

Perinatal Mental Distress in Rhode Island: Data to Guide Decision-Making

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Rhode Island stakeholders in maternal health consistently identify mental health as a priority area. It is probable that the hormonal and biochemical changes associated with pregnancy and delivery contribute to perinatal mental and emotional difficulties. However, modifiable social factors are also strongly associated with perinatal mental distress.¹ We analyzed data on stressors and adverse circumstances from the Centers for Disease Control and Prevention (CDC)'s Pregnancy Risk Assessment and Monitoring System (PRAMS) to help stakeholders identify opportunities for interventions to reduce the scale of perinatal mental distress in the state.

Most discussion of perinatal mental health focuses on postpartum depression, but this captures only part of the range of perinatal mental distress,² missing other conditions like anxiety and stress.³ Likewise, estimates based solely on clinical diagnoses rather than symptomology more broadly may underestimate the scale of the problem.^{3,4} Previous studies have provided inconsistent results about the demographic distribution of mental distress, and there have been varied approaches to analyzing the role of stressors or adverse circumstances, e.g. clustering into categories or providing counts.^{2,4-9} However, simply counting stressors provides little guidance to stakeholders trying to understand what exactly should be addressed for maximal public health impact. We analyzed the potential population impact of targeting specific stressors, with the goal of providing calculations to stakeholders trying to select among multiple social factors to address. Since women generally have more provider contact during the perinatal period than any other time in their lives,¹⁰ these contacts are also an important opportunity to address mental distress well beyond the perinatal period, especially in light of the ACA's expansion of the range of care for both childbearing women and mental health in general.

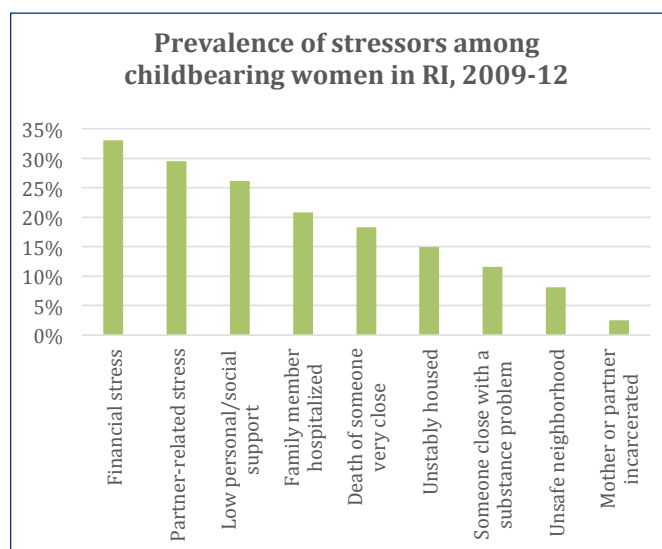
METHODS

To increase the sample of RI's small annual population of childbearing women, we aggregated 2009–2012 RI PRAMS data (n=5039). The PRAMS survey is sent to a random sample of women who have delivered live infants in the past 2-6 months; the full methodology is available at <http://www.cdc.gov/prams>. We created several outcome variables to evaluate mental distress. Distress during the pregnancy was

identified if a respondent said the pregnancy was “A moderately hard time/a very hard time/one of the worst times of my life” (vs. “A happy time with few problems/one of the happiest times”). Postpartum depressive symptomology was determined by responses of “Often” or “Always” to either of the following questions: “Since your new baby was born, how often have you felt down, depressed, or helpless?” and “Since your new baby was born, how often have you had little interest or little pleasure in doing things?” (prior to 2012, the questions were “...felt down, depressed, or sad” and “...felt hopeless”). An overall variable captured any mental distress if women had either of the above or a diagnosis of depression during the pregnancy.

