ORIGINAL PAPER

THE UTILIZATION OF MATERNAL HEALTHCARE SERVICES DURING THE COVID-19 PANDEMIC IN SOUTH SULAWESI, INDONESIA

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Abstract

Aim: The aim of this study was to evaluate the utilization of healthcare services for pregnant women during the COVID-19 pandemic in South Sulawesi, Indonesia. *Design:* An analytical cross-sectional study. *Methods:* A group of 226 pregnant women completed the study questionnaire. The questionnaire was developed based on the basic health research questionnaire from the Ministry of Health, Indonesia, and the Navigating Pregnancy during the COVID-19 Pandemic article from UNICEF. *Results:* Of the 226 pregnant women, 122 (54%) had poor knowledge related to COVID-19 and negative attitudes regarding health protocols for COVID-19 (79.6%). Most (n = 189; 83.6%) experienced anxiety; however, this did not affect their intention to use healthcare services. Utilization of antenatal care services during the pandemic was associated with antenatal care visiting behavior (p = 0.000) and access to healthcare services (p = 0.000). The most significant predictor of utilization of antenatal care services during the pandemic was antenatal care visiting behavior (p = 0.002; OR = 5.904). *Conclusion:* These findings provide important information on maternal healthcare provision during the pandemic in Indonesia.

Keywords: antenatal care, COVID-19, maternal healthcare, utilization.

Introduction

Pregnancy is an important period in the life of a woman, but it is also a life-threatening event since complications can occur which can affect the mother's health, the baby's health, or both. In addition, pregnant women and their fetuses are at risk of contracting infectious diseases during pandemics (Addi et al., 2020). Physiological and psychological changes during pregnancy increase susceptibility to infection, especially when the infection affects the cardiorespiratory system. As a result, there is a possible risk of respiratory failure during pregnancy (Addi et al., 2020; Culp, 2020). In Indonesia, maternal and neonatal mortality remain problematic, and increasingly so during states of emergency (Kementrian Kesehatan Republik Indonesia, 2020). In these circumstances, maternal and neonatal health services are among those affected, both in terms of accessibility and quality (Ashish et al., 2020). There is, therefore, concern that this could impact morbidity and mortality, including for mothers and their newborns (Kementrian Kesehatan Republik Indonesia, 2020; Roberton et al., 2020).

Coronavirus disease 2019 (COVID-19), caused by coronavirus-2 severe acute respiratory syndrome (SARS-CoV-2), has spread widely since it was discovered in China in December 2019, becoming a pandemic (Rasmussen & Jamieson, 2020). In Indonesia, the pandemic has led to increasing numbers of victims and property losses, as well as broad socio-economic implications. Consequently, the government has designated this pandemic a national disaster (Kementrian Kesehatan Republik Indonesia, 2020). The effects of COVID-19 on pregnant women and fetal development are still not certain (Rasmussen & Jamieson, 2020). In China, it has been reported that COVID-19 infections in pregnant women largely occurred in the third trimester or end of the second trimester (World Health Organization, 2020b). However, the effects of the SARS-CoV-2 infection in the first trimester, and whether it may cause fetal defects or fetal death are still unknown. Several incidences have been reported of pregnant women with COVID-19 giving birth to preterm or low birth weight babies; nevertheless, the link between these impacts and COVID-19 cannot be clearly explained (World Health Organization, 2020a).

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Although, as yet, there are no studies that describe the risk of complications for pregnant women, from the pandemic, it is important for all pregnant women to continue to be able to access quality maternal and infant health services (Addi et al., 2020; Culp, 2020; Mahajan & Sharma, 2014). There is greater risk for pregnant women and their newborns if they do not access maternal healthcare services during pregnancy (Murray & McKinney, 2017). However, during the COVID-19 pandemic, limitations have affected all community services, including those services focused on maternal and neonatal care. Decreased quality of maternal healthcare services has also been reported in other countries, such as Nepal (Ashish et al., 2020), and it is predicted that this could increase the mortality rates of mothers and babies (Roberton et al., 2020).

