



# Cognitive Behavior Therapy Lowers Anxiety Levels of Pregnant Women during the COVID-19 Pandemic at Sikumana Health Center

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## Abstract

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**BACKGROUND:** Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Pregnant women are a vulnerable group or at risk for COVID-19. Pregnancy during the COVID-19 pandemic can cause high anxiety for pregnant women. Cognitive behavior therapy (CBT) interventions used can prevent the occurrence of anxiety and depression of pregnant women.

**AIM:** This study aims to know the effect of cognitive behavioral therapy (CBT) on the anxiety of pregnant women during the COVID-19 pandemic.

**METHODS:** This study used a quasi-experimental design with pre-design and post-test designs. The research site was the Sikumana District Health Center, Kupang City, Indonesia. The sample of 80 respondents consisted of 40 intervention group respondents and 40 respondents of the control group. Taylor Minnesota Anxiety Scale (TMAS) questionnaire was used as an instrument in this study. Intervention was held by giving CBT therapy for 10 sessions of meetings in an hour. The control group was given treatment in the form of minimum midwifery standard care (10T) while the intervention group was given therapy in the form of CBT and minimum midwifery standard care (10T). The control group was given CBT treatment twice a month in 10 encounters with stages of identification, cognitive restructuring, identification and correction, and mind notes. The Mann-Whitney U-test was used as data analysis techniques in this research.

**RESULTS:** There was a significant difference between the pretest TMAS score and after the CBT intervention. There was a decrease in the level of anxiety, namely, from the TMAS pretest score of 44.49–28.70 and the value Z pre-test -1,769, Z post-test -5,204, and  $p = 0.001$  ( $p < 0.05$ ). In the control group, there was no meaningful difference between the TMAS pre-test and post-test scores.

**CONCLUSION:** Cognitive behavior therapy (CBT) effectively lowers anxiety levels in pregnant women during the COVID-19 pandemic.

## Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The WHO raised the status of COVID-19 globally to a worldwide pandemic including Indonesia [1]. The COVID-19 pandemic causes global impacts including general health and mental health. The high cases of COVID-19 increase the risk of depression and anxiety [2]. Pregnant women are considered a high-risk population of COVID-19 [3], [4]. Pregnancy is a natural process that occurs in women, ranging from conception to birth with physical, emotional, and social changes [4]. During pregnancy, there are physiological changes and hormonal changes that decrease immunity so that they are susceptible to get infected [2]. COVID-19 pandemic has a psychological impact on pregnant women. This increases anxiety during pregnancy, the impact of the effects caused by the coronavirus that can cause health problems during pregnancy, to cause death [3].

Some studies report that the period of pregnancy is a time characterized by an increased risk of emotional disorders such as depression, anxiety, and trauma-related disorders [5]. About 21% of pregnant women suffered from anxiety during the COVID-19 and significant predictors of anxiety during the pandemic included the number of pregnancies, practices regarding COVID-19, COVID-19 anxiety, depression, and social support [4]. During pandemic, pregnant women in the second and third trimesters of pregnancy were more worried; the total health anxiety score was significantly higher among pregnant women in the third trimester of pregnancy [6]. The prevalence of anxiety of pregnant women in China is higher during COVID-19 than before COVID-19. During pandemic, pregnant women in the second and third trimesters were more worried about the condition. Thus, the anxiety score was highest in the third trimester pregnant women [3].

One way to deal with mental health problems such as anxiety and depression is behavioral cognitive therapy (CBT). CBT intervention is effectively given to postpartum mothers to prevent the occurrence of

depression and anxiety. CBT was done in 9 weeks, carried out every week with 1 h, and can meaningfully reduce the incidence of depression in postpartum mothers [7]. Other studies showed that the effect of mindfulness-integrated cognitive behavior therapy in pregnant women showed significantly lower reductions in the average scores of anxiety in the experimental group than the control group [8]. Another study showed that the effects of mindfulness-integrated cognitive behavioral therapy on pregnant women showed significantly lower mean scores of anxiety and depression in the experimental group than the control group. This study aims to identify the incidence of maternal anxiety during the COVID-19 pandemic, from the level of anxiety, gestational age, and characteristics of pregnant women.

