

Stress and coping among pregnant black women during the COVID-19 pandemic

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Abstract

Objective: This study explored stress and coping among pregnant Black women prior to and during the COVID-19 pandemic.

Design: Prospective, longitudinal, cohort study.

Sample: Thirty-three women enrolled in the Biosocial Impact on Black Births study prior to the COVID-19 pandemic and who were still pregnant during the pandemic.

Measurements: Questionnaires included the Perceived Stress Scale, Prenatal Coping Inventory, and questions related to sociodemographic characteristics, worry about COVID-19, and coping strategies used during the pandemic.

Results: Women reported *very much* being worried about *my child getting COVID-19* (46%) and *my family member getting COVID-19* (46%). Women reported specific active coping strategies *very much* reduced their feelings of discomfort during COVID-19: *God, religion, or spirituality* (24%), *social media* (24%), and *following government advice* (24%). Higher use of avoidance coping prior to the pandemic was associated with higher levels of stress both prior to ($r = 0.60, p < .001$) and during ($r = 0.47, p < .01$) the pandemic.

Conclusion: Women reported worries about COVID-19 and used various strategies to cope with feelings of discomfort due to the pandemic. Nurses should assess the stress level of pregnant Black women and recommend active coping strategies during the pandemic.

KEYWORDS

Black women, coping, COVID-19, pandemic, pregnancy, stress

1 | STRESS AND COPING AMONG PREGNANT BLACK WOMEN DURING THE COVID-19 PANDEMIC

The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes COVID-19 has infected 16.5 million people and killed more than 300,000 people in the United States as of December 17, 2020 (Center for Disease Control & Prevention, 2020a). Racial minority groups including Black Americans are disproportionately affected by COVID-19

and are more likely to become ill with and die from COVID-19 than whites (Center for Disease Control & Prevention, 2020a). A retrospective cohort study in Louisiana, one of the first states to publish health statistics according to race, reported that although Blacks comprised only 31% of the overall healthcare system being studied, they made up 76.9% of all COVID-19 hospitalizations and 70.6% of those who died from COVID-19 (Price-Haywood et al., 2020). Increased risk for COVID-19 illness and mortality may reflect underlying racial disparities related to poverty, mass incarceration, community exposure, pre-existing health

conditions, and limited access to health care among Blacks (Laurencin & Walker, 2020). Although job loss and social isolation have affected nearly all Americans, the pandemic has had a greater impact on Black families who have increased COVID-19 exposure and transmission risk through public service jobs (e.g., grocery clerks, bus drivers, medical aides), lower incidence of being insured, and living in crowded urban environments (Millett et al., 2020). These racial disparities in morbidity and mortality alongside economic impacts and limitations during the COVID-19 pandemic may increase the levels of psychological distress (perceived stress, anxiety, and depression) among Blacks.

Pregnant women may be especially vulnerable to psychological distress during the COVID-19 pandemic. Several international studies have reported higher levels of stress and depressive symptoms among pregnant women during the COVID-19 pandemic. A study of 100 pregnant women with no pre-existing psychiatric conditions in Napoli, Italy, indicated that more than half of these women reported severe psychological distress and two-thirds reported higher than normal anxiety during the pandemic (Saccone et al., 2020). Another study in Sri Lanka reported that pregnant women experienced higher than normal anxiety and depression rates (17.5% and 19.5%, respectively) even though, at the time of data collection, Sri Lanka had successfully mitigated the virus during its lockdown and frequently shared COVID-19 information via television (Patabendige et al., 2020). Finally, a large cohort study from Quebec, Canada, showed that white, educated, socioeconomically privileged women were significantly more depressed and anxious during the pandemic than prior to the pandemic (Berthelot et al., 2020). However, research has not explored psychological distress among pregnant Black women in the United States.

