

Stressful life events and postpartum depressive symptoms among women with disabilities

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Abstract

Purpose: Although research evidence indicates positive associations between stressful life events and postpartum depression, limited research assessed these associations in women with disabilities. This study examined the effects of stressful life events on postpartum depressive symptoms in women with disabilities.

Methods: Data from the 2012–2017 Massachusetts Pregnancy Risk Assessment Monitoring System ($n=8453$) were used in this study. Women were asked if they experienced any life stressors (e.g. financial, traumatic, relational, and emotional) during the 12 months prior to giving birth. Disability was measured based on reports of emotional and physical functioning. Descriptive statistics, bivariate, and binary logistic regression analyses were conducted to estimate the effect of stressful life events on postpartum depressive symptoms among women with and without disabilities.

Results: Findings show that 37.4% of women with disabilities had postpartum depressive symptoms, which was significantly higher than 8.79% of women without disabilities. Stressful life events were reported in 86.6% of women with disabilities, compared to 66.6% for women without disabilities. Prevalence of three or more stressful life events and postpartum depressive symptoms was greater among women with disabilities (50.8% and 62.9%, respectively) than women without disabilities (22.6% and 37.0%, respectively). Women with disabilities experiencing six or more stressful life events were more likely (odds ratio = 3.78, 95% confidence interval = [1.57–9.10]) to report postpartum depressive symptoms, compared to those with no stressful life events. Women with disabilities who experienced relational (odds ratio = 2.36, 95% confidence interval = [1.44–3.87]) and traumatic (odds ratio = 1.75, 95% confidence interval = [1.02–3.00]) life stressors had higher odds for postpartum depressive symptoms relative to those reporting no such life stressors.

Conclusion: Women with disabilities are at an amplified risk for stressful life events and postpartum depressive symptoms. Relational and traumatic stressful life events particularly increase the odds for postpartum depressive symptoms among this group of mothers. Early prenatal and postnatal screening for life stressors and depressive symptoms, coupled with timely referral for appropriate prenatal and postnatal care, are vital to mitigate the harmful effects of depression among mothers with disabilities and the health of their children.

Keywords

disability, postpartum depression, stressful events, women

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Impact statement

What is already known on this subject?

Studies show a positive association between stressful life events and postpartum depression, and research evidence indicates women with postpartum depressive symptoms are at increased risk for postpartum depression. Women

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with disabilities, a vulnerable population, have yet to be comprehensively studied relative to stressful life events and postpartum depressive symptoms.

What do the results of this study add?

Women with disabilities are at an amplified risk for experiencing stressful life events and postpartum depressive symptoms, compared to women without disabilities. Certain stressful life events, such as traumatic or relational stressors, significantly increased the odds for postpartum depressive symptoms among this population of mothers, compared to their peers without such stressors.

What are the implications of these findings for clinical practice and/or further research?

The present study extends this line of research to women with disabilities, and the findings indicate that early prenatal screening for life stressors and depression, and early postnatal screening for postpartum depression in pregnant women with disabilities are prudent. Early screening, coupled with timely referral for appropriate prenatal or postnatal care, may mitigate the harmful effects of depression among mothers with disabilities and their families. Public health officials, policymakers, and clinicians should diligently assess postpartum processes and programs for women with disabilities who are at increased risk for postpartum depressive symptoms or postpartum depression.

Introduction

Around 15% (more than 1 billion) of the world's population lives with some form of disability.¹ Disability is defined as any mental or physical impairment that limits one's functionality or activity, and/or complicates or restricts participation in one's environment or setting.² Nearly 13% (more than 21 million) of females among the civilian noninstitutionalized US population live with some type of disability;³ and despite approximately 16% of reproductive-aged US women reporting serious functional limitations due to vision, cognition, mobility, self-care, or independent living disabilities,⁴ pregnancy among this population of women is increasing.^{5,6} Recent reports indicate that 61.4% of women with disabilities desire to become pregnant, and 43.3% intend to pursue pregnancy.⁷ Medical advances in management of pregnancies and in improving diagnoses and treatment of disabilities, enable women with disabilities to successfully carry a pregnancy to term and have healthy babies.^{7,8} However, a growing number of women with disabilities may suffer from a number of comorbidities, including depression which affects at least 5% of the world's adult population.⁹ More than 40% of US women with disabilities report a history of depression, and mothers with disabilities are more

