Maternal Mental Health in Latinx/Hispanic Women after COVID-19 Pandemic

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The recent COVID-19 global emergency may have ripple effects on mental health of many people worldwide. This is especially true for populations like birthing and postpartum women where many changes to daily routines, access to medical care, work-related routines and socialization were experienced. This brief report presents data from an ongoing cohort study aiming to describe maternal mental health during the pandemic T12 (March 2020 to April 2021) with post-pandemic T2 (May 2022 to May 2023) of mothers followed in Puerto Rico. 47 out of 100 mothers have been recalled and assessed with psychosocial interviews (COPE-IUS) and assessments of anxiety (GAD-7) and depression (PHQ-9). Paired t-test revealed mean scores of depressions (PHQ-9) were significantly higher for T2 with a mean of 6.35 and a range of 4.4+/- than for T1 where mean was 5.15 (+/- 2.9), t=-1.954, df=45, p<.05. Similarly, anxiety scores (GAD-7) were significantly higher in T2 6.67 (4.2) than for T1 5.35 (3.7), t=-1.8, df=45, p<.05. Also, COPE-IUS Post-pandemic psychosocial interview results evidence that 80% of mothers do not feel the COVID-19 pandemic is a significant stressor at T2 and are able to maintain routine activities with no social distancing measures. However, reports of loneliness, sadness, worry, and fear continue to be present. Our findings point to the need to further identify other contributing factors to the deterioration of maternal mental health during the perinatal/peripartum period (pregnancy, birth, and postpartum) in Puerto Rico. Possibly the effects of repeated adversity that has been present in the island (multiple environmental stressors, history of traumatic experiences, and constant hardships) may all have cumulative impact over maternal mental health during the perinatal/peripartum period.

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The once neglected issue of maternal mental health during pregnancy and postpartum has gained much more attention during and after the COVID-19 (SARS-CoV-2) pandemic (March 2020 to present; (1,2,3)). Many women who gave birth during the peak of pandemic are now well into their postpartum/peripartum period (>12 months) or have moved past the perinatal period (>36 months postpartum). Questions remain as to the status of maternal mental health following the COVID-19 pandemic (ending May 2023) for many hardships were endured simultaneously (i.e. social distancing measures, poor access to care, lonely births, job insecurity, etc.) (4). Our study aims to describe post-pandemic mental health of pregnant and postpartum mothers we have followed in Puerto Rico since the start of the pandemic (from March 2020 to April 2021, defined as T1 hereafter). We also aimed to compare the post-pandemic (defined as T2 hereafter) means of anxiety and depressive symptoms to the pandemic (T1) means from the same sample (recently published study by Rodriguez-Reynaldo et al. 2023, (5)).

Methods

We recalled a total of 47 (out of 100) women who are 12-36 months postpartum from an existing cohort (5) at the University of Puerto Rico Medical Sciences Campus (approved by Institutional Review Board B3600122). They were recruited through telephone interview, REDCap, and Microsoft forms and completed de-identified questionnaires. All participants identified as women, are > 21 years of age, are living in Puerto Rico since the pandemic, and completed all assessment protocols during T1 protocol published by Rodriguez-Reynaldo et al., 2023 (5).

Measures

Post-COVID-19 Coping Experience

The second part of the Coronavirus Perinatal Experiences Impact Survey (COPE-IUS II) was used to measure pandemic-

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related maternal experience as a follow-up to the initial interview in T1 (5). This post-pandemic interview assessed COVID-19 infection, mental health symptoms, psychosocial environment related to the pandemic, adoption of virus infection prevention practices, and overall coping/wellness behaviors. All materials associated to this questionnaire are open source and available online (http://osf.io/uqhcv).

Sociodemographic

We developed a structured interview to gather sociodemographic variables of interest, including age, medical insurance, birth and postpartum experience, place of residence, place of birth, race and ethnicity.

