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Mental health and worries of pregnant women living through disaster recovery

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Abstract

The health and well-being of pregnant women during and after natural disasters remains an international concern. In this mixed methods study we described pregnant women's mental health, psychosocial concerns and sources of stress living in New Orleans during long term recovery from Hurricane Katrina. Our survey of 402 pregnant women indicated poor social support was associated with higher levels of depression symptomology, post-traumatic stress disorder, anxiety, and stress. Women were interviewed and described seven common areas of worry. We concluded that pregnant women living in post-disaster communities have stressful lives years after the event, needing innovative models of care to build resilience.

Worldwide, pregnant women and newborns are among the most vulnerable populations during natural disasters and in the aftermath (Fordham, 2008). Exposure to natural disasters is common in both the developing and developed world, and groups from both areas have expressed concern that maternal and child health needs are not sufficiently emphasized in the aftermath (Brunson, 2017; Human Rights Watch, 2011; Zotti, Williams, Robertson, Horney, & Hsia, 2013). In the decade following the 2005 Hurricane Katrina disaster in New Orleans, considerable attention focused on improving disaster responses in the United States to address the specific needs of pregnant women and newborns. Disaster guidelines and standards of care were re-designed to meet the unique needs of childbearing women and newborns during disaster and in the immediate aftermath (Association of Women's Health, Obstetrics, and Neonatal Nursing, 2012; American College of Obstetricians and Gynecologists, 2013; Association of Maternal Child Health Programs, 2007; National Working Group for Women and Infant Needs in Emergencies in the United States, April 2007; Zotti, Williams, & Wako, 2015). As a result, considerable planning rectified problems exposed by Hurricane Katrina, such as initial separation of mothers and babies, inadequate

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obstetrical and neonatal medical supplies in shelters, and lack of transport and surge plans for birth and newborn care during disaster in US hospitals. This planning resulted in improved perinatal preparation and disaster responses in the more recent urban disasters, such as in 2012 in New York during Hurricane Sandy and in Texas and Florida during Hurricanes Harvey and Irma in 2017 (Children's Hospital Association, 2017; Espiritu et al., 2014).

The disaster cycle, however, goes beyond preparing and responding to the initial impact and immediate aftermath of disaster. The long-term recovery phase, which might last from several months to years, inflicts ongoing stress, especially for those who experience the disaster and then return to live and rebuild in the post-disaster urban environment (Smith & Wenger, 2006). The long-term effects of disasters can be particularly stressful for women who were traumatized by experiencing the disaster firsthand, became pregnant during the period of recovery, and often had few resources available for psychosocial support. Disaster planners have given much less attention to the need for ongoing supportive care for childbearing age women and young families during disaster recovery as compared to care efforts in the immediate aftermath of disaster (Phillips & Morrow, 2008).

Disaster recovery itself presents additional stressors, some of which are more complicated in communities with limited resources. The recovery period of the disaster cycle is characterized as a complex period of prolonged stress where multiple structures of society need re-building (community services, neighborhoods, networks of support, and commerce; Hoffman & Oliver-Smith, 2002). For pregnant women, this means that the usual psychosocial stressors associated with transition to pregnancy and motherhood are layered with the uncertainty of living and planning a birth in a community that is constantly changing and often lacking usual social support systems (Badakhsh, Harville, & Banerjee, 2010; Phillips & Morrow, 2008; Rendall, 2011). Furthermore, it is well documented that disaster recovery does not occur at the same pace and ease for all people living in the region, with women and the poorest having the most difficulty (Davidson, Price, McCauley, & Ruggiero, 2013; Paxson, Fussell, Rhodes, & Waters, 2012). This was especially true for those affected by the 2005 Hurricane Katrina disaster. The magnitude of destruction and trauma caused by the disaster and the slow, long recovery put vulnerable populations, such as childbearing women with low resources, at high risk for psychosocial problems, and stress for years after the event (Harville et al., 2011; Kissinger, Schmidt, Sanders, & Liddon, 2007).

