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The Role of Childhood Trauma and Posttraumatic Stress Disorder in Postpartum Sleep Disturbance

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Abstract

In the present study, we examined sleep complaints in postpartum women with a past history of childhood trauma relative to postpartum women who were not exposed to childhood trauma. We also assessed whether sleep was differentially affected by the type of childhood trauma experienced and the relative contribution of posttraumatic stress disorder. Participants completed questionnaires related to mental health over the phone at four months postpartum ($n = 173$). We found that after adjusting for covariates, participants who reported childhood neglect or physical abuse (regardless of sexual abuse) were significantly more likely to endorse difficulty falling asleep and staying asleep relative to participants who were not exposed to childhood trauma. Furthermore, PTSD was associated with sleep problems, such that mothers with childhood trauma who had recovered from a past history of PTSD were more likely to have difficulty falling and staying asleep than mothers who were exposed to childhood trauma but never developed PTSD, while mothers with persistent PTSD were at the highest risk for reporting sleep problems. Our findings affirm the contribution of childhood trauma and PTSD to postpartum sleep problems, and suggest that sleep may be disturbed in the postpartum even in women who have recovered from PTSD.

Sleep disruption is normative in the postpartum period, even among healthy women (Gay, Lee, & Yee, 2004; Quillin, 1997; Signal et al., 2007; Yamazaki, Lee, Kennedy, & Weiss, 2005; for a review, see Hunter, Rychnovsky, and Yount, 2009). Nevertheless, difficulty sleeping at night when the infant is asleep can signal depression and anxiety in new mothers (Bei, Milgrom, Ericksen, & Trinder, 2010; Dennis & Ross, 2005; Dørheim, Bondevik, Eberhard-Gran, & Bjorvatn, 2009; Goyal, Gay, & Lee, 2007; Huang, Carter, & Guo, 2004; Okun et al., 2011; Swanson, Pickett, Flynn, & Armitage, 2011). Among factors that may influence sleep in the postpartum period, little attention has been paid to the role of childhood trauma, which is known to negatively affect sleep in non-perinatal adults (Bader et al., 2007; Chapman et al., 2011; Chapman et al., 2013; Greenfield, Lee, Friedman, & Springer, 2011). Further, a past history of sexual trauma is a significant risk factor for the development of posttraumatic stress disorder (PTSD) in the postpartum (Verreault et al., 2012). As many as 8% of postpartum women experience PTSD (Verreault et al., 2012), a condition which is closely associated with poor sleep (Germain, 2013).

There is evidence thus far in the literature to suggest that experiencing trauma at other points in the lifespan is associated with sleep disruption. Sleep disruption is common after experiencing trauma in both adults and children (Glod, Teicher, Hartman, & Harakal, 1997, Mellman, Bustamante, Fins, Pigeon, & Nolan, 2002; for a review, see Babson & Feldner, 2010), and may persist beyond the time frame of the initial event. Adult survivors of childhood trauma are more likely to experience a variety of sleep complaints relative to individuals who have not been exposed to childhood trauma, including a longer sleep onset latency (Bader et al., 2007; Chapman et al., 2011) poorer subjective sleep quality (Greenfield et al., 2011), insufficient sleep (Chapman et al., 2013), daytime sleepiness (Chapman et al., 2011; Greenfield, et al., 2011) and insomnia (Bader et al., 2007).

However, very few studies have examined whether sleep is differentially affected by the type of childhood trauma experienced. One exception, a 2011 study by Greenfield et al., showed that childhood emotional and physical abuse, even in the absence of sexual abuse, was associated with disturbed sleep in adulthood. Further, even though sleep disturbances are common in PTSD (Mellman, Bustamante, Fins, Pigeon, & Nolan, 2002; Neylan et al., 1998; Ohayon & Shapiro, 2000), much of the existing literature on sleep in adult survivors of childhood trauma does not take into account PTSD. Therefore it is unclear whether childhood trauma per se is associated with disturbed sleep, or whether the sleep disturbance observed in this population is due to PTSD.