Maternal Mental Health

We used the same questionnaires from T1, readministering the Patient Health Questionnaire (PHQ-9) and the Generalized Anxiety Disorders-7 (GAD-7) Spanish questionnaire. The PHQ-9 Spanish version is used to assess clinical symptoms of depression. The GAD-7 screens clinical anxiety. Both validated for Puerto Ricans (6) . For both, a score of >10 is used as a cut-off point for clinical symptoms (6,7).

Statistical analysis

Descriptive statistics and frequencies are presented in Table I to summarize outcomes and sociodemographic variables. Categorial variables, mostly post-COVID-19 related experiences, are summarized using frequencies and percentages. Our main goal is to compare scores from T2 to scores from T1, which was accomplished, using paired samples *t*-test at 95% CI, p <.05. Bivariate Pearson correlations examined associations between T1 and T2 scores. All analyses were conducted using SPSS v.29.

Results

Sample characteristics

Table 1 summarizes the characteristics of the 47 mothers who have been interviewed to date for T2. These characteristics have also been reported in T1 report (5). Mean maternal age was 34 years with a mean gestational age of 38 weeks (majority were full-term pregnancies). Most of the sample was past >24 months postpartum at T2 and entered the pandemic with birth experiences or with an infant. Table 1 demonstrates that most women are employed full-time and have private medical insurance, placing them in a middle-class income group. Most participants gave birth at a hospital (n=40/47) with approximately 50% having vaginal deliveries, while 4 mothers gave birth at home and 3 did not provide information about the birth. Interestingly, 10% of these women reported being alone at the time of the delivery, while approximately half of the sample (n=22) were separated from their babies after delivery. Nonetheless (83%) of them were able to breastfeed, and 29% of those supplemented breastfeeding with formula during the past two years.

Figure 1 demonstrates the distribution of the 47 mothers across municipalities by the 7 Health Regions identified with the PR Department of Health used for COVID-19 surveillance systems (Martinez-Lozano et al., 2022) in Puerto Rico.

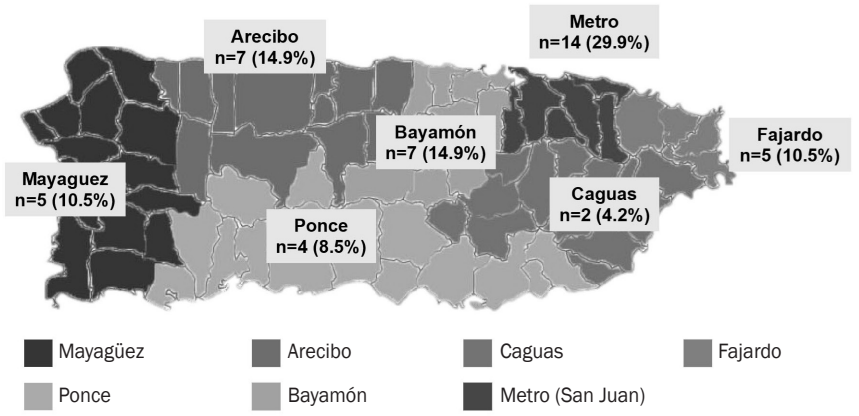
Table 1. Sociodemographic and Psychosocial description of sample (n=47)

Outcome	n (%)
Maternal age (in years), Mean (+/- SD)	34.0 (3.8)
Gestational age (in weeks), Mean (+/- SD)	38.86 (2.06)
Child's age (in months), Mean (+/- SD)	30.4 (5.8)
Sociodemographic	
Work status	
Stay at home	13 (27.7%)
Part-time employed	2 (4.3%)
Full-time employed	29 (61.7%)
Type of insurance	
No medical insurance	1 (2.1%)
Government provided	7 (14.9%)
Private medical insurance	35 (74.5%)
Birth characteristics	
Hospital birth	40 (85.1%)
Vaginal birth	24 (51.1%)
Cesarean birth	20 (42.6%)
Separated from baby at birth	22 (46.8%)
Spent immediate postpartum Immediate	
Postpartum alone	14 (29.8%)
Breastfed baby	39 (83.0%)
Formula fed baby	16 (34.0%)
Race/Ethnicity	
Latinx/Hispanic	33 (70.2%)
White	6 (12.8%)
Black	2 (4.3%)