Additionally, risks for continued mental health problems and post-traumatic stress disorder (PTSD) are increased for persons with highest exposure to the disaster event, coexisting depression, low income, a history of trauma and abuse, and other negative life events. As common following all disasters, psychosocial stress and mental health problems remain among the most common risks for vulnerable populations, especially those with less resources (Foa, Stein, & McFarlane, 2006; Fordham, 2008; Olteanu et al., 2011). These recognized disaster recovery risks are especially troublesome for women who become pregnant during the recovery period since psychosocial stresses such as poverty, low social support, mental health problems, violence, and substance abuse are associated with adverse

pregnancy outcomes, such as low birth weight and pre-term birth (McDonald, Kingston, Bayrampour, Dolan, & Tough, 2014; Shaw et al., 2017).

There has been limited research on psychosocial concerns and sources of stress for pregnant women living in a post-disaster community. Women's descriptions of what they worry about yield a unique perspective on the complexity of life for pregnant women living in a disaster recovery area (Forthergill, 2004). Our primary aim was to describe and make explicit the experiences of pregnant women living in the Greater New Orleans area between April 2010 and December 2012. As a mixed methods study, we used multiple surveys to assess women's mental health and past hurricane experiences and asked open-ended questions that encouraged women to describe their specific worries and their experiences in their own words. We believed the qualitative data would enhance and give context to the quantitative findings and provide triangulation of methods.

Methods

Study sample

We recruited women (N = 402) from both community and private care prenatal classes and clinics. Eligibility criteria included being 21–41 weeks gestation, 18–45 years of age, having the ability to speak English or Spanish, and enrolled in prenatal care (at least three visits for current pregnancy). Informed consent was obtained in the preferred language of the woman. Spanish interviewers were bilingual and bicultural. The study was Institutional Review Board approved by Louisiana State University Health Sciences Center, Tulane University, Loyola University New Orleans, and hospitals. Women did not have to experience hurricane Katrina firsthand to participate in the current study, however, 70% of women reported living in New Orleans when Katrina occurred.

Data collection

Three authors conducted interviews for this study and gathered primary data (GG, JS, VB). The interviews were conducted at clinics and other community locations, per the participant's preference. We read the survey items and open-ended narrative questions out loud and recorded participants' responses on paper questionnaire forms. Of the 402 women in the study, 229 women answered the open-ended question, 'Are there other things that you are bothered, upset, or worried about that have to do with your pregnancy, the birth, or the baby?' We wrote down each participant's comments verbatim and read back to them to verify accuracy. We used teleform software to read questionnaire data, and at least two study researchers reviewed the data to verify accuracy of transcription. The survey assessments that we administered to determine social stresses and mental health are presented in Table 1.

Quantitative data analysis

Initially we examined frequency distributions and descriptive statistics to describe demographic and mental health variables (depression, PTSD, pregnancy-related anxiety, and perceived stress), hurricane experience, and stressful experiences the past year. Afterwards we compared findings from this data with qualitative data to provide context to final qualitative themes. An error occurred in the administration of the Edinburgh Postnatal

Depression Index (EDSI), and one question was omitted and another was repeated for 89 women. For these women, the mean value based on the scores of the other EDSI items was imputed for that item. Detail on birth outcomes and findings related to complementary therapies and mental health have been published elsewhere (Barcelona de Mendoza, Harville, Savage, & Giarratano, 2016; Harville, Giarratano, Savage, Barcelona de Mendoza, & Zotkiewicz, 2015). Quantitative data were analyzed using SAS 9.1 (Cary, North Carolina).

Qualitative data analysis

We downloaded the qualitative data into Microsoft Excel and examined women's responses using thematic analysis. Using Braun and Clarke's (2006) steps for thematic analysis, we described and coded participants' responses concerning current worries. Our first step in analysis included reading through the list of responses to become familiar with the data. Next we generated initial codes or phrases to represent the participants' various comments. As we continued to compare women's comments to codes, we sorted the codes into common themes. For example, responses initially coded 'pregnancy health concerns', 'high risk pregnancy', and 'childbirth fears' were merged to represent concerns making up the theme 'health of pregnancy, baby, and birth'. To establish rigor, two different investigators (GG, JS) matched the themes to specific comments and reached overall consensus on seven identified themes that represented women's worry experiences.

Results

Quantitative results

A total of 402 women completed questionnaires for this study. Demographic data for the sample ($N = 402$) is presented in Table 2. Participants in this study were largely low-income, minority women, and had low levels of education. Women in this study identified as African American (58.7%), White (25.1%), Latina (14.5%), or other (3.5%). While the majority of women reported completing at least high school (28.1%) or more education (49.5%), most women (62.5%) were unemployed. Family incomes were low, with 52.0% of women reporting an annual household income of less than $15,000 and 20.7% reporting an income between $15,000 and $30,000. Most women in the study were between 20 and 30 years old (59%), were primiparas (60.41%) and never married (64.7%; data not shown). Of those not married, 52% indicated they lived with a partner.