prone to postpartum depression (PPD) than those without disabilities.¹⁰

PPD is a serious behavioral health condition with adverse maternal and infant health outcomes, affecting approximately 10% of women worldwide and 12%–20% of US mothers.^{10,11} Research indicates women with postpartum depressive symptoms (PDS) are at increased risk for the clinical diagnosis of PPD.^{12,13} Stress is known to contribute to depression during and after pregnancy, which can lead to adverse maternal and infant health outcomes.¹⁴ During pregnancy, stressors and depression may result in inadequate prenatal care and unfavorable birth outcomes; while PDS or PPD corollaries include infant neglect, collapse of family relations, and maternal suicide.¹⁵ Experiencing stressful life events (SLEs), previous or in the perinatal period, is also a substantial risk factor for PPD.^{16–18} Mothers who experience a perinatal SLE have an increased prevalence of PDS,¹⁹ and approximately 65%–70% of pregnant women in the United States experience at least one recent stressful life event.²⁰ Furthermore, mothers who encounter multiple stressors are more likely to develop PPD; those who suffer four SLEs are 5 times more likely to have PDS compared to those who encounter no SLEs.¹⁶

Although several studies^{14–20} have found positive relationships among the general population between SLE and depression, to include PDS and PPD, limited research has evaluated these associations in women with disabilities. This study examined the effects of SLEs on PDS in US women with disabilities using data from the Pregnancy Risk Assessment Monitoring System (PRAMS). The results of this study may inform medical and community professionals to address prevention, detection, and intervention of SLEs and PPD for women with disabilities.

Method

Data description

This is a retrospective study involving the analysis of cross-sectional PRAMS 2012–2017 data.^{21–23} Since 1987, the PRAMS surveillance collects state-specific, population-based maternal data from US women who give informed consent, currently representing approximately 83% of all US births.²⁴ The primary purpose of PRAMS is to collect, analyze, and disseminate data to promote and support policies and programs that improve maternal and infant health outcomes.²⁵ PRAMS data are frequently used to study relationships between predisposing influences and health outcomes, compare state-specific health predictors, and examine differences among targeted populations.²⁵ For this study, only data from the state of Massachusetts (MA) were available, and the sample included 8453 women for the years of 2012 thru 2017 with 710 women reporting a disability. The range of missing values for the

measures used in this study was between 1.9% and 2.5%. The present study was exempt from review by the Institutional Review Board at the researchers' institution given that it used existing data (secondary data analysis) that are publicly available.

Measures

The outcome measure in this study was PDS in women with disabilities; PRAMS created an indicator variable for PDS (Yes/No),²⁶ which was determined by mothers aged 18 to 44 years old selecting *often* or *always* (Yes) versus *never*, *rarely*, or *sometimes* (No) responses to the question; *Since your new baby was born, how often have you felt down, depressed, or hopeless?*²³ This information was collected via mail and telephone 2 to 4 months post-delivery, and the data collection cycle lasted approximately 60 to 95 days.^{25–27}

A dichotomous disability status variable (Yes/No) was created by combining responses (Yes/No) to the questions: *Are you limited in any way in any activities because of physical, mental, or emotional problems?*; *Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?*; and, *Do you have serious difficulty walking or climbing stairs?*²³ A positive (Yes) response to any of the three questions generated a positive (Yes) response for the dichotomous disability status variable.

Mothers responded to 14 specific PRAMS queries of SLEs that occurred 12 months prior to birth. The SLEs were listed as follows: (1) *I moved to a new address*; (2) *I lost my job even though I wanted to go on working*; (3) *my husband or partner lost their job*; (4) *my husband, partner, or I had a cut in work hours or pay*; (5) *I had problems paying the rent, mortgage, or other bills*; (6) *I got separated or divorced from my husband or partner*; (7) *I was apart from my husband or partner due to military deployment or extended work-related travel*; (8) *my husband or partner said they didn't want me to be pregnant*; (9) *I argued with my husband or partner more than usual*; (10) *I was homeless or had to sleep outside, in a car, or in a shelter*; (11) *my husband, partner, or I went to jail*; (12) *someone very close to me had a problem with drinking or drugs*; (13) *a close family member was very sick and had to go into the hospital*; and (14) *someone very close to me died*.²³ For this study, the SLEs were categorized into four groups based on previous studies:^{19,28} financial (1 thru 5 from the list above), relational (6 thru 9), traumatic (10 thru 12), and emotional SLEs (13 and 14). In addition, a dichotomous SLE measure (yes/no) was created along with a grouped variable to identify the number of SLEs reported (none, one to two, three to five, and six or more).

