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Original Research

Association Between Covid-19 Knowledge and Anxiety Among Late-Term Pregnant Women

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ABSTRACT

Background: *Pregnant women are vulnerable to infections, including Covid-19, and the lack of effective health services can contribute to psychological distress, particularly anxiety. This anxiety is often due to misinformation and insufficient knowledge about Covid-19 prevention. To examine the relationship between Covid-19 prevention knowledge and anxiety levels in pregnant women during the 3rd trimester.*

Method: *This correlational study used a cross-sectional design. A total of 43 pregnant women were selected using total sampling. Data were collected using the Covid-19 knowledge questionnaire and the modified Perinatal Anxiety Screening Scale, specifically designed for the Covid-19 pandemic.*

Results: *A significant relationship was found between Covid-19 prevention knowledge and anxiety levels in the 3rd trimester (p-value = 0.017).*

Conclusion: *Higher knowledge of Covid-19 prevention is associated with lower anxiety levels in pregnant women during the 3rd trimester. Nurses play a key role in providing accurate information to reduce anxiety.*

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INTRODUCTION

Covid-19 is an infectious disease caused by a new type of coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2). As of 26 October 2021, 243,561,596 confirmed cases and 4,947,777 deaths have been reported worldwide. In Indonesia, there were 4,241,090 confirmed cases and 143,270 deaths. In Central Java, 484,712 cases were confirmed, and in Klaten Regency alone, 34,787 cases were reported with 2,920 deaths (WHO, 2021; Dinas Kesehatan Klaten, 2022).

Despite numerous efforts, pregnant women remain a vulnerable group due to their decreased immunity. This study highlights a scientific gap concerning how knowledge of Covid-19 prevention correlates with anxiety among third-trimester pregnant women—a subject not sufficiently covered in previous research (Dinas Kesehatan Klaten, 2022). Coronavirus is transmitted through respiratory droplets, and pregnant

women are classified as a high-risk group due to decreased immunity during pregnancy (Siregar et al., 2020).

In Klaten Regency, by August 2021, 26 pregnant women had died from Covid-19 (Dinas Kesehatan Klaten, 2022), emphasizing the urgent need for targeted preventive strategies and accurate information dissemination to safeguard maternal health (Dinas Kesehatan Klaten, 2022). The surge in Covid-19 cases in Indonesia disrupted maternal health services, such as reducing antenatal visits and eliminating maternal classes. These disruptions contributed to psychological distress, particularly anxiety, among pregnant women. Factors such as economic stress, family issues, and concerns about childbirth further intensified this anxiety (Taubman–Ben-Ari et al., 2020).

Studies report a significant rise in anxiety among pregnant women during the pandemic, with one showing rates increasing to 59% (Fallon et al., 2021) and another noting 66.7% of women were anxious about their pregnancy (Purwaningsih, 2020). Widespread misinformation and insufficient understanding of Covid-19 prevention measures have exacerbated fears, making pregnant women hesitant about attending check-ups and uncertain about fetal health (Siregar et al., 2020). These concerns underscore the relevance of exploring the role of knowledge in reducing anxiety.

The description of this phenomenon shows that Covid-19 is a health problem that needs attention, especially for vulnerable groups, including pregnant women. The Covid-19 pandemic causes problems with physical and psychological health which can be seen in the form of anxiety. The level of knowledge about Covid-19 will affect the level of anxiety in pregnant women. This study aims to analyze the relationship between third-trimester pregnant women's level of knowledge about Covid-19 prevention and their level of anxiety, emphasizing the need for targeted educational strategies for vulnerable populations.

MATERIALS AND METHODS

This study used a correlational research type with a cross-sectional design, which involves measuring independent and dependent variables at the same time without repetition (Dahlan, 2021). The research was conducted in 2022 at a midwifery clinic in Klaten Regency, focusing on third-trimester pregnant women (Dahlan, 2021). The population included all third-trimester pregnant women in the working area of a midwifery clinic in Klaten, totaling 43 individuals. A total sampling technique was used because the population was relatively small and accessible (Hidayat, 2014).