Women reported significant exposure to Hurricane Katrina when it hit in 2005, with 55% experiencing much to enormous house damage and 47.2% having house flooding (Table 2). Especially noteworthy was that 35% reported life still somewhat to very disrupted at the time of this study (5–7 years after the disaster). Exposure to adverse life events within the past year revealed the unstable environments in which the women lived (Table 3). Housing instability, for example, was indicated by 46% reporting they had moved to a new location within the past year, while 16% reported homelessness.

Mental health problems during pregnancy were a major concern with a significant number of women indicating depression symptomology (30.67%), PTSD (8.75%), and higher scores on

pregnancy-related anxiety (17.41) and perceived stress (17.66) (Table 4). Social support played a key role in the risk for mental health problems. In Table 5, depression, PTSD, and perceived stress scores were all significantly ($p < .01$) associated with poor social support indicators, such as 'no one to lend me $50', 'no one to help if sick', 'no one to take me to the clinic', and 'no one to talk to'. While higher pregnancy-related anxiety was only associated ($p < .01$) with one psychosocial indicator, the open-ended question used with this instrument provided more opportunity to understand the context of women's worries.

In Table 6, we present the worries that women commonly reported in the Pregnancy-Specific Anxiety questionnaire. The items the majority of women (>50%) reported being 'very-much to somewhat' concerned with represented issues commonly expressed by pregnant women, including labor and delivery preparation, pain during childbirth, energy levels, and discomforts of pregnancy. Most women also reported concerns around finding day care and paying for newborn's needs. Since Louisiana has Medicaid coverage for prenatal care, pregnant women in Louisiana women, including undocumented immigrants, did not express worry about accessing prenatal care.

Qualitative results

Qualitative data were available for 229 participants (56% of sample). Women's reflections on 'other worries' yielded a poignant and explicit picture of the psychosocial stressors pregnant women were dealing with during this period in their lives that impact mental health and physical wellbeing. The main themes concerning worry identified by the women in the study were: (1) health of pregnancy, baby, and birth; (2) family and parenting; (3) housing and finances; (4) newborn health, care, breastfeeding; (5) immigration and separated motherhood; (6) mental health concerns; and (7) death and loss. Qualitative responses related to the themes are summarized in Table 7.

Health of pregnancy, baby, and birth

The theme most commonly identified as a worry by women was prenatal health. Women indicated concerns about their health, health of the developing baby and the birthing process. The focus on pregnancy and birth indicated how important it was to them to have a healthy pregnancy and baby in oftentimes complicated circumstances. Women voiced concerns over an array of high risk medical conditions they confronted, including pregnancy-induced hypertension, preterm labor, triplet/twin gestation, previous stillborn, and vaginal bleeding. The fear of how urban violence and crime might impact the pregnancy was also expressed, including one mother who found out she was 5 weeks pregnant when being treated for a gunshot wound in the neck, and another who was dealing with the loss of the child's father by gunshot during her pregnancy. Genetic concerns were also voiced by women, including fear of having a child born with cystic fibrosis (CF carrier) and another whose fetus had been diagnosed with Down Syndrome. Other issues that were brought up included fear of cesarean section and dying in labor, changes in body image, and sleep deprivation.

Family and parenting

Many women reflected on their concerns about their relationship with their partner and their role as parents or preparing to become parents. Participants shared perceptions of worry

about the role of father of the baby as an active parent, separation from the father of the baby and coping as a single parent, or readiness to become a parent themselves. An array of issues were identified, including: unplanned pregnancies, disrupted schooling, stressful relationships with partners, and lack of partner assistance with parenting. Women also reported family issues, such as hospitalization of a family member, death, and a drug or alcohol problem of someone close. Other psychosocial problems included: job loss by the woman and her partner, and arguing with significant other more than usual or partner not wanting the pregnancy.

