

## THE RELATIONSHIP BETWEEN PREGNANT WOMEN'S UNDERSTANDING OF COVID-19 PREVENTION EFFORTS AND ANXIETY LEVELS DURING THE PANDEMIC AT PARON PUBLIC HEALTH CENTER, NGAWI REGENCY

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### ABSTRACT

*The Covid-19 pandemic, which began in early 2020, has spread globally, and adherence to health protocols is considered a crucial step in reducing virus transmission and associated anxiety. This study aims to analyze the relationship between pregnant women's understanding of Covid-19 preventive measures and their anxiety levels during the pandemic at Paron Health Center, Ngawi Regency. This research employed a correlational design with a cross-sectional approach. The study population consisted of 94 pregnant women at Paron Health Center, with a sample of 76 respondents selected through Simple Random Sampling. Data were collected using a questionnaire, and statistical analysis was performed using Somer's D test ( $\alpha = 0.05$ ).*

*The results indicate that the majority of pregnant women have a good understanding of Covid-19 preventive measures (90.8%), and most experience mild anxiety (52.6%). Statistical analysis revealed a  $\chi^2$ -value of 0.560, which is greater than  $\chi^2 = 0.05$ , indicating no significant relationship between the understanding of preventive measures and anxiety levels among pregnant women during the pandemic. In conclusion, while the understanding of Covid-19 prevention is good, pregnant women's anxiety is more influenced by concerns related to pregnancy, such as fetal health and pregnancy complications, rather than by knowledge of Covid-19 health protocols.*

## Introduction

The coronavirus (Covid-19) began to spread globally in early 2020, infecting almost all countries in the world. In January 2020, WHO declared Covid-19 a global emergency. In an effort to overcome this pandemic, the government has implemented various steps, one of which is the social distancing movement. This concept recommends that individuals maintain a safe distance of at least 2 meters to reduce or break the chain of Covid-19 infection and avoid direct contact and meetings (Buana, 2020).

The implementation of social distancing has a significant impact on various aspects of life, including the economy, work, business, education, health services, and religious activities (Belawati & Nizam, 2020). One significant impact is on maternal health services, where there is a reduction in the frequency of pregnancy check-ups and postponement of prenatal classes (Directorate of Family Health, 2020). This situation can cause psychological problems for pregnant women, such as anxiety.

Anxiety in pregnant women can have a negative impact during pregnancy until delivery. This can inhibit growth, weaken uterine muscle contractions, and potentially endanger the mother and fetus (Novitasari, 2013). Previous research by Astaria (2019) showed that pregnant women with high levels of anxiety are at risk of giving birth



prematurely or experiencing miscarriage. Research by Yuliani & Aini (2020) also identified a relationship between anxiety in pregnant women during the pandemic.

Data from the Indonesian Ministry of Health in 2019 recorded that there were 622,930 pregnant women in East Java Province, with 67,976 cases of anxiety when facing childbirth in Indonesia (Indonesian Ministry of Health, 2012). Anxiety in pregnant women during the Covid-19 pandemic is a serious concern, with studies reporting that 63-68% of pregnant women experience anxiety and 57.5% experience severe anxiety (Nanjundaswamy et al., 2020).

Pregnant women's anxiety during the pandemic was caused by various factors, including concerns about visiting the hospital for pregnancy check-ups (72.65%), exaggerated information on social media (52.14%), the safety of babies from infection after birth (52.14%), the effect of Covid-19 on the fetus (45.76%), and pregnancy outcomes (44.92%) (Nanjundaswamy et al., 2020). At the Paron Health Center, the number of Covid-19 patients from the beginning of the pandemic to April 2021 was 109 patients.

The COVID-19 pandemic has had a significant impact on the health of pregnant women, particularly in terms of anxiety and the preventive measures they must take. Pregnant women often find themselves in a vulnerable situation where their health and that of their unborn child become a primary concern. Suspicion related to COVID-19 infection, combined with the necessity of undergoing prenatal health check-ups, creates significant psychological tension for pregnant women, especially in the third trimester (Sundari et al., 2022; Widyastuti et al., 2022). Therefore, this study focuses on pregnant women's understanding of COVID-19 prevention efforts and how this knowledge influences their levels of anxiety.