The impact of COVID-19 on distress among pregnant women coupled with the disparate burden of COVID-19 on Black families underscores the need to examine the impact of the pandemic on pregnant Black women and acknowledge the intersection of pregnancy and race. The mental health ramifications of previous public health crises and natural disasters, such as the HIV/AIDS epidemic or Hurricanes Andrew and Katrina, were staggering among Black Americans compared with whites prior to the pandemic (Novacek et al., 2020). Thus, Blacks are particularly vulnerable to psychological distress during the COVID-19 pandemic (Novacek et al., 2020). Both direct factors (e.g., community exposure through housing, working in retail, or taking public transportation) and indirect factors (e.g., limited prenatal care, social isolation, or worry about loved ones) of COVID-19 may negatively impact the well-being of pregnant Black women (Millett et al., 2020).

Coping, defined as, “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141) is theorized to mediate the effects of stressors on psychological distress (Lazarus, 1999; Lazarus & Folkman, 1984). Research conducted prior to the COVID-19 pandemic suggests that pregnant Black women who used avoidance coping to deal with stressful situations were more likely to experience psychological distress (Giurgescu et al., 2015). In a study conducted with women who were pregnant during Hurricane Katrina or

became pregnant immediately after the hurricane, behavioral disengagement as a coping strategy was associated with more symptoms of depression among women who perceived more stress (Oni et al., 2012). In contrast, effective coping strategies such as optimism and resilience reduced levels of psychological distress among a diverse group of pregnant women, albeit not specifically demonstrated for Black women (McNamara et al., 2018). While the body of literature related to pregnancy, racial disparities, and stress during COVID-19 is growing, there are no studies specific to coping strategies used during the COVID-19 pandemic. It is important to understand the impact coping may have on high-risk populations. To our knowledge, this study is the first to explore the coping strategies, perceived stress, and worries of pregnant Black women during the COVID-19 pandemic.

2 | METHODS

2.1 | Design and sample

The Biosocial Impact on Black Births (BIBB) study is a prospective, longitudinal, cohort study that examines the role of maternal and psychosocial factors on birth outcomes among Black women across pregnancy. Women were enrolled into the BIBB study if they were Black or African American, were 18–45 years of age, had singleton pregnancies, and were 8–29 weeks gestation. A small, homogenous, convenience sample of 66 women who participated in the BIBB study and were still pregnant in May–June 2020 were invited to participate in a survey focused on women's experiences during the COVID-19 pandemic. A final sample of 33 women who participated in the BIBB study completed the COVID-19 survey during their pregnancy.

2.2 | Variables and measures

2.2.1 | Sociodemographic characteristics

Characteristics (e.g., maternal age, levels of education, employment) were collected by self-reported survey data as part of the BIBB study. As part of the COVID-19 survey, women were asked questions about the symptoms of SARS-CoV-2 (the virus that causes COVID-19) including fever, cough, shortness of breath, runny nose, muscle pain, sore throat, and headache (1 = yes and 0 = no). Women were also asked if they were tested for COVID-19, how many times they were tested, the results of the test, any hospitalization for COVID-19, and about family members and friends who tested positive for COVID-19.

2.2.2 | Perceived stress

The Cohen's Perceived Stress Scale (PSS) asks about feelings and thoughts during the prior month (e.g., felt upset, stressed out). The

instrument contains 10 items on a 5-point scale (0 = *never* to 4 = *very often*) with a total score ranging from 0 to 40. Higher scores represent higher levels of perceived stress. In the current study, Cronbach's α was 0.91 for the BIBB study and 0.92 for the COVID-19 study.

2.2.3 | Prenatal Coping Inventory

The Prenatal Coping Inventory (PCI), administered as part of the BIBB study, contains 22 items with four coping style subscales: Preparation for motherhood (8 items, range 0–32), Avoidance (7 items, range 0–28), Positive interpretation of events (5 items, range 0–20), and Prayer (2 items, range 0–8). The subscales are scored on a 5-point scale (0 = *never* to 4 = *almost always*). Higher scores for each subscale represent higher use of that coping strategy. The Cronbach's α for the subscales of the BIBB study were as follows: Preparation for motherhood (0.82), Avoidance (0.73), Positive interpretation of events (0.67), and Prayer (0.90).

