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Factors affecting pregnant women in undergoing pregnancy during COVID-19 pandemic: A survey in ACEH[☆]

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Abstract COVID-19 pandemic is a threat to public health caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). Significant increases in cases occurred worldwide, including in Indonesia and Aceh Province. Pregnant women as a vulnerable group need to equip themselves with knowledge, attitudes, and practices to prevent themselves from being infected with the virus. This study aimed to determine the knowledge, attitude, and practice factors among pregnant women undergoing pregnancy in the COVID-19 pandemic. A cross-sectional online survey in Aceh was carried out among 148 pregnant women between May 3rd and May 14th, 2020. This study was conducted using a knowledge, attitude, and practice questionnaire adapted to pregnancy conditions during the COVID-19 pandemic. Responses were analyzed and categorized by using univariate analysis. The study identified that most pregnant women aged 31–35 years old (41.2%) and had higher education as their latest education (59.5%). This study found 94.6% of participants were knowledgeable on pregnancies carried out during the COVID-19 pandemic. Furthermore, 60.1% had a positive attitude, and 60.8% of pregnant women had good practice in carrying pregnancy during the COVID-19 pandemic. In conclusion, the knowledge, attitude, and practice factors of pregnant women were quite adequate. However, antenatal education is still needed to reduce anxiety in pregnant women and their family.

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Introduction

Coronavirus disease 2019 (COVID-19) is a global health problem threatening billions of lives worldwide. It is caused by a novel coronavirus named *Severe Respiratory Syndrome Coronavirus 2* (SARS-CoV-2).¹ As one of Indonesia's provinces, Aceh significantly increased cases in August 2020. Currently, there are 4994 cases of COVID-19 in this province.²

The infected, making can have several symptoms, ranging from mild, moderate, or severe symptoms. The main clinical signs are fever (temperature more than 38 °C), shortness of breath, and cough; might be accompanied by severe spasms, fatigue, myalgia, and gastrointestinal symptoms such as diarrhea. In some patients, the symptoms that appeared are classified as mild, sometimes without fever. Most patients have a good prognosis with a small proportion in critical condition and death.³ However, the magnitude of these symptoms requires substantial efforts to break the chain of transmission and protect the human population from risks.⁴ Various information related to protocols that we must carry out is currently being informed to the public, such as maintaining personal hygiene, wearing masks, and carrying out social distancing.^{5,6}

In addition to the importance of delivering health promotion to the individuals, other essential things in preventing this infectious disease must be considered carefully, which is the treatment for vulnerable populations. Vulnerable populations are at risk of experiencing health condition changes than the general population.⁷ One of the vulnerable populations during this pandemic is pregnant women. World data showed that at least one-third of pregnant women infected with COVID-19 have died from this disease.⁸ Pregnancy is partial immune suppression and makes pregnant women more vulnerable to viral infections due to the physiological changes during pregnancy.⁹ Women are faced with major physical, psychological, and emotional changes when they are pregnant, with ambiguous feelings, changing roles, and doubts.¹⁰ In addition, the physiological changes that occur as the body's adaptation to pregnancy also can cause the systemic effects that increase obstetric complication risks from this respiratory infection.¹¹

Referring to a similar outbreak that occurred some time ago, previous research found an increased risk of complications in pregnant women during the 2009 H1N1 pandemic. In 2003, approximately 50% of pregnant women who received a diagnosis for SARS-CoV were admitted to the Intensive Care Unit (ICU); around 33% of pregnant women with SARS-CoV required mechanical ventilation. The mortality rate was as high as 25% for these women.^{12,13} However, it is still unknown whether COVID-19 can increase the risk of miscarriage and stillbirth.⁷ Only a few studies are examining the impact of COVID-19 on pregnancy, and these studies are limited to a small series of cases.^{14–16}

Pregnant women must also equip themselves with good knowledge, attitudes, and practices to prevent being infected because it has dangerous effects during this pandemic. During antenatal care at health care centers, pregnant women are also at risk of being exposed to this virus, so they must increase their vigilance by being disciplined to use Personal Protective Equipment (PPE). Recently, studies on COVID-19 infection in pregnant women are still

limited, and there are no specific recommendations for managing pregnant women with COVID-19. In addition, evidence and research related to the experiences of pregnant women undergoing pregnancy during the COVID-19 pandemic are still limited. Therefore, this study was conducted to explore pregnant women's knowledge, attitudes, and practices during the COVID-19 pandemic. The study is expected to provide input, especially for other researchers, health service centers, and policymakers, in developing effective strategies for pregnant women to be calmer and go through childbirth safely.

