



Research article

Assessment of anxiety and depression, and coping mechanisms during COVID-19 lockdown among pregnant women



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ABSTRACT

Background: COVID-19 lockdown was associated with disruption of daily life, economy, essential health services including maternal health service, and psychological reflexes such as panic, sleep disorders, fear, anxiety, and depression.

Aim: To assess the perception of pregnant women on the COVID-19 pandemic lockdown and the prevalence of common mental health disorders (CMHD) among pregnant women.

Methods: A cross-sectional study was conducted among 380 pregnant women at the University College Hospital (UCH) Ibadan; participants were enrolled using a simple random sampling technique. Data was collected using pretested interviewer-administered questionnaire. Information obtained – sociodemographic and obstetric characteristics, perception and reaction to the COVID-19 pandemic and lockdown, effect on ANC, coping mechanisms, and presence of CMHD (anxiety and depression) were measured using Hospital Anxiety and Depression Scale (HADS). Data were analysed using STATA 16.0 Software. Descriptive and bivariate statistics were performed. The level of significance was p-value < 0.05.

Results: The mean age was 32 ± 4.78 years, most respondents were <35 years (75%), married (97.1%), had a higher education (89%) and multiparous (70%). About 43.9% were worried that COVID-19 would affect pregnancy care, 42.9% reported it affected care and 81.6% were not worried it would affect the delivery care. Among respondents, 96.6% were able to cope with the effects of the pandemic and 96.8% enjoyed good social support. Respondents did not have CMHD (88.16%), 7.9% had CMHD (4.74% had depression and 3.16% had anxiety) and 3.95% had co-morbid depression and anxiety. On multinomial regression analysis, relative to anxiety or depression only, respondents with combined depression and anxiety had higher odds of having no delivery plan and thought COVID-19 may affect their delivery.

Conclusion: Only a few women reported anxiety and depression symptoms during the lockdown and those with anxiety or combined symptoms of anxiety and depression had no birth plan and believed that COVID-19 would affect their delivery.

1. Introduction

The World Health Organization (WHO) confirmed a novel coronavirus as the cause of a respiratory illness in Wuhan, China on the 12th January 2020. In two months, on March 11, 2020, with over 118,000

confirmed cases, 4291 deaths worldwide, the WHO declared a pandemic of coronavirus disease 2019 (COVID-19), caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) [1, 2]. With a rapid spread of the disease across the continents, Nigeria recorded the first

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confirmed case of coronavirus disease on 27 February 2020; since then, many confirmed cases have been reported all over the country.

As of 31st January 2022, there are over 373,229,38 million confirmed cases of COVID-19 worldwide with more than 5.6 million (5,658,702 million) deaths reported by the WHO [3]. In Nigeria, according to the WHO and Nigeria Centre for Disease Control (NCDC), 31st January 2022; there are over 253,023 confirmed cases of COVID-19 and 3125 deaths [4, 5].

The lockdown due to the COVID-19 pandemic caused significant disruption of daily life, economy, and essential health services globally including sub-Saharan Africa. For example, people were restricted to their homes, not allowed to go to their workplace except those on essential duties; and social or religious gatherings were prohibited. As the COVID-19 disease spread, health resources were diverted to focus on the general health needs of the population, COVID-19 prevention, and control rather than the specific needs of vulnerable groups, such as pregnant women [6]. The COVID-19 lockdown also affected access to maternal healthcare services including antenatal clinics and hospital supervised delivery in Nigeria. This disruption of maternal health services had a negative impact resulting in increased maternal and child deaths [7, 8].

At the onset, the uncertainty around the SARS-CoV-2 virus infection and failure to secure treatment caused panic, fear from a hopeless situation, hyperarousal, psychological stress, sleep disturbance, anxiety, and depression in people worldwide [9, 10, 11]. The failure of initially proposed treatment regime before vaccine development, increasing reports of COVID-19-related deaths, and exhaustion from different coping strategies increased the psychological stress of people. Studies showed that people including pregnant women during the lockdown manifested different mental health symptoms such as stress, anxiety, contamination worries, health concerns, post-traumatic stress, and suicidality [1, 12, 13, 14]. COVID-19 pandemic and lockdown affected the mental health individuals including the healthcare professionals, patients, and the general population [15].