2.2.4 | Worry about COVID-19

Women completed four questions related to worry about COVID-19 (e.g., worried about myself getting COVID-19; worried about my child getting COVID-19) as part of the COVID-19 survey on a 4-point scale (1 = *not at all* to 4 = *very much*). Higher scores represent increased feelings of worry.

2.2.5 | Coping strategies during the COVID-19 pandemic

Women also answered questions about specific coping strategies used during the COVID-19 pandemic (e.g., phone calls; social media; video games; religion; information from the government) on a 4-point scale (1 = *not at all* to 4 = *very much*) as part of the COVID-19 survey. Higher scores represent increased use of that coping strategy.

2.3 | Procedures

The BIBB study was approved by the Institutional Review Board (IRB) at the participating universities and clinical sites in the Midwest of the United States. Women participated in the BIBB study after obtaining informed consent. Prior to the pandemic, participants completed an online questionnaire using Qualtrics on a tablet provided by research staff. The questionnaire included sociodemographic characteristics, the PSS, and the PCI. As part of the consent process, women opted to be contacted for additional studies. The BIBB study was amended to IRB at the participating sites to conduct the COVID-19 survey. A convenience sample of 66 women who participated in the BIBB study and were still pregnant in May–June 2020 were contacted online by the research staff and invited

to participate in the COVID-19 survey about women's experiences during the COVID-19 pandemic. Thirty-three women (50% response rate) completed the online questionnaire. The research staff sent up to two reminders three days apart for women who did not complete the questionnaire. The 33 women completed the BIBB survey between December 16, 2019–March 13, 2020, and the COVID-19 survey between May 21 and June 23, 2020. The COVID-19 survey included sociodemographic characteristics related to COVID-19, the PSS, worry about COVID-19, and coping strategies specific to COVID-19, but did not include the PCI. Women received a \$30 store gift card for completing the BIBB questionnaire and a \$20 store gift card for completing the COVID-19 questionnaire.

2.4 | Data management and analysis

IBM SPSS 25 was used for all analyses. Descriptive statistics (e.g., mean, standard deviation) were used to describe sample characteristics and major variables of the study (e.g., perceived stress, coping). Pearson's r correlation coefficient analyses were used to examine relationships among variables.

3 | RESULTS

A final sample of 33 women participated in the BIBB study and completed the COVID-19 survey. The mean age of women was 28.6 ± 4.8 years (range 20–39). The mean gestational age at the time of the completion of the BIBB survey was 13.3 ± 3.8 weeks (range 8–24 weeks) and the mean gestational age at the time of the completion of the COVID-19 survey was 32.0 ± 3.4 weeks (range 24–38 weeks; see Table 1).

Of the 33 women responding to the COVID-19 survey, symptoms were reported as follows: one woman had fever, one woman had shortness of breath, three women had headache, and one woman was unsure if her symptoms were related to COVID-19. Only three women were tested for SARS-CoV-2 (COVID-19) and all reported negative results. Five women indicated that one of their family members had tested positive for COVID-19, but only one of these women lived in the same household as the infected family member. Two women indicated that a friend had tested positive for COVID-19.

The PSS mean scores were similar both prior to and during the COVID-19 pandemic where women reported moderate levels of perceived stress (17.80 and 16.73, respectively; see Table 1). The COVID-19 survey also directly queried women's worries about COVID-19. Women reported *very much* being worried about *my child getting COVID-19* (46%), *my family member getting COVID-19* (46%), *my friend getting COVID-19* (42%), and *myself getting COVID-19* (36%) though a few women were *not worried at all* (see Table 2).

