Coronavirus 2019 Pandemic: Assessment of the Level of Knowledge, Attitude, and Anxiety among Pregnant Women in Ebonyi State, Nigeria

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Abstract

Objective: To determine the level of knowledge, attitude, and degree of anxiety towards COVID-19 and its predictors among pregnant women in Ebonyi State, Nigeria. **Materials and Methods:** This cross-sectional study was conducted between April and July 2020 on 460 pregnant women randomly selected from three hospitals in the state. Data was collected using a structured questionnaire and a Coronavirus Anxiety Scale. Data were analyzed using IBM SPSS version 20 and were represented using a frequency table, percentages, and odds ratios. **Results:** The mean gestational age and maternal age of the respondents were 33.5 (95% CI 31.9-35.2) weeks and 29.2 (95%CI 28.1-30.2) years respectively. All the respondent were aware of COVID-19 however adequate knowledge of the disease and its preventive measures were poor. A significant number (82.6%, 380/460) thought although erroneously that pregnant women were immune to COVID-19. About four-sixth (65.1%, 300/460) of the women were afraid because of COVID-19. About one-sixth (16.3%, 75/460) of the women developed anxiety. Place of residence (Urban residence: OR=0.94 95% CI 0.42-0.99, P = 0.015) and gestational age (GA>36 weeks: OR=5.49 95% CI 1.04-28.78, P=0.044) were the significant determinant of the development of anxiety disorder. Inadequate knowledge of COVID-19 and its preventive practices were associated with increased odds of developing anxiety. **Conclusion:** The study population is prone to anxiety disorder resulting from COVID-19. They exhibited poor knowledge and practice of COVID-19 disease probably attributed to their erroneous belief that pregnant women were immune to the disease. Proper education on COVID-19 is needed to change women's erroneous belief of the disease. This will help to reduce anxiety among pregnant women.

Keywords: COVID-19; Anxiety; Pregnancy; Knowledge; Stress; Ebonyi state; Nigeria

Introduction

Coronavirus 2019 (COVID-19) is a public health emergency of international concern. Since its outbreak in Wuhan China, it has spread around the world causing untold havoc along its path. It has caused millions of cases and hundreds of thousands of deaths in the world. [1,2] Cure for COVID-19 infection is still a distant dream but tremendous efforts have been made by the world community in finding a vaccine or drugs for its management.[3,4] The disease is better prevented than being managed and to this end, a series of preventive measures have been implemented by different countries of the world including Nigeria to help stop the spread of the disease. These measures involved severe restriction of people's movement, self-isolation, social distancing, and asking people to stay at home. All these have contributed to increasing fear of falling ill, helplessness, hunger, joblessness, anxiety, depression, and even thought of suicide.[5-7] which is compounded by misinformation and disinformation concerning the epidemiology of the disease.[ ]

Everybody is at risk of COVID-19 infection and its related mental health challenges but pregnant women are more prone to COVID-19 mental health challenges.[9-11] Even though the etiology of mental health challenges (such as depression and anxiety) in pregnancy has not been properly elucidated, hormonal dysregulation and disturbances in the Hypothalamus-Pituitary-Adrenal axis (HPA axis) during pregnancy are implicated. [12] A stressful condition such as COVID-19 pandemic. [6,9-11,13] increases the activity of the HPA axis resulting in abnormal activities of progesterone, estrogen, cortisol resulting in perinatal anxiety or depression. [12] Depression and anxiety-related disorder complicate about 10% to 15% of pregnancy; [12] this

rate has been shown to have increased among pregnant women following COVID-19 pandemic. [10,14,15] It has been advocated that the provision of adequate social and family support to pregnant women is important in ameliorating the psychological problems of COVID-19. [16] COVID-19 mental health problems in pregnancy can have devastating consequences on the affected woman, her children, and her family. It could lead to demand for termination of pregnancy and early delivery because of anxiety of vertical transmission [17,18] although current evidence has not given support to such transmission. [17] Other possible anxiety induced complications include preeclampsia, sleep disorder, fetal growth restriction, and rejection of care towards herself /children, maternal blues/psychosis, and suicidal ideation. [7,12] Suicide ideation necessitates immediate consultation to mental health specialists or referrals that may require emergency psychiatric hospitalization. In Nigeria, the majority of the studies on COVID-19 are focused on the epidemiology of the disease with little attention being paid to its mental health dimension in vulnerable group such as pregnant women. This study is therefore aimed to fill this knowledge gap as COVID-19 psychological issues could have a severe impact in low resource setting [19] like Ebonyi state, Nigeria. It will assist to determine the knowledge, attitude and level of anxiety and its predictors among pregnant women in Ebonyi state, Nigeria.

