



**QUALITATIVE ANALYSIS OF FACTORS INFLUENCING COMPLIANCE WITH MEDICATION IN PREGNANT WOMEN AND SUFFERING FAMILIES TUBERCULOSIS: APPLICATION OF THEORY HEALTH BELIEF MODEL**

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**ABSTRACT**

Tuberculosis (TB) has contributed 25% of the total number of deaths. It is estimated that 98% of deaths due to TB occur in developing countries. So the success of treating TB really depends on the patient's compliance with taking medication, especially in groups at risk of contracting TB such as pregnant women. Compliance is greatly influenced by various factors and is very dependent on behavior. One of the most popular theories in explaining behavior is the health belief model. The aimed of this research is to explore the factors influencing compliance with medication in pregnant women with tuberculosis using theory of health belief model. This research is a qualitative analysis using a health belief model approach. This research will be conducted in the work area of the Cimarga Community Health Center in December 2023. Data collection was carried out using in-depth interviews with researchers using the triangulation method. There were 4 main informants, 2 triangulators, and 4 supporting informants. The approach used is perception of vulnerability, severity and perception of benefits The result of this research are: (1) perceived susceptibility shows that the majority of respondents who adhere to taking medication are aware that this disease is serious and after they are infected, this makes them afraid that people around them such as parents and fetuses will also be infected. (2) Perceived benefits can be measured in the context of TB treatment behavior in pregnant women by asking about improvements in symptoms and perceived changes in physical condition during the treatment process. (3) The perception of severity begins to be felt when the disease begins to cause symptoms and family members become infected quickly. Moreover, those infected are mothers who are pregnant.

Keywords: health belief model; pregnant women; tuberculosis, qualitative

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**INTRODUCTION**

Research reports that about two billion people worldwide are infected with Mycobacterium tuberculosis. More than 8 million people are infected with active TB each year, about 2 million people die from pulmonary TB. More than 90% of TB cases and deaths come from developing countries, one of which is Indonesia. Pulmonary tuberculosis is one of the highest prevalence infectious diseases in the world. Based on the World Health Organization (WHO) report, in 2016 there were an estimated 1,020,000 TB cases in Indonesia, but only 420,000 cases were reported to the Ministry of Health. Based on the official WHO report, it states that there are 9.6 million people in the world sick with tuberculosis and as many as 1.2 million of them die from tuberculosis (SHAROMAH, 2019).

Geographically, TB cases are highest in South East Asia. There are 10 countries contributing two-third of the total TB cases, namely India with 27.9%, Indonesia with 9.2%, China with 7.4%, Philippines with 7.0%, Pakistan with 5.8%, Nigeria with 4.4%, Bangladesh with 3.6%, Democratic Republic of the Congo with 2.9%, South Africa with 2.9% and Myanmar with 1.8% (Ministry of Health, 2021). Indonesia is the 2nd highest country with tuberculosis sufferers. This encourages national tuberculosis control to continue to be carried out by intensification, acceleration, extensification and program innovation (Wijaya, 2023) Previous studies have reported that in developing countries TB deaths account for as much as 25% of the total number of deaths. It is estimated that 98% of deaths from TB disease occur in developing countries, with 75% of TB sufferers being productive groups (15-50 years) (Dhamnetiya, 2021). WHO estimates that there have been 8.7 million new cases of tuberculosis (13% of which are coinfected with HIV) and 1.4 million people have died of tuberculosis.

The success of TB treatment depends largely on the adherence of taking the patient's medication. Adherence affects patient outcomes and is thus an important factor to consider when evaluating regimens in clinical trials. However, medication adherence is still the most underrated and understudied factor affecting tuberculosis (TB) therapy outcomes (Vernon, 2019). Adherence refers to the completeness of the participant or patient in following medical instructions. Because adherence can vary greatly between individuals, it can have an important influence on treatment outcomes. Compliance more broadly may also involve changes required by protocols (for example, in response to increased liver function tests) that are not an active choice of participants. In their recent review on this topic, Blaschke and colleagues observed that adherence is a major source of variability affecting TB therapy outcomes (Imperial MZ, 2018).

