Overview of TB patient compliance for control during the Covid-19 pandemic at the Tuberculosis Clinic of Academic Hospital of Universitas Gadjah Mada

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Abstract

Background: Tuberculosis (TB) is a communicable disease that is a major cause of ill health, one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent (ranking above HIV/AIDS). Based on data from the Ministry of Health of the Republic of Indonesia, there has been a decrease in the number of TB cases found and treated. As one of the strategies to control risk factors for TB disease transmission, Academic Hospital of Univertitas Gadjah Mada provides a special clinic for TB patients whose rooms meet national standards. However, several times researchers found that there were still TB patients who controlled outside the TB clinic schedule so that they blend in with non-TB patients, which resulted in increasing the risk of TB disease transmission to patients visiting the UGM Academic Hospital. The World Health Organization (WHO) declared Covid-19 a pandemic on 9 March 2020. This has caused public fear to visit health facilities. This study aims to determine the level of compliance of TB patient visits during the Covid-19 pandemic at the UGM RSA TB Clinic. **Materials and method:** This descriptive observational study used secondary data, with a total sampling technique and analyses using univariate analysis. **Results:** Of the 40 samples that met the inclusion and exclusion criteria, 92.5% of patients were in the productive age range (18-65 years), mostly male (70%). The proportion of patients with pulmonary TB was 62.5% and the remaining 37.5% were extra- pulmonary TB patients. During the Covid-19 pandemic, there was an increase in adherence of TB patients to control at the TB clinic and on schedule from month 1 to the following months. Influencing factors include feelings of embarrassment at the beginning of the patient's TB diagnosis because the patient knows that TB is an infectious disease. **Conclusion:** We conclude, during the Covid-19 pandemic, there was an increase in adherence of TB patients to control at the TB clinic and on schedule from month 1 to the following months.

Keywords: *control adherence, Covid-19 pandemic, extra-pulmonary TB, pulmonary TB, tuberculosis*

1.   Introduction

Tuberculosis (TB) is a communicable disease that is a major cause of ill health, one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent (ranking above HIV/AIDS). Globally, an estimated 10.0 million (range, 8.9–11.0 million) people fell ill with TB in 2019. There were an estimated 1.2 million (range, 1.1–1.3 million) TB deaths among HIV-negative people in 2019 (a reduction from 1.7 million in 2000), and an additional 208,000 deaths (range, 177,000–242,000) 6 among HIV-positive people (a reduction from 678,000 in 2000) (1).

Geographically, most people who developed TB in 2019 were in the WHO regions of South-East Asia (44%), Africa (25%) and the Western Pacific (18%), with smaller percent-ages in the Eastern Mediterranean (8.2%), the Americas (2.9%) and Europe (2.5%). Eight countries accounted for two thirds of the global total: India (26%), Indonesia (8.5%), China (8.4%), the Philippines (6.0%), Pakistan (5.7%), Nigeria (4.4%), Bangladesh (3.6%) and South Africa (3.6%). The other 22 other countries in WHO's list of 30 high TB burden countries accounted for 21% of the global total (1).

Based on the 2020 global TB report data from the Ministry of Health of the Republic of Indonesia (Kemenkes RI), there are 845,000 estimated TB cases in Indonesia with 568,987 notified TB cases with treatment coverage of around 67% and treatment success rate of around 83%. The number of TB cases in Indonesia based on anatomical location in 2020 are: 312,062 pulmonary TB cases and 32,930 extra-pulmonary TB cases (2,3).

Coverage Data TB Treatment Coverage in Yogyakarta Special Region (DIY) is still low, at 31% of the national target of 80%. Meanwhile, the TB Treatment Success Rate in Yogyakarta Province is 86% with a national target of 90% (2,3). To reduce the risk of TB disease transmission in Yogyakarta, especially in Sleman, there is a specialized clinic at RSA UGM that meets national standards. However, there are still TB patients who are controlled outside the TB clinic schedule. Since the World Health Organization (WHO) declared covid-19 a pandemic on 9 March 2020, this has caused fear among the public to visit health facilities. Therefore, research is needed on the compliance of TB patients to seek treatment at hospitals, especially RSA UGM.

2.   Materials and Methods
Research Methods

This study was conducted using observational study approach, in particular cross-sectional retrospective design among TB patients. A total sampling technique was employed to select a sample at Academic Hospital Universitas Gadjah Mada (RSA UGM) from March to December 2020 among adult patients (>18 years) with TB diagnosis were registered with the TB clinic at RSA UGM. Sample selection consider the inclusion and exclusion criteria. The inclusion criteria included patients with complete medical record data that contained TB diagnoses, both pulmonary TB and extra-pulmonary TB, who received treatment for at least 6 months at RSA UGM during the period March - December 2020 by not considering the length of TB diagnosis. Meanwhile, the exclusion criteria for this study were TB patients under 18 years of age, patients who changed treatment.