The mean scores for the subscales of the PCI in the BIBB survey are presented in Table 1. Women reported high use of prayer and moderate use of avoidance, preparation for motherhood, and positive interpretation of events prior to the pandemic. While we did

TABLE 1 Maternal characteristics and descriptive statistics ($N = 33$)

Variable	BIBB survey		COVID-19 survey	
	$M \pm SD$	Range	$M \pm SD$	Range
Maternal age (years)	28.6 ± 4.8	20–39		
Gestational age (weeks)	13.3 ± 3.8	8.0–24.0	32.0 ± 3.4	24.1–38.0
PSS scores	17.80 ± 7.01	0–29	16.73 ± 6.97	0–29
PCI Preparation for motherhood subscale scores	22.50 ± 4.72	12–32		
PCI Avoidance subscale scores	11.20 ± 5.35	0–21		
PCI Positive interpretation of events subscale scores	12.87 ± 3.30	5–19		
PCI Prayer subscale scores	7.47 ± 1.17	4–8		

Abbreviations: BIBB, Biosocial Impact on Black Births; PCI, Prenatal Coping Inventory; PSS, Perceived Stress Scale.

TABLE 2 Frequency of worry among pregnant black women during COVID-19 ($N = 33$)

Variable	N (%)			
	Very much	Somewhat	A little	Not at all
Worried about myself getting COVID-19?	12 (36.4)	5 (15.2)	7 (21.2)	9 (27.3)
Worried about my child getting COVID-19?	15 (45.5)	5 (15.2)	6 (18.2)	7 (21.2)
Worried about my family member getting COVID-19?	15 (45.5)	6 (18.2)	7 (21.2)	5 (15.2)
Worried about my friend getting COVID-19?	14 (42.4)	8 (24.2)	5 (15.2)	6 (18.2)

not repeat the PCI scale in the COVID-19 survey, we directly queried women about a range of coping strategies to address COVID-19. A variety of coping strategies were utilized by the women in this study during the COVID-19 pandemic. Women reported the following coping strategies *very much* reduced their feelings of discomfort during COVID-19: *God, religion, or spirituality* (24%), *social media* (24%), *following the government's advice* (24%), *making time to relax* (21%), and *phone or video calls with friends and family* (21%). These strategies were reported *not at all* helpful in reducing their feelings of discomfort: *Video games* (63.6%), *my work* (42.4%), and *information from the government* (30.3%; see Table 3).

Higher use of avoidance coping prior to the COVID-19 pandemic was associated with higher levels of perceived stress both prior to ($r = 0.599, p < .001$) and during ($r = 0.474, p < .01$) the pandemic. Higher use of positive interpretation of events coping prior to the pandemic was associated with lower levels of perceived stress prior to the pandemic ($r = 0.568, p < .01$). The association between positive interpretation of events coping prior to the pandemic and perceived stress during the pandemic was not significant. Preparation for motherhood coping and prayer coping strategies were not related to perceived stress prior to the pandemic or during the pandemic (see Table 4).

4 | DISCUSSION

COVID-19 has impacted countries all over the world and particularly the United States. COVID-19 was prevalent in the Midwest at the time of this study, disproportionately affecting

Black Americans, and not much was known about the effects of COVID-19 during pregnancy. As of December 14, 2020, there have been more than 47,000 pregnant women diagnosed with COVID-19, more than 8,800 hospitalizations (many requiring intensive care and mechanical ventilation), and 58 deaths among pregnant women in the United States (Centers for Disease Control & Prevention, 2020b). In our cohort of pregnant Black women from the Midwest, a high proportion reported being *very much* worried about their child, family members, friends, and themselves getting infected. This mirrors results found in another study conducted in the Midwest among a diverse group of pregnant and postpartum women where a high proportion of women similarly reported being *very concerned* about COVID-19 (Ahlers-Schmidt et al., 2020).