Covariate measures (Table 1) included sociodemographic factors; such as mothers' age, race/ethnicity, marital status, education, and type of health insurance.

Pregnancy and birth-related outcomes included previous live births, other terminations, gestational age and birth weight of prior births, and if the mother ever breastfed. Health status and behavior covariates included medical issues during pregnancy, pregnancy intention, prenatal care initiation, physical abuse before or during pregnancy, and smoking in the last trimester.

Statistical analysis

Descriptive statistics and bivariate analysis using the chi-square test were conducted to examine differences in the distribution of sample characteristics by disability status. Associations between life stressors and disability status were determined using the chi-square test. These analyses were repeated to determine whether any associations existed between disability status and life stressors among mothers with PDS. Unadjusted logistic regression models were built to estimate the effects of SLEs (four different groups and number of SLEs) on PDS among mothers with and without disabilities. Next, these logistic regression models were adjusted for the included covariate measures displayed in Table 1. The data were weighted to account for the complex survey design of PRAMS. All analyses were conducted using Stata/MP 16.1 (College Station, TX).

Results

The distribution of sample characteristics and associations between these characteristics and disability status are illustrated in Table 1. According to weighted percentages, women with disabilities were younger, with fewer years of education, less likely to be married, and more likely to have public insurance compared to women without disabilities. In addition, women with disabilities were more likely to have had a prior pregnancy and less likely to report breastfeeding than their peers without disabilities. Also, a higher proportion of women with disabilities reported abuse before or during pregnancy and smoking during the last trimester compared to women without disabilities.

In this study, 8.4% ($n=710$) of mothers reported a disability (Table 1), 13.2% ($n=1120$) had PDS, and 68.6% ($n=5795$) experienced at least one SLE 12 months prior to childbirth (Table 2). Of those mothers with disabilities, 86.6% ($n=596$) reported at least one SLE while 37.4% ($n=252$) responded positively for PDS, compared to 66.6% ($n=5157$) of women without disabilities reporting at least one SLE and only 8.79% ($n=868$) reporting PDS. Associations between SLEs and disability status for the entire sample, and then among mothers with PDS indicate women with disabilities experience more SLEs than women without disabilities (Table 2). A higher percentage of women with disabilities experienced three to five

Table 1. Sample characteristics by disability status from MA PRAMS (2012–2017).

	Women with disability <i>n</i> =710 (8.4%) Unweighted <i>n</i> (weighted %)	Women without disability <i>n</i> =7743 (91.6%) Unweighted <i>n</i> (weighted %)	<i>p</i> value*
<i>Sociodemographic</i>			
Maternal age (years)			0.0000
≤25	147 (24.1)	1233 (14.7)	
25–34	403 (54.1)	4668 (60.8)	
≥35	160 (21.8)	1842 (24.5)	
Maternal race			0.0000
White non-Hispanic	127 (51.0)	1969 (61.4)	
Black non-Hispanic	174 (12.7)	1533 (9.12)	
Hispanic	207 (13.1)	1938 (18.0)	
Other non-Hispanic	171 (23.2)	1959 (11.5)	
Married			0.0000
No	338 (53.6)	2625 (31.7)	
Yes	372 (46.4)	5115 (68.3)	
Maternal education (years)			0.0000
≤11	102 (15.1)	839 (8.98)	
12	140 (24.4)	1220 (15.4)	
13–15	216 (29.0)	1945 (23.5)	
≥16	232 (31.4)	3569 (52.1)	
Health insurance			0.0000
Private	370 (56.3)	4692 (70.8)	
Non-private	309 (43.7)	2546 (29.2)	
<i>Pregnancy & birth outcomes history</i>			
Previous live births			0.0076
None	281 (40.0)	3413 (43.9)	
One	232 (33.2)	2700 (35.9)	
At least two	197 (26.8)	1618 (20.2)	
Other terminations			0.0716
No	497 (69.5)	5681 (73.7)	
Yes	213 (30.5)	2047 (26.3)	
Gestational age			0.7812
Premature	64 (7.02)	627 (7.83)	
Full & post-term	645 (93.0)	7099 (92.1)	
Birth weight			0.7349
Low birth weight	69 (6.99)	572 (6.60)	
≥2500 g	639 (93.0)	7153 (93.4)	
Breastfed ever			0.0000
No	90 (18.0)	639 (10.4)	
Yes	601 (82.0)	6996 (89.6)	
<i>Health status & behaviors</i>			
Medical issue: during pregnancy			0.0382
No	573 (82.7)	6380 (86.5)	
Yes	125 (17.3)	1094 (13.5)	
Postpartum depressive symptoms			0.0000
No	447 (62.6)	6796 (91.2)	
Yes	252 (37.4)	868 (8.79)	
Pregnancy intention			0.0000
No	204 (33.0)	1291 (15.5)	
Yes	490 (67.0)	6338 (84.5)	
Prenatal care initiation			0.0639
None, second/third trimester	84 (11.1)	818 (8.31)	
First trimester	611 (88.9)	6742 (91.7)	

