Research Article

Anxiety Level and Associated Factors during Coronavirus Disease 2019 (COVID-19) Pandemic in Pregnant Women

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Abstract

Background: Coronavirus disease-2019 (COVID-19) pandemic is spreading widely throughout the world, causing global health crisis and one of the greatest challenges we have ever faced. Indonesia is one of the countries that has been severely affected by COVID-19. The COVID-19 pandemic has created some serious concerns including anxiety in pregnant women. However, due to mental and physical changes in pregnancy, pregnant women are likely to be affected by the virus. At present there is no evidence that pregnant women are at higher risk of severe illness from COVID-19 than the general population. Research is currently ongoing to understand the impacts of COVID-19 in pregnant women. This study aimed to assess the anxiety level and associated factors during COVID-19 pandemic in pregnant women.

Methods: This study used cross-sectional design using primary data on April 2020 at Leo Simanjuntak (Obstetrician and Gynecologist) outpatient clinic. Based on defined criteria, 120 subjects were recruited in this study. Anxiety level assessed using Hamilton Anxiety Rating Scale (HAM-A). Demographic data collected using research questionnaire. Logistic regression were used to identify associated factors on anxiety level.

Results: Our results showed majority of the pregnant women (71%) showed no anxiety. The rest of these pregnant women (29%) showed mild anxiety level (23%) and moderate anxiety (6%). Multivariate data analysis showed that healthcare workers were associated to higher anxiety level, with OR 5.56 (95% CI .33 - 24.09).

Conclusion: Informative and educative advices and suggestions of COVID-19 to pregnant women and their family, such as washing hands frequently, maintain social and physical distancing, using mask to cover the mouth and nose when around others, living healthy life, and doing all the activities from home, can make pregnant women not worried about COVID-19 pandemic, which is supported by this study.

Keywords: Anxiety; Pregnant Women; COVID-19; HAM-A

Introduction

A pneumonia of unknown cause detected in Wuhan, China was first reported to the World Health Organization (WHO) on December 31, 2019. Initially the case was reported in the Wuhan area, Hubei province, China. After three days, there were 44 patients with such cases and today thousands of COVID-19 cases confirmed globally [1]. Coronavirus disease-2019 (COVID-19) pandemic is spreading widely throughout the world, causing global health crisis and one of the greatest challenge we have ever faced. COVID-19 is a cluster of acute respiratory illness caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) virus.

As of 14th April 2020, a total of 1,844,863 COVID-19 confirmed cases globally spread in 213 countries with a total of 117,021 con-firmed death [2]. While in Indonesia as of April 14, 2020, a total of 4,839 confirmed cases, spread in 34 provinces, with a total of 459 confirmed death [3]. These data show the case fatality rate (CFR) in Indonesia is higher (9.5%) than the CFR globally (6.3%).

COVID-19 infection can cause mild, moderate or severe symptoms. The main clinical symptoms are fever (>38°C), cough and shortness of breath. Moreover, it can be accompanied by fatigue, myalgia, gastrointestinal symptoms such as diarrhea, loss of smell and taste, and other respiratory symptoms. Half of COVID-19 patients will develop shortness of breath in just one week. In severe cases progressively rapid deterioration, such as ARDS (Acute Respiratory Distress Syndrome), septic shock, metabolic acidosis and

coagulation problem within a few days. Most of the patients have good prognosis, with low morbidity and mortality rate [4].

At present there is no evidence that pregnant women are at higher risk of severe illness from COVID-19 than the general population. However, due to mental and physical changes in pregnancy, pregnant women are likely to be affected by the virus. Research is currently ongoing to understand the impacts of COVID-19 in pregnant women. Emerging evidence suggests that transmission from a woman to the baby during pregnancy or birth (vertical transmission) is probable. Fetal distress and preterm labor are found in some cases [5,6].

On January 30, WHO declared COVID-19 as Public Health Emergency of International Concern, then on March 11, 2020, COVID-19 was declared as pandemic meaning COVID-19 which has spread to several countries or continents and infected many people. Other than causing physical damage, these conditions lead to increased stress and anxiety to the public, including pregnant women. Anxiety is the most common emotional and psychiatric problem in pregnancy. Anxiety in pregnancy can affect pregnancy such as preterm labor, fetal growth restriction, and poor neurobehavioral development [7]. Hamilton Anxiety Rating Scale (HAM-A) is one of the rating scales developed to measure anxiety level and is widely used both in clinical and research settings [8].

Aim of the Study

The aim of this study is to assess the anxiety level and associated factors during COVID-19 pandemic in pregnant women.

Methods

This study used cross-sectional design using primary data obtained by analytical survey, on April 2020. The subjects were patients at the Leo Simanjuntak (Obstetrician and Gynecologist) outpatient clinic. Based on defined criteria, 120 participants were recruited in this study, using consecutive sampling. Pregnant women that has been diagnosed with anxiety disorder before and incomplete questionnaire data were excluded from this study.