Adherence is strongly influenced by a variety of individual and social factors, as well as key features of the infecting strain of *Mycobacterium tuberculosis* (e.g., minimal inhibitory concentrations of each drug used), and the patient's inherited characteristics (including genetic factors that determine drug metabolism, immunological competence, and the form of TB lesions). Given that pulmonary TB is a contagious disease, and the impact if the patient stops taking medication is the emergence of drug-resistant tuberculosis germs. If this continues to happen and the germ continues to spread, tuberculosis drug control will be increasingly difficult to implement and increase the mortality rate from tuberculosis. So that compliance in the treatment of pulmonary TB is important to be analyzed, especially in patients with pulmonary TB in vulnerable groups, namely pregnant women (Sri, 2023). Non-adherence to taking medication in pulmonary TB patients is mainly caused by the side effects of drugs that are felt to cause discomfort to the condition of the body, forgetting to take medication and the amount of medication that is widely consumed because of suffering from other comorbidities. PMO plays a role in improving adherence to taking medication not only by reminding to take medication but by supervising directly when taking medicine, accompanying patients during control and taking drugs to the puskesmas and providing encouragement and motivation so that patients feel motivated to recover (Wijaya, 2023).

Previous research has reported that there is a relationship between public perception of pulmonary TB drug consumption behavior with the theory of health belief model, there is a relationship between perception of vulnerability, perception of seriousness, perception of benefits, perception of obstacles, cues to action and self-efficacy, with a positive relationship direction. The positive relationship is that the higher the health belief, the higher the compliance behavior (Paudi, 2023). In the working area of the Cimarga Health Center, there

are at least 4 pregnant women who are exposed to TB and need monitoring in taking medicine, but sometimes there are still reports of pregnant women who are late or even almost forget to take TB medicine. Based on this background, researchers are interested in conducting a qualitative analysis between factors that affect drug adherence in pregnant women and families suffering from tuberculosis: the application of the health belief model theory.

## **METHOD**

This study is a qualitative analytical research using a phenomenological study approach, where researchers will explore information about factors that influence adherence behavior to consume TB drugs with the analysis of the Health Belief Model or *Health Belief Model*. This research conducted in the Cimarga health center area in 2023. Information collection is done by in depth interviews with 10 respondent. Informants are grouped into 3, namely: (1) the main informant is a woman or patient who has pulmonary *tuberculosis* (TB) as many as 4 people, (2) triangulators or subjects who will verify the results of the interview are officers who monitor and are responsible for the TB program, namely colleagues, as many as 2 people and (3) supporting informants, namely the patient's family or husband as many as 4 people. In total, the authors used 10 respondents. Data validity will use *triangulation methods* (*triangulaton*) and *peer discussion* (*peer debriefing*). The focus of the analysis will include perceptions of vulnerability, percentage of benefits, and perceptions of severity.

## **RESULTS**

### **Perception of Vulnerability**

In the perception of susceptibility, it is explained that personal risk or vulnerability is one of the most powerful perceptions for a person to adopt healthier behaviors. This would be logical when a person believes that he or she is at high risk of a disease. The greater the perceived risk, the greater the individual's behavior to reduce the risk. When a person believes that he is not at risk or prone to a disease then people tend to exhibit unhealthy behaviors. In this study, researchers identified informants' personal perceptions related to *perceived susceptibility* to TB disease and treatment.

The results of interviews with 10 respondents showed that most of the respondents who were adherent to taking medication had realized that this disease was severe and after they contracted it, this made them afraid that people around them such as parents would be infected, so they understood that this treatment must be completed and if not completed the treatment there would be drug resistance (*multi drug resistance – tuberculosis / MDR-TB*). Awareness is also getting stronger because of the condition of being pregnant, this makes them fear for the health of their fetus. This can be known from the narration of the triangulator and the narration of one main informant.