Although several of the stressors and adversities identified in PRAMS (Figure 1a) were prevalent among child-bearing women, we removed most of them from the final analysis on the basis of preliminary results indicating minimal potential population impact, leaving three in the final analysis (partner-related stress, financial stress, and close relationship with someone with a substance problem; analysis results for the full set of stressors are available from the authors). We used Alhuwalia et al.'s category of partner-related stresses (argued with partner more than usual, partner did not want pregnancy, or divorced or separated in the year before birth)⁹ and added to it physical violence by partner

Figure 1a. Prevalence of stressors among childbearing women in RI (Source: 2009-12 PRAMS)



before or during the pregnancy. We included financial stress as defined by Alhuwalia et al. as mother or partner losing a job, or having trouble paying bills. Alhuwalia et al. include two additional categories of trauma and emotional stressors, but given the diversity, low prevalence or weak associations with the outcomes of interest among the stressors in these two categories, we included only relationship with someone with a substance problem ("someone very close to me had a problem with drinking or drugs") as this was identified as an area of interest to stakeholders.

Covariates included maternal age (categorized as <20, 20-29, and ≥30); education (classified as less than a high school degree; graduated high school; and any education beyond high school); and race/ethnicity (grouped as Hispanic/Latina; non-Hispanic black; non-Hispanic white; and, due to small numbers of all other responses, "all others"). Social support, which has been previously identified as a possible mediator between stressors and mental distress, was defined as low if respondents could not count on any one of 5 types of informal help (Figure 1b). Bivariate and multivariate analyses for prevalence, crude and adjusted risk difference, population attributable risk, and adjusted odds ratios were conducted in SAS 9.4 using survey weights and strata information provided by the CDC to account for complex sampling methodology. Population attributable risk is a means of identifying potential impact rather than the strength of an association alone, as is typically displayed in adjusted odds ratios.

Figure 1b. Components of social support among childbearing women in RI (Source: 2009–12 PRAMS)

Since you delivered your new baby, would you have the kinds of help listed below if you needed them?

- Someone to loan me \$50
- Someone to help me if I were sick and needed to be in bed
- Someone to talk with about my problems
- Someone to help me if I were tired and feeling frustrated with my new baby
- Someone to take me and my baby to the doctor's office if I had no other way of getting there

RESULTS

Among women who had recently delivered an infant, 21.1% had a troubled pregnancy and 13% showed symptoms of postpartum depression (Table 1). The demographic distributions were roughly similar across categories, though we note that 29.8% of women who exhibited postpartum depressive symptomatology were Hispanic/Latina, compared to 20.7% of women with no mental distress and 18.9% of women with troubled pregnancies. Women with each type of mental distress were significantly more likely to report each of the stressors we examined: nearly half (47.1%) of women with any form of mental distress reported partner-related stress compared with 20.9% of women exhibiting no distress; similarly, 46.5% of women with mental distress reported financial stress, versus 26.2% of women without distress.

Table 2 provides crude and adjusted risk differences (RD) and population attributable risk (PAR). Mental distress by all measures was highly prevalent (46.6–52.4%) among women with each of the stressors investigated, though prevalence fell to 21.0–24.4% for postpartum depressive symptomatology. The RD shows how much higher this prevalence was than among women without the stressor. When we adjusted for all the other stressors in turn, partner-related stress had the highest ARD (27.8%, compared to the next