The gap in previous research indicates that while there have been studies on pregnant women's anxiety during the pandemic, little attention has been given to how their knowledge of COVID-19 prevention contributes to the level of anxiety they experience. A study by Dewi et al. highlighted that pregnant women's knowledge of COVID-19 prevention is crucial (Dewi et al., 2020); however, there has been no in-depth understanding of how their individual experiences shape this complex feeling of anxiety. Furthermore, research conducted by Widyastuti et al. mentioned that health education can reduce anxiety (Widyastuti et al., 2022), but it did not sufficiently explore which types of education are most effective in enhancing pregnant women's knowledge and attitudes toward COVID-19.

This condition could be a serious issue, considering that high anxiety levels can impact both the physical and psychological health of the mother and the development of the fetus (Trisanti & Kulsum, 2021; Wulandari & Prihatin, 2022). Findings from Arisanti and Sari indicate that pregnant women with high levels of anxiety have lower preparedness for childbirth (Arisanti & Sari, 2022). Therefore, it is essential to explore the aspects of education and knowledge that can help pregnant women feel more secure and prepared during pregnancy in the pandemic era.

The Covid-19 pandemic has the potential to increase the level of anxiety in pregnant women, who are not only worried about the health of the fetus but also whether they and the fetus will be infected with Covid-19. In addition, concerns about the safety of pregnancy check-ups during the pandemic have worsened the situation. The government and related institutions have made various efforts, such as socialization regarding Covid-19 and the implementation of health protocols, but many people still do not fully understand this information (Saputra, 2020).

One of the main obstacles is the spread of false information or hoaxes about Covid-19, including about how it is transmitted, treated, and prevented (Saputra, 2020). Pregnancy



accompanied by anxiety can reduce the immune system of pregnant women, thereby increasing their vulnerability to Covid-19 infection (Ministry of Health of the Republic of Indonesia, 2020).

Based on this background, researchers are interested in studying pregnant women's understanding of Covid-19 prevention efforts and their anxiety levels during the pandemic in Ngawi Regency. This study aims to identify how pregnant women's understanding and anxiety can affect their well-being and provide the information needed to reduce anxiety during the labor process.

With the hope that this research can help pregnant women and health workers in reducing the level of anxiety of pregnant women facing childbirth during the pandemic. This is important to ensure the health of the mother and fetus is maintained during this challenging period.

This study aims to fill this research gap by analyzing the relationship between pregnant women's understanding of COVID-19 prevention efforts and the anxiety levels they experience. By involving pregnant women in this process, this research seeks to identify more effective strategies to support maternal mental health and fetal well-being during this challenging period. Additionally, this study aims to provide valuable recommendations for healthcare providers in designing better educational programs for pregnant women, particularly in the context of a pandemic.

This study aims to: (1) Determine the level of understanding of pregnant women about efforts to prevent Covid-19 during the pandemic in Ngawi Regency. (2) Determine the level of anxiety of pregnant women about efforts to prevent Covid-19 during the pandemic in Ngawi Regency. (3) Analyze the relationship between pregnant women's understanding of efforts to prevent Covid-19 and the level of anxiety during the pandemic in Ngawi Regency.

So the hypothesis in this study is "There is a relationship between pregnant women's understanding of Covid-19 prevention efforts and anxiety levels during the pandemic in Ngawi Regency.

## Methods

This study used a correlational design with a cross-sectional approach to explore the relationship between pregnant women's understanding of Covid-19 prevention and anxiety levels during the pandemic in Ngawi Regency. The study population consisted of all pregnant women at the Paron Health Center from January to March 2021, totaling 94 people, while the sample studied was 76 pregnant women selected using the Simple Random Sampling technique.

### Inclusion Criteria:

- Pregnant women who were registered at the Paron Health Center during the study period.
- Women in any trimester of pregnancy.
- Respondents who were willing to participate and provided informed consent.
- Pregnant women who were able to read and understand the questionnaire.

### Exclusion Criteria:

- Pregnant women with a history of severe psychological disorders diagnosed before pregnancy.
- Women experiencing pregnancy complications that could interfere with participation.
- Respondents who did not complete the questionnaire.



Data were collected using a questionnaire, with 7 items for understanding Covid-19 prevention and 20 items for anxiety levels, both using a Likert scale.