(Continued)

Table 1. (Continued)

	Women with disability <i>n</i> = 710 (8.4%) Unweighted <i>n</i> (weighted %)	Women without disability <i>n</i> = 7743 (91.6%) Unweighted <i>n</i> (weighted %)	<i>p</i> value*
Abuse: before/during pregnancy			0.0000
No	650 (92.4)	7574 (98.5)	
Yes	51 (7.63)	123 (1.52)	
Smoking last trimester			0.0000
No	625 (83.5)	7376 (94.6)	
Yes	84 (16.5)	310 (5.36)	

MA: Massachusetts; PRAMS: Pregnancy Risk Assessment Monitoring System.

**p* values are based on chi-square testing.

Table 2. Associations between life stressors and disability for the entire sample and among those women with postpartum depressive symptoms.

	Disability status <i>n</i> = 8453 (8.4%)			Women with PDS <i>n</i> = 1120 (13.2%)		
	Women with disability <i>n</i> ** (weighted %)	Women without disability <i>n</i> ** (weighted %)	<i>p</i> value*	Women with disability <i>n</i> ** (weighted %)	Women without disability <i>n</i> ** (weighted %)	<i>p</i> value*
Any of 14 stressors			0.0000			0.0000
No	109 (13.4)	2549 (33.4)		30 (8.15)	247 (26.8)	
Yes	596 (86.6)	5157 (66.6)		220 (91.8)	616 (73.2)	
Number of stressors			0.0000			0.0000
None	109 (13.4)	2549 (33.4)		30 (8.15)	247 (26.8)	
1–2	264 (35.8)	3429 (44.0)		80 (28.9)	336 (36.2)	
3–5	225 (34.5)	1453 (19.0)		87 (37.4)	223 (27.9)	
>6	107 (16.3)	275 (3.64)		53 (25.5)	57 (9.07)	
Financial stressors			0.0000			0.0005
No	227 (30.4)	3942 (52.8)		72 (25.3)	375 (41.3)	
Yes	477 (69.6)	3756 (47.2)		178 (74.7)	487 (58.7)	
Moved			0.0003			0.1883
No	436 (61.3)	5349 (70.2)		153 (57.6)	569 (63.9)	
Yes	261 (38.7)	2310 (29.8)		94 (42.4)	284 (36.1)	
Mother lost job			0.0000			0.3730
No	578 (82.2)	6923 (91.9)		199 (81.4)	721 (84.7)	
Yes	121 (17.8)	720 (8.10)		48 (18.6)	129 (15.3)	
Husband/partner lost job			0.0000			0.0029
No	578 (82.9)	6931 (91.2)		194 (76.5)	747 (87.2)	
Yes	118 (17.1)	691 (8.80)		53 (23.5)	102 (12.8)	
Mother or husband/partner pay reduced			0.0000			0.2112
No	525 (74.7)	6564 (85.8)		187 (73.3)	693 (78.6)	
Yes	171 (25.3)	1076 (14.2)		60 (26.7)	156 (21.4)	
Had bills could not pay			0.0000			0.0000
No	456 (62.8)	6477 (85.5)		146 (53.3)	641 (74.3)	
Yes	243 (37.2)	1181 (14.5)		102 (46.7)	208 (25.7)	
Relational stressors			0.0000			0.0000
No	372 (53.6)	5765 (76.5)		103 (39.8)	551 (61.7)	
Yes	330 (46.4)	1923 (23.5)		145 (60.2)	307 (38.3)	
Divorce			0.0000			0.0151
No	606 (86.6)	7240 (95.2)		206 (84.4)	784 (91.5)	
Yes	92 (13.4)	420 (4.82)		41 (15.6)	71 (8.54)	