Table 1. Demographics of perinatal mental distress in RI, 2009–2012

	No mental distress	Poor mental state during pregnancy	Postpartum symptoms	Any form of mental distress
	67.1% (n=3109)	21.1% (n=1111)	13.0% (n=704)	32.9% (n=1698)
Mother's age	Weighted % (95% CI)			
<20	7.4 (6.3–8.6)	8.4 (6.2–10.6)	10.6 (7.6–13.7)	9.1 (7.3–10.9)
20–29	47.2 (45.2–49.3)	47.4 (43.8–51.1)	53.2 (48.5–57.8)	49.2 (46.3–52.2)
30+	45.3 (43.3–47.3)	44.1 (40.6–47.7)	36.2 (31.8–40.6)	41.7 (38.9–44.6)
Mother's race/ethnicity				
Hispanic/Latina	20.7 (19.1–22.3)	18.9 (16.0–21.7)	29.8 (25.5–34.2)	23.3 (20.8–25.8)
Black, non-Hispanic	5.6 (4.7–6.6)	7.3 (5.3–9.2)	8.8 (6.1–11.4)	7.7 (6.1–9.3)
White, non-Hispanic	64.8 (62.9–66.6)	65.2 (61.7–68.6)	53.1 (48.4–57.8)	60.1 (57.2–62.9)
All others	9.0 (7.8–10.1)	8.7 (6.7–10.8)	8.3 (5.8–10.8)	8.9 (7.2–10.6)
Mother's education				
<12 years	11.9 (10.5–13.4)	12.3 (9.7–14.9)	16.1 (12.5–19.8)	15.1 (12.9–17.4)
12 years	24.7 (22.8–26.6)	29.0 (25.4–32.5)	34.3 (29.6–39.1)	31.1 (28.2–34.0)
>12 years	63.4 (61.3–65.4)	58.7 (55.0–62.5)	49.5 (44.7–54.4)	53.7 (50.7–56.8)
Partner-related stress	20.9 (19.2–22.6)	51.2 (47.6–54.9)	51.1 (46.5–55.8)	47.1 (44.2–50.1)
Financial stress	26.2 (24.3–28.0)	48.0 (44.4–51.7)	53.3 (48.6–58.0)	46.5 (43.5–49.4)
Someone close with a substance problem	8.5 (7.4–9.7)	18.3 (15.5–21.2)	22.1 (18.2–26.1)	18.4 (16.1–20.7)
Low personal/social support	22.4 (20.7–24.2)	32.1 (28.7–35.5)	40.6 (36.1–45.2)	33.6 (30.8–36.4)

Source: 2009–12 RI PRAMS.

highest ARD of 21.0% for a close relationship with someone with a substance problem). That is, once we accounted for coexisting stressors, 27.8% of perinatal mental distress is independently associated with partner-related stress. Maternal demographics and the availability of a medical provider 24/7 were tested and did not significantly alter these results. The PAR was also highest for partner-related stress at 25.0%, versus 20.3% for financial stress and 7.5% for substance problem in someone close. Without being able to attribute causality, if the outcomes were the same for women experiencing partner-related stress as women without that exposure, rates of perinatal mental distress in RI would be 25.9% lower. The comparable reduction would

be 7.5% in the case of proximity to a substance problem.

Finally, **Table 3** shows the unequal distribution of stressors. Black and Hispanic/Latina women had higher adjusted odds of partner-related stress, financial stress, and low social support compared to white women, but considerably lower odds of close relationships with someone with a substance problem (0.40 and 0.36 respectively) compared to white women. Contrary to our expectations, level of social support did not significantly mediate the association between stressors and outcomes, and had a relatively low PAR (19.9% for postpartum depressive symptomatology and 10.2% for overall mental distress).

Table 2. Prevalence, risk difference, adjusted risk difference, and population attributable fractions

		Partner-related stress	Economic stress	Someone close with substance problem	Low social support
Hard time during pregnancy	Prevalence of outcome	36.6%	30.7%	32.9%	25.4%
	Risk difference	22.1%	14.4%	13.6%	6.0%
	Adjusted risk difference	18.9%	8.5%	5.5%	1.7%
	Population attributable risk	30.9%	22.5%	7.6%	7.6%
Postpartum depressive symptoms	Prevalence of outcome	22.5%	21.0%	24.1%	20.4%
	Risk difference	13.6%	12.0%	12.7%	10.0%
	Adjusted risk difference	9.2%	7.3%	7.8%	6.9%
	Population attributable risk	30.9%	30.5%	11.7%	19.9%
Any mental distress	Prevalence of outcome	52.4%	46.6%	51.3%	42.4%
	Risk difference	27.8%	20.3%	21.0%	12.8%
	Adjusted risk difference	21.9%	11.8%	11.0%	6.9%
	Population attributable risk	25.0%	20.3%	7.5%	10.2%

Source: 2009-12 RI PRAMS.