During the COVID-19 pandemic, several countries have applied lockdown policies, and these have further affected delivery of health-services, including maternal and child health services, particularly in low-middle income countries (Mendendez et al., 2020), such as India, Indonesia, Nigeria, and Pakistan, over the past 12 months (Stein et al., 2020). In Indonesia, several issues related to maternal health services, including reluctance of pregnant women to use health services due to fear of infection, recommendations to postpone pregnancy check-ups and antenatal classes, and lack of preparation in terms of health personnel and infrastructure (Kementrian Kesehatan Republik Indonesia, 2020), have impacted services. The World Health Organization (WHO) has urged countries to ensure the continuity of health services and programs (Mendendez et al., 2020), and to develop guidelines regarding health services for pregnant women during the pandemic, with the aims of ensuring that women continue to receive essential services, that risk factors be identified independently, that women have access to emergency assistance, and also that health workers receive protection against contracting COVID-19 (Kementrian Kesehatan Republik Indonesia, 2020).

A search of the available literature revealed that very few studies have examined the utilization of health services by pregnant women during the pandemic, with the exception of a study from Nepal (Ashish et al., 2020). Several studies on pregnancy during pandemics have focused on expert reviews and comment (Addi et al., 2020; Busch-Hallen et al., 2020; Culp, 2020; Mendendez et al., 2020; Rasmussen & Jamieson, 2020). Studies on how pregnant women use healthcare services during the current situation are important and will provide important information for evaluating healthcare services for pregnant women during the pandemic.

Aim

The aim of our study was to examine the associations between demographic characteristics, COVID-19 knowledge and attitudes to it, psychological status, antenatal care visiting behavior, and access to healthcare services on the utilization of antenatal care services during the pandemic COVID-19 in South Sulawesi, Indonesia.

Methods

Design

An analytical cross-sectional study was conducted to evaluate the utilization of healthcare services for pregnant women during the pandemic, from July to October 2020, in the South Sulawesi province of Indonesia. South Sulawesi province is located in the east of Indonesia and is one of the regions in Indonesia with the highest number of confirmed COVID-19 cases (Satuan Tugas Penanganan COVID-19, 2021).

Sample

The study population was pregnant women from zero to nine months gestation. The required sample size was calculated using *binominal proportions* (Lemeshow et al., 1997).

$$n = \frac{Z^2 \, P[1-p]}{d^2}$$

Where:
- n = the sample size
- *Z* = the number relating to degree of confidence anticipated in the result; in this study 95% confidence interval ($\alpha = 5\% = 0.05$; $Z = 1.96$)
- *P* = an estimate of the proportion of people falling into the group in which we are interested, based on a previous study in which $P = 0.15$
- *d* = degree of error we are prepared to accept (sampling error; 5% anticipated error).
- $n = \frac{1.96^2 \; 0.15[0.85]}{0.05^2} = 195$

Due to the probability of incomplete data and drop out, an extra 20 pregnant women (10%) were recruited, making a total of 215 participants. Ultimately, 226 participants were included. All participants involved in the study signed an informed consent form after receiving an explanation of the study objectives. Respondents had the right to withdraw at any time during the data collection process.

Data collection

The outcome variable was utilization of antenatal care during the COVID-19 pandemic, defined as visits of pregnant women for antenatal care. The explanatory variables were socio-economic characteristics (e.g., age, education, occupation, parity, trimester of pregnancy, family income) antenatal visiting behavior, access to healthcare services, psychological condition during the pandemic, knowledge about COVID-19, and attitudes to COVID-19.