Our results suggest that social support from friends and family (even though physically distanced) specifically eased feelings of discomfort and worry among pregnant Black women during the early pandemic. This is consistent with research prior to the pandemic finding that pregnant Black women who reported higher levels of social support also reported lower levels of psychological distress (Giurgescu et al., 2015). Beyond social support, pregnant women in our cohort used various active coping strategies to deal with their feelings during the COVID-19 pandemic. Prayer and spirituality, used by many women in our study, was also an active coping strategy frequently reported among Black women prior to the pandemic (Ruiz et al., 2015). In contrast, avoidance coping has been related to anxiety, depression, and psychological distress among pregnant women prior to the pandemic (Giurgescu et al., 2015; Hamilton & Lobel, 2008;

Variable	N (%)			
	Very much	Somewhat	A little	Not at all
Did any of the following reduce your feelings of discomfort during COVID-19				
Face-to-face time with friends and family?	5 (15.2)	8 (24.2)	13 (39.4)	7 (21.2)
Phone or video calls with friends and family?	7 (21.2)	13 (39.4)	7 (21.2)	6 (18.2)
Making time to relax?	7 (21.2)	11 (33.3)	7 (21.2)	8 (24.2)
Social media?	8 (24.2)	10 (30.3)	8 (24.2)	7 (21.2)
Video games?	1 (3.0)	4 (12.1)	7 (21.2)	21 (63.6)
Watching TV shows, movies, or videos?	6 (18.2)	12 (36.4)	7 (21.2)	8 (24.2)
God, religion, or spirituality?	8 (24.2)	10 (30.3)	7 (21.2)	8 (24.2)
Helping others?	3 (9.1)	10 (30.3)	12 (36.4)	7 (21.2)
Preparing for the crisis?	3 (9.1)	6 (18.2)	14 (42.4)	9 (27.3)
Following the government's advice?	8 (24.2)	12 (36.4)	4 (12.1)	8 (24.2)
My work?	6 (18.2)	6 (18.2)	7 (21.2)	14 (42.4)
Activities/hobbies?	3 (9.1)	12 (36.4)	9 (27.3)	9 (27.3)
Information from the government?	5 (15.2)	14 (42.4)	4 (12.1)	10 (30.3)
Actions taken by the federal, state, or local government?	6 (18.2)	14 (42.4)	5 (15.2)	8 (24.2)

TABLE 3 Utilization of coping strategies among pregnant black women during the COVID-19 pandemic (N = 33)

TABLE 4 Relationships among coping strategies prior to COVID-19, perceived stress prior to COVID-19, and perceived stress during COVID-19 (N = 33)

Variable	Perceived stress prior to COVID-19 pandemic	Perceived stress during COVID-19 pandemic	Preparation for motherhood	Avoidance	Positive interpretation of events
Perceived stress during COVID-19 pandemic	0.783***	-	-	-	-
Preparation for motherhood	-0.241	-0.149	-	-	-
Avoidance	0.599***	0.474**	0.174	-	-
Positive interpretation of events	-0.568**	-0.356	0.680***	-0.206	-
Prayer	-0.148	-0.165	0.401*	-0.071	0.071

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Ibrahim et al., 2019; Ruiz et al., 2015). In our study, women who reported higher use of avoidance coping prior to the pandemic were more likely to report higher levels of perceived stress both prior to the pandemic and during the pandemic. These findings suggest a range of coping strategies were utilized by pregnant Black women both prior to and during the COVID-19 pandemic; however, active coping strategies may provide increased benefit among this population.

It is imperative to note that the pandemic was not the only major upheaval occurring in the United States during May and June 2020. The televised death of George Floyd, an unarmed Black man, by a white officer in Minneapolis on May 25, 2020, was widely recognized by Americans of all races as an act of racism and indefensible use of force by police. Floyd's death re-energized the Black Lives Matter movement and triggered nationwide protests (Black Lives Matter, 2020). Our questionnaire asked about the COVID-19 pandemic and did not include questions about the ongoing racial tension

during the same period. Rankin et al. (2011) reported that active coping measures significantly mitigated the effect of experienced racism on preterm birth in Black women compared with passive coping measures. Thus, it may be that the levels of perceived stress reported by women were a reflection of the racial tension and were buffered by the coping strategies used both prior to and during the pandemic.

