Research Article

Risk Factor for Fear, Depression and Anxiety among Pregnant Women during the COVID-19 Pandemic

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Abstract

Background: Pregnant, childbirth, and postpartum women are a vulnerable population to COVID-19. Although our understanding of this disease is evolving every day, more answers are needed about the diagnosis and methods of clinical management in this group, the impact of the disease on pregnant women and new-borns, and the potential for mother-to-child transmission, including anxiety and depression.

Objectives: The study aims to identify factors that cause stress and depression in pregnant women during COVID-19.

Methods: This study is a cross-sectional study on pregnant women. Descriptive analysis is to explore the distribution of variables using the frequency distribution test and the influence of these factors on fears, depression and anxiety in pregnant women during the COVID-19 pandemic using Structural Equation Modelling Analysis.

Results: This study found that education, comorbid factors, economy, education and pregnancy status did not affect fears, depression and anxiety in pregnant women during the COVID-19 pandemic with a p-value >0.05.

Conclusion: Fears, depression and anxiety among pregnant women purely occur due to individual psychological conditions and are not influenced by the situation. Psychological strengthening for pregnant women is needed to be carried out continuously and not influenced by the COVID-19 situation in Indonesia.

Keywords: Risk Factor • Women • Pregnant

Introduction

COVID-19 has changed human psychology worldwide, including pregnant women due to death and post-COVID-19 effects. As of May 23, 2022, there were 6.28 million deaths worldwide. The United States CDC report showed that until October 2020, 6.6% of pregnant women had COVID-19, and all of them showed symptoms [1].

In addition, a new case emerged, namely acute hepatitis in children. According to a UK Health Safety Agency (UKHSA) report, this disease affects children under the age of five and cannot be vaccinated according to regulations [2]. Even though the President of the Republic of Indonesia has announced that there will be no masks outside the building [3,4], this still raises concerns for pregnant women because there are no regulations. About mask-free in buildings, including in delivery rooms at health facilities. The rate of COVID-19 in pregnant and recently pregnant women presenting or hospitalized for any reason is around 10%.

Pregnant, maternity and postpartum women are a population that is vulnerable to COVID-19. Although our understanding of this disease is evolving every day, more answers were needed about the diagnosis and clinical management methods in this cohort, the impact of the disease on pregnant women and new-borns, and the potential for mother-to-child transmission, including anxiety and depression.

The World Health Organization (WHO) states that women, who are pregnant for the first time, are older, are overweight, and have previous comorbid conditions such as pre-eclampsia and diabetes insipidus, are at greater risk of developing severe COVID-19. There is a consensus that breastfeeding should be started early, but it is not yet known whether the virus can be transmitted through breast milk or not.

As mentioned above, stress and depression during pregnancy during the COVID-19 pandemic can arise due to various factors, such as during pregnancy will be at risk due to decreased immunity. At the time of delivery, getting infected in the delivery facility is straightforward. In addition, the baby will be able to suffer from acute hepatitis because it has not been vaccinated. However, there is no definite information regarding the risk factors for depression and anxiety in pregnant women during the COVID-19 pandemic. In this study, we conducted a structural equation modelling analysis to help identify the factors causing stress and depression in pregnant women during COVID-19.

Methodology

Study design and population

This study is a cross-sectional study conducted from January to April 2022 at 18 public health centres and hospitals in Sorong. Pregnant women who check their pregnancy aged 18-35 years, without emergency conditions, and complete surveys. In addition, an estimated sample size of 235 was calculated using the G-power software with an effect size of 0.05, type I error of 0.05, power of 0.95 and five predictors in multiple linear regression. Infection prevention and control measures are implemented in data collection procedures by the guidelines of the Indonesian Ministry of Health (Health Ministry of Indonesia, 2020) and the World Health Organization (World Health Organization, 2021), including the use of masks, washing hands and physical distancing.

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Instruments and measurements

This study's demographic characteristics and clinical indicators of respondents include age, occupation during pregnancy, gestational age, parity, education, and chronic disease, physical activity during pregnancy, smoking habits, and ability to pay for treatment. The assessment of the knowledge variable used 13 questions with a nominal scale which were scored False = 0 and True=1. Knowledge item responses were summed to a total score from 0 to 13, and the limit point for adequate/inadequate overall knowledge was set at 60% (≥ 9 points) [5].

Outcome variable assessment a seven-item fear of COVID-19 (FCoV-19S) scale was used. This questionnaire is a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). High scores indicate greater fear [6].

Anxiety disorders were assessed using a seven-item Generalized Anxiety Disorder scale (GAD-7). Pregnant women were asked about the frequency with which they had seven symptoms in the past two weeks on a four-point Likert scale, including 0="not at all", 1="a few days", 2="more than half a day" and 3="most days" [7].

Depression was measured using the 9-item Patient Health Questionnaire (PHQ-9). Pregnant women were asked about the frequency of being bothered with nine symptoms in the past two weeks and rated on the same four-point Likert scale as anxiety above [8].