We evaluated the outcome variable of utilization of antenatal care during the COVID-19 pandemic with questionnaires asking pregnant women whether they had had antenatal check-ups during the pandemic (Yes / No, and giving reasons). Socio-economic characteristics were assessed by open-ended questions relating to maternal age, maternal education, employment status, gestational age, number of children, and family income. Instruments for measuring health services for antenatal care consisted of six questions concerning the types of antenatal health services that the pregnant women received. Antenatal care visiting behavior was evaluated using a questionnaire asking how many times the pregnant women had made antenatal visits (taking gestation into account). Access to healthcare services was assessed by how easily pregnant women were able to access healthcare services for antenatal care during the pandemic (easily or with difficulty). The psychological condition of pregnant women during the pandemic was measured using a questionnaire consisting of three questions; knowledge about COVID-19 was measured using five questions; and attitudes related to COVID-19 were assessed using three question items answered by choosing responses on a Likert scale. Questions regarding attitudes towards COVID-19 focused on attitudes towards prevention of transmission during antenatal care. The questionnaire was developed based on the basic health research questionnaire from the Ministry of Health, Indonesia, and the Navigating Pregnancy during the COVID-19 Pandemic article from UNICEF (Kementerian Kesehatan Republik Indonesia, 2018; UNICEF, 2020; World Health Organization, 2020a).

Procedures

Participants were recruited in a public health center (Puskesmas). The pregnant women participated in the study voluntarily. The information sheet and the informed consent were explained to participants. The questionnaires were sent to the participants online via Google forms. The participants in this study were offered vouchers as an incentive.

Data analysis

In order to identify factors associated with the utilization of antenatal care during the COVID-19 pandemic, bivariate and multivariate analyses was performed. Frequency distributions and descriptive statistics were conducted to describe participant characteristics. Chi squared (χ^2) statistics were used to test associations between outcome variables and categorical explanatory variables. Multivariate analysis used logistic regression models to examine factors best predicting antenatal care utilization during the pandemic.

Results

Relationship between participant demographics and utilization of antenatal care services

A total of 226 pregnant women participated in the study. Table 1 shows the relationship between participants' information (demographic characteristics, COVID-19 knowledge, COVID-19 attitudes, psychological condition, and antenatal care habits) and utilization of antenatal care services during the pandemic. The majority (n = 195; 86.3%) were in the age range of 20–35 years old; most (n = 182; 93.3%) in this age range used antenatal care services during the pandemic, whereas all women in the age group under 20 years old (n = 14; 100%) used antenatal care services. Most participants with university education (n = 104; 94.9%) and secondary school education (n = 59; 89.4%) used antenatal care services during the pandemic. All women with primary school education (n = 3; 100%) used antenatal care services. Over half of the participants were housewives (n = 120; 53.1%); most of entire sample used antenatal care services (employee: 94.3%; housewife: 92.5%). One hundred and twenty (53.1%) were multipara; most primipara women (104 out of 106; 98.1%) were more active in using antenatal care services during the pandemic; there was a significant association between parity and use of antenatal care services (p = 0.007). Most were predominately in the third trimester (n = 102; 45.1%), and most (n = 93; 91.2%) utilized antenatal care services during the pandemic. In terms of family income, the majority of the participants (n = 145; 92.9%) who reported earning under the minimum regional wage used antenatal care services during the pandemic.

Relationship between COVID-19 knowledge and attitudes, psychological status, and antenatal care practices and utilization of antenatal care services

The relationship of COVID knowledge and utilization of antenatal care services during the pandemic is shown in Table 1. Among the 226 pregnant women, 122 (54%) had poor knowledge; however, there was no difference in antenatal care service utilization during the pandemic between women with good or poor knowledge (> 93%). Most respondents (n = 180; 79.6%) had negative attitudes regarding health protocols for COVID-19, and 170 from the 180 (94.4%) used antenatal care services during the pandemic more actively than women with positive attitudes (41 of 46; 89.1%). Psychological

Table 1 Relationship between participant demographics and utilization of antenatal care services during the pandemic