(Continued)

Table 2. (Continued)

	Disability status <i>n</i> = 8453 (8.4%)		<i>p</i> value*	Women with PDS <i>n</i> = 1120 (13.2%)		<i>p</i> value*
	Women with disability <i>n</i> ** (weighted %)	Women without disability <i>n</i> ** (weighted %)		Women with disability <i>n</i> ** (weighted %)	Women without disability <i>n</i> ** (weighted %)	
Husband/partner away at work			0.7594			0.0359
No	667 (95.8)	7355 (96.1)		238 (97.8)	815 (94.2)	
Yes	30 (4.23)	291 (3.92)		9 (2.25)	37 (5.78)	
Husband/partner wanted pregnancy			0.0000			0.2987
No	84 (12.1)	423 (5.35)		35 (13.5)	77 (10.2)	
Yes	614 (87.9)	7233 (94.7)		211 (86.5)	774 (89.8)	
Argued with husband/partner more than usual			0.0000			0.0000
No	436 (63.7)	6249 (82.9)		121 (46.3)	612 (69.6)	
Yes	261 (36.3)	1399 (17.1)		125 (53.7)	239 (30.4)	
Traumatic stressors			0.0000			0.0000
No	523 (70.3)	6953 (88.8)		164 (58.6)	743 (81.7)	
Yes	177 (29.7)	732 (11.2)		84 (41.4)	117 (18.3)	
Homeless			0.0000			0.0000
No	628 (89.8)	7488 (97.7)		210 (82.2)	818 (95.3)	
Yes	70 (10.2)	188 (2.30)		37 (17.8)	40 (4.73)	
Mother or husband/partner went to jail			0.0000			0.0022
No	662 (94.7)	7509 (98.3)		232 (93.1)	831 (98.1)	
Yes	34 (5.25)	137 (1.74)		15 (6.91)	20 (1.93)	
Drugs: others			0.0000			0.0000
No	577 (77.1)	7118 (90.7)		190 (68.3)	778 (85.7)	
Yes	121 (22.9)	545 (9.25)		57 (31.7)	77 (14.3)	
Emotional stressors			0.0000			0.0000
No	421 (56.1)	5697 (72.2)		149 (52.0)	646 (71.5)	
Yes	281 (43.9)	1997 (27.8)		100 (48.0)	214 (28.5)	
Family member ill			0.0000			0.0069
No	494 (67.9)	6191 (78.1)		179 (68.4)	719 (79.9)	
Yes	205 (32.1)	1486 (21.9)		68 (31.6)	138 (20.1)	
Someone close died			0.0000			0.0003
No	534 (74.4)	6583 (85.3)		187 (69.9)	722 (84.1)	
Yes	166 (25.6)	1090 (14.7)		61 (30.1)	133 (15.9)	

PDS: postpartum depressive symptoms.

**p* values are based on chi-square testing.

**Unweighted raw number of observations.

(34.5%) and six or more (16.3%) life stressors, relative to only 19.0% of women without disabilities experiencing three to five and only 3.6% reporting six or more life stressors (Table 2). Financial stressors constituted the highest proportion (69.6%) of reported SLEs among women with disabilities, followed by relational (46.4%) and emotional (43.9%) stressors, with traumatic stressors being the least reported (29.7%); and these findings were all significantly higher relative to women without disabilities. Among mothers who experienced PDS, 91.8% (*n*=220) of women with disabilities reported an SLE, compared to 73.2% (*n*=616) for women without disabilities. In addition, in this group of mothers with PDS, women with disabilities experienced a significant increase in the number of SLEs, specifically three or more life stressors,

compared to those without disabilities. Overall, the proportions of financial, emotional, relational, and notably traumatic stressors were significantly higher among women with disabilities who experienced PDS, compared to women without disabilities with PDS.