Data collection was carried out on participants who met with the criteria, both inclusion and exclusion. The retrospective review of medical records among TB patients was guided by data collection form to obtain information on demographic characteristics, including age, gender, and disease classification. Also collect data on treatment result and patients' adherence on control schedule based on doctor evaluation and patients' visit data.

Data Analysis

All of the data were summarized using descriptive statistics, a percentage data, and present on both diagram and table.

3.   Results

From the results of the research conducted, the total population of TB patients who sought treatment at RSA UGM from March to December 2020 was 65 patients. Of these 65 patients, only 40 patients met the inclusion criteria. A total of 21 patients dropped out of treatment during the study period, 2 patients moved treatment and 2 patients were referred (Figure 1)
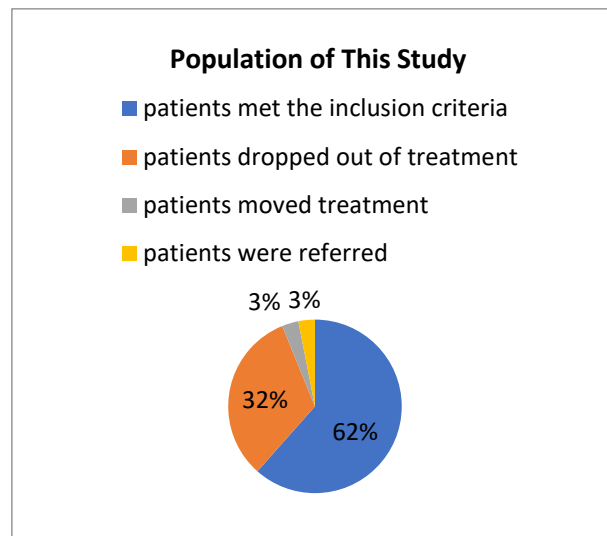
Figure 1. Study population

Most of the respondents were in the productive age range, 92.5%. The complete distribution data of age amonf respondents can be seen in Table 1.

Table 1. Age Range of Respondents

Age Range	n	%
18 - 65	37	92,5
66 - 79	3	7,5
Total	40	100

Most of the respondents in this study were male, as many as 70%. Complete data on the gender distribution of respondents can be seen in Table 2.

Table 2. Gender of Respondents

Gender	n	%
Male	28	70
Women	12	30
Total	40	100

Respondents were classified into 2 groups, namely pulmonary TB and extra-pulmonary TB. The distribution of respondent classification data can be seen in Table 3.

Table 3. TB Classification of Respondents

TB Classification	n	%
Pulmonary TB	25	62,5
Extra Pulmonary TB	15	37,5
Total	40	100

Based on the data above, most respondents were classified as having pulmonary TB (62.5%) based on the diagnosis in their medical records.

Respondents' treatment results after month 6 are in Table 4. The proportion of samples who recovered after 6 months of treatment was 50% and those who were still undergoing treatment after 6 months of treatment was 50%.

Table 4. Respondents' treatment results after six months

Treatment Results	n	%
Healed	20	50
Still on medication	20	50
Total	40	100

Moreover, the distribution of respondents' compliance for control according to the location and date of the first to sixth month visits is as follows:

Table 5. Compliance of control patients according to the location and date of control

Month Visit	As per	No As per	Total
1/1A	10,0%	90,0%	100,00%
1B	65,0%	35,0%	100,00%
2/2A	55,0%	45,0%	100,00%
2B	60,0%	40,0%	100,00%
3	77,5%	22,5%	100,00%
4	85,0%	15,0%	100,00%
5	92,5%	7,5%	100,00%
6	97,5%	2,5%	100,00%

Based on the table above, it was found that there was an increase in respondents' compliance to control according to the location and date that had been determined.

4. Discussion

The age range of TB patients in this study was mostly at the productive age, with 92.5% of the sample aged 18-65 years. According to WHO, the age range of 18-65 years is an adult age range. These results are in line with several previous studies Safii et al (2015) who conducted research on the description of compliance of pulmonary TB patients in the city of Bandung, indicating that the age range of patients was between 18-65 years old (4).

Wulandari's research (2015) on analyzing the factors associated with the compliance of pulmonary TB patients at the follow-up study at Rumah Sehat Terpadu Hospital showed 47 people (67.1%) were in the age range of 22-60 years. Nurbaety's research (2020) on the description of the level of knowledge and compliance of TB patients at the NTB Provincial Hospital in the July-August 2019 period showed that the age range of TB patients was mostly in the late adolescent to adult age range, namely a total of 19 people, while patients in the elderly age range were 12 people (4-6).