Items		Total n = 226	Utilization of antenatal care services during pandemic		p-value*
			yes (n = 211)	no (n = 15)	
		n (%)	n (%)	n (%)	
Demographic characteristic					
age (years)	< 20	14 (6.2)	14 (100.0)	0 (0.00)	
	20–35	195 (86.3)	182 (93.3)	13 (6.7)	0.424
	> 35	17 (7.5)	15 (88.2)	2 (11.8)	
occupation	employee	106 (46.9)	100 (94.3)	6 (5.7)	0.579
	housewife	120 (53.1)	111 (92.5)	9 (7.5)	
education	university	157 (69.5)	149 (94.9)	8 (5.1)	
	secondary	66 (29.2)	59 (89.4)	7 (10.6)	0.287
	primary	3 (1.3)	3 (100)	0 (0.0)	
parity	primiparous	106 (46.9)	104 (98.1)	2 (1.9)	0.007
	multiparous	120 (53.1)	107(89.2)	13 (10.8)	
trimester of pregnancy	first trimester	54 (23.9)	53 (98.1)	1 (1.9)	
	second trimester	70 (31.0)	65 (92.9)	5 (7.1)	0.245
	third trimester	102 (45.1)	93 (91.2)	9 (8.8)	
family income	more than minimum regional wage	70 (31.0)	66 (94.3)	4 (5.7)	1.000
	under minimum regional wage	156 (69.0)	145 (92.9)	11 (7.1)	
state	south sulawesi	184 (81.4)	172 (93.5)	12 (6.5)	1.000
	others south sulawesi	42 (18.6)	39 (92.9)	3 (7.1)	
COVID knowledge, attitude & psychological condition					
knowledge about health	good knowledge	104 (46.0)	97 (93.3)	7 (6.7)	0.958
protocol of covid-19	poor knowledge	122 (54.0)	114 (93.4)	8 (6.6)	
attitude towards covid-19	positive	46 (20.4)	41 (89.1)	5 (10.9)	0.195
	negative	180 (79.6)	170 (94.4)	10 (5.6)	
psychological condition	no anxiety	37 (16.4)	33 (89.2)	4 (10.8)	0.278
during pandemic	anxiety	189 (83.6)	178 (94.2)	11 (5.8)	
Antenatal care practice					
antenatal care visiting	according to government recommendations	191 (84.5)	184 (96.3)	7 (3.7)	0.000
behavior	not according to government recommendations	35 (15.5)	27 (77.1)	8 (22.9)	
access to healthcare	easy	180 (79.6)	173 (96.1)	7 (3.9)	0.000
services during pandemic	difficult	46 (20.4)	38 (82.6)	8 (17.4)	

*n – number; *Chi-square test*

condition during the pandemic revealed a similar distribution, with most (n = 189; 83.6%) experiencing anxiety, 94.4% (n = 178) of whom more actively used antenatal care services than women with no anxiety (33 out of 37; 89.2%). One hundred ninety-one participants (84.5%) had antenatal care visiting behavior in line with government recommendations, and most (n = 184; 96.3%) more actively used antenatal care services during the pandemic than women whose antenatal care visiting behavior did not align with government recommendations (27 of 35; 77.1%). From 180 participants (79.6%) who had easy access to

healthcare services during the pandemic, 96.1% (n = 173) used antenatal care services more actively than those who had difficult access. There were significant associations between antenatal care visiting behavior and access to healthcare services and utilization of antenatal care services (p = 0.000).

Types of antenatal care provider

Figure 1 shows antenatal care providers accessed by pregnant women during the pandemic. Of the 211 pregnant women who utilized antenatal care services, most (n = 101; 47.9%) used one type of antenatal care provider. Seven types of antenatal care providers during the pandemic are shown in this figure. Most

