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ANALYSIS OF THE DOTS STRATEGY IMPLEMENTATION DURING COVID-19

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ABSTRACT

Tuberculosis is a disease caused by the bacterium Mycobacterium tuberculosis that attacks the lungs and other organs. The target for case finding until August is 176 cases, but the Bulu Lor Health Center has only reached 38 case finding with 21 positive cases. The purpose of the study was to find out how to implement the DOTS strategy policy during the COVID-19. The study uses a qualitative with determination uses purposive sampling technique with all 18 informants include Health workers, cadres, and patients. The research was conducted by in-depth interview. The research aims to find out more in description of the DOTS Strategy implementation. The results showed that communication on the DOTS strategy during the pandemic used electronic media. There have perception problems when communicating. There are candidates who have resigned. DOTS rooms during the COVID-19 pandemic combine with COVID-19 services. The commitment was not good because cadres resigned and patients dropped out of treatment due to drug side effects. The organizational structure of the DOTS strategy refers to the Permenkes No. 67 of 2016, but the sputum examination doesn't comply with regulations.

Keyword: Tuberculosis, DOTS Strategy, COVID-19, Policy Implementation, Bulu Lor Primary Health Care

BACKGROUND

COVID-19 is a disease confirmed by the *World Health Organization* or also known as WHO as a new form of pneumonia on December 31, 2019 in Wuhan, China which has spread massively throughout the world. COVID-19 has transmission from people which is mostly caused by close contact. The virus from COVID-19 can survive in an open environment for three hours (Irfani et al., 2020). Tuberculosis is a disease caused by infection with the bacterium *Mycobacterium tuberculosis* which can attack the lungs and can also attack other organs. Tuberculosis has symptoms, namely coughing up phlegm for more than two weeks (Hartanto et al., 2019). *Mycobacterium tuberculosis* is a pathogenic bacterium that has a very high success rate in transmitting tuberculosis. *Mycobacterium tuberculosis* is usually transmitted through the air. Tuberculosis on the principle of epidemiology has an interaction between three components, namely the host, the agent, and the environment. The agent in tuberculosis is the *Mycobacterium tuberculosis*, which is the bacterium that causes tuberculosis which is spread through droplets of infected people (Mathofani & Febriyanti, 2020). These bacteria can survive in damp and dark places. This becomes an environmental component, *namely bacteria will last a long time in an environment with air* humidity between 25-40°C (Harmani et al., 2019). The *host* for tuberculosis is a person with the main symptoms of coughing up phlegm for 2 weeks or more which can be followed by the presence of blood in the sputum, shortness of breath, weakness, decreased appetite, weight loss, night sweats without physical activity, malaise, and fever for more than one month (Kemenkes RI, 2018). The COVID-19 pandemic and mobility restrictions will have a negative impact on tuberculosis control by reducing the detection and treatment of tuberculosis, resulting in increased transmission and mortality. In the first half of 2020, the detection of tuberculosis cases decreased by 25-30% in four high-risk countries. Then there are 78% of tuberculosis programs reported to be disrupted by COVID-19 (Chan et al., 2021).

Tuberculosis cases in Indonesia experienced a fluctuating trend, namely from 2015 amounting to 330.910 cases, 2016 amounting to 360.565 cases, 2017 amounting to 425.089 cases, in 2018, the number of tuberculosis cases increased to 566.623 cases which increased from the previous year (Kemenkes RI, 2018). The latest data for tuberculosis in 2020 recorded 357.199 cases found with a death rate of 13.947 deaths (TBC Indonesia, 2021). The

findings of tuberculosis cases in 2020 were very less compared to the previous year due to pandemic conditions. The discovery of tuberculosis cases in 2018 and 2019 was 60%, but in 2020 only 30% of cases were found (Kemenkes RI, 2021). Tuberculosis disease does not only attack adults but can also attack children, the elderly, people with diabetes, people with low immunity, and ODHA (People with HIV AIDS) (TBC Indonesia, 2020) . Tuberculosis cases in Central Java reached 23.919 residents from January to June 2020. In Semarang there were 3.438 cases of Tuberculosis in 2019. The success rate for tuberculosis treatment in Semarang until 2018 had not reached the national target of 90% (Dinas Kesehatan kota Semarang, 2020).

Indonesia has made various efforts to tackle the incidence of tuberculosis, one of which is the DOTS (Directly Observed Treatment Short Course) strategy. This is evidenced by the Decree of the Permenkes No. 364 of 2009 concerning Guidelines for Controlling Tuberculosis, and the Peraturan Gubernur Provinsi Jawa Tengah No. 93 of 2018 concerning Regional Action Plans for Tuberculosis Management of Central Java Province for 2018-2023. In the policy, both of them mention the DOTS strategy as a plan to control tuberculosis. The DOTS strategy has been implemented in various health services such as hospitals, health centers, or in other health services (Kemenkes RI, 2020). This DOTS strategy is a WHO global plan which has 5 components, namely the government's commitment to sustainable tuberculosis control activities, case detection with a sputum smear microscope in symptomatic patients, standard treatment of six to eight months, supply of all anti-tuberculosis drugs (OAT), recording system and reporting standards that allow assessment of treatment outcomes for each patient and tuberculosis control program.