*"Mereka yang patuh minum obat telah menyadari bahwa penyakit ini parah dan sangat menular, kami juga menginfokan bahwa pengobatan ini harus selesai dan jika terlupa maka penyakit bisa menjadi makin parah dalam artian saya menjelaskan secara singkat tentang resistensi obat (multi drug resistance – tuberculosis / MDR-TB). Kesadaran makin kuat saat istri atau anggota keluarga yang sedang hamil ikut tertular. Jadi ketakutan akan keparahan semakin tinggi karena ada janin"*

(Those who are adherent to taking medication have realized that this disease is severe and very contagious, we also inform that this treatment must be completed and if forgotten then

the disease can become worse in the sense that I briefly explain about drug resistance (multi drug resistance – tuberculosis / MDR-TB). Awareness is stronger when a pregnant wife or family member is infected. So the fear of severity is higher because there is a fetus)" (**Triangulator, IKM Officer**).

*"Abdi ngaraos sieun bu, kumargi cenah panyakit tuberculosis tea tiasa tepa, janten abdi diligently nginum medicine margi sieun kacekel ku kulawarga, especially orok abdi"*

**(Main informant Mrs. M 28 years old).**

### **Perception of Benefits**

The perception of benefits emphasizes the impulse to act due to perceived positive results. The perception of benefits can be measured in the context of TB treatment behavior in pregnant women by asking about improvements in symptoms and changes felt related to physical conditions during the treatment process. Officers have also socialized this group regarding the benefits of treatment, in addition to the majority of respondents have reported the benefits of treatment carried out as said by triangulators, main informants and supporters as follows:

*" Salah satu motivasi pasien dalam mengkonsumsi obat TBC adalah manfaat seperti pengurangan gejala batuk, sesak pada dada, dan juga badan yang terasa lebh bertenaga. Memang pada awal pengobatan banyak pasien yang mengeluh mual dan air kencingnya berwarna merah, akan tetapi kami tetap mengedukasi dan terus memberi semangat*

One of the motivations of patients in taking TB drugs is benefits such as reducing symptoms of coughing, tightness in the chest, and also a body that feels more energetic. Indeed, at the beginning of treatment many patients complained of nausea and red urine, but we still educate and continue to encourage. (**Midwife Triangulator**).

*" Da emang awalna the rada nausea tea geningan bu,, ay amah saminggu,, high-five kitu ka body delicious,, teu cough2 deui,, teu lemes,, and lightly carried. Emang sok rada males jeng saturated tea da obatna loba, but da atuh kumaha deui kudu di minum (**Supporting Informant Mr. M 21 years old**).*

*"Because seagrass high-five wants medicine to make a good taste to the body, chest is still very good, janten servants routinely want medicine, sieun maot or every day2 specifically to give birth to children, only who takes care of servants who still care for their servants still gering TB?"*

**(The main informant Mrs. L, 35 years old).**

### **Severity Perception**

Severity perception refers to subjective perception of severity when suffering from a disease. This idea arises based on the assumption of individuals that if a disease is not treated, the more severe the disease, the greater the threat that must be faced. In this study, the perception of severity reinforces behavior and the percentage of vulnerability. Severity begins to be felt when the disease begins to cause symptoms and also family members are infected quickly. Moreover, those infected are mothers who are pregnant. This makes fear of the severity of the disease impact on the baby as well as other family members. As explained by the following triangulators and informants

*" Mereka awalnya tidak sadar tentang bahaya penyakit TBC, mereka mengira bahwa hanya mereka yang akan menderita. Setelah terjadi penularan mereka menyadari keparahan dan juga dampak dari TBC bisa meluas"*

They were initially unaware of the dangers of tuberculosis, thinking that only they would suffer. Once transmission occurs, they realize the severity and also the impact of TB can be widespread. **(Public health officer, Triangulator).**

*"Abdi nguping ari teu di ubaran will get worse iyeu panyakit bu, abdi oge teu nyangka will katalan komo ka wife nu keur ngungung,, so abdi sieun jenung murangkalihna,, ku abdi di emutan wae unggal dinten pan obatna kedah teu tiasa kahilap"*  
**(Supporting Informant Mr. K 31 years old).**

## **DISCUSSION**

### **Perception of Vulnerability**

Perceived susceptibility shows that the majority of respondents who adhere to taking medication are aware that this disease is serious and after they are infected, this makes them afraid that people around them such as parents and fetuses will also be infected. These results are in line with research (Azizi, 2018) which revealed that HBM constructs are able to explain 42% of patient behavior variants, in other words they provide experimental support to the idea that HBM constructs might contribute to predicting therapeutic adherence in TB patients. These results are in line with previous research showing that HBM is a useful model for explaining healthy behaviors including medication adherence. (Horne, 2020) Other studies also mention that (Gebremariam, 2021) the perception of vulnerability is one of the factors that influence a person's actions in adhering to TB treatment because individuals who feel that they are at risk of developing certain health problems are generally involved.