Methods

This study was a quantitative study with a cross-sectional method that assessed the knowledge, attitudes, and practices of COVID-19 prevention among pregnant women in Banda Aceh and Aceh Besar District, Aceh. This study involved 148 pregnant women as participants and conducted in Banda Aceh and Aceh Besar District of Aceh Province. Participants were recruited using a purposive sampling method with the inclusion criteria: pregnant women living in Banda Aceh and Aceh Besar District; and had not experienced pregnancy complications. The Ethics Committee approved this study of Nursing Faculty, Syiah Kuala University (Ethical form reference No: 113001130420). The research has obtained respondents' consent through an informed consent form. To maintain the confidentiality of respondent identity data, only researchers store respondent data, and it is only used for data analysis and not disseminated. In addition, the published data does not include the names and addresses of respondents.

The data collection process was done using knowledge, attitude, and practice questionnaires adapted to pregnancy conditions during the COVID-19 pandemic the researchers developed. This study instrument was a structured questionnaire divided into sections: socio-demographic and obstetric characteristics; knowledge with five questions, attitude with five questions; and practice with 12 questions. Each questionnaire took 5–10 min to complete. Cronbach's alpha value in the validity test of this research questionnaire is 0.902, which indicates a high reliability of internal consistency. The total value of Cronbach's alpha items is 0.924, which means reliability. The data collection process was conducted between May 3rd and May 14th, 2020. The data collection process still considered health protocols during the COVID-19 pandemic, so this study used Google Form as a data collection medium. Data were analyzed by univariate analysis.

Results

Socio-demographic and obstetric characteristics

Based on this study, it is found that the majority of participants lived in Aceh Besar District (62.2%), some of them aged between 31 and 35 years old (41.2%), and had the latest education in the higher education category (59.5%). Furthermore, regarding the ongoing pregnancies, some participants were in the third trimester of pregnancy (53.4%), multigravidas (64.2%), and before the COVID-19 pandemic,

Table 1 Distribution of participants' data characteristics (n = 148).

Characteristics	Frequency (n)	Percentage (%)
<i>Living area</i>		
Aceh Besar	92	62.2
Banda Aceh	56	37.8
<i>Age</i>		
20–25 years old	35	23.6
26–30 years old	62	35.1
31–35 years old	61	41.2
<i>Latest education</i>		
High	88	59.5
Middle	43	29.1
Low	17	11.5
<i>Gestational age</i>		
1st trimester	20	13.5
2nd trimester	49	33.1
3rd trimester	79	53.4
<i>Gravida</i>		
Primigravida	53	35.8
Multigravida	95	64.2
<i>Antenatal care visit</i>		
K1	26	17.6
K2	30	20.3
K3	27	18.2
K4	65	43.9
Total	148	100

they have done antenatal checks more than three times (K4) (Table 1).

Table 1 presents the distribution of participants' socio-demographic and obstetric characteristics, included: living area, age, latest education, gestational age, gravida, and antenatal care visit.

Factors affecting pregnant women

Based on the data collection results, this study found that 94.6% of pregnant women had high knowledge about how to carry pregnancies during the COVID-19 pandemic. Furthermore, 60.1% of the participants had a positive attitude, and 60.8% also practiced undergoing pregnancy during the COVID-19 pandemic (Table 2).

Discussion

This study provides an insight into the level of knowledge, attitudes, and practices that have been known and applied by Acehese pregnant women during the COVID-19 pandemic, especially when they were carrying their pregnancy. The uniqueness of this research is that there are still very few studies on pregnant women's knowledge, attitudes, and practices during the covid-19 pandemic. The previous study only focused on effective management in dealing with COVID-19 infection. In addition, this study is also essential to describe the ability of pregnant women during the

Table 2 Frequency distribution of research variables.

Characteristics	Frequency (n)	Percentage (%)
<i>Knowledge</i>		
High	140	94.6
Middle	8	5.4
Low	0	0
<i>Attitude</i>		
Positive	89	60.1
Negative	59	39.9
<i>Practice</i>		
Good	90	60.8
Bad	58	39.2
<i>Gestational age</i>		
1st trimester	20	13.5
2nd trimester	49	33.1
3rd trimester	79	53.4
Total	148	100

pandemic, and it is hoped that there will be no increase in maternal mortality and morbidity.