Unadjusted odds ratios (ORs) with 95% confidence intervals (CIs) for PDS based on SLEs in women with and without disabilities in Table 3 show that women with disabilities who experienced life stressors, such as relational or traumatic SLEs, were more likely to develop PDS than women without disabilities. When adjusted (adjusted OR=AOR) for covariate measures (displayed in Table 1), the following measures were statistically significant for women with disabilities: stressors of six or more, relational, and traumatic SLEs. Women with disabilities

Table 3. Unadjusted and adjusted odds ratios (OR) with 95% confidence intervals (CI) for postpartum depressive symptoms by life stressors in women with and without disability.

	Women with disability <i>n</i> = 710 (8.4%)		Women without disability <i>n</i> = 7743 (91.6%)	
	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)
Any stressors				
Yes	2.07 [1.11–3.84]	1.84 [0.93–3.67]	1.40 [1.13–1.74]	1.23 [0.96–1.56]
No	Reference	Reference	Reference	Reference
Grouped stressors				
>6	4.28 [2.00–9.19]	3.78 [1.57–9.10]	3.66 [2.36–5.67]	2.68 [1.58–4.55]
3–5	2.15 [1.09–4.26]	1.66 [0.78–3.55]	1.94 [1.49–2.54]	1.58 [1.16–2.15]
1–2	1.37 [0.70–2.69]	1.58 [0.75–3.29]	1.02 [0.81–1.30]	1.02 [0.78–1.33]
None	Reference	Reference	Reference	Reference
Financial stressors				
Yes	1.12 [0.70–1.81]	1.03 [0.59–1.79]	1.39 [1.14–1.69]	1.28 [1.02–1.61]
No	Reference	Reference	Reference	Reference
Relational stressors				
Yes	2.06 [1.30–3.24]	2.36 [1.44–3.87]	1.89 [1.53–2.33]	1.54 [1.20–1.98]
No	Reference	Reference	Reference	Reference
Traumatic stressors				
Yes	1.91 [1.16–3.15]	1.75 [1.02–3.00]	1.44 [1.07–1.95]	1.26 [0.86–1.83]
No	Reference	Reference	Reference	Reference
Emotional stressors				
Yes	1.03 [0.66–1.62]	0.85 [0.52–1.41]	0.90 [0.72–1.12]	0.99 [0.77–1.28]
No	Reference	Reference	Reference	Reference

Entries in **bold** are significant at a *p* value ≤ .05.

*Models adjusted for maternal age, maternal race, marital status, maternal education, health insurance, previous live births, other terminations, gestational age, birth weight, breastfed ever, medical issue during pregnancy, pregnancy intention, prenatal care initiation, abuse (before, during pregnancy), smoking during last trimester.

experiencing six or more SLEs had 3.78 (95% CI = [1.57–9.10]) times higher odds of PDS compared to those with no life stressors. Moreover, as the number of SLEs increased, the odds of reporting PDS also increased, indicating a positive association between SLEs and PDS, regardless of disability status. Women with disabilities reporting relational SLEs had significantly higher odds (AOR = 2.36, 95% CI = [1.44–3.87]) of experiencing PDS compared to those with no such stressors. In addition, women with disabilities who experienced traumatic SLEs had a significantly higher likelihood (AOR = 1.75, 95% CI = [1.02–3.00]) to report PDS, relative to those with no traumatic stressors.

Women without disabilities in the unadjusted models who experienced any life stressor, specifically financial, relational, or traumatic SLEs, had a higher likelihood of developing PDS. Upon adjustments of the logistic regression models for covariate measures, women without disabilities experiencing three to five and six or more SLEs had 1.58 (95% CI = [1.16–2.15]) and 2.68 (95% CI = [1.58–4.55]) higher odds, respectively, in reporting PDS compared to others with no life stressors. In addition, women without disabilities who experienced financial

(OR = 1.28, 95% CI = [1.02–1.61]) and relational (OR = 1.54, 95% CI = [1.20–1.98]) SLEs were more likely to have PDS, compared to those with no such stressors.