4.1 | Limitations, strengths, and future research recommendations

Although the BIBB study laid a strong foundation for the current study, only a small homogenous, convenience sample of women was still pregnant during the COVID-19 pandemic and eligible to complete the COVID-19 survey. The small final sample size (N = 33) of women from the Midwest, U.S. limits the ability to generalize results

to the greater population as the sample does not likely represent all pregnant Black women. Despite these limitations, to our knowledge, this is the first study focusing on pregnant Black women's experiences during the COVID-19 pandemic. The results of this study should be replicated with a larger sample size from other major cities and rural communities while taking into consideration the temporal effect of the pandemic and the renewed racial justice movement in the United States through the year 2020. Future studies could also further explore how various coping strategies relate to psychological distress among pregnant Black women and their current living environment.

4.2 | Clinical implications

Nurses who provide nursing care for pregnant Black women should inquire about their patients' mental health, particularly during the pandemic. Pregnant Black women are more vulnerable during the pandemic and may experience increased stress and worry due to the risk of getting infected with the virus for themselves and their families. Black women are more likely to have preterm birth (<37 completed weeks gestation) compared with white women (14.1 and 9.1, respectively in 2018; Martin et al., 2019). Maternal stress and psychological distress have been related to higher incidence of preterm birth among Black women. Nurses must be cognizant of the disproportionate impact maternal stress has on the risk for preterm birth among Black women. The significant correlation between maladaptive avoidance coping and higher incidence of perceived stress, and the trend toward active coping strategies reducing feelings of discomfort among pregnant Black women during the COVID-19 pandemic suggest potential pathways for intervention. Nurses should ask pregnant Black women about their own means of coping during this pandemic and encourage positive, active coping strategies to decrease the perceived stress and worry experienced by this high-risk population.

Nurses should also consider the impact communication of information may have among this population. Many women in this study reported using social media and that information, actions, and advice of the government were both helpful and not helpful in reducing the feelings of discomfort (see Table 3). Public health nurses may consider utilizing social media to spread best practices related to infection prevention, mental health, and coping strategies as an essential nursing intervention. Ensuring clear, concise communication in a relevant, meaningful way may improve the dissemination and application of health information among pregnant Black women, particularly during the COVID-19 pandemic.

5 | CONCLUSION

The COVID-19 pandemic has impacted the lives of people all over the world. Dissemination of health information, isolation from others, and uncertainty of long-term outcomes may contribute to

increased psychological distress. Much is still unknown about the effects of COVID-19 among pregnant woman, but the health disparities among Black Americans is evident. This study addresses a gap in the literature regarding the experiences of stress, worry, and coping among pregnant Black women during the COVID-19 pandemic.

Pregnant Black women in our Midwest U.S. sample reported moderate levels of perceived stress both prior to and during the pandemic, reported feelings of worry related to COVID-19 infection, and reported various coping strategies utilized to reduce feelings of discomfort. Higher use of positive interpretation of events coping prior to the pandemic was associated with lower levels of perceived stress prior to the pandemic but not during the pandemic. Higher use of avoidance coping prior to the pandemic was associated with higher levels of stress both prior to and during the pandemic.

Nurses must understand the disproportionate effect that maternal stress during COVID-19 may have on pregnant Black women and be aware of effective coping strategies. Appropriate assessment, intervention, and education of patients and members of this community are imperative to address these disparities. Public health and maternal-child nurses alike should ensure clear communication of government-mandated and scientifically supported best practices, particularly during the COVID-19 pandemic.

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DATA AVAILABILITY STATEMENT

Research data are not shared at this time.

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