Materials and Methods

Study design

This study is a cross-sectional study that assessed the knowledge, attitudes, and level of anxiety among antenatal attendees in Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State St Patrick's Mile Four Hospital, Abakaliki, and Mater Misericordiae Hospital Afikpo.

Study area

This cross-sectional study was carried out at Alex Ekwueme Federal University Teaching Hospital Abakaliki (AE-FUTHA), St Patrick's Mile Four Hospital, Abakaliki, and Mater Misericordiae Hospital Afikpo. AE-FUTHA is the only teaching hospital in the state receiving referrals from the mission and private hospitals in the state and the neighboring hospitals in Enugu, Abia, Benue, and Cross River states. Both St Patrick's Mile Four Hospital, Abakaliki, and Mater Misericordiae Hospital Afikpo are mission hospitals established in 1964 by Late Bishop McGettrick. The hospitals provide Maternal and Child Health services. Ebonyi state is one of the states in South-East Nigeria with a total population of 2,176,947 million in 2018, and a total landmass of 5533 km^2. The main occupation of the people is farming. It shares a boundary with the following states in Nigeria: Enugu, Cross-River, Abia, and Benue. The state has 13 Local Governments with one urban, 2 semi-urban, and others are rural. Abakaliki is the capital city of Ebonyi state and located 64 km south-east of Enugu. In Ebonyi state, government and non-governmental agencies encourage women to deliver in hospitals manned by skilled birth attendants to avoid home deliveries or deliveries by Traditional Birth Attendant (TBA).

Study population

Women included in the study were consenting pregnant women who came for their antenatal visits and were clinically assessed to be healthy. Women excluded from the study were pregnant women who were not residents in the study area and those who were sick and incapable of being interviewed. Women who were booked refer to women who had attended at least three visits in the hospital and had done their baseline booking investigations; the results of her investigation had been reviewed by a doctor. The baseline booking investigations were Pack Cell Volume (PCV), blood group, genotype, retroviral screening, hepatitis B virus screening, Venereal Research Laboratory Test (VDRL), and urinalysis. They were given a health talk which usually covers various topical issues including nutrition, diet, personal hygiene, and danger signs in pregnancy, the labor experience, care of the newborn, exclusive breastfeeding, and immunization. Other health issues such as hypertension, diabetes mellitus, malaria, anemia, Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS), and family planning were also discussed.

Data collection and study instrument

They were recruited between April and July 2020. The data was collected by two trained registrars from the department and led by one of the authors, all wearing a face mask. As a departmental/hospital policy, every antenatal attendee and staff must adorn a face mask to help reduce the risk of transmission of the COVID-19 virus (infection). They were interviewed using a structured questionnaire and Coronavirus Anxiety Scale. [20] The questionnaire was divided into four sections which were: sections A - socio-demographics and obstetrics characteristics of the women; section B - the level of knowledge of COVID-19 infection; section C - reaction to COVID-19 infection and section and D - Coronavirus anxiety scale. The coronavirus anxiety scale (CAS) is a self-report mental health screener of dysfunctional anxiety associated with the coronavirus crisis. Each item of the CAS is rated on a 5-point scale, from 0 (not at all) to 4 (nearly every day), based on experiences over the past two weeks. A CAS total score $\geq$ 9 indicates probable dysfunctional coronavirus-related anxiety for that respondent. The study instrument was validated among 30 pregnant women in the study area, not included in the study population, and was found to have Cronbach's alpha of 0.87. A woman was assessed to have adequate knowledge of COVID-19 infection and its preventive practices if she was able to correctly identify three (3) or more symptoms of COVID-19 infection, the correct infective agent, the correct treatment option, and at least four (3) or more ways to prevent the spread of coronavirus infection. Adequate knowledge of coronavirus preventive practices was observed in a participant if she was able to correctly identify at least four (3) or more methods of reducing the transmission of the disease. Data collection was done before the antenatal attendees were called in by the nurses to see their doctors. Consenting women who were literate filled the questionnaire while those who were not literate were interviewed alone in one of the offices dedicated to the study by the trained research assistants. The questionnaires were filled based on their responses. The filled questionnaires were cross-checked at the site for completeness before they were accepted and those not properly filled were discarded. Ethical approval was obtained

from the ethical committee of the respective hospitals before the study was conducted.