In the perception of vulnerability, it is explained that personal risk or vulnerability is one of the most powerful perceptions for a person to adopt healthier behaviors. This would be logical when a person believes that he or she is at a high risk of a disease. The greater the perceived risk, the greater the individual's behavior to reduce the risk. When a person believes that he is not at risk or prone to a disease then people tend to exhibit unhealthy behaviors. In this study, researchers identified informants' personal perceptions related to perceived susceptibility to transmission (Nahak, 2017). (Parwati, 2021) (Venema, 2021)

### **Perception of Benefits**

Perceived benefits can be measured in the context of TB treatment behavior in pregnant women by asking about improvements in symptoms and perceived changes in physical condition during the treatment process. These results are in line with research conducted by which states that perception of treatment efficacy and symptom improvement is one of the drivers of adherence in TB treatment [AOR=3.45, 95% CI (1.07, 11.08)], in this study people who have felt the benefits of TB treatment will be 3.45 times more likely to adhere to the overall treatment time and adhere to taking medication. (Gebremariam, 2021) Based on the theory of perceived benefit refers to an individual's assessment of the value or efficacy of engaging in health-promoting behaviors that reduce the risk of disease. The risk that each individual has to the health response he experiences depends on several factors such as the theory of the Health Belief Model, the individual's perception of the threat of disease in himself, how much the individual's perception of the danger or severity that threatens him. encourage individual behavior to seek treatment. (Supinganto, 2020)

Furthermore, the individual's perception of the benefits obtained in case of treatment is also a component that drives changes in treatment-seeking behavior . The challenge is about individual perceptions of the treatment to be obtained, whether there are obstacles such as expensive costs, and the level of difficulty in obtaining it. Then the cue to act is the individual's cue to carry out treatment or preventive measures .(Patricia, 2020)(Supriano, 2021)

### **Severity Perception**

The perception of severity begins to be felt when the disease begins to cause symptoms and family members become infected quickly. Moreover, those infected are mothers who are pregnant. This result is in line with research conducted by (Supinganto, 2020) which states that the application of the HBM concept in behavior change has been used in infectious diseases can be explained based on the relationship between perceptions of vulnerability and disease severity. DHF prevention behavior with r values of 0.292 and 0.406 respectively. Perceived severity refers to the belief in the profound impact of the condition on various aspects of life, including social and clinical consequences. Individuals who perceive and remember serious health problems, they are more likely to engage in behaviors to reduce their severity (Berhimpong, 2020).

In the perception of severity it is explained that the perception of severity or seriousness is an individual's assessment regarding the severity of a disease . A person tends to adopt healthy behaviors when they find themselves at risk factors for transmission of a disease. The perception of severity (seriousness) arises when a person feels that the behavior he is currently undergoing will have a bad effect on his body in the future. When individuals perceive it as a severity, individuals will tend to adopt healthy behaviors to minimize it.(Green, 2020)(Andraini, 2022)

### **CONCLUSION**

The perception of vulnerability shows that most of the respondents who are adherent to taking medication have realized that this disease is severe and after they are infected, this makes them afraid that people around them such as parents will be infected, so they understand that this treatment must be completed and if not completed treatment there will be drug resistance (multi drug resistance - tuberculosis / MDR-TB). Awareness is also getting stronger because of the condition of being pregnant, this makes them fear for the health of their fetus. The perception of benefits can be measured in the context of TB treatment behavior in pregnant women by asking about improvements in symptoms and changes felt related to physical conditions during the treatment process. Officers have also conducted socialization to this group regarding the benefits of treatment, besides that the majority of respondents have reported benefits from the treatment carried out. In this study, the perception of severity reinforces behavior and the percentage of vulnerability. Severity begins to be felt when the disease begins to cause symptoms and also family members are infected quickly. Moreover, those infected are mothers who are pregnant. This makes fear of the severity of the disease impact on the baby as well as other family members

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