women used traditional antenatal care providers (hospital, private physician maternal healthcare, primary healthcare, private midwife maternal healthcare, maternal and children hospital, and health integrated posts at village level (Posyandu), whereas online antenatal care providers were used by only a few women (n = 4).
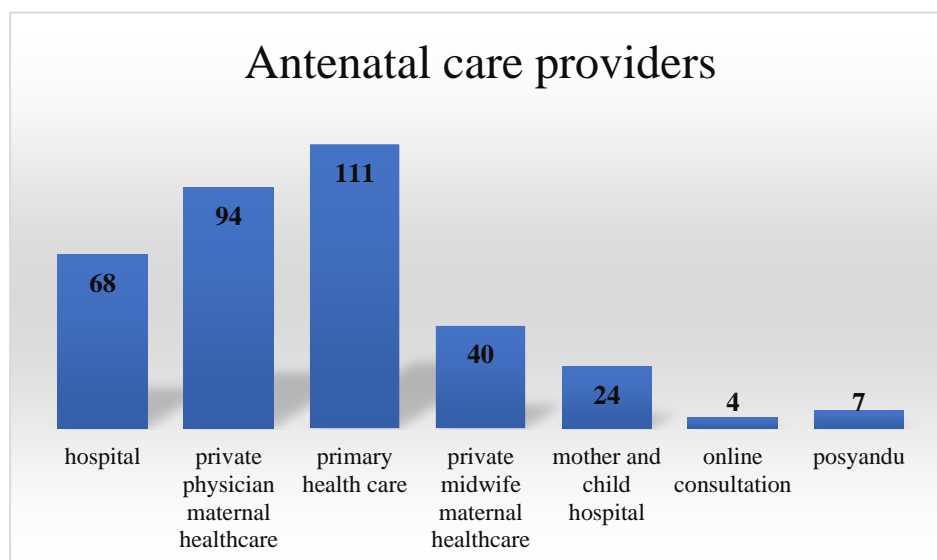

Figure 1 Types of antenatal care provider used by pregnant women during the pandemic

The predictive factors of utilization of antenatal care services during COVID-19 pandemic

Table 2 shows the predictive factors that qualified for logistic regression analysis. There are three predictors (antenatal care visiting behavior, access to healthcare services during the pandemic, and parity). These predictor factors were analyzed using logistic regression, as shown in Table 2. Utilization of antenatal care services during the pandemic was associated with antenatal care visiting behavior (p = 0.002) and access to healthcare services (p = 0.024). Parity was a confounding factor (p = 0.066) for utilization of antenatal care services during the pandemic. Women whose antenatal care visits were in accordance with government recommendations utilized antenatal care services 5.904 times more than women whose visiting behavior was not in accordance with government recommendations. Women with easy access to healthcare services during the pandemic utilized antenatal care services 3.675 times more than women who had difficult access during the pandemic.

Table 2 Logistic regression result of predictors of utilization of antenatal care services during pandemic

	Utilization of antenatal care services during pandemic							
	Model 1				Model 2			
	p-value	OR	95% CI		p-value	OR	95% CI	
			lower	upper			lower	upper
Antenatal care visiting behavior	0.008	4.677	1.489	14.690	0.002[a]	5.904	1.897	18.379
Access to healthcare services during pandemic	0.025	3.668	1.178	11.421	0.024[a]	3.675	1.182	11.423
Parity of mothers	0.066	0.231	0.048	1.103				

[a]*logistic regression; CI – confident interval; OR – Odds ratio*

Discussion

The current coronavirus (COVID-19) pandemic has profoundly affected people across the world (Wu et al., 2020). Pregnant women are more vulnerable to SARS-CoV-2 infection than the general population due to immunological and physiological adaptations during pregnancy (Lou & Yin, 2020). Government directives and hospital policy implementation of social distancing during antenatal care and the limiting of the number of family members accompanying pregnant women to hospitals were

aimed at preventing contagion (Kimani et al., 2020). To the best of our knowledge, the present study is one of the first to investigate factors associated with antenatal care during the COVID-19 pandemic. The results indicate that parity, antenatal care visiting behaviors, and access to healthcare services during the COVID-19 pandemic were significant predictors of utilization of antenatal care. Parity demonstrated a negative association with take up of antenatal care services during the pandemic. Multiparous women were less likely to use antenatal care services, and similar findings have been reported in studies undertaken elsewhere (Moore et al., 2017; Nuamah et al., 2019; You et al., 2019). Due to multiple risks associated with first pregnancies, higher use of antenatal care facilities may be associated with anxiety-related factors such as fear of unknown complications (Islam & Masud, 2018).