Statistical analysis

First, we conducted a descriptive analysis to explore the distribution of variables using the frequency distribution test using Jamovi software version 2.0.0.0. We explore the influence of these factors on fears, depression and anxiety in pregnant women during the COVID-19 pandemic using SEM (Structural Equation Modeling) Analysis with SMART PLS (Partial Least Square) version 3.3.9.

Results

Two hundred thirty-five pregnant women aged 18-35 years contributed to this study. Most of them had a third trimester of pregnancy with a history of giving birth. Most pregnant women have a high school education but do not work during pregnancy, so they find it difficult to pay for treatment. Most pregnant women do not have chronic diseases and do not smoke but do not do physical activity or sports during pregnancy. Data is presented in Table 1. Based on the table above, it was found that education; comorbid factors, economy, education and pregnancy status did not affect fears, depression and anxiety in pregnant women during the COVID-19 pandemic (Figure 1).

Table 1. Characteristics of study participants.

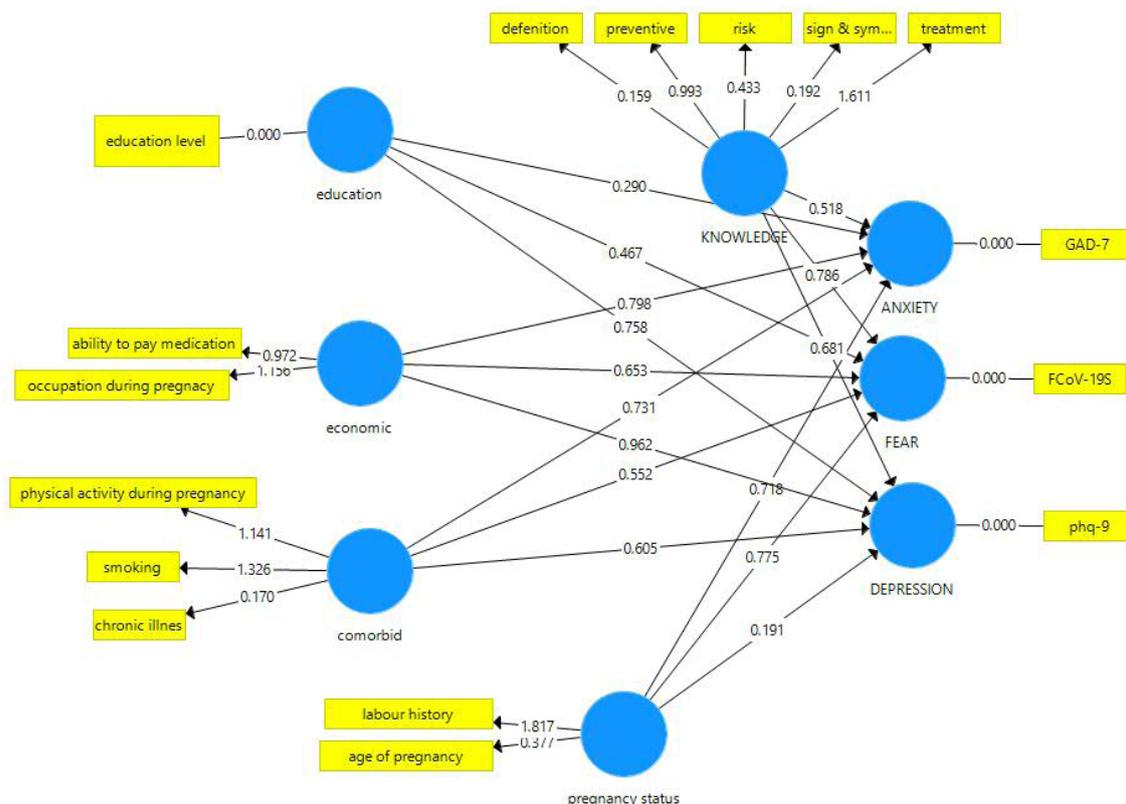| Variable	n	%
Age, Mean(SD)	2.08 (5.33)	
Work during pregnancy		
Employee	72	30.6 %
Doesn't work	97	41.3 %
Self-employed	66	28.1 %
Gestational age		
1st trimester	36	15.3 %
2nd trimester	85	36.2 %
3rd trimester	114	48.5 %
Parity		
1	114	48.5 %
>1	47	20.0 %
never	74	31.5 %
Education		
No school	42	17.9 %
Elementary School	35	14.9 %
Junior high school	32	13.6 %
senior high school	85	36.2 %
University	41	17.4 %
Chronic disease		
1 or more	17	7.2 %
None	218	92.8 %
Physical activity during pregnancy		
Never, stopped or exercise less	126	53.6 %
Unchanged or exercise	109	46.4 %
Smoking habit		
No	233	99.1 %
Yes	2	0.9 %
Ability to pay for medical treatment		
Very or fairly difficult		
Very or fairly easy	201	85.5 %
	34	14.5 %

Figure 1. SEM-PLS Model Analysis of the Causes of fear, depression and anxiety in pregnant women during the COVID-19 pandemic.