COVID-19 infection is a health problem that affects the entire world population, and adequate knowledge about this issue is significant in the management and prevention. It has been proven that good knowledge is a requirement for someone to have beliefs related to prevention, form a positive attitude, and apply good practice related to a disease.¹⁷ This study showed that 94.6% of participants had adequate knowledge about pregnancy during the COVID-19 pandemic. This percentage was higher than that reported in Uganda health care workers (69%),¹⁸ the general Chinese population (90%),¹⁹ and US residents (80%).²⁰ The current study only explored the knowledge of pregnant women about pregnancy and how to undergo it during the pandemic, so its scope was more specific than previous studies.

This study found a high level of knowledge since the first confirmed case of COVID-19 in Indonesia, especially Aceh, was found. The government has carried out various methods and campaigns to educate the population about preventing individual transmission of this disease. Television and the internet are the most frequently accessed media to get information, especially during this COVID-19 pandemic. Therefore, it was not surprising that 79.7% of participants received information about safe antenatal care during the COVID-19 pandemic from the internet or social media and 66.2% of them already knew how to self-check their condition and fetal movements independently, and they did it often. Previous studies also found that most of the respondents relied on the internet as a source of information related to COVID-19 cases.^{17,21}

Furthermore, this study found that the participants' attitudes and practices were primarily positive and good. The attitude and approach about an issue are dependent on their knowledge about it, so when people have high knowledge about something, the attitude and practice will also follow the knowledge they already have.¹⁷ A previous study in China reported a positive relationship between attitudes/practices in preventing COVID-19 infection and respondents' knowledge practiced in the study.^{19,22} Another

study in Bangladesh found that a higher knowledge score is associated with higher preventive practices toward COVID-19.²³ Moreover, pregnant women are also one of the women groups who often use health care facilities; therefore it will be easier for them to change their behavior.

Pregnant women are also a group that is vulnerable to psychological problems during the COVID-19 pandemic, and they tend to be susceptible to anxiety related to their ability to undergo pregnancy, especially during this pandemic. So it is by the results obtained in this study where 54.1% of the participants felt anxious, and 2.0% of them experienced sleep disturbances because of this situation. This phenomenon was also found in a previous study conducted by Corbett et al. (2020), who found that 63.4% of pregnant women experienced daily anxiety about their unborn baby during this pandemic.²⁴

In addition, because participants already know the adverse effects of being exposed to the coronavirus, they tend to stay at home to prevent transmission. This current study found that 53.4% of the participants rarely visited crowded places, and 45.9% admitted that they had never been crowded places during the pandemic. A study conducted by Corbett et al. (2020) has found that 32.4% of the participants started to stay at home to avoid getting the disease. Evidence showed the psychological symptoms of pregnant women because they worried that their fetus might be exposed to this disease. Hence, they decided not to go to crowded places, such as recreational parks, malls, markets, and offices.²⁴

Regarding the implementation of health protocols carried out during this pandemic, this study found that majority of the participants had implemented the health protocol properly. For example, about 69.6% of the participants washed their hands for 20 s every day, 95.9% used a mask if they had to leave the house, 45.9% cleaned and disinfected surfaces that were often touched, and 69.6% of the participants maintained a distance of at least one meter with others. Anikwe et al. (2020) found a similar result that the majority of the respondents had the awareness to comply with health protocols, such as washing hands, using masks, covering their mouths with elbows when they sneeze, preventing touching on the face area, and carrying out quarantine. Thus, the attitudes and practices illustrated in this current study showed that pregnant women already had good attitudes and practices in preventing the transmission of COVID-19 and having a good pregnancy.¹⁷ It is hoped that this adequate knowledge will promote the day-to-day practice of COVID-19 prevention.

In conclusion, the present study has shown a good knowledge, attitude, and practice among pregnant women undergoing pregnancy during the COVID-19 pandemic. It is hoped that these good things can be helpful for pregnant women undergoing pregnancy and still comply with health protocols or recommendations from health workers about what to do to carry a safe pregnancy during this COVID-19 pandemic. In addition, it is recommended that further education be implemented for pregnant women to reduce the mother and families' anxiety and get the latest information about COVID-19 and its prevention.

Its data collection by internet-based research limits the present study, and it used Google Form as a data collection medium. Because of that, some participants admitted that it

was difficult to access the Google Form because they were not familiar with it. However, the researcher has given a reasonable explanation for the participants about accessing the Google Form by the link.

Conflict of interest

The authors declare no conflict of interest.

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