Rojali & Niviatuzzahrah (2018) said in their research that pulmonary TB tends to be transmitted in the productive age group because of its very high mobility. Thus, the risk of contracting TB disease is greater. However, according to Infodatin in 2018, groups that are vulnerable to TB disease are the elderly, infants, children, HIV patients, cancer patients, people with diabetes, and malnutrition. Meanwhile, adolescents have a lower risk of developing tuberculosis. Based on the 2013 Riskesdas survey, the higher the age, the higher the prevalence. There is a possibility of TB reactivation, and the duration of TB exposure is longer than in younger age groups (7,8).

Most of the TB patients in this study were male (70%). Similar results can be found in the research of Safii et al (2015), Wulandari (2015), Rojali & Noviatuzzahrah (2018), Nurbaety et al (2020) and Yusmaniar & Kurniawan (2020) which showed 71%, 64.3% respectively, 74.3%, 64.5%, and 75.44% were male. These results are also in accordance with the 2017 Tuberculosis Prevalence Survey that the prevalence in males is 3 times higher than in females. This is likely because men are more exposed to TB risk factors such as smoking and lack of medication adherence (4-7, 9).

Most of the patients who seek treatment at RSA UGM are patients with pulmonary TB, as many as 62.5%. The cure rate after 6 months of treatment is 50%. From the 2018 Infodatin data, the percentage of recovery of pulmonary TB patients is 42% while patients with Extra Pulmonary TB is 43.1% (8).

Table 5 shows the TB patient visits from months 1 to 6, including patients who were given intensive phase drugs in months 1 and 2 every 2 weeks or once a month. Thus, there are variations in patient visits in the first 2 months of TB treatment (Visit 1, 1A, 1B, 2, 2A and 2 B). This is in accordance with the *protocol for TB services during Covid 19 Pandemics 2nd Edition* that TB drug administration in patients with drug-sensitive TB in the intensive treatment phase, OAT is given at intervals of every 14 - 28 days (10).

Based on Table 5, it was found that only 10% of patients at visits 1 and 1A were scheduled for control. Ninety per cent of patients did not have a schedule because they received their first month's medication during hospitalization or took their first medication other than at the TB clinic. Overall, there was an increase in patient adherence to control at the designated location and date.

According to Notoatmojo (2003), the 3 factors that influence a person's behavior are predisposing factors which include individual characteristics, knowledge and attitudes of patients, enabling factors including drug side effects and access to health services and reinforcing factors which include the attitude of officers and family support. In addition, the results of the TB prevalence survey (2004) on the knowledge, attitudes, and behaviors (PSP) that influence TB patient adherence to treatment showed that the norm, stigma that pulmonary TB disease is shameful and frightening in the community. However, this can be reduced by

improving community knowledge and perceptions about TB, dispelling TB myths through campaigns to specific groups and creating culturally appropriate counselling materials (11,12).

The culture of the community, such as embarrassment if known to suffer from pulmonary TB disease so that it has the potential to transmit the disease, is one of the causes of patient non-adherence to come for control to the TB Clinic. According to WHO 2010, in improving community behavior the government can facilitate predisposing, enabling and reinforcement factors in the community. Enabling factors in the provision of facilities and infrastructure in efforts to prevent transmission of pulmonary TB, for example the separation of TB clinics from other clinics in health care facilities. Improving the program from passive case finding by health workers to proactive case finding by cadres who require training (12).

5.   Conclusion

One In this study, most of the samples were at productive age (18-65 years), which was 92.5%. Most of the samples were male, namely 28 people (70%). The proportion of patients with pulmonary TB was 62.5% and the remaining 37.5% were extra-pulmonary TB patients.

Based on data summarizing TB patient compliance for control during the Covid-19 pandemic, there was an increase in compliance to come according to the schedule and location that had been determined from month 1 to the following month. Influencing factors include feelings of embarrassment at the beginning of the patient's TB diagnosis because the patient knows that TB is an infectious disease. It can also be caused by feelings of inferiority due to the stigma attached to TB patients. During the covid-19 pandemic, the patient's visit time was also shorter, which should have come 6 times to 4 visits. This is because RSA UGM doctors who treat TB patients also apply the TB service protocol during the Covid-19 pandemic according to the rules of the Indonesian Ministry of Health, namely by providing OAT to drug-sensitive TB patients in the intensive phase at intervals of every 14-28

days and in the continuation phase at intervals of every 28-56 days.

6.   Acknowledgements

7.   Conflict of interests

The researcher declares that there is no conflict of interest in the research, authorization and/or publication of this article.

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