Poor mental state in pregnancy is associated with obstetric complications, preterm birth, and poor perinatal outcomes [16]. Anxiety and depression in pregnancy are associated with preterm birth, and adverse fetal and child development outcomes [17]. Simbar et al, documented concerns of the pregnant women about the COVID-19 pandemic and the quarantine restrictions [18]. Some of these concerns include the challenges of having a birth plan and presence of the family members at delivery, anxiety that families members would be exposed to COVID-19, inability to visit the physicians due to fear of getting infected with COVID-19 in the hospital environment, anxiety about increased exposure to chemicals from the hand wash agents or alcohol detergents used in control and prevention of the virus. In the same study, pregnant women were also worried about the safety of their delivery, breastfeeding, and neonatal care in the hospital [18].

The incidence of perinatal psychiatric morbidity may also increase in the context of COVID-19 related stressors, including quarantine, rising unemployment rates, and economic hardship [9]. Although limited, previous work shows a significant impact of the COVID-19 pandemic on psychological distress, with increased depression, anxiety, and stress, and longer periods of lockdown associated with more severe symptoms [1]. In a longitudinal study, Perzow et al also assessed the mental health of pregnant and postpartum women in response to the COVID-19 pandemic, the authors reported that the COVID-19 pandemic resulted in increased internalizing symptoms among diverse pregnant and postpartum women; and interpersonal and contextual factors exacerbate the risk and impact of the pandemic on women's mental health [19]. Depression, anxiety, and stress were relatively common among pregnant women during the COVID-19 lockdown in Abakaliki, Nigeria, with about 23% and 16.7% of women having severe and extremely severe stress respectively [20]. Anikwe et al in South East, Nigeria reported anxiety in one-sixth of the pregnant women, factors such as place of residence and gestational age were significant determinants for the development of anxiety disorder [21].

Generally, pregnant women have always been considered a high-risk population for psychosocial and mental health stressors. Systematic reviews have reported that mental disorders, such as depression and anxiety, are more prevalent during perinatal periods, compared to periods of non-pregnancy in low-and-middle-income countries [1, 18]. At the same time, pregnant women represent a particularly vulnerable group, given the dual impact on the pregnant woman and offspring. Although there is a greater predisposition to psychopathology during pregnancy, the pandemic context and associated factors could accentuate this predisposition. A previous study suggests that women who are pregnant, postpartum, had a miscarriage or experienced intimate partner violence are at high risk for developing mental health disorders during the pandemic [22]. During the pandemic, there were temporary closure of some clinics which affected prenatal and postnatal care, women were at increased risk of loss of income, domestic violence; and faced much psychological distress, social and economic consequences during the COVID-19 pandemic [23].

Coping mechanisms as strategies used during stress or trauma to help manage painful or difficult emotions. The use of effective coping mechanisms will allow individuals to adapt or adjust to stress, changes, or challenges while improving and maintaining mental and emotional wellbeing [24]. The COVID-19 pandemic lockdown as a strategy to control contact and spread of the disease was associated with mental and emotional stress for many people including pregnant women. Many pregnant women like others needed to find ways to adapt and cope with the lockdown and its far-reaching effects on their obstetric care. Commonly used coping mechanisms include support, relaxation, problem-solving, humor, altruism, sublimation, and physical activity [24, 25]. Social support as a key protective factor against mental health problems during the pandemic [22].