Discussion

The incidence of fears, depression and anxiety in pregnant women during the COVID-19 pandemic has increased significantly in various countries [9,10]. However, according to the purpose of this study, we found that education, comorbid factors, economy, education and pregnancy status did not affect fears, depression and anxiety in pregnant women during the COVID-19 pandemic. These results are certainly not in agreement with the study of Luo et al. [11], that factors including decreased perceptions of general support, smoking during pregnancy and household financial difficulties have a deleterious effect on anxiety during pregnancy. Factors including low education, unemployment during pregnancy, chronic physical illness before pregnancy, decreased perception of general support, household financial difficulties, non-compliance with isolation rules, and smoking during pregnancy increase the risk of depression during pregnancy amid the COVID-19 pandemic.

According to the research results by Alipour et al. [12], fear before childbirth affects anxiety in third-trimester pregnant women. According to Hawari et al. anxiety is also related to fear, and fear can make people lose control, so they cannot do something even with direction. Anxiety in pregnant women will increase when the delivery schedule gets closer. The mother begins to think about the process of giving birth and the condition of the baby to be born Table 2.

Table 2. SEM-PLS Model Analysis of Factors Causing fear, depression and anxiety in pregnant women during the COVID-19 pandemic.

	(O)	(M)	STDEV	|O/STDEV|	P Values
Knowledge -> Anxiety	0,072	0,078	0,140	0,518	0,605
Knowledge -> Depression	0,097	0,003	0,143	0,681	0,496
Knowledge -> Fear	-0,125	-0,026	0,159	0,786	0,432
Comorbid -> Anxiety	-0,072	-0,027	0,098	0,731	0,465
Comorbid -> Depression	0,061	0,045	0,101	0,605	0,545
Comorbid -> Fear	-0,066	0,015	0,119	0,552	0,581
Economic -> Anxiety	0,093	-0,003	0,116	0,798	0,425
Economic -> Depression	-0,163	-0,049	0,169	0,962	0,337
Economic -> Fear	-0,064	-0,024	0,097	0,653	0,514
Education -> Anxiety	0,018	0,015	0,062	0,290	0,772
Education -> Depression	-0,049	-0,043	0,064	0,758	0,449
Education -> Fear	0,031	0,035	0,066	0,467	0,640
Pregnancy Status -> Anxiety	-0,093	-0,009	0,129	0,718	0,473
Pregnancy Status -> Depression	-0,015	-0,035	0,079	0,191	0,848
Pregnancy Status -> Fear	-0,065	-0,081	0,084	0,775	0,439

According to Ahorsu et al. [6], pandemics will always bring up the stigma of fear that is instilled in the minds of most of the population. Fear arises because it is associated with clinical phobia and social anxiety disorder, so the population experiences significant mental stress.

Fear, anxiety and depression during pregnancy and COVID-19 are two different things. Fear, anxiety and depression during pregnancy are related to preparation for childbirth, worry about the baby that will be born and have nothing to do with the COVID-19 pandemic situation. Meanwhile, fear, anxiety and depression regarding COVID-19 are related to mental stress that has been regulated during the pandemic and gave rise to phobia.

Most mothers-to-be face the birth of their child with feelings of fear and anxiety. The older the pregnancy, the more attention and thoughts of pregnant women begin to focus on something considered the climax, so that the anxiety and fear experienced by pregnant women will intensify as they approach delivery. At the age of seven months and over, the anxiety level of pregnant women becomes more acute and intensive as the baby's birth approaches. Anxiety and fear before giving birth are at the top most frequently experienced by mothers during pregnancy.

Another reason related to the results obtained in this study that fears, depression and anxiety in pregnant women did not occur during the COVID-19 pandemic was because Indonesia had a lockdown strategy that was carried out in stages according to the regional zones from the tracing results [3]. This does not cause fear, depression and anxiety due to self-isolation and only lasts for 14 days so that pregnant women can carry out activities such as checking their pregnancy regularly, fulfilling nutrition during pregnancy and other activities.

Regarding concerns about the delivery process in health facilities, Indonesia recommends and implements a policy that the delivery process can be carried out at a community health center near the house of pregnant women and free from transmission of COVID-19. In addition, midwives can deliver at home or home practice place. This may be because all midwives already have a registered midwife certificate.

Conclusion

Based on the findings, fears, depression and anxiety among pregnant women occur purely due to individual psychological conditions and are not influenced by the COVID-19 situation. Psychological strengthening for pregnant women is needed to be carried out continuously and is not influenced by the COVID-19 situation in Indonesia.

Acknowledgements

Authors' Contribution

AE did data analysis and wrote and edited the final draft, performed data collection and wrote the first draft, the design, analysis, and manuscript preparation, and read and approved the final manuscript.

Conflict of Interests

The author declares no conflict of interest regarding the publication of this article.

Data reproducibility: The author did not declare it.

Ethical Approval

This study was reviewed and approved by the Research Ethics Commission of the Health Poltekkes Ministry of Health Sorong Number: DM.03.05/6/027/2021.

Funding or Support

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