Discussion

The results of this study show that a higher proportion (50.8%) of women with disabilities reported three or more life stressors compared to women without disabilities (22.6%). In addition, women with disabilities contending with six or more SLEs had significantly higher odds (AOR = 3.78) in experiencing PDS compared to those with no life stressors, while controlling for potential confounders. These findings align with those of other studies conducted among general populations of women.^{9,29–31} The present study extends this line of research to women with disabilities, a vulnerable population that has not been comprehensively examined in prior research, and it shows that the accumulation of SLEs in women's lives who are also coping with disabilities can significantly increase the likelihood of PDS.^{14,19,32} The findings of this study are supported by evidence-based clinical studies concluding that the biological effects of stress include adverse effects to

memory, concentration, and mood that are highly correlated with and can cause depressive symptoms.¹⁹

Furthermore, in this study, relational stressors more than doubled (AOR = 2.36), and traumatic stressors almost doubled (AOR = 1.75), the likelihood of PDS for women with disabilities, relative to those with no such stressors, while controlling for potential confounders. Women with disabilities are not only at greater risk of SLEs during pregnancy, but relational and traumatic stressors can exacerbate their associated medical complications.³³ In addition, previous research studies found that exposure to these types of life stressors increases the likelihood of PPD.^{12,34,35} Given the current state of knowledge and our findings, it is prudent to suggest a review of root causes for these types of life stressors and their interrelationships. For example, relational stress may arise from multiple factors, including financial stressors such as employment or traumatic stressors, including drug use. In addition, other factors could affect relational stressors, such as infants requiring advanced medical care with extended stays in neonatal intensive care units upon birth. Therefore, early identification of SLEs of any type among women of reproductive age with disabilities, particularly those desiring pregnancy or pregnant, coupled with effective stress reduction interventions, are necessary. Intervention programs could include group prenatal care designed to identify relational stressors and enhance parental relations; team approach that involves behavioral health providers and social or community liaisons to improve SLE identification, treatment, and referral for community support.³⁶ In general, a life course approach to adult health could be an effective framework to enhance resiliency of adults and reduce associated risk factors of SLEs in this vulnerable population.^{36,37}

The findings of this study expand the available existing body of research evidence concerning SLEs and PDS among women with disabilities, increasing awareness and warranting further research of the effects of SLEs on PDS in women with different types of disabilities. Given that one of the Healthy People 2030 objectives is to increase PDS screening during postnatal health checks to enhance detection and intervention of PPD,³⁸ it is essential for public health officials, policymakers, and clinicians recognize the importance of screening for SLEs during pregnancy and in the postpartum period in order to effectively intervene in preventing PDS or PPD among women with disabilities. Enhanced comprehension of relationships between SLEs and PDS in this vulnerable population with increasing intentions to become pregnant is vital, as untreated PPD can have devastating effects on mothers' and their infants' health.³⁹ Moreover, complementary longitudinal studies are required to establish causality, championing pointed action to mitigate adverse effects of SLEs on PDS in women with disabilities. Peer-reviewed, evidence-based findings are essential to enhance clinical education,

training, and protocols; and furnish healthcare leaders with information to guide policy and program initiatives to mitigate adverse maternal and infant health outcomes.

Research limitations must be acknowledged when considering the findings of this study. The cross-sectional nature of this study does not allow the determination of causality, and the self-reported data are fundamentally open to biases, as they do not represent clinical diagnoses of disability or PPD. In addition, the type or severity of disability cannot be ascertained from the PRAMS data, while the depressive symptomatology measure of PDS has been recorded with a single item, and its frequency and severity have not been measured. It is possible that disabilities due to mental or emotional conditions may be associated with depression before or during pregnancy and consequently affect PDS. However, this was not possible to examine in the present study. Furthermore, the lack of information related to the type of disability does not allow assessment of stressor variation by type of disability and their impact on PDS. Nevertheless, PRAMS constitutes an important data set that can be used for population-based surveillance on health outcomes and conditions among pregnant or postpartum women with disabilities.

Conclusion

In conclusion, women with disabilities are at an amplified risk for SLEs and PDS, with certain SLEs increasing the odds for PDS among this population of mothers. Early prenatal screening for life stressors and screening for PDS in women with disabilities, coupled with a timely referral for appropriate healthcare are vital to mitigate the harmful effects of PPD among mothers with disabilities and to the health of their children.

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