## Methods

This study used a quasi-experimental design with pre-design and post-test designs. The research site was the Sikumana District Health Center, Kupang City, Indonesia. The sample of 80 respondents consisted of 40 intervention group respondents and 40 respondents of the control group. The independent variable is CBT, the dependent variable is anxiety. The research instrument was the TMAS questionnaire. Respondents were divided into two groups, namely, the intervention group and the control group. Taylor Minnesota Anxiety Scale (TMAS) questionnaire was used as an instrument in this study. Intervention was held by giving CBT therapy for 10 sessions of meetings in an hour. The control group was given treatment in the form of minimum midwifery standard care, while the intervention group was given therapy in the form of CBT and minimum midwifery standard care. The control group was given CBT treatment twice a month in 10 encounters with stages of identification, cognitive restructuring, identification and correction, and mind notes. In accordance with the research objectives, statistical analysis used the Mann–Whitney U-test statistical test, the error rate was set  $<\alpha$  0.05.

## Results

Table 1 shows that most of the respondents' ages were 20–35 in either the intervention or control group. In education aspect, most of them were graduated from high school. Thus, in occupation aspect; most of the respondents were unemployed. Most gestational ages were in the second and third trimesters and belong to the primigravida and multigravida groups.

**Table 1: The frequency distribution characteristics of demographic data (n = 80)**

Variable	Intervention/CBT (n = 40) (%)	Control (n = 40) (%)
Age		
Normal (20–35 years old)	28 (70.0)	33 (82.5)
High risk (<20 years >35 years)	12 (30.0)	7 (17.5)
Education		
Junior high school	6 (15)	6 (15)
Senior high school	24 (60)	23 (57.5)
Diploma	1 (2.5)	1 (2.5)
Bachelor	9 (22.5)	10 (25)
Occupation		
Housewife/unemployed	27 (67.5)	27 (67.5)
Civil servant	4 (10)	5 (12.5)
Self-employed/entrepreneurial	9 (22.5)	8 (20)
Gestational age		
Use 1 <sup>st</sup>	5 (12.5)	6 (15.0)
Use 2 <sup>nd</sup>	16 (40)	15 (37.5)
Use 3 <sup>rd</sup>	19 (47.5)	19 (47.5)
Gravida		
Primigravida	20 (50)	18 (45)
Multigravida	19 (47.5)	20 (50)
Grand multipara	1 (2.5)	2 (5.0)

Table 2 shows that 18 respondents (45%) experienced moderate anxiety in the intervention group, while 7 respondents (17.5%) and 31 respondents (77.5%) are highly and moderately anxious in the control group. Post-test results show that there is a decrease in stress levels in the intervention group/CBT, namely, high anxiety to 1 respondent (2.5%). Thus, there is no change of anxiety level in the control group.

**Table 2: Anxiety level of pregnant women (n = 80)**

Variable	Intervention/CBT (n = 40) (%)	Control (n = 40) (%)
Pre-test		
No anxiety	5 (12.5)	0 (0.0)
Low anxiety	17 (42.5)	2 (5.0)
Moderate anxiety	18 (45)	31 (77.5)
High anxiety		7 (17.5)
Post-test		
No anxiety	4 (10)	0 (0.0)
Low anxiety	21 (52.5)	2 (5.0)
Moderate anxiety	14 (35.0)	31 (77.5)
High anxiety	1 (2.5)	7 (17.5)

Table 3 shows that there is a meaningful difference between the TMAS pre-test score and after being given CBT treatment. There is a decrease in the level of anxiety, namely, from the TMAS pre-test score of 44.49 to 28.70 and the value Z pre-test  $-1,769$ , Z post-test  $-5,204$ , and  $p = 0.001$  ( $<\alpha$  0.05). However, in the control group, there was no significant difference between the TMAS pre-test and post-test scores.