Data analysis was carried out univariately to describe the frequency distribution of each variable, and bivariately to test the relationship between variables using the Somers' D statistical test with  $\alpha = 0.05$  (Sugiyono, 2017). This test is applied to categorical variables on an ordinal-ordinal scale and examines the relationship between independent and dependent variables. Interpretation of the results is determined by the  $p$ -value; if the  $p$ -value  $< 0.05$ , then there is a significant relationship between the understanding of pregnant women and the level of anxiety during the pandemic. Location This study was conducted at the Paron Health Center in July 2021, with validity and reliability tests as part of the trial of the data collection tool.

Validity and reliability tests were conducted as part of the trial for the data collection tool to ensure measurement accuracy. The validity test was performed using the Pearson Product Moment correlation, with items considered valid if  $r$ -count  $>$   $r$ -table at a significance level of 0.05. The reliability test was conducted using Cronbach's Alpha, with a threshold of  $\alpha > 0.70$  indicating acceptable internal consistency. The results confirmed that all items in the questionnaire met the validity and reliability criteria, making the instrument suitable for data collection.

## Results

Tabel 1 Frequency Distribution of Pregnant Women's Understanding of Covid-19 Prevention Efforts at the Paron Health Center, Ngawi Regency (Cambria font 11pt, Center, space 1)

No	Maternal comprehension	Frequency (f)	Presentation (%)
1	High category	69	90,8%
2	Small portion	5	6,6%
3	Low category	2	2,6%
<b>Total</b>		<b>76</b>	<b>100%</b>

Based on table 1, it is known that pregnant women's understanding of efforts to prevent Covid-19 at the Paron Health Center, Ngawi Regency. the majority of 90.8% is in the high category and a small portion of 2.6% is in the low category.

Tabel 2 Frequency Distribution of Anxiety for Pregnant Women During the Pandemic at the Paron Health Center, Ngawi Regency

No	Anxiety level	Frequency (f)	Presentasion (%)
1	Normal category	40	52,6%
2	Small percentage	18	23,7%
3	Poor category	18	23,7%
<b>Total</b>		<b>76</b>	<b>100%</b>

Based on table 2, it is known that the Anxiety Level of Pregnant Women During the Pandemic Period at the Paron Health Center, Ngawi Regency was mostly 48%, which was in the normal category and a small percentage was 7.9, which was in the poor category.



Tabel 3 Frequency Distribution of the Relationship Between Pregnant Women's Understanding of Covid-19 Prevention Efforts and Anxiety Levels During the Pandemic at the Paron Community Health Center, Ngawi Regency

Maternal comprehension category	Anxiety Level						Total	
	Normal category		Moderate category		Mild Category			
	N	%	N	%	N	%	N	%
<b>Good</b>	37	48,6%	16	21.1%	16	21.1%	69	90,8%
<b>Moderate</b>	3	4%	2	2.6%	0	0	5	6.6%
<b>Poor</b>	0	0	0	0	2	2.6%	2	2.6%
<b>Total</b>	40	52,6%	18	23.7%	18	23.7%	76	100,0

*P value* : 0,560 , N: 76, Correlation coefficient :0,055

Based on table 3, it is known that respondents at the Paron Community Health Center, Ngawi Regency who have a good understanding of efforts to prevent Covid-19 for pregnant women with a mild level of anxiety, the percentage is 48.6% and those who have a poor understanding of efforts to prevent Covid-19 for pregnant women with a level of severe anxiety, the percentage is 2.6%.

Based on the results of data analysis using the Somers'D statistical test with SPSS version 25.0 software, it was found that  $p\text{-value} = 0.560 < \alpha = 0.05$ , which means that H1 was rejected so there was no relationship between pregnant women's understanding of efforts to prevent Covid-19 and the level of anxiety during the pandemic at the Paron Health Center, Ngawi Regency.

## Discussion

### 1. Overview: Pregnant Women's Understanding of COVID-19 Prevention Efforts

At the Paron Health Center, Ngawi Regency, most pregnant women demonstrated a good understanding of COVID-19 prevention, with 90.8% of 69 respondents having adequate knowledge. This understanding includes the proper use of masks, handwashing before and after activities, maintaining a minimum distance of 1 meter, and avoiding crowds, in accordance with the 4M Health Protocol (POGI, 2020). The increase in understanding was largely due to routine education provided by the health center, which took place every Thursday at the KIA Polyclinic.

Research indicates that educational background plays a crucial role in pregnant women's understanding of COVID-19 prevention measures. Those with higher education levels tend to have better comprehension and a more critical approach to health protocols (Aritonang, 2018). Individuals who are well-educated are generally more capable of implementing COVID-19 prevention measures correctly, leading to a better quality of life and reduced anxiety.