Post-COVID-19 Coping Experience

The COPE IU-S categorical scores of the maternal experiences during the COVID-19 pandemic are reported using frequencies. This interview comprises of multiple domains related to health impact of COVID-19 on routines, socialization, mental health experience, coping mechanisms, wellness, and general components of life functioning. During T1 assessment, the COPE-IU-S provided broader information and can be found in Rodriguez-Reynaldo et al. 2023. For this T2 assessment, 65% of the sample reported having been infected with COVID-19 virus. However, most infections were not severe as 54% reported being able to maintain regular activities with no difficulty right after period of infection (5-7 days). At T2, 73% of the mothers reported maintaining job-related activities with no current difficulty. To date, mothers reported continuous support from their family and friends (70%) and 80% indicate that the pandemic has not had a negative impact over their life. They indicated that the most frequently used means of distraction and communication was social media (87%). 70% of the sample indicated that they had no issues with accessing medical care, living arrangements, managing health concerns, or using social distancing measures at this point post-pandemic. Regarding physical and wellness activities: 76% of the mothers practice routine physical activities, 63% of mothers used mediation and relaxation strategies and some (28%) practiced religious/spiritual activities. Importantly, 23% of mothers continued reporting feeling loss of interest and pleasure in things, some level of nervousness, feelings of

Figure 1. Representation of sample across the island of Puerto Rico



loneliness and sadness, unexpected feeling of fear, and about 50% reported feeling "tensed or agitated" on a regular basis, feeling "desperate about the future", and feeling frequently "in alert, vigilant, or on guard". Similarly, 50% of the sample expressed some level of difficulty experiencing positive emotions. However, 80% of mothers indicated that their current emotional states were unrelated to the COVID-19 pandemic.

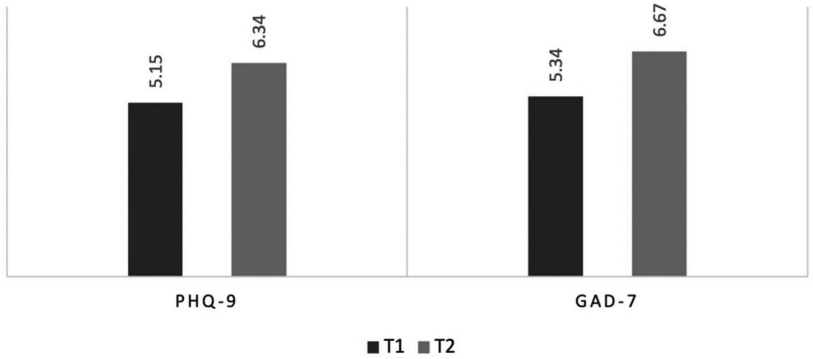
Comparison of Maternal Mental Health between T1 and T2

As stated, PHQ-9 and GAD-7 were used to assess clinical symptoms of anxiety and depression in both T1 and T2. Bivariate correlations revealed significant association between T1 and T2 for PHQ-9 scores (r=.423, p=.003) but not significant for GAD-7 scores (r=.23, p=.117). Paired t-test revealed mean scores of PHQ-9 were significantly higher for T2 with a mean of 6.35 and a range of 4.4+/- than for T1 where mean was 5.15 (+/- 2.9), t=-1.954, df=45, p<.05. Similarly, GAD-7 scores were significantly higher in T2 6.67 (4.2) than for T1 5.35 (3.7), t=-1.8, df=45, p<.05. Figure 2 demonstrates how score in T1 (during pandemic) compared to scores in T2 (post-pandemic). Descriptively, only 4 mothers in T1 were considered to have moderate to severe scores in PHQ-9 (>10) while 12 mothers in T2 had moderate to severe scores. Similarly, only 6 mothers in T1 had moderate to severe scores in GAD-7 while 10 in T2 had moderate to severe scores. These findings reveal that maternal scores of anxiety and depression have increased significantly over time even with the resolution of the pandemic.