Housing/finances

Even 5–7 years after Hurricane Katrina, women reported instability in housing and insecure finances as a worry. Women who identified housing and financial worries, described living in the city alone, with family, and previous friends now either living elsewhere, dead, or incarcerated. Finding housing was a common worry, with one woman stating, ‘waiting for section 8 low income housing’. When housing became available, women then had to worry over finding basic furnishings, such as bedding. One women verbalized concern about living in a home under repair without electricity and subsequent inability to cook or refrigerate food. Another woman voiced her worry as ‘no job, having trouble getting food stamps because her address changed’. Food insecurity was noted by a woman who stated she wanted to eat more fruit, but needed to save food for her older children.

Newborn health/care/breastfeeding

Expectant mothers also shared further concerns about the well-being of their unborn baby. One participant worried about her baby’s exposure to second hand smoke and the small size of her placenta. Numerous women expressed lack of day care and the need to work after the baby was born as a worry. A few women indicated fears related to physical safety. For example, one woman reflected, ‘Will my baby be safe in this city? Will my husband and I be ok living here and if something happened to one of us because of a crime, would the baby be ok?’

Immigration/separated motherhood

Among Latina expectant mothers that shared concerns in response to this question, most discussed worry about family separation. Several women reported a major stressor was the guilt and worry about having a new baby in the United States, while other children were left behind in their country of origin. Latinas described prolonged periods of separation, children living with grandparents, and despair of being separated from their children who lived in another country and now adjusting to life here pregnant, anticipating birth of another child. Women expressed concerns related to how they would care for a new baby with no immediate family here, what their children in their home country would think, and how they would manage the guilt of not being able to provide a better life for their older children back home.

Mental health concerns

Women also expressed concern about their mental health during pregnancy. One women feared how her escalation and persistence of anxiety and depression would impact her newborn. Concern over seeing other family members with mental health issues was also expressed. One woman stated her concern was about her father and mother who ‘separated post-Katrina and both now have depression; her brother became an alcoholic after Katrina. He never drank before’. Lack of options for mental health care in New Orleans was also voiced.

Death and loss

For the women who indicated they worried about death and loss issues, they described this as a constant worry. There were five pregnant women who identified death of the baby’s father as a worry. Two described the deaths directly related to the crime and violence in the city, with one woman describing the baby’s father being ‘murdered’, while another stated the baby’s father was ‘killed’ due to gunshots. One pregnant woman spoke of her worry due to a brother who committed suicide, while another stated she ‘found sister dead from suicide’. Another woman voiced her grief over the loss of her mother a few years ago.

Discussion

Pregnant women in this study expressed concerns common in pregnancy, including worry over their health in pregnancy and that of their unborn baby. All of the women were currently enrolled in prenatal care and were taking actions to support healthy outcomes. Many, however, were also worrying over complications of pregnancy and social problems impacted by their past hurricane experience and current life in a post-disaster environment. Women were confronted with many psychosocial stressors that intersected with staying healthy, and some of these were unique to women living in poverty and in an urban post-disaster recovery environment. Although women received prenatal care, socioeconomic and community-level concerns remained an additional stress and burden. Stressful life events, such as insecure housing and finances brought on by disaster recovery, coupled with lack of social support were associated with mental health risks, similar to other research (Qobadi, Collier, & Zhang, 2016; Razurel, Kaiser, Antonietti, Epiney, & Sellenet, 2017).

It is well documented that social support in the immediate period after a disaster buffers the negative impact of disaster exposure (Arnberg, Hultman, Michel, & Lundin, 2012). However, Kaniasty and Norris (2004, 207) warn that over time, the early magnitude of altruistic social support wanes and disaster victims eventually face the ‘sad reality of declining social support or support deterioration’. Although many women in this study were recipients of social support in the immediate aftermath of Hurricane Katrina, many seemed to be experiencing waning support 5–7 years after the event, as described by their experiences in unstable housing and family stress. As is common in most disaster responses in the United States and internationally, largest funding and supportive resources come during the immediate aftermath of disaster, while the human needs for support linger for years to come (Institute of Medicine, 2015).

Waning support is amplified by the disparity of the recovery process in that there is no equity in how nations, communities, or families recover. Those with less resources and social support will take longer to recover and may experience more mental health problems, as was seen among the low income, African American women in our study. This is consistent with other disaster research that found African American women with lower incomes and reduced networks of social support to be vulnerable to prolonged disruption, stress and mental health disorders after disaster (Laditka, Murray, & Laditka, 2010). While African American families usually find strength in community, this is often lacking during disaster recovery due to absence of family, familiar neighbors, churches, and social networks (Rendall, 2011). In addition, we found that African American women were more likely than other groups to have had a more severe initial experience of the storm, when lack of resources created issues such as an inability to evacuate, housing located in areas more vulnerable to flooding and crime, and lack of insurance to rebuild.

