

# PREVALENCE OF TUBERCULOSIS IN PREGNANT WOMEN IN SEMARANG

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## ABSTRACT

**Background:** In Indonesia, the prevalence of TB in pregnant women is comparable to the general population. There is a greater risk to the pregnant woman and her baby if TB disease is not treated. Babies born to women with untreated TB disease may have lower birth weight than those babies born to women without TB. This study aimed to describe the prevalence of TB in pregnant women in Semarang.

**Subjects and Method:** This study used secondary data obtained from drug-susceptible TB (DS TB) record at Semarang City Health Office, from 2020 to 2022. The target population was pregnant women with TB. Pregnant women with TB were described by sociodemographic, clinical, TB program, variables. The data were described in frequency (n) and percent (%).

**Results:** A total of 23 pregnant women had been diagnosed with DS TB and reported at the Semarang City Health Office between 2020 and 2022. Seven (31.8%) of the TB pregnant women were diagnosed clinically and 15 (68.2%) bacteriologically. Average age was 28.7, minimum= 19, maximum= 37. Fifteen (68.2%) lived in Semarang. Ten (45.5) received TB treatment at the community health center, and 12 (54.5%) received TB treatment at hospital. Four (18.2%) needed referral to hospital. Six (27.3%) completed treatment. One (4.5%) dropped out. Three (13.6%) were cured. Thirty six (36.4%) were under treatment.

**Conclusion:** Pregnant women with TB in Semarang have been described by sociodemographic, clinical, and TB program, variables.

**Keywords:** drug-susceptible TB (DS TB), sociodemography, pregnant women.

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## BACKGROUND

Tuberculosis is still one of the top global health problems. The World Health Organization (WHO) reports that there are 1.3 million deaths caused by tuberculosis (TB), of which 300,000 deaths are accompanied by HIV (WHO, 2018). Indonesia is the third

country with the highest TB cases in the world after India and China. Two-thirds of TB cases in the world are dominated by 8 countries including India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa. In Indonesia alone, the highest prevalence of TB is on the

Islands of Sumatra, Java, and Bali (Kristini and Hamidah, 2020).

TB is one of the most terrible killers of women of childbearing age. Pregnancy may increase the risk of developing TB in previously infected women, especially in the last trimester or early postnatal period. The incidence of TB in pregnant women increases significantly. The increased risk of newborns with TB mothers includes the risk of TB infection in infants, premature and low birth weight, perinatal and neonatal death, and becoming orphans (Harahap and Fauzar, 2019).

The prevalence of pregnant women with TB is comparable or almost the same as the incidence of TB in the general population, so it can be assumed that TB treatment in pregnant women is as important as TB treatment in the general population. It is necessary to map and coordinate health service facilities in the city of Semarang so that pregnant women can screen for TB in view of the high risk. This study aimed to describe the prevalence of TB in pregnant women in Semarang.

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## SUBJECTS AND METHOD

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### 1. Design Study

This research is a quantitative research with a cross-sectional study. This study used a secondary data source record of drug-susceptible TB (DS TB) for 2020-2022 from the Semarang City Health Office.

### 2. Population and Sample

This study used secondary data sources for DS TB records for 2020-2022 from the Semarang City Health Office with a total of 3,915 DS TB patients. Then the

researchers filtered the data with inclusion criteria, namely pregnant women. The number of pregnant women with DS TB in that period of the year was 23 pregnant women. Existing data is edited, coded, entered, and cleaned. From the records obtained, data were found for 1 pregnant woman aged 69 years, after confirming the data was removed from the data analysis, so that the data analyzed in this study totaled 22 pregnant women with DS TB.

### 3. Study Variable

Variables in this study were occupation, place of treatment, domicile, referral status, type of TB diagnosis, anatomical classification, history of DM, history of HIV, OAT guidelines, source of drugs, end result of treatment.

### 4. Definition Operational of Variables

**Work** was the main activity carried out by the subject and earns income for this activity and is still being carried out at the time of the interview.

**The place of treatment** was the choice of health service chosen by the subject to check his health condition.

**Domicile** was the residence of the research subject.

**Referral status** was the status of delegation of authority and responsibility for TB cases suffered by subjects when they come to health services.

**The type of TB diagnosis** was the result of examination of the subject seen from the source of confirmation of disease enforcement.