Inclusion criteria were: (1) Primigravida in the third trimester, (2) Physiological pregnancy, and (3) Signed informed consent. Exclusion criteria included: (1) History of mental disorders, and (2) Under treatment for chronic illnesses. The questionnaire for measuring knowledge about Covid-19 was adopted from the research journal of Lee et al., (2021) entitled "The outbreak of coronavirus disease in China: Risk perceptions, Knowledge, and information sources among prenatal and postnatal women".

The questionnaire uses a Guttman scale, which is a scale that has the nature of firm answers such as yes and no, positive and negative, agree and disagree, true and false. The level of knowledge is classified according to Nursalam, (2015) including good knowledge score 76-100%, sufficient score 56-75%, and less score <56%. The anxiety measurement questionnaire used in this study is a modified Perinatal Anxiety Screening Scale (PASS) questionnaire adopted from research conducted by Hayati, (2020) and modified in accordance with the Covid-19 pandemic. Determination of the

degree of anxiety by adding up the score values with the results of no symptoms score 0-20, mild anxiety score 21-26, moderate anxiety score 27-41, and severe anxiety 42-93.

The validity test of the Covid-19 prevention knowledge questionnaire was checked by maternity nursing and infection control experts. The questionnaire was revised and declared valid with a total of 16 question items and a Cronbach's Alpha value of 0.81-0.95. The validity test of the PASS modified anxiety questionnaire has been tested by experts in the field of Mental Nursing with the results of the Content Validity Index (CVI) value of 0.75. The Covid-19 knowledge questionnaire was validated by maternity and infection control experts, finalized with 16 items and a Cronbach's Alpha of 0.81–0.95. The modified PASS anxiety questionnaire was validated by mental health nursing experts, with a Content Validity Index (CVI) of 0.75 and a reliability test result of 0.770 conducted at Bidar Alam Puskesmas, South Solok (Dahlan, 2021).

Bivariate analysis was carried out on independent variables and dependent variables) which were suspected of having a relationship or correlation. Researchers used a nonparametric statistical hypothesis test with the Spearman rank (Rho) test to determine the relationship between the level of knowledge of Covid-19 prevention and the anxiety level of third trimester pregnant women. This research has passed the ethical eligibility of the Ethics Commission of Dr. Moewardi Hospital No. 204/II/HREC/2022 dated 24 February 2022.

RESULTS

Table 1. Characteristics of Pregnant Women Based on Age, Employment Status Last Education, and Information Exposure (n = 43 pregnant women)

Characteristics of Pregnant Women	n	%
Age		
<20 years	0	0
20-30 years	43	100
>30 years	0	0
Total	**43**	**100**
Employment Status		
Work	19	44.2
Not Working	24	55.8
Total	**43**	**100**
Last Education		
SMP	7	16.3
SMA/SMK	25	58.1
Higher Education	11	25.6
Total	**43**	**100**
Information Exposure		
Ever	**41**	**95.3**
Health Workers	16	39
Media	25	61
Never been	**2**	**4.7**
Total	**43**	**100**

Description: n = number; % = percentage

Table 1. describes the characteristics of pregnant women based on age, employment status, latest education, and exposure to information. All pregnant women were aged 20-30 years (100%) and a higher percentage were not working (55.8%). The characteristics of pregnant women based on the level of education were greater at the high school / vocational level at 58.1%. The majority of pregnant women who had received information exposure about Covid-19 was 95.3% with the source of information from the media by 61%.