This study used Indonesian version of Hamilton Anxiety Rating Scale (HAM-A). the Hamilton Anxiety Rating Scale (HAM-A) consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). The dimension of HAM-A consists of: (1) anxious mood, (2) tension, (3) fears, (4) insomnia, (5) intellectual, (6) depressed mood, (7) somatic (muscular), (8) somatic (sensory), (9) cardio-

vascular symptoms, (10) respiratory symptoms, (11) gastrointestinal symptoms, (12) genitourinary symptoms, (13) autonomic symptoms, and (14) behavior at interview. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0 - 56. Participants responded the questionnaire given to the interviewer. This study also used demographic questionnaire to obtain associated factors such as age, occupation, income level, education level, and parity level.

Descriptive analyses were conducted to describe demographic characteristics and the pregnant women anxiety level. Chi-square test was used to compare the differences between groups. multivariate logistic regression models were performed to explore potential associated factors for anxiety level in pregnant women. All data were analyzed using SPSS version 22.0. p-values of less than 0.05 were considered statistically significant.

Results

The characteristics of subjects were shown in table 1. Of the 120 subjects, mean age of the subjects was 29.2 ± 4.7 years, 92.5% of subjects were non-healthcare workers, 49% of subjects had an undergraduate educational background, 50.8% had middle-class income and 52.5% of them were nulliparous.

Characteristics	N (%)
Total	120 (100%)
Age (Mean ± SD)	29.2 ± 4.7
< 35 years	100 (83.3%)
≥ 35 years	20 (16.7%)
Occupation	
Healthcare workers	9 (7.5%)
Non-healthcare workers	111 (92.5%)
Educational Background	
Primary School	1 (0.8%)
Junior High School	5 (4.2%)
Senior High School	55 (45.8%)
College	59 (49.2%)
Income Level	
Low Income	17 (14.2%)
Middle Income	61 (50.8%)
High Income	42 (35%)
Parity Level	
Nulliparous	63 (52.5%)
Primiparous	31 (25.8%)
Multiparous	26 (21.7%)

Table 1: Demographic distribution of subjects.

The prevalence of anxiety level based on age, occupation, education background, income level, and parity level were shown in table 2. The overall prevalence of anxiety was 29%, consists of 23% of mild anxiety and 6% of moderate anxiety. There was no statistically significant correlation between age, education background, income level, and parity level, meaning the anxiety level was not affected by these associated factors. But there was statistically significant correlation between occupation and anxiety level. Healthcare workers had higher prevalence of anxiety compared to non-healthcare workers (p = 0.01) as shown in table 2.

Table 3 shows that occupation may be a potential risk factor to the anxiety level. Healthcare workers had an Odds Ratio of 5.65 (95% CI 1.33 - 24.09), meaning that healthcare workers have 5.65 times risk to anxiety disorder compared to non-healthcare workers.

Discussion

This study shows that majority of pregnant women (72% of participants) had no anxiety during COVID-19 pandemic. Healthcare

Characteristics	Anxiety Level			p-value
	Not Anxiety	Mild Anxiety	Moderate Anxiety	
Age (Mean ± SD)				0.098
< 35 years	73 (73%)	20 (20%)	7 (7%)	
≥ 35 years	12 (60%)	8 (40%)	0 (0%)	
Occupation				0.01
Healthcare workers	3 (33.4%)	4 (44.4%)	2 (22.2%)	
Non-healthcare workers	82 (73.9%)	24 (21.6%)	5 (4.5%)	
Education Background				0.833
Primary School	1 (100%)	0 (0%)	0 (0%)	
Junior High School	3 (60%)	2 (40%)	0 (0%)	
Senior High School	41 (74.5%)	10 (18.2%)	4 (7.3%)	
Undergraduate	40 (67.8%)	16 (27.1%)	3 (5.1%)	
Income Level				0.964
Low Income	13 (76.5%)	3 (17.6%)	1 (5.9%)	
Middle Income	43 (70.5%)	15 (24.6%)	3 (4.9%)	
High Income	29 (69%)	10 (23.8%)	3 (7.1%)	
Parity Level				0.325
Nulliparous	47 (74.6%)	14 (22.2%)	2 (3.2%)	
Primiparous	23 (74.2%)	5 (16.1%)	3 (9.7%)	
Multiparous	15 (57.7%)	9 (34.6%)	2 (7.7%)	

Table 2: Anxiety level based on associated factors.