Conversely, maladaptive coping mechanisms such as escape, unhealthy self-soothing, numbing, rumination, and self-harm leads to undesirable effects on the mental, emotional health, and quality of life of individuals [24, 26]. Pregnant women who are able to adjust to the challenges and stressful impact of the lockdown are less likely to experience common mental health disorders such as anxiety and depression [24]. In this context, knowing that pregnant women constitute a vulnerable population, it is necessary to evaluate this population in-depth. Given the potential negative psychological consequences that the pandemic could have, the aim of this study is to determine the perception and response of pregnant women to the COVID-19 pandemic and lockdown, their coping mechanisms, and mental health status.

2. Methods

Study Design: This cross-sectional study was conducted among pregnant women that attended antenatal care services (ANC) at the University College Hospital, (UCH) Ibadan.

Study setting and area: The study was conducted at UCH – it is a tertiary health facility that offers multidisciplinary care including management of infectious diseases such as COVID-19.

Study Duration: The study was conducted over a four-month period – August to November 2020.

Study Population: Consenting pregnant women that registered for ANC at UCH. Pregnant women who registered and received antenatal care during the COVID-19 pandemic lockdown were included. We excluded pregnant women that were not registered for ANC at UCH and those that declined participation in the study. We obtained written or verbal informed consent from eligible participants. A simple random sampling technique was used to select eligible women from the sampling frame at the antenatal clinic.

The data were collected using a pretested interviewer-administered questionnaire. The information obtained included the biodata and obstetric characteristics, perception of the COVID-19 pandemic lockdown and its effect on ANC. The coping mechanisms and presence of common mental disorders (such as anxiety and depression) were measured using the standardized Hospital Anxiety and Depression Scale (HADS).

Table 1. Sociodemographic and obstetric characteristics of the respondents.

Variables	Frequency N = 380	Percentage
Mean Age 32 (±4.78) years		
Age (years)		
Less than 35 years	285	75.0
35 and above	95	25.0
Marital Status		
Single	11	2.9
Married	369	97.1
Level of Education		
Below tertiary	42	11.0
Tertiary	338	89.0
Occupation		
Professional/Skilled	267	70.3
Others	113	29.7
Parity		
None	114	30.0
One or more	266	70.0
Number of miscarriages		
None	288	75.8
One or more	92	24.2

The data were analysed using the statistical software STATA 16.0 Software. Descriptive statistics and bivariate statistics were performed. The primary outcome was the presence of common mental disorders which was defined as reports of anxiety or depression or both. The level of significance was set at p-value < 0.05. This study was approved by the University of Ibadan/University College Hospital, Ibadan Ethical Review Committee (UI/UCH EC Ethical approval number UI/EC/20/0264).

3. Results

A total of 380 women participated in this study. Table 1 highlights the sociodemographic and obstetric characteristics of the respondents. The mean age of the respondents was 32 (±4.78) years, most respondents were <35 years (75.0%), married (97.1%), had a higher level of education (89.0%) and multiparous (70.0%) and booked for antenatal care (84.5%).

In Table 2, about 43.9% of the respondents were worried that COVID-19 would affect their ANC, while 42.9% reported that it affected their pregnancy care and 81.6% were not worried it would affect the delivery care.

Concerning ways COVID-19 affected pregnancy care, 34.2% of respondents reported difficulty accessing health care services. Among the respondents, 96.6% were able to cope with the effects of the pandemic and 96.8% enjoyed good social support. About 9.5% of respondents coped by abiding with the public health strategies and 36% sought alternatives such as spiritual or social or decided to stay at home.

Figure 1 highlights the mental health status of the respondents. The majority did not have common mental disorders (88.16%), while about 7.9% had common mental disorders (4.74% had depression and 3.16% of respondents had anxiety) as a result of the COVID-19 pandemic. About 3.95% of respondents had co-morbid depression and anxiety.

Table 3 depicts the association between predictor variables and common mental disorders. The results showed significant association between common mental disorders (CMD) and higher parity (p = 0.003), perception of COVID-19 affecting delivery (p = 0.021) and support from healthcare providers (p = 0.032). In the multinomial regression model, respondents with combined depression (AOR = 0.221, 95% CI = 0.064–0.765) and anxiety (AOR = 0.202, 95% CI = 0.053–0.760) had higher odds of having no delivery plan and thought COVID-19 may affect their delivery relative to anxiety and depression only (Table 4). Also, respondents with depression (AOR = 8.914, 95% CI = 11.578–50.363)

Table 2. Perception of the pregnant women to the effects of COVID-19 pandemic.