Sample size and sampling technique

The sample size (N) was calculated using:

N = Z 2 pq/e2

Where Z 2 is a constant=1.96

e: The desired level of precision also known as sampling error: 5%

p: Estimated prevalence=0.50

q: 1-p

N=(1.96) 2 × 0.50 × 0.50/(0.052)=384.16

Attrition rate of 20% was added to the sample size *i.e.* 384.16+76.83=460.

Those who met the inclusion criteria were selected using a ballot method of simple random sampling in the antenatal clinic. They were selected after the health talk. An equal number of pieces of white (standing for inclusion) and blue (standing for exclusion) cardboard papers were added into a black polythene bag and a card was drawn from the bag with replacement. A respondent that selected white cardboard was included in the study while those that selected a blue paper were excluded. The process was continued until the total sample size was gotten. The questionnaires were equally allotted to the three hospitals.

Results

Table 1 represents the socio-demographic and obstetrics characteristics of the respondents. The mean age of the respondents was 29.2 (95% CI 28.1-30.2) years with the majority (38.0%) between the age brackets of 31-34 years. More than three-quarter (80.4%) of the women were in their third trimester of pregnancy and the mean gestational age was 33.6 (95% CI 31.9-35.2) weeks. The majority (69.6%, 320) of the women had tertiary education and were mainly (62.0%, 228) urban dwellers.

The level of awareness of COVID-19 disease among the respondent is shown in Table 2. Even though all the women studied are aware of COVID-19 disease, only a few of the women are aware of some of the symptoms of COVID-19 infection as might be expected from the awareness of the disease [Table 2]. More than four-fifth (81.5%, 375/460) was able to correctly identify that coronavirus infection is caused by a virus. Twenty women thought that the disease is caused by humans. Adequate knowledge of COVID-19 disease is poor as less than half (43.5%, 200/460) of the respondents had adequate knowledge of the disease. More than half (85.9%, 395/460) the women believed that COVID-19 disease is preventable. A sizable number (93.5%, 430/460) of the respondents had a wrong opinion on the possible options of management of a case of COVID-19 infection as some thought that drinking of gin, hot water, salty water, and local concoction were options of care.

As shown in Table 3, the majority (65.2%, 300/460) of the

Table 1: Socio-demographics and obstetrics characteristics of pregnant women.	
Parameters	Frequency (%)
Age (years)	
≤ 25	115(25.0)
26-30	10(2.2)
31-34	175(38.0)
35-39	90(19.6)
≥ 40	70(15.2)
Marital status	
Married	435(94.6)
Unmarried	25(5.4)
Level of education	
Primary	40(8.7)
Secondary	100(21.7)
Tertiary	320(69.6)
Occupation	
Employed	156(42.4)
Unemployed	212(57.6)
Residence	
Urban	
Rural	228(62.0)
Parity	140(38.0)
0-2	300(65.2)
3-5	130(28.3)
>5	30(6.5)
Gestational age (weeks)	
≤ 36	255(55.4)
Ø 36	205(44.6)
Trimester of pregnancy	
First trimester	25(5.4)
Second trimester	65(14.1)
Third trimester	370(80.4)

women studied were afraid because of COVID-19 infection. On the other hand, the majority of the women (68.5%, 380/460) were not afraid of contracting the disease (OR 0.79 95% CI 0.73-0.84). The majority believed that pregnant women were immune to COVID-19 infection (OR 22.56 95% CI 16.04-31.72, P ≤ 0.001). When their opinion was sought on whether they are afraid of contracting COVID-19 infection during admission for labor management, less than one-fifth (80) of respondents were afraid of such occurrence with the majority not entertaining such fears.

From Table 4, 75 women were screened positive for COVID-19 anxiety given the COVID-19 anxiety rate of 16.3% among our study population. Women that were ≤ 30 years were more likely to be more anxious about coronavirus infection than their older cohort with a true effect size of between 41.0% and 96.0%. Attaining a lower level of education (primary and secondary education) among the women was associated with increased odds of developing anxiety (OR 4.89 95% CI 0.93-25.57, P=0.060). Residing in urban areas (OR 0.94 95% CI 0.42-0.99, P=0.015) and gestational age of more than 36 weeks (OR 5.49 95% CI 1.04-28.78, P=0.044) were significantly associated with the study population being anxious about COVID-19 infection. Women with poor knowledge of COVID-19 infection and ways of its prevention were at increased odds although not significant of being anxious to coronavirus infection.

Table 2: Level of awareness of COVID-19 among the study population.