Preliminary studies conducted by researchers from August to September 2021 through interviews with DOTS officers obtained results, namely in the treatment of tuberculosis, the performance of tuberculosis services at the Bulu Lor Health Center has not been achieved, as evidenced by the achievement of cases and tuberculosis suspects who have not reached the target. The target for case finding in 2021 is only 49%. The results of the next interview were obtained information that from the previous year the discovery of tuberculosis cases had not reached the required target, but before the COVID-19 pandemic, the findings of tuberculosis cases always almost reached the target, namely the discovery of cases in 2019 as many as 139 cases with positive cases as many as 109 cases.

Policy implementation is a policy formulation process that is equally important in the context of achieving policy objectives. Even though a policy has been formulated well, the objectives of the policy will never be achieved if the policy is not implemented properly (Mubarok et al., 2020). According to the theory of George Edward III in (Awaeh et al., 2018) that policy implementation is a process in which there are many interrelated factors that can affect policy implementation. The policy implementation model proposed by George Edward III has influencing factors, namely communication, resources, disposition, and bureaucratic structure.

The problem formulation was prepared using George Edward III's policy implementation indicators namely communication, resources, disposition, bureaucratic structure in implementing the DOTS strategy policy during the COVID-19 Pandemic in the Bulu Lor Health Center Semarang Work Area. This study aims to determine the implementation of the DOTS strategy in the working area of the Bulu Lor Health Center based on George Edward III's theory. The location in this study is different from previous studies. This research will be conducted at the Bulu Lor Health Center in Semarang. This study analyzes the implementation of the DOTS strategy policy during the COVID-19 pandemic, while other research on the success of controlling pulmonary TB before the COVID-19 pandemic.

METHOD

The type of research that will be conducted is qualitative method with descriptive design. The qualitative method is a method by emphasizing the search for meaning by presenting data in the form of a description (Shidiq & Choiri, 2019). This qualitative research method examines to explore the situation of meaning under study which aims to find out information in-depth interview.

Data collection techniques carried out in this study were using observation techniques and in-depth interviews. This study uses a *purposive sampling technique* to determine who will be the resource persons. There are two

interviews to be conducted in this study, namely interviews during the preliminary study and interviews during the research. Interviews during the preliminary study used an unstructured interview type. Unstructured interviews are free interviews without binding interview guidelines (Shidiq & Choiri, 2019). The unstructured interview at the time of this preliminary study aims to outline the state of implementation of the DOTS strategy policy at the Bulu Lor Health Center. Then for interviews at the time of the study, namely using the type of semi-structured research. Semi-structured interviews are interviews that at the time of implementation use interview guidelines but are not bound and are more free to explore information. During the semi-structured interview, the researcher will listen and record what information the informants get regarding the implementation of the DOTS strategy policy during the COVID-19 pandemic (Shidiq & Choiri, 2019)

The data sources used in this research are primary and secondary data sources The data sources accepted by public health office with research license. Primary sources that will be obtained are the results of in-depth interviews with sources including the Head of Heath Center, P2P Officers, Pharmacy Officers, Laboratory Officers, DOTS Programmers, P2ML Staff at the Semarang City Health Office, TBC Program Holders at the Semarang City Health Office, and triangulation informants namely Cadres, and patients about the discussion of this research, namely the implementation of the DOTS Strategy policy during the COVID-19 period in the working area of the Bulu Lor Health Center Semarang. Secondary data taken for this research are documents related to the research topic including WHO, the Indonesian Ministry of Health, Central Java health profile, Semarang City health profile, Bulu Lor Health Center health profile, TBC case finding data, TB treatment data at Bulu Lor Health Center, and previous research related to this research topic. The data analysis carried out includes data collection, data reduction, data presentation, and drawing conclusions

RESULTS AND DISCUSSION

The research results were obtained through in-depth interviews with key informants, and triangulated informants. The main informants used in this study were 7 people including the Head of the Health Center, TBC Programmer, P2P Officer, Laboratory Officer, Pharmacy Officer, P2ML Staff of the Semarang City Health Office, and TBC Program Holder of the Semarang City Health Office. The triangulation informants used in this study were 12 people, including 4 TBC cadres, and 8 TBC patients in the working area of Bulu Lor Health Center. The following are the characteristics of the informants in this study:

Table 1Characteristics of Main Informants

NO	Informant Name	Age	Origin	Last education	Functional
1	M	48	Pati	S2	Head of Health Center
2	KK	26	Jepara	D3 (Diploma 3 Nursing	TBC Programmer / DOTS Officer
3	SZ	44	Semarang	S2 (Master Degree)	Health Center Epidemiologist, P2P Coordinator
4	AMS	25	Solo	D3	Laboratory staff
5	A	43	Semarang	D3	Pharmacy Officer
6	MSS	25	Klaten	S1	Technical Officer P2ML Semarang City Health Office
7	MS	52	Jepara	S2 (Master Degree) Epidemiology	Semarang City Health Office TBL Program Holder

Table 2Characteristics of Cadre Informants

NO	Informant Name	Age	Origin	Last Education
1	S	53	Semarang	Senior High School
2	SW	60	Semarang	Junior High School
3	RN	61	Semarang	Vocational High School
4	SS	52	Semarang	Economic High School