## Discussion

Based on the results of this study, it was found that many pregnant women experienced low anxiety during the COVID-19 pandemic, both in the intervention group and the control group. There is a difference in the average number of mothers who experience anxiety due to the COVID-19 pandemic, between the treatment group and the control group. The results of another study show that around 93% of pregnant women experience anxiety and stress due to being infected with

**Table 3: Cognitive behavior therapy lowers anxiety levels of pregnant women during COVID-19**

Characteristic	TMAS pre-test		TMAS post-test		Z		p-value	
	Mean rank	Sum of ranks	Mean rank	Sum of ranks	Pre-test	Post-test	Pre-test	Post-test
CBT	44.49	1779.50	28.70	1148.00	-1.769	-5.204	0.077	0.000
Control	36.51	1460.50	52.30	2092.00				

COVID-19. Pregnant women are worried about being infected with COVID-19 and worried that it will have an impact on their pregnancy [2], [9]. A cross-sectional study of 205 pregnant women in Tabriz, Iran, showed that the mean anxiety score was 3.79 (3.39). Anxiety of pregnant women during COVID-19 is influenced by the level of education, partner support, and gravida. The results showed that most of the respondents' education was high school, with 24 respondents (60%) in the intervention group and 23 respondents (57.5%) in the control group. Most of the respondents were primigravida and multigravida in the second and third trimesters in both the intervention group and the control group. During COVID-19, pregnant women in the second and third trimesters were more worried and anxious during the pandemic. Pregnant women in trimesters II and III were more anxious and worried about getting sick and got infected, thus had more concerns about the disease [6].

The results of this study indicate that there are differences in the level of anxiety of pregnant women in the intervention group before and after being given the CBT intervention. There was a decrease in the level of maternal anxiety after the CBT intervention. The picture concludes that CBT intervention can reduce the anxiety of pregnant women during the COVID-19 period. The results of statistical analysis obtained significant results  $p = 0.000$  ( $<0.05$ ). This means that there are differences in the level of anxiety of pregnant women during the COVID-19 pandemic from the intervention group after being given CBT therapy. These results can be concluded that the CBT intervention is quite effective in reducing the anxiety of pregnant women during the COVID-19 pandemic.

Pregnancy, childbirth, and postnatal can cause stress, hence increase anxiety of the mother and her partner. Anxiety is a whole psychological process that causes changes in cognitive, affective, psychological, and behavioral levels [10]. Anxiety disorders are a form of mental disorder. Anxiety disorders often occur during pregnancy up to 12 months after delivery and can have a negative impact on the mother, fetus, and baby [11].

Anxiety disorders are influenced by genetic factors, environmental factors, and epigenetic factors [12]. Evidence-based psychotherapy (particularly cognitive behavioral therapy) and psychoactive medications (particularly serotonergic compounds) are both effective, facilitating patients' choices in therapeutic decisions [11]. This statement is supported by the results of previous research explained that CBT interventions are effectively given to postpartum mothers to prevent the occurrence of depression and anxiety. CBT is done in 9 weeks, carried out every week

with 1 h session, and can meaningfully reduce the risk of depression in postpartum mothers [7]. The results of another study showed that the administration of the effects of mindfulness-integrated cognitive behavior therapy of pregnant women showed significantly lower reductions in the average scores of anxiety and depression in the experimental group than in the control group [8]. Anxiety disorders during pregnancy can cause serious consequences for both the mother and fetus. CBT therapy is a psychosocial treatment that has been empirically proven to reduce anxiety disorders [12].

## Conclusion

The conclusion of this study is that CBT intervention has proven to be effective in reducing anxiety in pregnant women during the COVID-19 pandemic. Recommendations from this study integrate CBT interventions in every health-care facility in antenatal care services for pregnant women.

## Ethical Considerations

The authors have completely observed ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy).

## Ethical Clearance

Ethical clearance was obtained before the collection of data based on the research permission letter no LB.02.03/1/0113/2020 dated December 16, 2020, from the Health Polytechnic Ministry of Health Kupang.

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