Discussion

This brief report of our ongoing study aimed to describe maternal mental health symptoms and experiences during the current phase of the COVID-19 pandemic (post national social distancing measures and after the end of the global emergency state). We also compared clinical symptoms of anxiety and depression obtained in our study T2 (post-pandemic in 2023) to those published mid-pandemic or T1 (5) . Our findings revealed that mothers reported that the COVID-19 pandemic and its related effects were not of great concern to them anymore and did not affect daily life. However, their clinical symptoms of anxiety and depression have increased from T1 to T2. These findings are of great importance as they may have a ripple effect on long-term psychopathology, mother-child interaction, and overall child development (6–12). A recent publication of low-to middle income society increased the incidence of maternal anxiety and depression from 1 in every 7 to 1 in every 4 mothers for this year post-pandemic (13) . Puerto Rico can be considered a low-to-middle income society and has endured many social hardships in the last 6-7 years (e.g., Zika, economic recessions, hurricanes, earthquakes, pandemic). That is without considering personal social and genetic factors of each mother that come into play when exposed to environmental adversity (14–16). Understanding the effects that repeated adversity may have on maternal mental health is of importance in identifying risk for psychopathology and/or protective factors of maternal mental health (17-20) . Furthermore, continued assessment of anxiety and depression in mothers as they progress into subsequent parenting stages (beyond peripartum) is important when a mother has endured many stressors across the perinatal period. Completing this study will shed more light into possible associations between other psychosocial factors, perinatal experience, and history of trauma as these variables will be available upon completion of data collection.

Figure 2. T1 & T2 depression and anxiety scores comparison



p<.05 for depression & anxiety scores

Limitations

The presented cross-sectional design allows us to start evaluating this understudied population, however a prospective study and a control group is needed to pinpoint causal relationships among these variables. Other two limitations are: first, –low response in the follow up process of participants resulting in only 47 out of 100 participants recruited; thus being a small sample. Second, when considering the type of insurance of the mothers, a 74.5% had a private one; this is not representative of the overall Puerto Rican population.

Resumen

La reciente emergencia global de COVID-19 puede tener efectos dominó en la salud mental de muchas personas a través del mundo. Esto es especialmente cierto para poblaciones como las mujeres que dan a luz, y en el posparto, donde se experimentaron muchos cambios en las rutinas diarias, el acceso a la atención médica, las rutinas laborales y la socialización. Este breve informe presenta datos de un estudio de cohorte en curso que tiene como objetivo describir la salud mental materna durante la pandemia T1 (marzo de 2020 a abril de 2021) con la postpandemia T2 (mayo de 2022 a mayo de 2023) de madres seguidas en Puerto Rico. 47 de 100 madres han sido convocadas y evaluadas con entrevistas psicosociales (COPE-IUS) y evaluaciones de ansiedad (GAD-7) y depresión (PHQ-9). La prueba t pareada reveló que las puntuaciones medias de depresión (PHQ-9) fueron significativamente más altas para T2 con una media de 6.35 y un rango de 4.4+/- que para T1, donde la media fue 5.15 (+/- 2.9), t=-1.954 , gl=45, p<.05. De manera similar, las puntuaciones de ansiedad (GAD-7) fueron significativamente mayores en T2 6.67 (4,2) que en T1 5.35 (3.7), t=-1.8, gl=45, p<0,05. Además, los resultados de la entrevista psicosocial posterior a la pandemia de COPE-IUS evidencian que el 80% de las madres no sienten que la pandemia de COVID-19 sea un factor estresante significativo en T2 y pueden mantener actividades rutinarias sin medidas de distanciamiento social. Sin embargo, siguen presentes informes de soledad, tristeza, preocupación y miedo. Nuestros hallazgos apuntan a la necesidad de identificar más factores que contribuyen al deterioro de la salud mental materna durante el período perinatal/periparto (embarazo, parto y posparto) en Puerto Rico. Posiblemente los efectos de la adversidad repetida que ha estado presente en la isla (múltiples factores ambientales estresantes, historia de experiencias traumáticas y dificultades constantes) puedan tener un impacto acumulativo sobre la salud mental materna durante el período perinatal/periparto.

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