Table 3Characteristics of TB Patient Informants

NO	Informant Name	Age	Origin	Last Education
1	A	60	Solo	No school
2	B	62	Semarang	Elementary School
3	C	49	Purwodadi	Elementary School
4	D	55	Semarang	Elementary School
5	E	57	Semarang	Senior High School
6	F	32	Semarang	Senior High School
7	G	18	Semarang	Vocational High School
8	H	65	Semarang	Did not pass elementary school

The communication indicators in this study focused on each component of the DOTS strategy, namely communication on government commitments, case finding, treatment for 6 months, distribution of OAT, and recording reports. Based on information from informants, it is known that several components of the DOTS strategy include government commitment, case finding, and treatment for six months of communicating using *a smartphone with WhatsApp* chat media, but the components of the DOTS strategy are OAT distribution, and recording reporting communicating using a computer system. The meeting in the context of controlling tuberculosis during the COVID-19 pandemic has changed, namely via *Zoom*. The research results are as follows:

Based on the results of interviews that have been carried out, the results obtained are cross-sectoral communication with the Bulu Lor Health Center in TBC control during the COVID-19 pandemic using *WhatsApp*, or *Zoom* to communicate or send information about the development of TBC.

"So, it must be admitted that it is indeed affected by the COVID-19 pandemic, but meetings that are priority and important can be held in other forms, for example in zoom meetings..."

Informant 7.

Communication in the activity of finding or screening TBC cases during the COVID-19 pandemic is usually through meetings such as monitoring evaluations with zoom. However, the implementation of case finding at the Bulu Lor Health Center itself during the COVID-19 pandemic used *WhatsApp media* to contact people suspected of having TBC . The following is an excerpt from an informant's statement:

"via WA. There is a neighbor who is coughing, there is a neighbor whose term is that the cough does not heal, so tell them to come to the health center. Networks are like that, DPM, pharmacies, our laboratory already has a WA group."

Informant 1.

The six-month TB treatment monitored by PMO at the Bulu Lor Health Center during the COVID-19 pandemic continues to run well. DOTS officers always provide education to PMOs who are the closest relatives of TBC patients. The following is a statement from the informant:

"No, there's no problem... we'll let go until we really can, if we don't have the courage, we'll still be accompanying you"
Informant 1

In the distribution of OAT at the Bulu Lor Health Center during the pandemic there were no significant obstacles because it was systemized through SITB, and the OAT distribution flow was also handled and there were no obstacles, even during the COVID-19 pandemic. The following is a statement from the informant:

"It runs well, I mean there are no problems because I go directly to the IF (Pharmaceutical Installation) I usually contact the programmer who is in the medicine section at IF via SITB"
Informant 5

Communication on recording and reporting in the DOTS strategy component during the COVID-19 pandemic did not have significant obstacles. Recording and reporting is carried out properly in accordance with existing regulations. The following is a statement from the informant:

"So, usually, for example, if there is a new patient, automatically they from the health facility immediately notice that they have to record a report at SITB, now the health department itself will actually routinely provide feedback on the reporting record in which part is still lacking."
informant 6

The resource indicator in the DOTS strategy at the Bulu Lor Health Center in terms of funding did not experience significant obstacles despite experiencing a reduction in funds during the COVID-19 pandemic. The health personnel resources in the form of the DOTS team are in accordance with the procedures, but due to this pandemic, many health workers have increased their workload. Resources in the treatment of tuberculosis are appropriate, namely tuberculosis patients have their respective PMOs, namely family or close relatives. The supply of OAT and recording of reports is appropriate and does not experience problems in terms of resources. The following is a description of the results of the interview:

The resources in the government's commitment to TBC control in the Bulu Lor Health Center work area were formed on the basis of an agreement so that cross-sectoral collaboration in TB control is carried out without coercion, and many cross-sectoral groups have assisted in TBC control.

If it's cross-sectoral, it has helped a lot, but we need to keep reminding ourselves because across sectors there are also TBC cadres, there are various cadres and the same people, we need to refresh, we review, we monitor and evaluate like that"
Informant 1

The funding system in the DOTS strategy during the COVID-19 pandemic experienced a decline because there were some funds allocated to the COVID-19, but this was not a significant obstacle because activities that were

crucial for TBC control could still be carried out even though they were in the form of others activities such as meeting by using *zoom* .

"The TB funding system is from the APBD, yes, there is the BOK, then there is the APBN which is decentralized to the Provinces to the City. Besides that, there are also partner funds. For example, partner funds from GF… Yes, it will automatically decrease because there are priorities that are used to deal with COVID-19. I think it happens anywhere. Yes, it does not have a significant effect, meaning that priority activities can still be carried out."