Parameters	Awareness		P-value
	Yes (n, %)	No (n, %)	
Awareness of COVID-19 disease	460(100.0)	0(0.0)	-
Awareness of symptoms of COVID-19			
Fever	245(53.3)	215(46.7)	<0.001
Diarrhea	55(12.0)	405(88.0)	0.001
Cough	290(63.0)	170(37.0)	<0.001
Vaginal bleeding	15(3.3)	445(96.7)	0.083
Weakness	60(13.0)	400(87.0)	<0.001
Difficulty in breathing	295(64.1)	165(35.9)	<0.001
Awareness of infective agent			
Bacteria	50(10.9)	410(89.1)	0.001
Virus	375(81.5)	85(18.6)	<0.001
Animal	30(6.5)	430(93.5)	0.013
Human	20(4.3)	440(95.7)	0.181
Awareness of treatment			
Drinking of hot water	95(20.7)	365(79.3)	<0.001
Drinking of gin	95(20.7)	365(79.3)	<0.001
Drinking of salt water	40(8.7)	320(91.3)	<0.001
Drinking of antibiotics	150(32.6)	310(67.4)	<0.001
Drinking of chloroquine	113(24.6)	347(75.4)	0.004
Drinking of local drugs (concoction)	50(10.9)	410(89.1)	0.001
COVID-19 is preventable	395(85.9)	65(14.1)	<0.001
Awareness of preventive measures			
Washing of hands	395(85.9)	65(14.1)	<0.001
Use of face mask	340(73.9)	120(26.1)	<0.001
Education of populace on COVID-19	160(34.8)	300(65.2)	<0.001
Thrash tissue papers	95(20.7)	365(79.3)	<0.001
Good eating behavior	90(19.6)	370(80.4)	<0.001
Hospitalization of COVID-19 patient(s)	110(23.9)	350(76.1)	<0.001
Screening of people for COVID-19	120(26.1)	340(73.9)	<0.001
Restriction of people's movement	110(23.9)	350(76.1)	<0.001

Table 3: The attitude of the study population towards COVID-19 infection.

Parameters	Study population reaction		OR 95% CI	P - value
	Yes(n, %)	No (n, %)		
Afraid of COVID-19	300(65.2)	160(34.8)	3.51(2.68-4.61)	<0.001
Pregnant women immune to COVID-19	380(82.6)	80(17.4)	22.56(16.04-31.72)	<0.001
Poor diet increases risk of COVID-19	85(18.5)	375(81.5)	0.05(0.03-0.07)	<0.001
Low immunity increases risk of COVID-19	240(52.2)	220(47.8)	10.24(7.09-14.78)	<0.001
Stress increases risk of COVID-19	25(5.4)	435(94.6)	0.003(0.001-0.005)	0.001
Vomiting in pregnancy increases risk of COVID-19	50(10.9)	410(89.1)	0.01(0.009-0.022)	0.025
Contracting COVID-19 during labour	80(17.4)	380(82.6)	0.04(0.03-0.06)	<0.001
PICA increases risk	35(7.6)	425(92.4)	0.006(0.004-0.011)	0.007
Afraid of contracting COVID-19	145(31.5)	315(68.5)	0.21(0.16-0.27)	<0.001

Table 4: Level of anxiety towards COVID-19 infection among the study population and its determinants in Ebonyi state, Nigeria.

Parameters	Presence of anxiety		AOR 95% CI	P-value
	Yes (n, %)	No (n, %)		
Age (years)				
≤ 30	60(80.0)	230(59.7)	Ref.	
>30	15(20.0)	155(40.3)	0.24(0.04-1.59)	0.140
Education				
Higher education	40(53.3)	280(72.7)	Ref.	
Lower education	35(46.7)	105(27.3)	4.89(0.93-25.57)	0.060
Occupation				
Employed	50(66.7)	145(37.7)	Ref.	
Unemployed	25(33.3)	240(62.3)	0.45(0.09-2.08)	0.304
Residence				

Urban	70(93.3)	215(55.8)	Ref.	
Rural	5(6.7)	170 (44.2)	0.06(0.006-0.58)	0.015*
Parity				
≤ 2	50(66.7)	250(64.9)	Ref.	
>2	25(33.3)	135(35.1)	1.82(0.32-10.35)	0.497
GA(weeks)				
≤ 36	20(26.7)	235(61.0)	Ref.	
>36	55(73.3)	150(39.0)	5.49(1.04-28.78)	0.044*
Adequate knowledge of COVID-19 infection				
Yes	15(20.0)	185(48.1)	Ref.	
No	60(80.0)	200(51.9)	2.06(0.41-10.54)	0.383
Adequate knowledge of COVID-19 preventive practice				
Yes	20(26.7)	175(45.5)	Ref.	
No	55(73.3)	210(54.5)	1.40(0.28-7.05)	0.682