In the present study, we sought to address gaps in the literature by examining sleep complaints in postpartum women with a history of childhood trauma relative to postpartum women without a history of childhood trauma. Our goals were to determine whether sleep was differentially affected by the type of childhood trauma experienced, and to understand the contribution of PTSD to sleep complaints. We hypothesized that experiencing any type of abuse or neglect in childhood would increase the risk of sleep disturbance regardless of PTSD status, and that a history of childhood abuse (sexual or physical) would be associated with the greatest risk for sleep complaints. We expected that mothers with PTSD, either current or past, would report more sleep disturbance relative to mothers who experienced childhood trauma but did not develop PTSD.

Method

Participants

Data for this study was collected as part of the Maternal Anxiety during the Childbearing Years study (MACY study; NIMH K23 MH080147). The MACY project is a longitudinal investigation of the impact of maternal childhood adversity on postpartum psychopathology, entry to motherhood, parenting beliefs and behaviors, and ultimately, on the development of the mother-child relationship and subsequent child developmental trajectories. For the present study, we utilized data collected at 4 months postpartum. Participants were recruited for the MACY project in one of two ways: as postpartum follow-up to a parent study on the prenatal effects of PTSD on childbearing (previously reported in Seng et al. 2009); or through community advertisement at 6–8 weeks postpartum. Participants drawn from the parent study were initially recruited when they presented to their initial antenatal visits at three pregnancy clinics in a Midwestern metropolitan area, and entered the MACY project

after delivery. Recruitment in the community was conducted by posting flyers in childcare centers, pediatric offices, and informal or state-funded (e.g., WIC, Maternal-Infant Health Programs) resource centers for pregnant and postpartum women within the same catchment area.). All participants were 18 years of age or older, non-psychiatrically referred, and English-speaking. Exclusion criteria included the use of illegal or nonprescription drugs during pregnancy, maternal history of bipolar and psychotic illness, child prematurity (<36 weeks term), or child developmental disability or severe illness (e.g., epilepsy).

Procedures

The study was approved by the Institutional Review Board of the local university. Potential participants were screened through an initial telephone interview to determine study eligibility. Data collected by telephone at four months postpartum consisted of a demographics questionnaire, childhood trauma assessment, and psychiatric assessment, including diagnosis of current and lifetime (pre-pregnancy) PTSD.

Measures

Demographic information included age, race, income, education, marital status, and body mass index (BMI). PTSD diagnosis was determined using the National Women's Study (NWS) PTSD module (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). The module is a structured telephone diagnostic interview designed to be administered by lay interviewers, with a sensitivity of 0.99 and specificity of 0.29 to detect PTSD diagnosis. The NWS-PTSD measures all 17 symptoms of PTSD for lifetime and current occurrence with follow-up items to assess greater than one-month duration of the syndrome of symptoms and impairment. The measure yields a dichotomous diagnosis based on DSM-IV criteria and a dimensional symptom count on a scale of 0 to 17. For this study, women were asked about pre-pregnancy symptoms to assess for lifetime PTSD. Participants were characterized as follows: no PTSD; recovered PTSD (past history of PTSD pre-pregnancy, but no current diagnosis); and persistent PTSD (past history of PTSD pre-pregnancy and current diagnosis).

Childhood trauma history was assessed using the Childhood Trauma Questionnaire (CTQ; D. Bernstein & Fink, 1998). The CTQ is a validated, retrospective measure of traumatic childhood experiences. The questionnaire assesses the frequency and severity of abuse and neglect, including emotional and physical neglect, physical abuse, and sexual abuse. For the present study, participants were categorized as follows: reported no childhood abuse or neglect; reported childhood neglect (emotional or physical), but did not report any abuse; reported childhood physical abuse (with or without neglect); reported childhood sexual abuse (with or without neglect); or reported both childhood physical and sexual abuse (with or without neglect).

Maternal sleep complaints were measured using sleep items from the Postpartum Depression Screening Scale (PDSS; Beck & Gable, 2002). Sleep items included trouble staying asleep ("you woke up on your own in the middle of the night and had trouble getting back to sleep"), and trouble falling asleep ("you tossed and turned for a long time at night trying to fall asleep"). Items are scored on a Likert-type scale, from 1 ("strongly disagree") to 5

(“strongly agree”). Participants who indicated they “agreed” or “strongly agreed” were categorized as experiencing difficulty in that sleep domain.