Interestingly, the study revealed that the majority of the pregnant women had unsatisfactory attitudes towards COVID-19. This is in contrast to a study conducted in Nigeria which indicated that a majority of pregnant women in their third trimester had positive attitudes and followed preventative practices during COVID-19 (Lee et al., 2020). The attitudes and preventative skills of a person towards COVID-19 are dependent on their knowledge of the disease (Anikwe et al., 2020). However, half of the pregnant women in the present study had inadequate knowledge of COVID-19. Although pregnant women had negative attitudes and inadequate knowledge, they were more likely to use antenatal care services during COVID-19. In Indonesia, there are several issues related to maternal health services, such as reluctance of pregnant women to use health services due to fear of infection, government recommendations to postpone pregnancy check-ups and classes for pregnant women, and unprepared services (in terms of personnel and infrastructure) (Kementrian Kesehatan Republik Indonesia, 2020). Nevertheless, the majority of pregnant women refused to postpone their pregnancy check-ups due to concerns about fetal growth, and also due to healthcare centers not providing virtual care during the COVID-19 pandemic, despite government recommendations. Thus, future activity should focus on improving the knowledge and attitudes of pregnant women, and providing virtual care to reduce risk of infection transmission.

Our regression analysis indicates that antenatal care visiting behavior and access to healthcare during the pandemic were significant predictors of take up of antenatal care. Antenatal care visiting behavior was assessed by the number of visits (taking gestation into account). The Indonesian government

has recommended that pregnant women have a minimum of four antenatal visits during pregnancy if they have no complications, and currently recommends postponing visits during the second trimester due to the COVID-19 pandemic (Kementrian Kesehatan Republik Indonesia, 2020). The present study reported that participants visited numerous types of care providers, with the majority visiting primary health care (Puskesmas) for antenatal care. This result could be due to the cost of healthcare services, since primary care services are provided for free. Free maternal healthcare increases access and utilization, especially in groups with limited financial resources (Zhao et al., 2009). Alternatives to antenatal care that pregnant women sought out during the pandemic included maternal healthcare form private physicians and hospitals. This result could be due to pregnant women continuing to visit health facilities despite government regulations limiting services due to the COVID-19 pandemic.

With regard to accessing healthcare facilities, regression logistics showed that during the pandemic, pregnant women with easy access to healthcare facilities used 3.675 times more prenatal care services than women who had difficult access. This study was conducted in Sulawesi island, one of the thousand islands in Indonesia with urban and rural areas. Many previous studies have reported lower utilization of ANC (Antenatal care) services among rural women and those in financial difficulties (Islam & Masud, 2018; Mahajan & Sharma, 2014; Nuamah et al., 2019). Lower rates of use of ANC services among women with difficult access to healthcare facilities might be linked to lower socio-economic conditions, rural area, and limited healthcare due to government restrictions during the pandemic.

In contrast to previous studies, the current study reported that age, employment status, family income, knowledge of COVID-19, and psychological status were not significantly associated with utilization of antenatal care. Previous studies reported that maternal age was a predictor of ANC service utilization, with young mothers less likely to visit healthcare facilities (Addi et al., 2020; Islam & Masud, 2018). The present study reported that the majority of mothers aged 20–35 years were more likely to utilize ANC services during the COVID-19 pandemic.

Over 50% of the respondents in our study were unemployed housewives; thus, pregnant women categorized as low income predominated. However, they still had good access to ANC services. This result contrasts with another study that found higher likelihood of maternal healthcare take up among

women in the highest household wealth index quartiles, compared to those in the lowest (Nuamah et al., 2019). This result could be related to the fact that most pregnant women utilized primary healthcare facilities that provided free services.