Informant 7

The resources for finding/screening TBC cases at the Bulu Lor Health Center have been met, starting from TB programmers, health analysts, epidemiologists, pharmacists, and health promotion workers. The following is a statement from the informant:

"So there is a group of personnel related to the TBC control program, Ms. First is a nurse who manages the program, two are pharmacists, the three are analysts, then four are epid staff and health promotion staff. Epid staff who carry out tracking, pharmacists who manage drug and non-drug logistics for OAT, analysts who do TCM inspections, paint checks with Nielsen reagents. Then the one who monitors the implementation of the TBC control program at the health center with the TBC programmer at the health center"

Informant 7

Although the health workers at the Bulu Lor Health Center have been met, there are obstacles in the field during the COVID-19 pandemic, namely the Health Center staff who have to share their time in handling swab services. The following is a statement from the informant:

"yes... Like it or not, especially since it's COVID, it's like we also have to swab here and there, too, we have to be smart at managing our time, what about our resources, how about if I do PCR, Mrs. Nunik is in charge of the laboratory, like if someone is free, he/she has to have done it"
Informant 4

Tuberculosis treatment for six months is supervised by a PMO (Swallowing Drug Supervisor) which is sourced from family members or closest relatives such as cadres. PMO resources in the working area of Bulu Lor Health Center have been fulfilled, seen from each patient having their own PMO who comes from family members, and is accompanied by cadres. The following is the informant's statement:

"Yes, indeed the PMO is a health worker, right, but where is delegated, for example, if the husband is sick, the PMO is the wife, or the wife can't, health cadres are like that"
Informant 1

Resources in terms of the six-month treatment facility running at the Bulu Lor Health Center underwent a change during the COVID-19 pandemic, namely the DOTS room is currently combined with the COVID-19 swab room, but this situation does not cause any disturbances that affect the course of tuberculosis treatment at the puskesmas. The following is a statement from the informant:

"Yes, that's right, so there are also problems with what during the pandemic, right, we have one room, so we have to alternate between TB and COVID, but now back to TB"
Informant 3

The resources for the distribution of OAT at the Bulu Lor Health Center have been fulfilled, it means that all pharmacists participate and work together in the distribution of OAT. The following is a statement from the informant:

"Everything. So, sometimes, I don't fit in the afternoon shift or not at the Pustu or what time, so everyone knows, not only me, but also the other pharmacists who know."
Informant 5

The recording and reporting resources at the Bulu Lor Health Center consist of DOTS officers, health analysis officers, and pharmacy officers. The following is a statement from the informant:

"Yes... e... SITRAS, there is SEMAR BETUL, but SEMAR BETUL is made from Semarang, so if the SITB is already all over Indonesia, it's already used, but for now we are... it's like focusing on entering it into SITB, if it's a lab"
Informant 4

The disposition in the form of a commitment to the DOTS strategy at the Bulu Lor Health Center in combating tuberculosis experienced several obstacles including the lack of cadre commitment as evidenced by the resignation of one of the cadres in the Bulu Lor Health Center work area, the occurrence of dropouts in one of the tuberculosis patients in the work area. Bulu Lor Health Center. Indicators of government commitment, supply of OAT, and recording of reporting in terms of commitment have been implemented quite well at the Bulu Lor Health Center. The following is a description of the results of the interview:

The Semarang City Health Office and the Bulu Lor Health Center have made commitments in TBC control, one of which is the existence of a DPPM, namely the Public Private Mix District and has been going on since 2017. The following is a statement from the informant:

"Yes, so in Semarang City the DPPM or District Public Private Mix has been in place since 2017, then it will be breakdown at the sub-district level in 2021 where there are three sub-districts that have a sub-district of Public Private Mix, there is East Semarang District, there is North District, and Pedurungan District."

informant 7

This statement is in contrast to the situation in terms of commitment from across sectors of society. The condition of the COVID-19 pandemic has caused the community to prioritize COVID-19 prevention efforts such as PPKM and the jogo tonggo effort in the Bulu Lor Health Center work area, therefore the commitment to cross-sectoral society in tackling TB is slightly reduced. The following is a statement from the informant:

"E… they became more numerous during the pandemic yesterday, it was high, right, they were more focused on PPKM, so for TB they were a bit less because they focused more on preventing COVID, and PPKM, and Jogo Tonggo, etc. For TB, during the pandemic, it will decrease, hopefully after the pandemic, it can increase again."

Informant 3

The COVID-19 pandemic has affected the commitment to case detection in the DOTS strategy in the Bulu Lor Health Center work area. The lack of suspect screening activities, and the public's fear of contracting COVID-19 are the reasons for the reduced presentation of case findings at the Bulu Lor Health Center. The following is a statement from the informant:

"Yes, there is an incident because it's not allowed, Ms. If there are COVID at homes, there will be high transmission.
Informant 1

"For the health center area, some are not active in investigations, some in the urban village do not have TB cadres"

Informant 2

This statement is in line with the admission of TBC cadres who are no longer active in the investigation and monitoring of TB patients in their area. This statement is based on the fear of contracting COVID-19 which is currently incessant. The following is a statement from the informant:

"Hee, yes, yes, that's why during the pandemic, I wasn't active, it's been two years, I'm afraid, really"
Informant Triangulation 1

The commitment to the six-month treatment aspect went well, this was because the health center, cadres, and TBC patients were cooperative in TBC treatment. This is evidenced by the success of treatment at the Bulu Lor Health Center reaching the target. The following is a statement from the informant:

"It's committed, e... it can be seen in the achievement of healing, the cure rate for TBC patients at the Bulu Lor Health Center"

Informant 1

The success of the treatment achieved by the Bulu Lor Health Center cannot be separated from obstacles. The obstacle experienced by the Bulu Lor Health Center is that there are patients who drop out of treatment in 2021 and until now these patients have not been treated at the Health Center. The Health Center and the sub-district have met the patient but the patient did not want to seek treatment. The reason why the patient did not want to go back to the health center was because the patient could not feel the side effects of OAT, namely dizziness and weakness. The following is a statement from the informant:

"Yes, there are soldiers, there are officers, there is an urban village officer, I was told to go to the health center but they didn't change the medicine, I didn't dare, Miss"
Triangulation Informants H

"There was a complaint that I was at the health center but the medicine was never taken, when I drink I get dizzy, I feel weak. Actually, I want this for community work, I just take one paving, it's not strong, it's funny... So, I avoid it, and it's not replaced. They tell me to drink. Automatically it will kill me, Ms.
Triangulation Informants H

Health workers are committed to handling the supply and distribution of OAT in the Bulu Lor Health Center area. This is evidenced by records that have been neatly organized starting from by name, by drug, and others. In addition, the distribution of OAT is always appropriate and has never experienced a shortage of OAT. The following is a statement from the informant:

"If the officers are here because they are systemized by name, by medication, by giving, it's because there is already LPLPO, so there's no rush, you can't. The term is e... the medicine comes out ten and so on, it's systemized,

so it's already e...is it really neat, there's no rush of medicine, rush of giving, or others because the calculation is already systemized, it is still matched, Mrs. Mar has to take the responsibility.

Informant 1

The commitment to recording and reporting in the DOTS Strategy has been carried out by the entire DOTS team starting from TB programmers, health analysis officers, and pharmacy officers. This commitment can be illustrated by the DOTS team who knows the flow of what funds must be carried out in recording and reporting TBC. In addition, based on the results of interviews with the head of the health center, it was explained that there were no problems in recording and reporting at the Bulu Lor Health Center. The following is a statement from the informant:

"Hee, at SITB, once a month, but sometimes if someone comes out, I list it by name, for example, what date is out, who's the name"
Informant 5

The bureaucratic structure in the DOTS strategy at the Bulu Lor Health Center includes the organizational structure and conformity with the SOP, namely Permenkes No. 67 of 2016 has been going well. However, there is one indicator, namely sputum examination that is not in accordance with the SOP. Sputum examination carried out at the Bulu Lor Health Center is still one-time collection and examination of phlegm which in the Permenkes No. 67 of 2016 sputum examination was carried out twice, namely in the morning and at the time. The following is a description of the results of the interview:

The bureaucratic structure consisting of an organizational structure based on the government's commitment to the DOTS strategy, namely the sub-district level with the health center already has an organizational structure in the effort to control tuberculosis. The organizational structure is useful so that the implementation of tuberculosis control can be carried out appropriately in accordance with the main organizational functions. The following is a statement from the informant:

"There is, if we at the sub-district level there is already a decree, so the adviser is the sub-district head, then the chairman is me, the deputy chairman is the head of the sub-district PKK, the secretary is already structured so there is already a division for each"
Informant 1

The bureaucratic structure on the case detection aspect in the DOTS strategy at the Bulu Lor Health Center already has SOPs and job description for each DOTS team. The following is a statement from the informant:

"Yes, because the health center is accredited e… SOPs SOPs must exist"
Informant 1

"There is, so there is a job description, there is a decree so that P2P related to TBC then related to be a P2P coordinator, there is a separate job description"
Informant 3

The implementation of case detection at the Bulu Lor Health Center contained differences in the rules for examining sputum. Sputum examination is in accordance with the Minister of Health's Regulation, which is done twice for sputum examination, but at the Bulu Lor Health Center it is only done once in the morning. This happened because the community found it difficult to collect phlegm, even though the Bulu Lor Health Center still recorded two sputum examinations in accordance with the regulations. The following is a statement from the informant:

"Here, report it twice, once every morning from me, phlegm in the morning. One phlegm is ok, the second one can correct it."
Informant 2

"Yes, yes, it's like that, because the problem is from the patient, it's not like… The patients go back and forth, but the better is the morning phlegm. In fact, it is suggested the morning phlegm."

Informant 4

The six-month treatment carried out in the Bulu Lor Health Center area has been carried out in accordance with their respective duties and functions. PMOs, both from the patient's family or TBC cadres, already know the rules for taking OAT. The following is a statement from the informant:

"Already, we already know so we explain e... we monitor again, we give feedback on what it should be like, it seems we understand everything because yes it was a success, sometimes we also e... go to their families like that"

Informant 1

The implementation of the supply and distribution of OAT in the DOTS strategy at the Bulu Lor Health Center is in accordance with its duties and functions because the Bulu Lor Health Center has an SKP system. The following is a statement from the informant:

"Yes, the structure has been divided, what are the main tasks and functions, because we follow are the SKP system"

Informant 1

The recording and reporting carried out at the Bulu Lor Health Center has been carried out in accordance with the duties and functions of each DOTS team. The implementation of recording and reporting has been divided into an organizational structure in which the treatment, distribution of OAT, and laboratories have carried out recording reports in accordance with their respective fields. The following is a statement from the informant:

"Ok, it is finished. So the pharmacy in charge is Ms. Ela, Ms. Mayang's laboratory, then for the TBC program, Mr. Khabib"

Informant 1

Communication on the aspect of the government's commitment in dealing with tuberculosis during the COVID-19 pandemic has changed. Communication before the pandemic was carried out by direct and routine meetings between the health office and the health center, as well as between the health center and across programs, but during the COVID-19 pandemic, communication between the health center and cross-sectors underwent a change, namely by using *WhatsApp* and *Zoom.* This is in line with (Rezkiani et al., 2021) which stated that socialization activities with direct meetings were canceled due to the COVID-19 pandemic. In addition, the study revealed that tuberculosis development during the pandemic used *WhatsApp media* or using the telephone. Not much different from communication on government commitments, communication on the aspect of case detection also uses electronic media in the form of *WhatsApp* or *Zoom.* The Health Center will use the network to screen cases via *WhatsApp.* The communication that occurs between the health center and patients by using network does not fully run well. There are conditions that become obstacles in communication, namely the lack of response in responding to messages if they are not reminded again. Similar to communication on government commitments, case detection aspects can also be examined in a Shannon communication model. Shannon Communication in (Kubota, 2019) *Noise* or disturbance can be caused by four factors, namely external disturbances such as construction noise, psychological disturbances such as prejudice, biased attitudes towards others, biological disturbances such as illness, fatigue from the sender or

recipient, other disturbances such as slang or special terms. In this study, the disturbances experienced in communication in case detection experienced by health center officers in networking were disturbances in psychological aspects such as prejudice and attitude bias when sending or receiving messages, and biological aspects such as the health condition of the sender or recipient. This happens because the network in the Bulu Lor Health Center does not only deal with tuberculosis prevention, so there are many possibilities that occur in the communication aspect. Communication on the aspect of treatment for six months is carried out directly by the TBC clinic programmer to TBC patients. Communication using media such as posters, leaflets, or brochures is very rare. Based on the results of observations made by researchers, in the DOTS room there are two posters with A3 size plastered on the walls of the room, besides that there are several leaflets and brochures but the media is only stored in a cupboard or in a drawer. This is not in accordance with the rule (Kementrian Kesehatan RI, 2016) which is to empower the community with guidance using communication media such as flipcharts, posters, etc. Bulu Lor Health Center does not use the available communication media when providing education about tuberculosis to TBC patients. Communication on OAT supply and distribution did not experience significant changes and constraints before and during the COVID-19 pandemic. The supply and distribution of OAT has been using a system called SITB (Tuberculosis Information System). Pharmacists in communicating about the supply of OAT, namely contacting the pharmacy installation to apply for OAT stock. This is the same as the research conducted by (Suci et al., 2022), namely that the distribution and supply of OAT has been systematized from both the health department and the health center, and the flow of OAT distribution for tuberculosis patients is directly taken over by tuberculosis officers who provide OAT directly to patients. Communication in the recording and reporting of tuberculosis is carried out in a systematic manner using SITB. Recording and reporting is done on a daily basis so that every day inputting the development of tuberculosis through SITB. SITB recording and reporting is also monitored by the Semarang City Health Office and always provides *feedback* to health facilities so that if there are health facilities whose recording and reporting are incompleted, the Health Office will directly contact the health facility concerned.

The government's commitment resources have helped a lot in the implementation of tuberculosis control at the Bulu Lor Health Center. Sources of funding for tuberculosis control include APBN, APBD, BOK, and other funds. Funding resources have also been impacted by the COVID-19 pandemic. During the COVID-19 pandemic, funding sources for tuberculosis control experienced a reduction in which some of the funds were allocated for handling COVID-19. Although the allocation of funds was partially allocated for COVID-19, the implementation of tuberculosis control did not experience obstacles from the funding aspect. This is also in line with research conducted by (Rezkiani et al., 2021) namely funding, one of which is from the BOK, there are no obstacles such as lack of funds, the allocation of funds before and during the pandemic still exists. The number of health center personnel in the fight against tuberculosis is in accordance with applicable regulations, but during the COVID-19 pandemic, health center officers experienced additional workloads such as swab checks, vaccines, and others. This resulted in the health center officers, especially the DOTS team, trying to provide good services from microscopic examination, treatment and handling in the DOTS room, as well as case screening was carried out properly. The additional workload during the pandemic experienced by health center personnel often experienced a build-up of tasks that required them to work longer hours at the health center. This is in line with the results of research from (Mahlian et al., 2022) which is that there is a relationship between the level of workload and work fatigue with *p-value* = 0.000 (p <0.05). There are sufficient resources in the aspect of treatment for six months, as evidenced by the presence of a TBC programmer who always performs routine examinations, and each patient has a PMO, both from the patient's family and from TBC cadres. The flow of tuberculosis treatment at the Bulu Lor health center is in accordance with the existing treatment flow, such as treatment in a special room for tuberculosis. However, during the COVID-19 pandemic, the room was also used for swabs. In addition, the DOTS room at the Bulu Lor Health Center does not have a special room for phlegm, and if there is a patient who wants to phlegm, the patient is phlegm outside the room. This is not the same as