Variables	Frequency N = 380	Percentage
Worried COVID-19 would affect ANC		
Yes	167	43.9
No	213	56.1
COVID affected care in pregnancy		
Yes	163	42.9
No	215	56.6
Don't know	2	0.5
Ways COVID-19 affected care		
Difficulty accessing health care	129	34.2
Fear of infection/self-isolation/restricted movements	32	8.4
Financial constraints	4	1.1
No effects	214	56.3
COVID-19 would affect delivery		
Yes	39	10.3
No	310	81.6
Don't Know	31	8.2
Complications of Pregnancy		
Yes	41	10.8
No	339	89.2
How COVID-19 has affected respondents		
Academically	6	1.6
Financial/Economical/Business/Work	213	56.1
Psychological/Emotional/Martial	10	2.6
Socially/Spiritual	69	18.2
Health/ANC	7	1.8
It affected me/Don't know	74	19.5
Not affected	1	0.3
Women perception of their mental health*:		
Fear/Anger/Frustration	114	30.0
Calm/Hopeful and optimistic	370	97.4
Panic/Worrying/Anxious	166	43.7
Confused/Irritable	74	19.5
Helpless/Down/Sad/Sleepless	86	22.6
COPING STRATEGIES		
Coping with the pandemic		
Yes	367	96.6
No	13	3.4
Coping mechanism/activities		
Abiding with Physician/NCDC rules	36	9.5
Spiritual/Social support/Staying at home	136	36.0
Adapting to the situation/coping well/no choice	114	30.2
Balancing with salary/Managing resources	39	10.3
Embracing social media/online activities	10	2.7
Not coping	1	0.3
Don't know/No response	42	11.1
Enjoy good social support		
Yes	368	96.8
No	12	3.2
Who gives social support		
Parent	318	83.7
Husband	359	94.5
Children	113	29.9
Friends	158	41.7
Neighbour	119	31.4
Help needed from Health providers		
Adequate/accurate care/monitoring/hygiene	24	6.3
More compassion/consideration/patience	37	9.7
Any help within their reach	5	1.3

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Table 2 (continued)

Variables	Frequency N = 380	Percentage
Get more information/knowledge	2	0.5
Timely attendance/easier access to the health workers	12	3.2
More health and virus preventive talks	15	4.0
Enforce strict preventive measures	20	5.3
Financial assistance/consideration/drug provision	12	3.2
Home visitation/follow-up	2	0.5
Non-response/no help needed	251	66.1
Pandemic and lockdown affected income/cash flow		
Yes	305	80.3
No	75	19.7

* Multiple response variable.

only were less likely to have three or more children than those with anxiety only or combined depression and anxiety, while those with anxiety (AOR = 0.077, 95% CI = 0.008–0.718) only were less likely to have the odds of having two or less children and less likely to have no complications compared to their counterparts (Table 4).

4. Discussion

This study examined the association between COVID-19 pandemic lockdown and the risk of common mental health disorders such as anxiety and depression among pregnant women receiving antenatal care in Ibadan, Nigeria.

We observed that two in five pregnant women had the fear that COVID-19 pandemic lockdown would negatively affect their ANC. Depression was the predominant common mental health disorder among pregnant women, followed by a combination of anxiety and depression, and anxiety only. We found that women with three or more parous experiences had higher odds of depression but lower odds of anxiety in those with two or less parous experiences. Other factors associated with lower odds of anxiety included the absence of pregnancy complications

and having no delivery plan. The odds of having depression and anxiety were lower in women that were not worried about the negative effect of COVID-19 on their delivery and had no delivery plan.