Culturally appropriate formal and informal social support services for pregnant women are essential during post-disaster recovery. Basic needs such as housing, food instability and exposure to violence should be assessed in prenatal visits. Routine screening for psychosocial and mental health risks need questions that specifically ask about trauma experienced in past disasters. Woman who are mobile may move outside the disaster area, but still have the risk for mental health issues associated with disaster, especially when faced with low social support (Price, Coles, & Wingold, 2017). For this reason, all women need screening for exposure to past disasters, regardless of locale.

Since professional support can serve as a proxy for women and families without extended social support, prenatal care providers in post-disaster communities are challenged to establish good patient relationships that are based on trust and a caring approach. Prenatal care providers need to provide more intense social support within their systems or else set up a referral process that links women to safety net community organizations that support families, such as local public health support programs or disaster recovery agencies. Culturally based, case management support for pregnant women is a model that provides individualized follow-up and was found to be successful in connecting women to mental health services in New Orleans during post-disaster recovery (Giarratano, Harville, Barcelona de Mendoza, Savage, & Parent, 2015). Likewise, programs using trained lay mental health workers or promotoras were found to strengthen professional mental health services (Wade et al., 2013; Waitzkin et al., 2011). High tech strategies such as mobile phone health coaching and text messaging were shown effective in communicating with women who were more difficult to connect with in person (Evans & Bullock, 2017; Evans, Deutsch, Drake, & Bullock, 2017; Mundorf et al., 2018). Social support may also be developed within groups of women who are pregnant, especially primiparas. Centering Pregnancy is an innovative model of prenatal care that groups women together by gestational age to provide extensive social support and health education during prenatal clinic visits. Clinical trials in the United States indicated this model of prenatal care improved outcomes, such as a reduction of preterm births and increase in breastfeeding (Ickovics, et al., 2007; Novick, et al., 2013). As current research indicates positive effects to adapting this model to diverse populations of women, including internationally, its use during times of disaster to

mitigate waning social support also needs more investigation (Eluwa, et al., 2018; Patil, et al., 2017; Schellinger, et al., 2017; Zorrilla, et al., 2017).

There are several strengths and limitations of this work. Strengths include a relatively large sample of predominantly Black/Latina pregnant women in a large US city recovering from a devastating disaster and the analysis of both qualitative and quantitative measures. Limitations include the cross sectional design that did not follow changes in worry and concerns over time, and the lack of representation from women not enrolled in prenatal care. Therefore we cannot describe the experiences of those women who might have had the least resources and support.

Conclusion

In summary, the Hurricane Katrina disaster in 2005 was a wake-up call for disaster and emergency preparedness agencies in the United States and other countries to better address care of perinatal populations affected by disaster. Lessons learned during and in the immediate aftermath of Hurricane Katrina led to groundbreaking reforms in national, state, and local policy in the United States to enhance preparedness, response and capacity to care for childbearing women and newborns. These reforms, however, did not fully address the unique problems faced by childbearing women and their families who return to live and rebuild in a post-disaster community. Problems women in our study faced would only be intensified in regions of the world where there is less infrastructure for disaster response and support than in the United States, making this a global concern for women's health following natural disaster.

Although natural disasters can strike anywhere, those of us living in disaster prone areas are keenly aware that we need more research to determine best practices we can implement to minimize risks for childbearing women and young families who live in these challenging environments after disaster. Future research is needed to develop locale specific and culturally sensitive models of care we can implement to improve psychosocial and mental health support for childbearing women and buffer the many worries and stress associated with disaster recovery.

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Table 1.

Quantitative measures used for triangulation of qualitative data.