Discussion

This cross-sectional study assessed the levels of knowledge, attitude, and the degree of anxiety among pregnant women in Abakaliki, Ebonyi State, Nigeria resulting from COVID-19. Our study shows that the majorities of the women studied are aware of COVID-19 disease and were able to identify the correct symptomatology of the infection in keeping with an earlier report in the study area. [21] However, only one-fifth of the respondent was assessed to have adequate composite knowledge of the disease in our study which is not in tandem with the reports of Anikwe et al. [21] in Nigeria and Maharlouei et al. in Iran. [22] Differences in the study population and methodology are plausible reasons for this finding. This abysmal poor adequate knowledge of the disease seen in our study population might impede the government's effort to reduce the prevalence of COVID-19 infection. It has been shown that adequate knowledge of a disease by a population is paramount to its prevention [23] and this discovery of inadequate knowledge of the disease in our study population is a wake-up call to intensify the education of the populace on the disease. It is however encouraging that a significant majority of the women in our study are aware that COVID-19 disease is a preventable disease with adequate knowledge of preventative practices. On the other hand, it is not surprising that the majority of the women are averse to the idea of the restriction of people's movement as a way of curtailing the spread of COVID-19 disease which might not be unrelated to the harsh economic and social meltdown associated with such restriction. [8] A sizable number of the respondents had a wrong opinion on the possible options of management of a case of COVID-19 infection as some thought that drinking of gin, hot water, salty water, and local concoction were options of care. This has earlier been reported in study area. [21] These opinions expressed by these women are worrisome as these women might embark on such intake or recommend such to her friends and family thereby putting herself/pregnancy and family to peril. Health policy-makers should pay much focus on educating pregnant mothers to help prevent such obnoxious action.

COVID-19 has been identified to be associated with an increased rate of psychosocial issues and mental health challenges around the world [4,8,24] and the burden could be high in sub-Saharan Africa, given the weak health care systems. [4] Pregnant women are not immune to these mental health issues which can have deleterious effects on the woman and her developing fetus.

It could be associated with anxiety, thought of self-harm, depression, distress, sleep disturbances, and a decrease in life satisfaction. [7,25] Other possible deleterious effects of COVID-19 mental health issues on pregnancy include preeclampsia, preterm labor, and low birth weight with its squeal; it could lead a woman to consider pregnancy termination and early delivery. [26] From our study, about two-third (65.0%, 300/460) of the women expressed fear to COVID-19 which is in keeping with the global fear of the disease resulting from it wreck of havocs around the world. [1,2] On the other hand, the majority of the women (11.2%, 315/460) were not afraid of contracting the disease (OR 0.79 95% CI 0.73-0.84) probably attributed to a wrong understanding/belief that pregnant women were immune to coronavirus infection as shown in Table 3. The odds of such belief (pregnant women immune to COVID-19) are significantly high and it is about 23 times to those women with a contrary opinion although the effect size is low (OR 22.56 95% CI 16.04-31.72, P ≤ 0.001). This finding from the cohort of women studied is a clarion call to further educate the obstetric population in the study area that pregnancy is a low immune state (as the majority of the women rightly identified that low immunity increases the risk of COVID-19 infection) that could predispose a pregnant woman to COVID-19 infection. COVID-19 pandemic is a risk factor to bad obstetrics outcome as it could make a pregnant woman to avoid hospital care and to present late in the hospital with complication. [26,27] COVID-19 related fear and anxiety [10,28] was seen in our study population although a larger proportion of our respondents were not afraid of hospital delivery (OR 0.96 95% CI 0.94-0.97). Increment of social support for pregnant women has been identified as an important armamentarium to the reduction of anxiety levels associated with COVID-19. [16] Yue et al. [16] in China have shown that an increase in social support for pregnant women assists in the reduction of risk perception level for COVID-19 which is positively correlated with COVID-19 related anxiety among pregnant women.