Despite the majority having a good understanding, 2 respondents (2.6%) demonstrated a low level of awareness. These individuals lacked knowledge regarding the importance of key health protocols, such as wearing masks and handwashing after touching public surfaces. This highlights the need for enhanced education to address gaps in understanding among a small number of pregnant women.



The understanding of pregnant women regarding COVID-19 prevention efforts has been a crucial focus, particularly given the prolonged duration of the pandemic. Various studies have shown that a high level of knowledge about COVID-19 is directly related to pregnant women's compliance with necessary health protocols to prevent infection. A study by Syafruddin and Permatasari indicated that pregnant women in urban areas tend to have higher adherence to COVID-19 health protocols compared to those in rural areas (Syafruddin & Permatasari, 2023). This highlights the importance of equitable knowledge distribution across different regions to minimize the risk of COVID-19 infection among pregnant women.

Furthermore, research by Aghababaei et al. found that pregnant women's awareness of COVID-19 risks—gained through information disseminated by the media and healthcare providers—had increased significantly (Aghababaei et al., 2020). Knowledge of preventive measures, such as mask usage, avoiding crowds, and maintaining good hand hygiene, has been shown to encourage better protective behavior among pregnant women (Ekadianto et al., 2022; Nurdin et al., 2022). However, despite this knowledge, challenges remain in ensuring consistent application, which contributes to heightened anxiety within this group.

In this context, Nurdin et al. discovered that while 99.1% of pregnant women possessed a high level of knowledge regarding COVID-19, only a small percentage consistently implemented appropriate preventive measures in daily practice (Nurdin et al., 2022). This finding reveals a gap between knowledge and practice, which needs to be addressed through community-based interventions and support from healthcare providers. For instance, midwives play a crucial role in enhancing understanding and providing valuable education for pregnant women (Ekadianto et al., 2022; Nurdin et al., 2022).

Perceptions of risk and social support also significantly influence the preventive behaviors adopted by pregnant women. Evidence suggests that pregnant women who feel supported by their social environment exhibit lower anxiety levels and a stronger inclination to adhere to preventive measures (Novelia et al., 2021; Yue et al., 2020). Conversely, high levels of anxiety can negatively impact both maternal mental health and fetal well-being, making it a critical issue that healthcare systems must address.

Given the various factors affecting pregnant women's understanding and preventive actions, this study aims to explore the relationship between COVID-19 prevention knowledge and anxiety levels among pregnant women. Through this approach, it is hoped that more effective and relevant educational programs can be designed, along with improved social support strategies that contribute to the mental well-being of pregnant women during these challenging times.

## 2. Overview: Anxiety Levels During the Pandemic at Paron Public Health Center

The anxiety levels among pregnant women at the Paron Health Center during the COVID-19 pandemic varied, with 52.6% categorized as having mild anxiety. A smaller proportion, 23.7%, experienced severe anxiety. The symptoms of anxiety were diverse, including sleep disturbances, fear, restlessness, dizziness, nausea, vomiting, digestive issues, increased urination, sweating, and tremors, as measured by the Hamilton Anxiety Rating Scale. Mild anxiety typically manifests as nervousness and excessive worry, while severe anxiety is marked by trembling, sweating, and disturbed sleep patterns.

High anxiety levels can weaken the immune system, making pregnant women more vulnerable to COVID-19 infection. Therefore, it is crucial for pregnant women to manage



stress through healthy lifestyle choices, such as adequate rest, nutritious diets, and vitamin C intake. Although the government recommended postponing pregnancy during the pandemic due to concerns over maternal health and healthcare capacity, many pregnant women did not comply with this advisory. Reducing anxiety can also be achieved by practicing positive thinking, which has been shown to improve both mental and physical well-being while lowering anxiety levels.

The COVID-19 pandemic has had a profound impact on mental health worldwide, leading to increased levels of anxiety and other psychological disorders. At Paron Public Health Center, understanding the fluctuations in anxiety levels during the pandemic is essential for guiding mental health programs and interventions. Various studies have identified multiple contributing factors to anxiety during this crisis.