Measure	Conceptual definition	Description/Measure	References
Demographics/ psychosocial data	Demographic data (age, health insurance status, smoking, drug use, employment status, pregnancy complications, housing, prenatal care, social support, and stressful life events in past year).	44 questions, adapted from Pregnancy Risk Assessment Monitoring System (PRAMS): Questionnaire PRAMS Phase 5 Standard Questions (2004–2008).	Centers for Disease Control and Prevention (2009)
Prenatal anxiety: Revised Prenatal Distress Questionnaire	Concerns related to the health of mother and baby, symptoms of the pregnancy, prenatal care, and financial issues. Cronbach's alphas were reported between 0.80 and 0.81 in a diverse sample of pregnant women.	17-item, Likert scale instrument. A score >17 indicates the presence of prenatal anxiety. An open-ended question was provided for subjects to describe 'what else' they were worried, upset, or bothered by related to pregnancy, the birth or the baby, to determine concerns not assessed by the instrument.	Alderdice et al. (2013) and Lobel et al. (2008)
Depressive symptoms: Edinburgh Postnatal Depression Index (EDSI)	Measures symptoms of postpartum depression and has been validated for use in in pregnancy; English and Spanish version available. Split half reliability was 0.88 and the standardized coefficient 0.87.	10 items; each item is scored on a four-point scale (from 0 to 3), with a maximum score of 30. A cutoff value of 12 has been recommended to indicate significant depression symptoms, and was used to represent 'likely depression'. A score of 8 was pre-specified as 'risk for depression'.	Alvarado-Esquivel, Sifuentes-Alvarez, Salas-Martinez, and Martínez-García (2006), Cox, Holden, and Sagovsky (1987), Cox, Holder, and Henshaw (2014), Matthey (2004), and Murray and Cox (1990)
Post-traumatic stress disorder: Post-traumatic stress disorder checklist – short (PCL-S)	Measures symptoms of post-traumatic stress disorder (PTSD), including feelings of reliving trauma, numbness and hyperarousal related to a stressful experience. Cronbach's alpha of 0.86 has been reported for the PCL-S.	17-item inventory of PTSD-like symptoms. Likert choices here PTSD was examined as scoring above 50, a cutoff that has performed well compared to clinical PTSD diagnosis.	Ventureyra, Yao, Cottraux, Note, and De Mey-Guillard (2002) and Weathers, Litz, Herman, Huska, and Keane (1993)
Stress symptoms: Cohen Perceived Stress Scale (PSS)	Designed to measure the extent of stressful situations appraised by the respondent. The scale is validated in both English and Spanish, with high reliability of 0.84 and 0.81, respectively.	Scores greater to or equal to 25 were considered to indicate high perceived stress.	Cohen, Kamarak, and Mermelstein (1983) and Remor (2006)
Hurricane experiences Instrument	Based on answers to 11 questions, including whether participants felt their life was in danger during the storm, if they or a family member became ill or injured as a result of the storm, if they walked through floodwaters, whether their house flooded, severity of damage to their home and possessions, if anyone close to them died, or if they witnessed anyone die.	Individual experiences as well as a summary measure were examined, based on the number of events experienced. The scale was based on a previous study of Hurricane Andrew.	Norris, Perilla, Riad, Kaniasty, and Lavizzo (1999)

Table 2.

Sample characteristics of women enrolled ($N = 402$)[a].

Demographics	*N*	Percentage (%)
Race		
Black	227	56.75
White	100	25.06
Latina	58	14.54
All other	13	3.51
Education		
Less than high school	89	22.36
Graduated high school	112	28.14
Greater than high school	197	49.50
Income		
Less than $15,000/year	195	52.00
$15,000–29,000	76	20.27
$30,000 or more	104	27.73
Age		
20 years or less	62	15.50
20–25	119	29.75
25–30	117	29.25
>30	102	25.50
Employment		
Yes	150	37.50
No	250	62.50
Parity		
Multipara	156	39.59
Primipara	238	60.41
Hurricane exposure		
Feared for life	131	32.8
Injured/ill	43	10.7
Household member injured	71	17.7
Walked through floodwater	94	23.5
Much or enormous damage to house	222	55.4
House flooded	187	47.2
Feared for life	131	32.8
Death of someone close	45	11.2
Saw someone die	68	16.9
Life still somewhat or very disrupted	123	35.0

[a]Sample sizes may not add up to 402 due to missing data.

Table 3.

Prenatal experiences (past year; $N = 402$).

Stressful Life Events	*N*	Percentage (%)
A close family member was very sick and had to go to the hospital.	197	49.37
I moved to a new address.	185	46.48
Someone very close to me died.	127	31.91
I argued with my husband or partner more than usual.	127	31.83
I lost my job even though I wanted to go on working.	108	27.07
My husband or partner lost his job.	82	20.55
Someone very close to me had a bad problem with drinking or drugs.	73	18.34
I was homeless.	62	15.58
My husband or partner said he didn't want me to be pregnant.	59	14.82
My husband or partner or I went to jail.	51	12.81

Table 4.