Table 3. Adjusted odds ratios of stressors/adverse circumstances

	Partner-related stress	Economic stress	Someone close with substance problem	Low social support
Age				
<20	2.08 (1.49-2.91)	0.60 (0.42-0.86)	1.08 (0.65-1.81)	1.30 (0.91-1.86)
20-29	1.21 (1.02-1.43)	1.37 (1.17-1.62)	1.49 (1.17-1.90)	1.19 (0.99-1.43)
30+	1	1	1	1
Education				
< high school	1.13 (0.84-1.51)	1.93 (1.47-2.54)	1.65 (1.09-2.52)	2.05 (1.55-2.71)
High school graduate	1.44 (1.18-1.75)	2.08 (1.72-2.51)	1.70 (1.29-2.23)	1.65 (1.34-2.04)
Beyond high school	1	1	1	1
Race/ethnicity				
Hispanic/Latina	1.25 (1.01-1.56)	1.30 (1.06-1.61)	0.36 (0.25-0.51)	3.23 (2.61-4.00)
Black	2.61 (1.92-3.57)	1.40 (1.01-1.94)	0.40 (0.23-0.70)	3.61 (2.63-5.00)
White	1	1	1	1

Source: 2009-12 RI PRAMS. Boldface indicates statistical significance

DISCUSSION

Unsurprisingly, stressors before the birth of a child are strongly associated with perinatal maternal mental distress. Additionally, the demographic patterns of stressors themselves suggest they play a role in perinatal mental health disparities.

While adverse circumstances like partner-related stress are traditionally considered personal problems, they can and should also be viewed as modifiable social determinants of health: an epidemic of substance abuse that crosses demographic boundaries, a sociocultural environment that may conduce to partner conflict, and a lack of economic policies to help young parents who are struggling financially. Our analysis suggests a first course of action addressing partner-related stress to reduce the burden of perinatal mental health in RI. Even after accounting for other stressors that might be assumed to underlie it, especially financial stress and relationships involving substance problems, multiple data points consistently show that reducing the risk associated with partner-related stress could have a substantial impact on perinatal mental health. Addressing partner-related stress at first appears beyond the capacity of medical and public health stakeholders, but they can look to other models of interventions addressing both social determinants and interpersonal behavioral change. Potential actions include:

1) Building on existing Department of Education and Department of Health programs that focus on young men and address not only sexual health but interpersonal relations; such programs may help young fathers-to-be and new fathers

work with their partners to decrease partner-related stress.

2) Increasing systems that link healthcare providers who screen patients for adverse conditions to public health or legal advocates (e.g. the Medical-Legal Partnership) that can provide patients with needed non-clinical resources. Stone's analysis of PRAMS data for Massachusetts – which has demographics roughly similar to RI's – found that fewer than half of women with postpartum depressive symptoms who experienced adversity sought help for their depression⁴ suggesting that providers may have an important role in destigmatizing and enabling help-seeking behaviors. We caution against attempting to rely on pharmacological solutions rather than addressing the root issues at work, especially in light of mixed evidence regarding antidepressants and adverse birth outcomes.

3) Facilitating collaboration between medical and public health stakeholders to take advantage of increased mandates under the ACA. For instance, section 2952 is specific to postpartum depression – only one component of perinatal mental distress – but its allowed activities, such as delivery of in-home support services, are broad enough to establish the groundwork for broader interventions.

4) Advocating that the state create an entity with responsibility and oversight for the large number of Rhode Islanders with mental health needs currently not under the umbrella of the Department of Health or the Department of Behavioral Healthcare, Developmental Disabilities and Hospitals (BHDDH).

The fact that level of social support did not significantly mediate the association between stressors and outcomes reinforces the argument that public policy and services are necessary to reduce the burden of perinatal mental distress, rather than expecting personal resources to meet the needs of new mothers.

Maternal mental distress is in itself a serious public health concern, even aside from a large body of literature showing the association between poor maternal mental health and adverse outcomes for infants and young children. Rhode Island can become a leader in the field by establishing systems to address the social determinants contributing to the scale of the problem, rather than treating them as individual-level problems alone.

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