Mental health problems, such as anxiety and stressful disorders, during pregnancy are a public health problem. It could lead to premature birth, low birth weight, intrauterine fetal growth restriction hypertensive diseases of pregnancy, and suicidal ideation. [7,25,28] COVID-19 pandemic has globally increased the burden of anxiety and depressive illness. [6,29,30] This increasing rate of mental health issues has been reported among

pregnant women [10,24,25,28] which is a worrisome development as it could be associated with bad obstetrics outcomes. In our study, 16.30% (75/460) of our respondents were anxious about coronavirus 2019. Our finding is supported by previous studies on this subject although these studies reported a higher rate of coronavirus 2019 related depression/anxiety disorder. [10,27,29,31] Roy et al. [31] in India reported that 80.0% of their respondent were very anxious about COVID-19 with 40.0% being assessed to be paranoiac. These findings by Roy et al. [31] were corroborated by the work of Preis et al. where more than four-fifths of their respondents were very apprehensive of COVID-19. [10] Our rate of 16.30% is however similar to the rate of 19.0% reported by Pieh et al. [32] in Austria. The level of anxiety exhibited by these women should be expected due to the seeming invincibility of coronavirus 2019 with its trails of havocs around the countries of the world [1,2] Provision of adequate information concerning the infection and the COVID-19 safety intrapartum care [33] during childbirth could help reduce COVID-19 related anxiety during pregnancy.

The significant determinant of the level of anxiety among our study population was the place of residence and the duration of pregnancy. Our study showed that women residing in urban areas have a 94% chance of being anxious compared with their cohort in the rural area. A plausible explanation for this observation in our study might not be unrelated to the perceived fear that increased population density in urban areas could increase the chances of contracting the disease. This calls for the proper education of the populace on the mode of transmission of the disease. In a study by Preis et al. [10] older maternal age was documented to be protective of anxiety in pregnant women unlike in our study where the converse is true. As might be expected advance in pregnancy (gestational age) in our study is significantly associated with increased odds of developing anxiety (OR=5.49 95% CI 1.04-28.78, P=0.044) which is in tandem with an earlier report. [14,16] Pregnant women may be worried about an infant being infected with coronavirus 2019, how their family members will be present during labor management in the hospital, their risk of contracting the disease, and her ability to buy infant/household materials as a result of COVID-19 lockdown [6,9,17] The negative economic meltdown resulting from the COVID-19 pandemic could be a contributing factor also [14] as payment of hospital bill is majorly pocket expenses in Nigeria. It is not surprising that women with lower education are more likely to develop anxiety (OR=4.89 95% CI 0.93-25.57, P=0.060) vis-à-vis those with higher education. This could result from perceive social inequality by these women, as these women are likely to belong to a lower social class, and might not be able in providing for their pregnancy, their family, and other consumables needed to stay safe during COVID-19 lockdown. Also, adequate knowledge of COVID-19 and its preventive practices were seemingly protective in the development of anxiety among the women that we studied. This might be lacking in women with lower education thus predisposing to the development of anxiety. It thus emphasizes the importance of proper education of the obstetric population on COVID-19 in the study area and Nigeria in general as the world battles to contain the virus. This will help to curtail the

anxiety and stress-related induced disorder in pregnancy that could result from the COVID-19 pandemic.

Conclusion

Our study has shown that pregnant women in Ebonyi state are prone to the development of anxiety as a result of COVID-19 disease. Pregnant women in the urban areas and those in advanced pregnancy are significantly at increased odds of developing anxiety during pregnancy. We found also that multiparous women, younger age, inadequate knowledge of COVID-19 disease, and its preventive practices were a risk factor for the development of anxiety symptoms during the COVID-19 outbreak although not significant. It thus highlights the importance of provision and dissemination of proper information on COVID-19 among the obstetric population and by extension to the general public to help reduce the anxiety and depressive mental problems associated with COVID-19. It is also important that health care managers in the study area should proactively evaluate a pregnant woman for COVID-19 anxiety disorder and prompt referral for adequate care. This study is limited by its cross-sectional nature and being a hospital-based study since only those women that came for antenatal care in the facilities were interviewed. The findings could not be generalized to the obstetric population in the study area. However, the study highlights that women are prone to anxiety disorder from COVID-19. It also showed that the women studied and by extension, the obstetric population in the area has poor knowledge of COVID-19 and its preventive practices aimed to curtail the spread of the virus. The social desirability barrier might have influenced the response of the respondent. An effort was however made to reduce it by proper counseling and informing the respondent not to write name on the questionnaire.

Competing Interests

The authors declare that they have no competing interests. All the listed authors contributed significantly to the conception and design of study, acquisition, analysis, and interpretation of data and drafting of the manuscript, to justify authorship.

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