Occupation	Anxiety Level		p-value	OR (95% CI)
	Anxiety	Not Anxiety		
Healthcare workers	6 (66.7%)	3 (33.3%)	0.01	5.65
Non-healthcare workers	29 (26.1%)	82 (73.9%)		(1.33 - 24.09)

Table 3: Prevalence and odds ratio of anxiety based on occupation.

workers had higher prevalence of anxiety compared to non-healthcare. Anxiety level was independent of or was not affected by age, education background, income level, and parity level. Based on 14 components of HAM-A, two of the most severe items are about anxious mood and fears.

In bivariate analysis, we found that occupation may be a potential risk factor to the anxiety level. Healthcare workers had an

Odds Ratio of 5.65 (95% CI 1.33 - 24.09), meaning that healthcare workers have 5.65 times risk to anxiety disorder compared to non-healthcare workers. This result was similar to previous study in China during COVID-19 pandemic, showing that healthcare workers had 1.30 Odds Ratio (95% CI 0.83 - 2.04) compared to other occupations [9]. The possible reason for this is during an outbreak, healthcare workers are expected to work overtime under signifi-

cant pressure with often inadequate resources including limited personal protective equipment (PPE), while keep in close contact with confirmed or suspect patients. Healthcare workers like everyone else, are vulnerable to the disease itself, hence increase their anxiety levels. The other main concern among healthcare workers is the danger of contracting the disease, especially in Indonesia. As of April 7, 2020, 31 Indonesian healthcare workers died of COVID-19 while hundreds others had tested positive for COVID-19 [10].

These results show pregnant women's anxiety level is relatively low, which was a good news, despite public's levels of anxiety related symptoms increase. Based on in-depth interview, majority of the participants stated the common reasons, including the belief that maintaining a healthy lifestyle, washing hands frequently, maintaining social and physical distancing, using mask to cover the mouth and nose when around others, doing all the activities from home (including doing work and prayer), and timing to seek for medical help as early as possible if there's an emergency can protect themselves against COVID-19. Most of the pregnant women get the informative and educative suggestions about COVID-19 mostly from mass media such as news on television and online newspaper.

The Indonesian Government has prepared many strategies and policies in short time to curb the spread of COVID-19 pandemic and to help the affected public sector. The government issued the regulation on large-scale social distancing to restrict the movement of people and goods. The other policies are large-scale social restrictions, including closure of mass-gathering places like school and workplaces, restrictions on religious activities, restrictions on activities in public places, requiring healthy people to isolate themselves at home, asking everyone to wear masks into public places, and a temporary ban on foreigners entering Indonesia. To help the public sector and avoid people losing their incomes due to mass unemployment, the government has issued regulations about state financial and financial stability. The regulations consist of setting up funds mainly to meet the PPE, rapid test kits, ventilators requirements, exemption on electricity costs, giving incentives, and to provide the food supplies. These regulations and policies by Indonesian government is also playing an important role to ensure the people, including pregnant women they're well taken care of and reduce the anxiety level during COVID-19 pandemic.

Conclusion

This study identifies that occupational status on pregnant women may be a potential risk factor to the anxiety level during COVID-19 pandemic. Informative and educative advices and suggestions of COVID-19 to pregnant women and their family, such as maintaining a healthy lifestyle, washing hands frequently, maintaining social and physical distancing, using mask to cover the mouth and nose when around others, doing all the activities from home (including doing work and prayer), and timing to seek for medical help as early as possible if there's an emergency can protect themselves against COVID-19 and not worried about COVID-19 pandemic, which is supported by this study.

Bibliography

1. WHO. "Novel Coronavirus (2019-nCoV) Situation Report-1" (2020).

2. WHO. "Coronavirus disease 2019 (COVID-19) Situation Report-84" (2020).

3. BNPB. Situasi Virus Corona (2020).

4. Wang Z., *et al*. "A Handbook of 2019-nCoV Pneumonia Control and Prevention". Hubei Science and Technology Press, China (2020).

5. Fan C., *et al*. "Perinatal Transmission of COVID-19 Associated SARS-CoV-2: Should We Worry?" *Clinical Infectious Disease* (2020).

6. ACOG Practice Advisory: Novel Coronavirus 2019 (COVID-19). The American College of Obstetricians and Gynecologists (2020).

7. Leveno KJ., *et al*. "Williams Obstetrics". 25th edition. Cunningham FG, editor. New York: McGraw-Hill Education (2018).

8. Thompson E. "Hamilton rating scale for anxiety (HAM-A)". *Occupational Medicine* 65.7 (2015): 601.

9. Zhao N and Huang Y. "Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: a web-based cross-sectional survey". *Psychiatry Research* 288 (2020): 112954.

10. Schwartz J., *et al*. "Protecting Healthcare Workers During the Coronavirus Disease 2019 (COVID-19) Outbreak: Lessons from Taiwan's Severe Acute Respiratory Syndrome Response". *Clinical Infectious Diseases* (2020).