**Anatomical classification** was the anatomical location of the tuberculosis disease suffered by the subject.

**History of DM** was a history of DM disease owned by the subject.

**History of HIV** was a history of HIV disease owned by the subject.

**OAT guidelines** were categories of drugs given to subjects in the treatment of tuberculosis.

**The source of the drug** was the source of funds for treating TB patients to get OAT.

**The final result of treatment** was the subject's treatment status at the time of data collection.

### 5. Study Instrument

The data for this study were taken from secondary data records of SO TB for 2020-2022 from the Semarang City Health Office.

### 6. Data Analysis

The data were described in frequency (n) and percent (%).

## RESULTS

Table 1 shows that the average age of pregnant women with TB SO is at a productive age of 28.7 years with a range of 19 years to 37 years.

Table 2 shows that 23 pregnant women have been diagnosed with DS TB and reported to the Semarang City Health Office between 2020 and 2022. A total of 7 (31.8%) pregnant women with TB were diagnosed clinically and 15 (68.2%) bacteriologically. The mean age was 28.7, minimum= 19, maximum= 37. A total of 15 (68.2%) pregnant women lived in Semarang. As many as 10 (45.5%) received TB treatment at the Puskesmas, and 12 (54.5%) received TB treatment at the hospital. A total of 14 (18.2%) required referral to hospital. A total of 6 (27.3%) completed treatment. A total of three (13.6%) recovered. A total of 36 (36.4%) were under treatment.

**Table 1. Age of pregnant women with TB SO by age in Semarang City Health Office**

| Variable | Mean | Minimum | Maximum |
|----------|------|---------|---------|
| Age      | 28.7 | 19      | 37      |

**Table 2. Characteristics of pregnant women with TB SO based on secondary data records from the Semarang City Health Office**

| Characteristic     | Category                 | Frequency (N) | Percentage (%) |
|--------------------|--------------------------|---------------|----------------|
| Occupation         | Student                  | 1             | 4.5            |
|                    | Housewife                | 11            | 50             |
|                    | Non governmental laborer | 2             | 9              |
|                    | Unknown                  | 1             | 4.5            |
|                    | No Work                  | 3             | 13.6           |
| Treatment place    | Public Health Center     | 4             | 18.4           |
|                    | Hospital                 | 10            | 45.5           |
| Domicile           | Semarang City            | 12            | 54.5           |
|                    | Outside Semarang         | 15            | 68.2           |
| Referral status    | Come alone               | 7             | 31.8           |
|                    | Referral                 | 18            | 81.8           |
| TB diagnostic type | Clinical                 | 4             | 18.2           |
|                    | Bacteriological          | 7             | 31.8           |
|                    | Extrapulmonary TB        | 15            | 68.2           |
|                    |                          | 4             | 18.2           |

| Characteristic            | Category                 | Frequency (N) | Percentage (%) |
|---------------------------|--------------------------|---------------|----------------|
| Anatomical Classification | Pulmonary TB             | 18            | 81.2           |
| History of DM             | No DMs                   | 10            | 45.5           |
|                           | Unknown                  | 12            | 54.5           |
| History of HIV            | HIV negative             | 7             | 31.8           |
|                           | Unknown                  | 15            | 68.2           |
| OAT Guide                 | Category 1               | 21            | 95.5           |
|                           | Not standard TB          | 1             | 4.5            |
| Drug source               | Insurance                | 1             | 4.5            |
|                           | TB program               | 21            | 95.5           |
| Treatment end result      | Complete treatment       | 6             | 27.3           |
|                           | Dropped out of treatment | 1             | 4.5            |
|                           | Not evaluated            | 2             | 9.1            |
|                           | Healed                   | 3             | 13.6           |
|                           | Unknown                  | 2             | 9.1            |
|                           | Process of treatment     | 8             | 36.4           |

## DISCUSSION

Based on the results of previous studies, it was found that there was a relationship between age and TB sufferers. Age is one of the predisposing factors that influence behavior which can be related to psychological and physical maturity. High mobility and also productive age activity is a demand for community activities and to fulfill life's needs which allows increasing contact with other people (Sikumbang et al., 2022).

Most pregnant women with DS TB are housewives (50%). The type of work does not affect the growth and proliferation of *Mycobacterium tuberculosis* but does affect the risk factors encountered (Siregar, 2021). People who don't work relatively spend more time at home and can increase the intensity of contact with families who live in one house. The results of the study by Rukmini and Chatarina (2011) showed that the biggest risk factor for the incidence of TB in adults was hou-

sehold contacts (Rukmini and Chatarina, 2011). In addition, damp house conditions and lack of ventilation will increase the risk of TB transmission.