Although a previous study found that education was a key factor in enhancing the quality of maternal health care and utilization of ANC services (Mahajan & Sharma, 2014), in the current study, results indicated no statistically significant link between education levels and utilization of antenatal care during the COVID-19 pandemic. In Indonesia, the utilization of ANC services by pregnant women was high (96%) before the COVID-19 pandemic (Kementerian Kesehatan Republik Indonesia, 2018), due to the fact that the government set the goal of improving quality and accessibility of healthcare services for people in Indonesia, including antenatal care and free access to these services. ANC services are available everywhere from district to village level. Thus, the utilization of ANC services is high regardless of the educational level of pregnant women.

Knowledge about health protocols for COVID-19 was not significantly associated with utilization of ANC services. Adequate knowledge of the symptomatology should inform practice and lead to reduced spread of the virus (Anikwe et al., 2020). Although the participants had inadequate knowledge of COVID-19, they still used ANC services. This might be linked to the pregnant women feeling more vulnerable due to the pandemic; regardless of variations in race or culture, the vulnerability of pregnant women prompts them to seek the best results for themselves and to minimize the risk of vertical transmission to their babies (Lee et al., 2020).

Evidence of psychological conditions during the pandemic was demonstrated among the pregnant women studied, since a significant number reported feeling anxiety about the pandemic and fear for their baby and its wellbeing. It has been reported that anxiety among pregnant women has risen due to the COVID-19 pandemic (Anikwe et al., 2020; Corbett et al., 2020), and they experience additional pressure due to the pandemic's potential indirect effects on their physical and psychological health (Corbett et al., 2020).

Implications for Healthcare Professionals

The study describes utilization of antenatal care during the COVID-19 pandemic in Sulawesi, Indonesia. Our study indicated a very low level of knowledge and unsatisfactory attitudes among pregnant women towards COVID-19. The pregnant women also experienced anxiety due to the outbreak that may prevent them from using healthcare services. This information will help the government to plan and develop health intervention strategies that can improve knowledge, attitudes, and psychological well-being of pregnant women during the pandemic.

Additionally, antenatal care should be modified to remove barriers to maximizing the utilization of services during pandemic. It is recommended that further research be undertaken, using a variety of settings, geographical areas, and also focusing on the development of virtual care for pregnant women during COVID-19 pandemic.

Limitation of study

The current study was conducted only in a single region in Indonesia. Consequently, generalizations beyond this study should be made with caution due to possible sampling bias. Nevertheless, these findings have important value and relevance to maternal healthcare provision during the pandemic in Indonesia, and results may reflect the utilization of maternal healthcare during the pandemic in other similar contexts. Nevertheless, it is necessary to compare the results with other studies investigating maternal healthcare utilization during the period of the pandemic from other areas. Other limitations include the small number of pregnant women who did not utilize antenatal healthcare services; and finally, the cross-sectional design, which did not allow causal inferences to be made. Thus, further study is needed, such as a qualitative study to explore reasons for utilizing antenatal healthcare services.

Conclusion

This study describes utilization of antenatal care during the COVID-19 pandemic in Sulawesi, Indonesia, highlighting parity, antenatal care visiting behaviors, and access to healthcare services during the pandemic as predictive factors. Our study indicated very low knowledge in pregnant women of COVID-19, and unsatisfactory attitudes to COVID-19. In addition, the pregnant women experienced anxiety due to the pandemic. Nevertheless, the majority of them still utilized antenatal care. We recommend further research (that goes beyond the limitations of this study) with the aim of improving COVID-19 knowledge and attitudes of pregnant women; we also recommend that virtual care be provided to reduce risk of infection during the COVID-19 pandemic.

Ethical aspects and conflict of interest

This study was conducted with the approval of the University Ethics Committee (September 3, 2020, 102 / KEPPKSTIKSC / IX / 2020). Issues of anonymity and confidentiality were addressed. There were no conflicts of interest in the current study.

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Author contributions

Conception and design (EE, KSK), data analysis and interpretation (EE, SH), manuscript draft (EE, KSK, SH. NN), critical revision of the manuscript (NN), final approval of the manuscript (EE, KSK).

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