Mental health status ($N = 402$).

Mental Health[a]	*N*	Percentage (%)
Likely depression symptoms (>12)	123	30.67
At risk for depression symptoms (>8)	212	52.87
PCL (>50 indicates PTSD dx)	35	8.75
Pregnancy-related anxiety (>17)	70	17.41
High perceived stress score (> = 25)	71	17.66

Abbreviations: PCL, Post-traumatic stress disorder checklist; PTSD, post-traumatic stress disorder.

[a]Sample sizes may not add up to 402 due to.

Table 5.

Associations between measures of social support and mental health symptoms.

	Depression		PTSD		Pregnancy-related anxiety		Perceived stress	
Mean *p* values	8.7		30.4		11.5		17.4	
Social support								
Overall low support	12.9	<0.01	35.6	<0.01	12.7	0.13	22.8	<0.01
No one could lend me $50	11.6	<0.01	37.2	<0.01	13.3	<0.01	20.6	<0.01
No one to help if sick	12.4	<0.01	36.4	<0.01	13.5	0.02	21.5	<0.01
No one to take to clinic	12.0	<0.01	37.1	<0.01	12.8	0.15	22.3	<0.01
No one to talk to	12.3	<0.01	36.4	<0.01	13.0	0.15	22.2	<0.01

Table 6.

Quantitative responses from the Revised Prenatal Distress Questionnaire.

Measure: 'Worries I have…'	*N*	Percentage (%)
1… about what will happen during labor and delivery? (*N* = 402)		
Not at all	104	25.87
Somewhat	181	45.02
Very much	117	29.10
2… about pain during labor and delivery? (*N* = 400)		
Not at all	120	30.0
Somewhat	147	36.75
Very much	133	33.25
3… about feeling tired and having low energy during pregnancy? (*N* = 400)		
Not at all	141	35.25
Somewhat	179	44.75
Very much	080	20.00
4… about working at a job after the baby comes? (*N* = 402)		
Not at all	145	36.07
Somewhat	125	31.09
Very much	132	32.84
5… about getting daycare, babysitters, or other help to watch the baby after it comes? (*N* = 402)		
Not at all	156	38.81
Somewhat	128	31.84
Very much	118	29.35
6… about physical symptoms of pregnancy such as vomiting, swollen feet, or backaches? (*N* = 401)		
Not at all	180	44.89
Somewhat	167	41.65
Very much	054	13.47
7… about paying for the baby's clothes, food, or medical care? (*N* = 401)		
Not at all	189	47.13
Somewhat	126	31.42
Very much	086	21.45
8… about changes in your weight and bod weight? (*N* = 400)		
Not at all	176	44.00
Somewhat	145	36.25
Very much	79	19.75

Table 7.

Summary of qualitative responses ($N = 229$).

Theme	Worry responses
Health of pregnancy, baby, birth	'Because of chronic hypertension and preeclampsia I am worried that my baby will need to be delivered early. I am also concerned that I will be pushed by the doctors into have a c-section before attempting to induce a vaginal delivery'. 'Stretch marks, body changes, not sleeping; weight not gaining'.
Family and parenting	'Father to do the right thing – was in jail when previous baby born; want him to be an active father'. 'Separated from husband and have to rear child by myself'. 'I worry I am not ready to be a parent; I feel I am still very immature and selfish'.
Housing/finances	'I have no stable home, cannot support myself – need to move to Georgia where my family moved to; everyone here is in jail or dead now'. 'Mother put me out due to pregnancy'. 'My older father is trying to fix storm damage – right now no electricity – cannot cook, no hot water, no refrigeration'.
Newborn health/care/ breastfeeding	'Second-hand smoke and placenta small'. 'Day care'. 'Being able to breastfeed for long enough'.
Immigration/separated motherhood	'Providing for children in my home country, Honduras, while I am here with another baby'. 'Who will take care of me after I have the baby, with no family here?'
Mental health concerns	'Anxiety and depression pre-pregnancy becoming escalated and persistent post-pregnancy and effecting the child; lack of mental health options in New Orleans'.
Death/loss	'Baby's father murdered from gunshot'. 'I am having problems sleeping-sometimes I feel sad when I think about my mother who died a year ago'.