreading to all sub-districts in Gorontalo Regency. Covid-19 cases in 2020 covered 19 sub-districts and 21 puskesmas areas with 1110 cases or 2.92 incidents per 1000 population and 26 deaths (CFR: 2.34%). The incidence of Covid-19 increased to 2017 people or incidents of 5.37 per 1000 population and death rate of 111 people (CFR: 5.50%) in 2021.

The movement of Covid-19 cases in Gorontalo Regency, mostly occurred in the work area of puskesmas with urban qualifications, following rural and remote/very remote qualification work areas in 2020 and increased sharply in 2021. The incidence of Covid-19 cases in urban puskesmas areas was as much as 724 people (5.19 per 1000 population) in 2020 increased to 1250 people (9.06 per 1000 population) in 2021. The same thing happened to the puskesmas qualifying for rural areas from 339 people (1.72 per 1000 population) in 2010 increased to 799 people (4.10 per 1000 population) in 2021, and puskesmas qualifying for remote/very remote areas by 47 people (1.08 per 1000 population in 2020 to 58 people (1.35 per 1000 people) in 2021 This means that the farther away from the city the number of cases of Covid-19 cases is getting smaller. This condition cannot be separated from the activities and mobilization of the population.

The policies taken as an effort to prevent and control the rate of addition and spread of Covid-19 in Gorontalo Regency, however, events continue to increase. The strict enforcement of the health protocol "wash your hands, keep your distance, and wear a mask" is a concern for the Gorontalo Regency government. The granting of crowd permits is tightened and must obtain a recommendation from the Gorontalo Regency Covdi-19 Task Force, activities held that do not comply with health protocols will be disbanded by the Covid-19 Task Force, hours are enforced, and guarding at border posts. It does not escape the issuance of Governor's Regulation Number 15 of 2020 concerning Guidelines for the Implementation of Large-Scale Social Restrictions in Handling Corona Virus Disease 2019 (Covid-19) in the Gorontalo Province Region, with how many extensions. The purpose of implementing the PSBB is to limit certain activities and the movement of people and/or goods in suppressing the spread of Corona Virus Disease (Covid-19), increasing anticipation of the development of escalation in the spread of the virus disease (Covid-19), and handling social and economic impacts and the spread of the virus Corona Virus Disease (Covid-19).

The implementation of PSBB is carried out jointly by the Provincial Task Force, Regency/City Task Force, and the District/Village/Kelurahan/Dusun/RW/RT Government. The scope of regulation and restriction includes restrictions inside and outside the home, including office activities, educational institutions, public places or facilities, and activities for the movement of people into and out of Gorontalo Province. The implementation of WFH and curfews, disinfecting the location of public places, offices, educational institutions, distributing masks, vitamin supplements and hand sanitizers, are not spared from the policies taken by the Gorontalo Regency government.

The policy continues, by vaccinating every person of productive age, school children/students and the elderly. The Covid-19 vaccination activity, starting from the President of the Republic of Indonesia on January 13, 2021 at the State Palace, also marked the start of the Covid-19 vaccination program in Indonesia, which is part of the strategy to break the chain of transmission of Covid-19, followed by each province/ regencies/cities throughout Indonesia without exception.

Tuberculosis Case Prevalence

Tuberculosis programs and activities have consumed a lot of energy, time and money (Visca et al., 2020). The involvement of various donor countries (Global Fund) in the context of implementation and acceleration, but the prevalence of tuberculosis in Gorontalo Regency is still high.

Tuberculosis cases before and during the Covid-19 pandemic were fluctuating up and down in the "saw shape". Case finding and treatment were 1419 people (85.79%) in 2019, then decreased to 559 people (33.49%) in 2020 and increased again to 852 people (51.57%).

The condition is followed by the fluctuating prevalence that occurs. The prevalence of tuberculosis in 2019 was 376 per 100,000 population, in 2020 it was 147 per 100,000 population and in 2021 it was 227 per 100,000 population. The same thing happened in Gorontalo Province, namely the decrease in the findings and treatment of tuberculosis patients. In 2019 the findings and treatment of cases were 4042 people (78%), in 2020 it was 2525 people (59%) and in 2021 it was 2794 people (65%).