Sleep in the infant was measured using a composite Cry, Feed and Sleep questionnaire (CFS; (Seifer, 1996)), an 86 item parent-report measure which taps into infant behavioral regulation and includes items on infant sleep and waking, feeding habits and crying patterns. The sleep portion of the CFS is adapted from the Children’s Sleep Habits Questionnaire (CSHQ; Owens, Spirito, & McGuinn, 2000). The CSHQ is a validated measure with a sensitivity of 0.80 and a specificity of 0.72; originally developed for school aged children, it has subsequently been validated in much younger children (Goodlin-Jones, Sitnick, Tang, Lio, & Anders, 2008). The following domains, identified by Seifer (1996), were used to characterize infant sleep: bedtime behavior, sleep behaviors, nighttime awakenings, morning awakening, and daytime sleepiness.

Statistical Analyses

All statistical analyses were performed using SPSS version 17 (SPSS, 2009). Odds ratios were calculated using logistic regression analyses, one to determine whether women with a history of childhood neglect or abuse were more likely to report a significant sleep complaint relative to women without a history of childhood trauma, and a second set of analyses to test the contribution of PTSD to sleep difficulties.

To determine appropriate covariates for the logistic regression models, stepwise regressions were conducted for each dependent variable using the following variables: maternal BMI, PTSD diagnosis (omitted for the analyses that used PTSD as an independent variable), child gender, race, age, income, education, marital status, and infant sleep domains measured on the CFS. Only those variables retained in the stepwise regression model were used as covariates in the logistic regressions.

Results

Our sample consisted of 173 women who were four months postpartum. Demographic characteristics of the sample are summarized in Table 1. Sleep problems were relatively common across the sample; 44 (25%) endorsed difficulty staying asleep and 39 (23%) reported difficulty falling asleep. With respect to childhood trauma, 64 participants (37%) reported that they did not experience any childhood neglect or abuse (see Table 2). The most commonly reported types of childhood trauma included sexual abuse alone (25 women, 14% of the total sample), and both physical and sexual abuse (28 women, 16% of the total sample). Of the 109 participants who reported experiencing childhood neglect or abuse, 32 (29%) never experienced PTSD; 53 (48%) had recovered from a past history of PTSD; and 24 (22%) had persistent PTSD.

Stepwise regression analyses, conducted to determine covariates, indicated that difficulty staying asleep was associated with infant nighttime awakenings. Difficulty falling asleep was associated with current PTSD diagnosis. When current PTSD was removed as a possible covariate from the models, difficulty staying asleep was associated with infant nighttime awakenings. Difficulty falling asleep was not associated with any covariates after

PTSD was removed as a possible covariate. Logistic regression analyses were adjusted for the covariates.

After adjusting for covariates, participants who reported childhood neglect and physical abuse (with or without sexual abuse) were significantly more likely to endorse difficulty falling asleep and staying asleep (see Table 2) relative to participants who denied a history of childhood abuse or neglect. As shown in Table 3, mothers who experienced childhood trauma but never developed PTSD had sleep profiles similar to women who were not exposed to childhood trauma. Mothers with a history of childhood trauma who had recovered from PTSD were more likely to experience difficulty falling asleep and staying asleep relative to women who experienced childhood trauma but never developed PTSD, and women who denied a history of childhood trauma. Women with persistent PTSD were at the highest risk for reporting difficulty with sleep.

Discussion

The aim of the present study was to examine relationships between sleep, childhood trauma exposure, and PTSD in a sample of newly postpartum women. We hypothesized that experiencing any childhood neglect or abuse would be associated with increased sleep disturbance, with women with a past history of childhood physical or sexual abuse at greatest risk. We also hypothesized that PTSD would be associated with the most sleep disturbance in the postpartum period.

Across our sample, one-quarter of women reported sleep disturbance at four months postpartum. Significantly higher rates of sleep disturbance (both falling asleep and staying asleep) were observed for women with a past history of neglect or physical abuse (with or without sexual abuse), even after controlling for current PTSD. Contrary to our hypothesis, women who endorsed a childhood history of sexual abuse alone were not more likely to report difficulty with sleep. These findings suggest childhood neglect and physical abuse are a risk factor for poor sleep in new mothers, independent of PTSD. Our results are consistent with Greenfield et al.'s (2011) finding that childhood emotional and physical abuse, even in the absence of sexual abuse, are associated to poor sleep in non-perinatal adults.