Most were treated at the hospital (54.5%) with most coming alone or without referrals (81.8%). TB treatment can be carried out in health care facilities, both primary health care facilities and above. From the results of the study it was found that more TB patients took medication on their own or without referrals, this was also because the research subjects were pregnant women who carried out routine checks at health care facilities. In addition to this, this also shows that the level of knowledge and attitudes of the community is good. So far, screening for TB suspects has been mostly carried out by Health Center City with community-based partnerships because many people still give a negative stigma to TB sufferers. This is necessary to create the need for quality TB services through the involvement of cadres and former TB patients through the provision of adequate information and outreach about

the importance of TB prevention and control (Wijaya et al., 2013).

DM is a disease with the most common risk factors that occur in TB patients. The TB prevalence increases with the increase in the prevalence of DM. The frequency of DM in TB patients is reported to be around 10-15% and the prevalence of this infection is 2-5 times higher in diabetic patients compared to non-diabetic patients (RI Ministry of Health, 2019). DM can reduce the immune system so that a person can be more susceptible to TB, and vice versa TB sufferers can exacerbate DM because it causes the patient's body to be unable to control blood sugar levels so that TB patients can more easily suffer from DM (Lin et al., 2019).

HIV makes patients more susceptible to tuberculosis due to decreased immunity (Mulyadi and Fitrika, 2020). Likewise with HIV TB, it is necessary to know whether there are HIV comorbidities in TB patients, this will affect treatment decision-making as well as monitoring and evaluating program performance (RI Ministry of Health, 2019). Previous studies have shown that co-morbidities can cause TB patients to have higher risk factors for MDR (Multidrug Resistance Tuberculosis) (Workicho et al., 2017). From the results of the study it was found that the majority of pregnant women with Mulyadi had no known DM status (54.5%) and no known HIV status (68.2%). Determining the status of pregnant women with DS TB related to comorbidities is very important to do.

The most important thing in the healing process for tuberculosis is adherence to taking OAT medication

because taking medication regularly and being obedient is the only way to recover from tuberculosis. Compliance in taking medication means that the patient follows the rules for taking medication and administering it properly (Rokhmah, 2010). This study found that not all OAT drug sources were obtained from government programs, there were still 4.5% of drugs sourced from insurance.

Based on the final results of treatment, there were still 9.1% of patients who were not evaluated at the end of treatment and only 13.6% with cured treatment status. The results of Soeparman's research (2011) explained that due to the long treatment process, it causes boredom for sufferers to continue taking the drug. Besides that, patients also sometimes feel healthy after receiving treatment for a while, even though the treatment has not been completed (Soeparman, 2011). This is due to a lack of knowledge about TB. In addition to knowledge, this is also due to the side effects of OAT which are considered uncomfortable for patients, such as tingling and numbness in the hands and feet, nausea, pink urine, loss of appetite, mild stomach pain, and several other discomforts (Seniantara et al., 2018). WHO launched the 'End Tuberculosis' strategy, which is part of the Sustainable Development Goals, with one goal, namely to end the TB epidemic worldwide. Approaches, methods and strategies are still needed for the development and reduction of TB prevalence. In accordance with the 2013 and 2016 Joint External Monitoring Mission (JEMM) recommenda-

tions and the Semarang city government pays high attention to TB problems, especially TB with pregnancy.

It is necessary to strengthen program management and increase access to quality TB services during ANC examinations at health facilities, by providing technical guidance to human resources at health facilities to make them more competent and effective and strengthening a proactive surveillance system (mandatory notification) based on data obtained from SITH and SEMARBETUL so that it can increase the independence of the community in terms of reporting to health facilities through the RT/RW/Village regarding suspected cases of TB in the neighborhood.

#### **AUTHOR CONTRIBUTION**

In this study, the conception of the study is the contribution of Indra Adi Susianto. Data collection was carried out by the writer Indra Adi Susianto. Jessica Christanti, Nur Dian Rakhmawati, and Ririn Nurmandhani. Data analysis and interpretation was performed by Ririn Nurmandhani. Manuscript writing, review of results and writing of the final version of the manuscript were carried out by all authors.

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#### **CONFLICT OF INTEREST**

There is no conflict of interest in writing this article.

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