Table 2. Relationship between Knowledge Level of Covid-19 Prevention and Anxiety Level of Third Trimester Pregnant Women

Covid-19 Prevention Knowledge	Anxiety Level of Pregnant Women 3rd Trimester						Total		*p* value*	r**
	No Anxiety Symptoms		Mild Anxiety		Moderate Anxiety					
	n	%	n	%	n	%	n	%		
Good	16	37.2	7	16.3	2	4.7	25	58.1	0.017	0.361
Simply	5	11.6	9	20.9	4	9.3	18	41.9		
Total	21	48.8	16	37.2	6	14	43	100		

Description: n = number; % = percentage ; * *Spearman Rank* Test; **Correlation Coefficient

Table 2. shows that there is a significant relationship between the level of knowledge of Covid-19 prevention and the level of anxiety of pregnant women in trimester 3 (p value 0.017). The strength of the significant relationship between the level of knowledge of Covid-19 prevention and the level of anxiety of pregnant women in trimester 3 in the category is quite strong (r = 0.361). The shape of the relationship based on the interpretation of the cross distribution is that pregnant women with better knowledge about the prevention of Covid-19 during pregnancy have a greater chance of not experiencing anxiety.

DISCUSSION

The results of this study indicate a significant relationship between the level of knowledge of Covid-19 prevention and anxiety in third-trimester pregnant women. This aligns with studies showing that pregnant women with good knowledge tend to experience less anxiety (Budiarti et al., 2021; Dewi et al., 2020). Factors influencing knowledge include education, occupation, age, interest, experience, culture, and access to information. During the pandemic, strong knowledge is crucial as a preventive tool, especially for vulnerable groups such as pregnant women (Aziz et al., 2020; Widiastini et al., 2021; Zhang et al., 2020).

Widiastini et al., (2021) state that age is an internal factor affecting knowledge, where younger individuals tend to absorb and retain information better. Education also shapes pregnant women's interest in learning about health. As reported by Septiasari and Viandika (2021), one major cause of anxiety is a lack of knowledge, showing that pregnant women with limited understanding are more likely to feel anxious (Widiastini et al., 2021).

According to Purwaningsih, (2020) improved family function and emotional support during self-isolation can reduce maternal anxiety. Positive spousal involvement is crucial to maintaining mental health during pregnancy. Similarly, support from healthcare workers—through emotional reassurance and educational guidance—creates

a sense of security that helps alleviate anxiety (Fallon et al., 2021; Lebel et al., 2021; Loughnan et al., 2022).

Pregnancy is a psychologically sensitive period, and anxiety during this time can have harmful consequences for both mother and baby. Aziz et al., (2020) found that women reported higher anxiety levels during the pandemic due to health system disruptions and economic stress. Anxiety in pregnancy is a known factor in poor fetal growth, premature birth, postpartum depression, and negative child behavior outcomes (Asmariyah et al., 2021; Fallon et al., 2021; Gokce & Herkiloglu, 2021; Lebel et al., 2021; Sesianti et al., 2022).

Lack of information related to pregnancy and Covid-19 will cause anxiety and even depression. Research by (Mega Septiasari and Viandika, (2021) Septiasari and Viandika, (2021) explains that knowledge is obtained from the results of information. If the information obtained is based on knowledge, awareness, and attitudes, it will not cause concern or anxiety. Another study by (Taubman–Ben-Ari et al., 2020) explains that pregnant women with good knowledge will avoid anxiety or stress during pregnancy, thus supporting the health of the mother and fetus.

This study confirms a significant relationship between knowledge of Covid-19 prevention and anxiety in third-trimester pregnant women. It highlights the need for psychological support during data collection and recommends that maternal health records, such as the MCH book, be reviewed to ensure accurate demographic data. Future studies should explore tailored health education interventions to reduce maternal anxiety in pandemics.

CONCLUSION

The conclusion of this study indicates a relationship between the level of knowledge regarding Covid-19 prevention and the level of anxiety in pregnant women in their third trimester. Pregnant women who possess good knowledge tend to experience lower levels of anxiety. Access to accurate information is crucial for supporting the mental health of mothers during pregnancy. Therefore, it is recommended that pregnant women actively seek information from trusted sources, such as healthcare professionals. Accurate knowledge about preventing the transmission of Covid-19 can help reduce anxiety and enhance the sense of security during pregnancy.

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