When we examined the contribution of PTSD to sleep complaints, we found that mothers with persistent PTSD (i.e., they had experienced pre-pregnancy PTSD which had persisted into the postpartum) were at especially high risk for reporting sleep problems, with odds ratios greater than 10 for experiencing sleep complaints. There was a smaller, but still significant, increase in risk for difficulty falling asleep in mothers who recovered from a past history of PTSD. This extends work from previous studies which have shown that sleep problems persist after PTSD treatment and recovery (Zayfert & DeViva, 2004). Importantly, women who reported a history of childhood trauma but never developed PTSD were not more likely to experience difficulty with sleep onset or maintenance relative to women who did not have a history of childhood trauma. Thus, in our sample of new mothers, those women who were resilient to PTSD had sleep that was similar to women who were never exposed to childhood trauma.

Some limitations of the present study include self-report measures; a cross-sectional design; and use of only two questions to assess sleep. Future research using objective, in-depth sleep assessments and longitudinal designs will be important to more completely understand how sleep is affected by childhood trauma in new mothers.

To our knowledge, this is the first study of relationships between sleep, childhood trauma, and PTSD in a population that is particularly vulnerable to both sleep disturbance and PTSD. Our findings highlight the lasting effects of childhood trauma, particularly neglect and physical abuse, on sleep in new mothers. They also suggest that new mothers who have PTSD are likely to experience significant struggles with their sleep, which may in turn affect their daytime functioning and parenting capabilities. As our findings suggest that sleep symptoms may not resolve even after PTSD is in remission, the development of treatment strategies to address sleep in this population is critical.

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Table 1

Demographic Characteristics of the Sample

	n (%) or M ± SD		n (%)
Maternal Age	28 ± 6	Education	
Child Gender (M/F)	88/80	Less than high school	7 (4)
Race		High school/GED	22 (13)
Caucasian	104 (60)	Some college	42 (24)
African American	42 (24)	Bachelor's or higher	94 (57)
Asian	8 (5)		
Hispanic	4 (2)	Household Income	
Native American	1 (1)	< \$15,000	39 (23)
Marital Status		\$15,000-25,000	19 (11)
Married/partnered	127 (80)	\$25,000 - \$50,000	30 (17)
Never married	28 (16)	> \$50,000	82 (47)
Divorced/separated	2 (1)		

Table 2
Prevalence and Odds of Experiencing a Sleep Complaint by Childhood Trauma History

Type of childhood trauma	n	Type of sleep complaint		
		Falling asleep ^d	Staying asleep ^b	OR (95% CI)
		Prevalence n (%)	Prevalence n (%)	OR (95% CI)
No history of neglect or abuse	64	5 (8)	7 (11)	1.0 (referent)
Neglect (emotional or physical) only	21	6 (29)	9 (43)	4.14 (1.09-15.66) [*]
Physical abuse (+/- neglect)	25	11 (44)	10 (40)	5.68 (1.55-20.78) ^{**}
Sexual abuse (+/- neglect)	35	7 (20)	8 (23)	2.27 (0.64-8.11)
Physical and sexual abuse (+/- neglect)	28	10 (36)	10 (36)	4.97 (1.23-8.78) [*]

Note. OR = odds ratio

^a Adjusted for PTSD diagnosis.

^b Adjusted for infant nighttime awakenings.

^{*} $p < .05$,

^{**} $p < 0.01$.

Table 3

Prevalence and Odds of Experiencing a Sleep Complaint by PTSD Status

	n (%)	Falling asleep Prevalence (%)	OR (95% CI)	Staying asleep^a Prevalence (%)	OR (95% CI)
No neglect/abuse history, no PTSD	64	5 (8)	1.0 (referent)	7 (11)	1.0 (referent)
Neglect or abuse history, no PTSD	32	6 (19)	2.72 (0.76-9.73)	5 (16)	1.61 (0.47-5.56)
Recovered PTSD	53	15 (28)	4.66 (1.56-13.87)**	18 (34)	4.15 (1.57-10.96)**
Current PTSD	24	13 (54)	13.95 (4.13-47.04)***	14 (58)	11.91 (3.81-37.26)***

Note. OR = odds ratios.

^a Adjusted for infant nighttime awakenings.

** $p < 0.01$.

*** $p < 0.001$.