During the lockdown, women in this study reported having difficulty in accessing healthcare services, fear of infection, self-isolation, restriction in movement, financial constraint, reduction in cash flow, and social isolation. However, many of the pregnant women adjusted appropriately and were able to cope with the changes, enjoyed family support; and did not have common mental disorders. The fear of COVID-19 and concerns about pregnancy have a positive relationship with mental health [27].

There are several published studies on COVID-19 and pregnancy including the effects of the infection on their mental health but only a few were published in sub-Saharan Africa. Almost one in ten pregnant women had common mental health disorders – anxiety, depression or co-morbid anxiety-depression. Specifically, less than 5.0% of the pregnant women had depression, anxiety, and co-morbid anxiety-depression during the COVID 19 pandemic. The prevalence of anxiety and depression in this study is low and much lower than in previous studies. Hessami et al in a meta-analysis reported higher proportions of maternal anxiety and postnatal depression among women during the pandemic [28].

In a study, a higher proportion (16.3%) of anxiety was observed in pregnant women relative to our study [21]. Cuelemans and colleagues in a multinational study, reported that the prevalence of depression was 15% among pregnant women and 13% among breastfeeding women; and anxiety was found in 11% and 10% of pregnant and breastfeeding women [29]. Nwafor et al in Nigeria reported that higher proportion symptoms of depression (45.2%) among the pregnant women and 37.5% of these women reported symptoms of anxiety [20]. Unlike previous studies, we found that respondents adjusted to the associated challenges of lockdown and the pandemic from COVID-19. Many respondents reported having social support, which helped them to cope with the stress of COVID19 pandemic and the effects of pregnancy. For example, most respondents in this study described their emotional state during the lockdown as calm, hopeful and optimistic. This may be explained by the biopsychosocial model of mental health, the inter-relationship between several factors and how these events are interpreted by individuals [30].

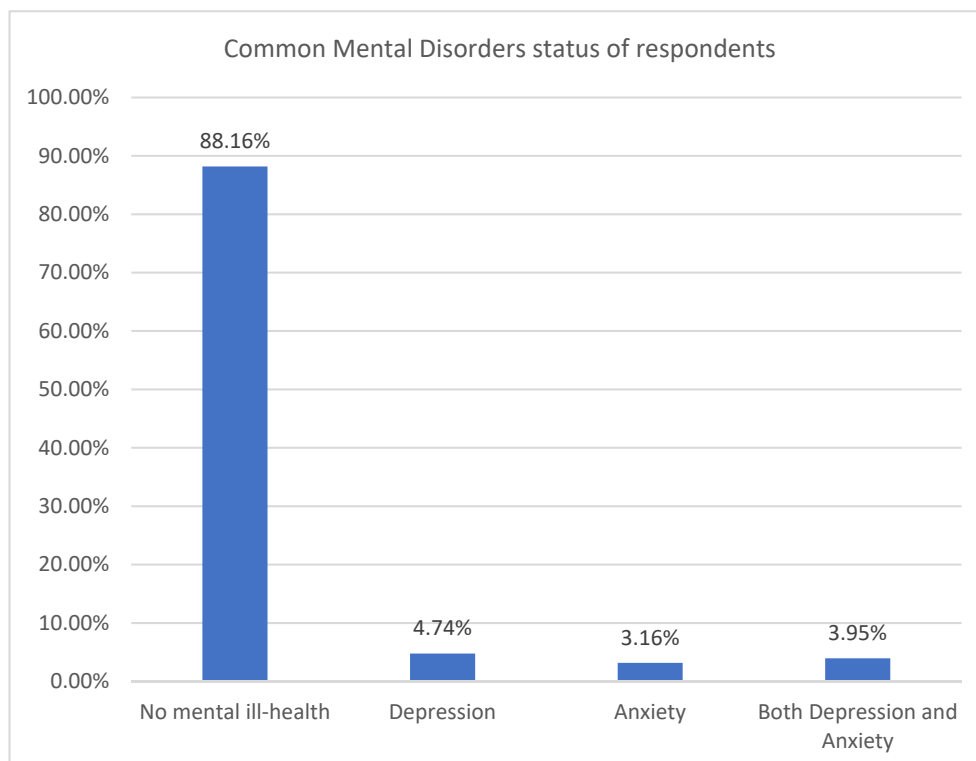


Figure 1. Prevalence of common mental health disorders.