Research suggests that anxiety levels have significantly increased due to various stressors, including fear of infection, economic instability, and disruptions to daily life. Özdin and Özdin reported that anxiety and depression levels were notably higher among women during the pandemic, indicating that gender plays a significant role in psychological responses to such crises (Özdin & Özdin, 2020). Likewise, Wang examined the broader mental health effects of the pandemic and highlighted the urgent need for studies focused on healthcare workers, who are particularly vulnerable due to their high-stress work environments (Wang, 2023).

The psychological impact of the pandemic is not experienced uniformly; demographic factors such as gender, occupation, and age significantly influence anxiety levels. Craig et al. found that Canadian adolescents, particularly girls, reported higher COVID-19-related stress and anxiety (Craig et al., 2023). This finding aligns with research by Bryant-Genevier et al., which revealed severe mental health symptoms among U.S. public health workers, demonstrating disparities based on job roles and responsibilities during the pandemic (Bryant-Genevier et al., 2021).

Additionally, excessive media exposure has been strongly linked to increased anxiety levels. A study conducted in Russia by Nekliudov et al. found that prolonged exposure to negative news narratives directly correlated with heightened anxiety (Nekliudov et al., 2020). Other research, including the work of Javed et al., supports this link, emphasizing that extended lockdowns and social isolation have exacerbated mental health conditions, particularly anxiety (Javed et al., 2020).

To counteract rising anxiety levels, fostering mental health resilience through community-driven strategies is crucial. Cindrigh et al. suggested that increased access to outdoor spaces serves as an effective coping mechanism, reinforcing the importance of maintaining psychological well-being through interaction with nature, regardless of physical activity levels (Cindrigh et al., 2021). This approach is particularly relevant in urban areas where access to green spaces may be restricted due to public health measures.

In conclusion, the analysis of anxiety levels during the pandemic reveals a complex interplay of factors, including gender, media exposure, and access to mental health resources. The increased stress and anxiety experienced by different population groups highlight the need for targeted mental health interventions, supported by ongoing research and community engagement efforts.

### 3. The Relationship Between the Two

The results of the Somers' D statistical test showed a  $\rho$ -value of 0.560, indicating no significant relationship between pregnant women's understanding of COVID-19 prevention efforts and their anxiety levels at the Paron Health Center. This finding suggests that while



knowledge of health protocols is high, it does not necessarily translate into lower anxiety levels among pregnant women. This result aligns with previous studies, which indicate that knowledge alone is not always a determining factor in anxiety levels (Saraha et al., 2016; Sunaryo, 2017). Other factors, such as age, education level, economic status, and personal health concerns, may have a stronger influence on pregnant women's anxiety levels. Additionally, the spread of misinformation and hoaxes during the pandemic contributed to heightened anxiety. Data from Pangerapan (2020) recorded 1,387 types of COVID-19-related hoaxes, which exacerbated fear and uncertainty among pregnant women. Field interviews revealed that 21.1% of pregnant women who had a good understanding of health protocols still experienced severe anxiety, primarily due to constant exposure to distressing COVID-19 news in the media. To help alleviate anxiety, pregnant women are advised to:

- a. Rely on trusted sources of information,
- b. Limit excessive news consumption, and
- c. Engage in positive activities, such as exercise and relaxation techniques.

By focusing on their health and well-being, pregnant women can mitigate anxiety-related concerns, particularly those linked to fetal health and pregnancy complications during the pandemic.

### Conclusion

Conclusions from the study on the understanding and level of anxiety of pregnant women regarding efforts to prevent Covid-19 at the Paron Health Center, Ngawi Regency:

1. The majority of pregnant women at the Paron Health Center have a good understanding of Covid-19 prevention efforts. This understanding includes implementing health protocols such as wearing masks, washing hands, maintaining distance, and avoiding crowds.
2. Most pregnant women at the Paron Health Center experience mild anxiety. This level of anxiety can reduce the immunity of pregnant women, so it is important for pregnant women to maintain mental health with a healthy lifestyle and reduce the negative impact of excessive information and hoaxes.
3. Relationship between Understanding and Anxiety: Statistical analysis shows no significant relationship between pregnant women's understanding of Covid-19 prevention and their anxiety levels. This means that even though understanding of health protocols is good, it does not directly affect anxiety levels. Other factors, such as age, education, economy, and exposure to hoax information, have a greater influence on the anxiety levels of pregnant women. This study suggests that pregnant women access information from trusted sources and limit exposure to news that can increase anxiety.

In conclusion, although understanding of Covid-19 prevention is quite good among pregnant women, anxiety levels are not significantly affected by this understanding.

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