the DOTS room at the Bandarharjo Health Center. According to (Putri et al., 2020) the facilities available at the TBC special polyclinic, one of which is the phlegm corner room. Resources other than the availability of OAT, namely PMO, which each patient already has. In the supervision of taking medication, the patient is always monitored by the PMO, both from the patient's family and from TBC cadres. The results of interviews conducted with PMO revealed that the availability of OAT was always sufficient in every treatment. This is in accordance with research (Samhatul & Bambang, 2018) which states that OAT is provided with the right dose and is taken regularly by patients who are always supervised by the PMO. Recording and reporting resources include TBC programmers, health analysts, pharmacists. These resources are sufficient at the Bulu Lor Health Center. These resources are in accordance with (Kementrian Kesehatan RI, 2016), namely the recording and reporting system is carried out electronically based on a web-based and nationally integrated system which is currently known as SITB. Each recording and reporting of tuberculosis has its own function and in each of these functions, each health center officer fills in according to his duties, for example, laboratory officers, namely health analysis personnel, fill out a suspected register form during a sputum examination, then fill in a bacteriological examination at the time of the examination. microscopic.

The disposition on the aspect of government commitment at the Bulu Lor Health Center is in the form of a DPPM (*District Public Private Mix*) organization organized by the Semarang City Health Office, which is one of the *sub-districts* of the organization, the Bulu Lor Health Center. *District Public Private Mix* is a collaboration with all health care providers from both the public and private sectors to carry out efforts to control tuberculosis (Tumuhimbise & Musiimenta, 2021). This statement is in accordance with the government's efforts in the city of Semarang in overcoming tuberculosis, namely by forming a *District Public Private Mix* and one of the members of the DPPM is the Bulu Lor Health Center. This is also related to research (Fahrudda et al., 2021) namely the public policy in the national program for tuberculosis control has been implemented together with the DOTS strategy program in accordance with national guidelines. The Health Office is responsible for the implementation of tuberculosis control and policies for accelerating the discovery of tuberculosis cases with a partnership, namely DPPM, which involves the public and private parties. Commitment to the case detection aspect experienced several changes and obstacles in the field during the COVID-19 pandemic. The results of the interviews that have been carried out provide an overview of the conditions of commitment from various parties in carrying out case detection in the working area of the Bulu Lor Health Center. Obstacles in detecting tuberculosis cases that occur are the lack of activeness of the cadres in identifying tuberculosis cases. This happened because some cadres were afraid of contracting the COVID-19 virus which was currently spreading. This condition is in line with the results of research from (Rosid et al., 2021) which states that the resulting hypothesis test shows that there is a relationship between performance and motivation with a *P* value of 0.01, attitude (*P* = 0.001), and tenure (*P* = 0.001). The motivation experienced by TBC cadres in the working area of the Bulu Lor Health Center has decreased as evidenced by the inactivity of one of the cadres. This factor causes the performance of tuberculosis cadres to decrease in case finding in the working area of the Bulu Lor Health Center. The implementation of finding tuberculosis cases in the working area of Bulu Lor Health Center is not only constrained by the motivation of cadres but also experiencing obstacles, namely people who are less cooperative in collecting phlegm. Some people are reluctant to have their sputum checked because of the stigma of tuberculosis which is still rife in the community. This is similar to research (Prihanti et al., 2018) which shows that the age factor with an OR of 8.620, early symptoms of cough with an OR of 3,119, the health facility being addressed with an OR of 0.167, low stigma with an OR of 3,005, lack of knowledge with an OR of 8,763, and status low economy with an OR of 0.042 has a significant influence on the high and low rate of finding cases of tuberculosis. Behind the successful achievement of treatment that reaches the target, there are also patients who experience treatment dropouts. The health center to the sub-district have intervened to overcome these problems, but patients still do not want to go to the health center for treatment. After being traced through interviews with these patients, it turns out that the problem of dropping out of treatment is caused by side effects of OAT that the patient consumes. This condition is in line with research (Kadek et al., 2018) which revealed that there is a directly proportional relationship between OAT side effects and medication adherence.

The more severe the side effects of the drug, the worse the adherence to treatment and vice versa. Patients who drop out of treatment at the Bulu Lor Health Center experience dizziness and weakness when taking OAT. This is in accordance with the study (Dasopang et al., 2019) which stated that 72.7% of patients experienced dizziness and nausea. Pharmacists are always committed to the availability of OAT. This is evidenced by the results of interviews with TBC patients who do not experience OAT deficiency. The commitment in supply and distribution of OAT is also supported by the procurement of OAT stock which has been systemized by SITB so that young pharmacy officers can submit requests for OAT stock. In addition, pharmacists at the Bulu lor Health Center always routinely administer OAT according to the number of patients, and have considered the stock of drugs both in the waiting period or expiration period. Not only pharmacists who have committed to the smooth distribution of OAT, the government such as the Semarang City Health Office has also been committed to the smooth distribution of OAT as evidenced by the absence of significant obstacles in the procurement and distribution of OAT. This is in accordance with research (Faizah & Rahajo, 2019) that the OAT supply has been fulfilled by the Health Service, and always strives for the availability of OAT so as not to experience drug logistics vacancies. This is the same as the research conducted by (Rezkiani et al., 2021), namely the OAT logistics are always fulfilled and there is no difference before and during the COVID-19 pandemic. The DOTS team tasked with recording and reporting TBC cases included TBC programmers, laboratory officers, and pharmacy officers. The officer is committed to recording and reporting. This can be seen through the efforts of officers who continue to fill SITB even though they experience signal problems or other disturbances. In addition, in terms of conformity with reporting records, health center officers have correctly adjusted the filling of reports based on the function of each level of implementation. This condition is the same as the research conducted by (Mading et al., 2021), namely in the implementation of digital recording and reporting through SITB, internet network disturbances were experienced so that the officers did the recording and reporting manually first.