Table 3. Association between predictor variables and common mental health disorders.

Variables	Mental Health				χ^2	P- value
	No mental ill-health (%)	Depression (%)	Anxiety (%)	Both Depression and Anxiety (%)		
Age						
Less than 35	88.8	4.2	3.2	3.9	0.738	0.864
35 years and above	86.3	6.3	3.2	4.2		
Number of pregnancies						
First	86.4	3.4	5.1	5.1	3.286	0.350
Had a previous pregnancy	88.9	5.3	2.3	3.4		
Number of miscarriages						
None	88.2	5.2	2.8	3.8	1.152	0.765
One or more	88.0	3.3	4.4	4.4		
Number of parities						
None	86.6	1.7	6.7	5.0	0.004	0.003*
One	85.9	7.8	1.6	4.7		
Two	95.0	1.0	1.0	3.0		
Three and above	82.4	14.7	2.9	0.0		
Enjoy good social support						
No	10	1	0	1	1.366	0.426†
Yes	325	17	12	14		
Coping with COVID-19						
No (not coping)	10	1	0	0	12.505	0.230†
Yes (fine and coping well)	324	17	12	14		
Pandemic affected income/cashflow						
No	68	1	4	2	4.141	0.259†
COVID-19 would affect delivery						
Yes (surely/probably)	80.0	7.1	2.9	10.0	9.684	0.021*
No	90.0	4.2	3.2	2.6		
Worried COVID-19 would affect ANC						
Yes	87.4	6.0	2.4	4.2	1.597	0.660
No	88.7	3.8	3.8	3.8		
Help/support expected from healthcare providers*						
Adequate/accurate care (including ANC)/proper monitoring and hygiene	95.8	0.0	0.0	4.2	-	0.032*
More compassion/consideration/patience/empathy/staff	78.4	13.5	0.0	8.1		
Any help within their reach	100.0	0.0	0.0	0.0		
Get more information/knowledge	100.0	0.0	0.0	0.0		
Timely attendance/Easier access	100.0	0.0	0.0	0.0		
More health/virus preventive talks	93.3	6.7	0.0	0.0		
Enforce strict preventive measures and COVID testing/provide protective materials	90.0	5.0	5.0	0.0		
Financial assistance/consideration/drug provision	58.3	16.7	8.3	16.7		
Home visitation/follow-up	50.0	0.0	50.0	0.0		
non-response/no help needed/they are trying	89.2	3.6	3.6	3.6		

* Significant at 5% level of significance; † Fisher's exact.

Despite reports of coping by the respondents during COVID-19 lockdown in this study, we found that pregnant women who had 3 or more children had no delivery plans, and those who reported complications during pregnancy were more likely to have depression, anxiety, or combinations of anxiety and depression. This information might suggest that the reported coping mechanisms by pregnant women did not positively influence the decision to proactively plan childbirth or it could also mean that there was little or no alternative plan or support from healthcare providers to provide information that may assist in planning for childbirth. Though this study assessed the impact of lockdown during the first wave of COVID-19 in Nigeria, the information garnered is still relevant despite the introduction of mass vaccination. With the fourth wave, the detection of the Omicron variant of SARS coronavirus strains made countries shut down their borders and this might create panic and undue psychological

distress to people especially in low-middle countries where vaccination is low. Lessons from this study may be useful to plan interventions to reduce psychological and mental health problems among pregnant mothers, especially during their antenatal, intrapartum, and postnatal periods. Health education, counseling, screening, prevention, early interventions and research such as this will foster good quality care and collaboration for preventive programs. Telemedicine can be used to provide psychosocial assessment and support for the women [31]. A collaboration between the maternal care and perinatal mental health providers will be necessary; enhance specific programs that will be sustainable beyond the restrictions and pandemic. This is necessary because pregnant women are vulnerable to perinatal mental health issues with or without the effects of the COVID-19 pandemic. The mental health status of pregnant women is important for good maternal and perinatal outcomes.