The prevalence of tuberculosis in 2020 is viewed from the aspect of puskesmas qualifications, namely the urban puskesmas area as many as 198 people (1.4 per 1000 population), rural health center qualifications as many as 348 people (2.8 per 1000 population), and remote/very remote puskesmas area as many as 29 people (0.7 per 1000 population), and in 2021 for the urban health center area there was an increase of 442 people (3.20 per 1000 population), the rural area did not change exactly 1.8 per 1000 population, and the rural health center area was 56 people (1.3 per 1000 population).

The low achievement of finding and treating tuberculosis cases compared to the year before the Covid-29 pandemic occurred, cannot be separated from various policies that limit movement and activities in the provision of public services, including health services outside the building, which should be mostly done as an effort to identify tuberculosis with an approach in the community 'early diagnosis of tuberculosis'. That is, the activity of finding cases of tuberculosis as far as possible is carried out to ensure the presence or absence of patients, so that patient management and education can be carried out.

Based on the results of data analysis, it shows that the tendency of tuberculosis occurs in puskesmas areas with a large population and dense settlements and remote areas. The prevalence of tuberculosis in urban health centers is found at Telaga Public Health Center at 7.19 per 1000 population, rural qualified health center is found at Tilango health center, and remote/very remote qualified health center is reported at Bilato health center as much as 1.4 per 1000 population.

The area of the Telaga health center and initially a unit within the sub-district then blossomed into a separate working area. The two health centers are work areas with high mobility, dense housing, daily activities to earn a living on Lake Limboto, and bordering Gorontalo City. This condition is a risk factor and has the potential for transmission of tuberculosis. The difference is only in the working area of the Bilato Public Health Center, located along the coast, transportation is difficult, health personnel are very limited, becoming a challenge/obstacle in accessing health services.

Implications of the Covid-19 Pandemic on the Prevalence of Tuberculosis Cases

The Covid-19 pandemic cannot be avoided from the various implications that occur and are likely to occur. Tuberculosis is a chronic disease that has a high risk of death. Covid-19 disease and tuberculosis disease have a history of almost the same disease attacking the respiratory system, including: cough, fever, and difficulty breathing. Both of these diseases can be transmitted through the air, so care is needed with the use of PPE (Personal Protective Equipment).

The implementation of the PSBB which implies a movement of activity, including screening in the form of rapid antibodies and later developed into Rapid Antingen and RT-PCR, also affects access to tuberculosis program services in the room and in the community "active-passive detection case" in the context of early diagnosis. At the beginning of the Covid-19 incident, services for suspected tuberculosis who came to health care facilities were required to do a rapid antibody test. This treatment can be confirmed to be identified as Covid-19, and causes people's reluctance to come to health care facilities.

Tuberculosis sufferers during the Covid-19 pandemic also affected access to health services by implementing the Health protocol "keep your distance, wear a mask and wash your hands/use hand sanitiser", which is something that is not commonly done. Non-compliance with health protocols for both health workers and the community, including chronic disease "tuberculosis" can result in increased psychological stress, non-adherence in treatment, and can even increase tuberculosis deaths. The results of the study have predicted that there will be an increase in tuberculosis deaths between 2020 and 2035. The increase in the number of tuberculosis deaths in various countries is the impact of the Covid-19 pandemic, including: 4.65% in India, 7.64% in Indonesia, 2.09% in Kenya and 8.68% in Pakistan. WHO estimates that at least 1.3 million deaths from tuberculosis worldwide are the result of the COVID-19 pandemic. Because the health care system is burdened with Covid-19 cases, the quality of tuberculosis treatment has decreased. In Indonesia, including Gorontalo Regency, there was a very significant decrease in the detection of new cases of tuberculosis, accompanied by an increasing number of deaths, namely 10 people in 2019, increasing to 35 people in 2021.

The implementation of PSBB did not play a substantial role in the decline in the number of TB cases; rather, this decline occurred because the diagnosis and treatment of tuberculosis patients were not carried out to their full potential. Health facilities are located in difficult or extremely distant areas, have a limited number of staff members, and often detect fewer cases owing to the limits of their access. In contrast to the features of urban health clinics, particularly those located in slum regions and heavily inhabited "overcrowded" areas, these places are like barns filled with TB patients. There was no significant correlation between the enforcement of health rules and a drop in the number of TB cases. It turned out just like this because the diagnosis and treatment of TB patients were not carried out to their full potential.