The government's commitment which includes networking with urban village and sub-districts, as well as the Health Office already has an organizational structure. One example of the organizational structure in the Bulu Lor Health Center network is the head of the health center being the DOTS coordinator in North Semarang District, and the head of the Bulu Lor Health Center being the head of the DPPM in the North Semarang District. The DPPM program carried out between the Bulu Lor Health Center and other networks is in accordance with the SOP, which is in accordance with Permenkes No 67 of 2016. Coordination for tuberculosis control at networks is also listed in (Kementrian Kesehatan RI, 2016) namely coordination between government and across programs, as well as health service provider facilities included in DPPM program, both public and private services in an effort to control tuberculosis. The implementation of a sputum examination for suspected TBC at the Bulu Lor Health Center is different from the implementation of a sputum examination at a hospital in Semarang City. This is known from the results of an interview with a TBC patient who was examined for sputum at the hospital. The results of the interview obtained from the TBC patient were sputum examination at the hospital, namely three times the collection of sputum, namely at any time, in the morning, and at the time. The same thing was also carried out by the study (Samhatul & Bambang, 2018), namely the implementation of sputum examinations carried out at the health center where the research took place three times, namely at any time, in the morning and at the time. The implementation of treatment for six months was in accordance with the SOP, namely based on Permenkes no 67 of 2016. The treatment carried out at the Bulu Lor Health Center included a re-examination using microscopic examination. Microscopic examination was carried out after about two months of TBC patients having an examination at the health center. This is in accordance with (Kementrian Kesehatan RI, 2016) which states that the purpose of the microscopic examination is to monitor the progress of treatment whether it is still smear positive or has become negative. The implementation of tuberculosis treatment also includes a follow-up examination, namely a microscopic examination with Ziehl Nielsen staining. According to (Dewi & Fairuz, 2020) examination with Ziehl Nielsen stain has been recommended by WHO in the component of the DOTS strategy for examination of tuberculosis sputum. This statement is also explained in the study (Achmadi et al., 2021) that the examination of sputum with Ziehl Nielsen stain has been agreed globally. The supply and distribution of OAT has been

divided into their respective main functions, namely that this task is part of the duties of the pharmacy staff. Pharmacy officers in managing OAT procurement are in accordance with existing procedures, namely through SITB. The drugs given have also met the standard (Kementrian Kesehatan RI, 2016) because the OAT procurement is entirely systemized by SITB. Similar to the research conducted by (Faizah & Rahajo, 2019), namely the distribution of OAT is in accordance with Permenkes No. 67 of 2016 therefore the implementation of OAT distribution to administering OAT to tuberculosis patients does not experience problems. The recording and reporting of tuberculosis at the Bulu Lor Health Center is in accordance with the SOP, namely Permenkes No. 67 of 2016 as evidenced by the absence of significant obstacles. The duties and functions of each DOTS team at the Bulu Lor Health Center have been well divided. The same thing was also stated by (Suci et al., 2022) in his research, namely that reporting carried out every month always gets *feedback* from the health department and is always evaluated, besides that the recording and reporting at SITT at that time was in accordance with categories such as tuberculosis cases in tb 03, and the suspect in tb 06, this is in accordance with the Permenkes No. 67 of 2016.

CONCLUSION AND SUGGESTION

Communication is carried out from the aspect of government commitment using *zoom media* or *WhatsApp*. The communication media used were direct demonstrations because almost all TB patients cannot read because they are >35 years old. The commitment to one of the cadres has decreased because the cadre is afraid of contracting COVID-19. There are patients who drop out of treatment due to the side effects of OAT they are experiencing. The SOP used in all aspects of the DOTS strategy is using Permenkes No. 67 of 2016. Sputum examination carried out at the Bulu Lor Health Center was only done once in the morning even though it should have been done twice. This is because people find it difficult to collect phlegm.

Based on the conclusions described above, the advice that will be given is to always provide education not only to TBC patients but also to the community about tuberculosis. Provide more information about the side effects of OAT in TBC patients. Always perform a sputum examination in accordance with Permenkes No. 67 of 2016 which is carried out twice in the morning and at the time. Always improve cooperation with Bulu Lor Health Center in an effort to control tuberculosis in their area, one of which is by seeking to motivate TBC cadres in each region and recruiting TB cadres through collaboration with Bulu Lor Health Center

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