Table 4. Multinomial logistics regression model summary showing the predictors of depression and anxiety among respondents.

Explanatory Variables	Depression		Anxiety		Both Depression and Anxiety	
	Odds ratio (95%CI)	p-value	Odds ratio (95%CI)	p-value	Odds ratio (95%CI)	p-value
Parity						
One	4.336 (0.904, 20.800)	0.067	0.154 (0.029, 0.822)	0.029	0.568 (0.156, 0.206)	0.389
Two	0.538 (0.047, 6.169)	0.619	0.077 (0.008, 0.718)	0.024	0.375 (0.084, 1.669)	0.198
Three and above	8.914 (1.578, 50.363)	0.013	0.357 (0.038, 3.379)	0.369	-	-
Worried COVID-19 would affect ANC (No)	0.678 (0.236, 1.952)	0.472	1.101 (0.277, 4.382)	0.891	1.471 (0.445, 4.870)	0.527
COVID-19 affected pregnancy care (No)	1.168 (0.393, 3.469)	0.780	3.043 (0.691, 13.409)	0.141	0.450 (0.138, 1.472)	0.187
Have a delivery/birth plan (No)	0.761 (0.277, 2.096)	0.598	0.202 (0.053, 0.760)	0.018	0.221 (0.064, 0.765)	0.017
COVID-19 would affect delivery (No)	0.798 (0.244, 2.613)	0.709	0.752 (0.134, 4.225)	0.746	0.149 (0.042, 0.521)	0.003
Enjoy good social support (No)	1.633 (0.170, 15.630)	0.670	-	-	2.004 (0.174, 23.056)	0.577
Pandemic affected income/cashflow (No)	0.350 (0.044, 2.780)	0.322	2.511 (0.669, 9.423)	0.669	0.687 (0.144, 3.280)	0.638
Had complications of pregnancy (No)	0.400 (0.110, 1.452)	0.164	0.197 (0.042, 0.917)	0.042	5.063 (0.443, 57.910)	0.192

Reference category: no mental ill-mental health (dependent variable); none (number of parities) yes (other explanatory variables); ** significant at 5% level of significance; delivery/birth plan – mode of delivery and birth place.

There are potential limitations to the interpretations of our findings. The study did not enroll women from primary and secondary health facilities, this omission would exclude information from women with little or no education and those from lower socioeconomic status. It is difficult to draw causality from the cross-sectional design on factors associated with the risk of common mental health problems. Self-report of symptoms of common mental health problems could be potentially misreported by pregnant women. However, despite these limitations, the study provided a useful guide on the possible spectrum of mental health challenges that pregnant women faced during lockdown prior to vaccine introduction. This information would help in designing ways to mitigate some of the mental health challenges that were reported in this study.

In conclusion, pregnant women experienced anxiety and depression at the outset of COVID-19 and during the lockdown. Though a few were able to cope; relied on support largely from family and friends but this support did not influence their plan for childbirth. We advocate for a large community study to better understand the effect of COVID-19 and vaccination on the mental health of pregnant women during ANC, childbirth, and postpartum periods. We suggest screening for anxiety and depression during ANC and also providing support for pregnant women that are manifesting related symptoms.

Declarations

Author contribution statement

Rukiyat Adeola Abdus-salam; Imran Oludare Morhason-Bello: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Rasheedat Balogun; Rafiat Oluwatosin Lawal; Jibril Omuya Abdulmalik: Conceived and designed the experiments; Wrote the paper.

Temitayo Victor Lawal: Analyzed and interpreted the data; Wrote the paper.

Olatunji Okikiola Lawal: Conceived and designed the experiments; Performed the experiments; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interest's statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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