The Gorontalo Regency's implementation of its protocols has not exhibited full adherence up to this point. According to Mokodompis & Ahmad, (2021) The enforcement of health rules reveals an average compliance rate that is lower than 60 percent. Compliance in the building was measured by the provision of hand washing facilities and hand sanitizers at a rate of 50%, distancing signs at a rate of 53%, and the usage of masks at a rate of 42%. Compliance with procedures outside the building, including the need to wash one's hands before entering the building (57.7% of people), the use of masks (53.8% of people), and body temperature check stations (19.2% of people).

A further conclusion is that during the epidemic, there was a spike in instances of Covid-19, which led to a diversion of resources and a reduction in the effectiveness of TB diagnosis and treatment. In the TB program, the Molecular Rapid Test, also known as TCM, is utilized more often for the identification of Covid-19 patients that are sent to hospitals. Because of the decline in the reporting of tuberculosis cases and the quality of care, patients may drop out of treatment, which increases the likelihood that TB cases will be treated with multidrug-resistant TB (MDR-TB). In the framework of managing Covid-19, almost all of the resources that are already available in the health sector and in other sectors have been maximized. This condition has an effect on both the diagnosis and treatment of TB, which has resulted in a dramatic drop in the disease's incidence.

Triasih (2021) reported that the number of people diagnosed with TB in Indonesia has decreased as a result of the Covid-19 epidemic. In 2020, the Ministry of Health documented 271,750 instances of TB that were either registered or identified. This represents a significant decrease when compared to the number of tuberculosis cases discovered and treated in 2019, which totaled 568,987 cases (estimated findings in 2020 were 840 cases).

Due to the widespread spread of COVID-19, there are still a significant number of TB patients who have not been recognized or treated. This raises the possibility of adverse consequences. This indicates that there are still a significant number of avenues for infection inside the population. If this is not done properly and correctly as specified in Presidential Regulation Number 67 of 2021 about TB control, it is probable that Indonesia will become the leading contributor to tuberculosis cases in the world, which would cause the elimination goal of 2030 to be pushed back.

The innovation initiated by the Gorontalo District Limboto Health Center in identifying tuberculosis cases involving potential groups in the community known as PESBUKERS POS (TBC Control Post for Public Health) is very efficient and effective. The achievement of case findings and treatment remains consistent and there is an increase, namely 28.02% with a Positive Rate (PR: 3.31%) in 2019, case findings and treatment of 30.86% (PR: 6.58%) in 2020, and case finding and treatment in 2021 by 52.20% (PR: 8.60%). Appreciation came from the Indonesian Ministry of Health and the tuberculosis officer concerned (Puskesmas Limboto) who was included in the Indonesian Ministry of Health's entourage in a series of agendas for the 71st World Health Assembly (WHA) which was held directly by the World Health Organization (WHO) in Geneva, Switzerland. and participated by 194 WHO member countries.

The steps that have been taken by the government are quite numerous and strategic, but tuberculosis is still a national problem. Center for Tropical Medicine UGM, revealed the need for innovative and comprehensive efforts so that Indonesia can achieve the achievement of global elimination commitments by 2030. Efforts to reduce tuberculosis cases do not only focus on case finding and treatment, but also with health promotion therapy and preventive therapy. This effort is carried out by all parties, not only the responsibility of the Health sector. Because without comprehensive efforts it will be difficult to achieve the elimination of tuberculosis by 2030.

Conclusion

The Corona Virus Disease (Covid-19) pandemic in Gorontalo Regency took place quickly and infected 19 sub-districts and 21 puskesmas areas with an incidence of 2.92 per 1000 population and a death rate of 26 people (CFR: 2.34%) in 2020 and increasing to 5.37 per 1000 population and a mortality rate of 111 people (CFR: 5.50%) in 2021. Findings and treatment that fell drastically were followed by a decrease in the prevalence of tuberculosis. Most of the incidents occurred in the urban category of puskesmas. The implication that occurs is that the acceleration of the achievement of the "tuberculosis" National priority program is hampered. This condition cannot be separated from various restrictions on activities and activities. The transfer of activity programs in the health sector is more focused on efforts to prevent and control Covid-19.

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