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# How Postpartum Women with Depressive Symptoms Manage Sleep Disruption and Fatigue

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## Abstract

Postpartum sleep and fatigue have bidirectional relationships with depressive symptoms and challenge women's everyday functioning. The everyday process of managing postpartum sleep and fatigue in the context of depressive symptoms remains unexplored. We conducted a grounded theory study with a sample of 19 women who screened positive on the Postpartum Depression Screening Scale (PDSS™)

Short Form at 3 weeks postpartum. Women completed semi-structured in-home interviews and the full PDSS and Modified Fatigue Symptoms Checklist at 1, 3, and 6 months postpartum. The sample was on average 27 years old, with 2.8 children, and 63% were African-American. They described a basic social process of Finding a Routine Together, during which women's experiences with their infants progressed from Retreating at month 1 toward Finding a New Normal at month 6. In their work to Find a Routine Together, mothers' patterns of change over time were continuous, gradual, or prolonged. Their progress was influenced by depressive symptoms, social support, work and daycare, stability in social circumstances, and underlying stressors. This study's findings suggest the need to allocate resources and tailor interventions to meet the needs of women who are most vulnerable to the health effects of ongoing persistent severe fatigue, disordered sleep, and sub-clinical and clinical levels of depressive symptoms.

The management of sleep and fatigue can be daunting for postpartum women (Kennedy, Gardiner, Gay, & Lee, 2007; Runquist, 2007). Sleep disruption is common in postpartum women due to newborns' irregular patterns of sleeping and feeding and immature circadian rhythms (McGuire, 2013). Sleep disruption is a significant component of postpartum fatigue and compromises daytime functioning and possibly even safety (Coo, Milgrom, & Trinder, 2014; Insana, Williams, & Montgomery-Downs, 2013; Malish, Arastu, & O'Brien, 2016; Piteo et al., 2013). Researchers are beginning to investigate the complex and reciprocal interplay between parents and infants pertaining to the development of infant sleep patterns (Philbrook & Teti, 2016; Posmontier, 2008).

Sleep disruption and fatigue also are common symptoms in persons with major depressive disorder, showing bidirectional relationships with depressive symptoms and with clinical depression (Giallo, Gartland, Woolhouse, & Brown, 2016; Lawson, Murphy, Sloan, Uleryk, & Dalfen, 2015; Piteo et al., 2013; Posmontier, 2008). These symptoms may be resistant to antidepressant treatment and may continue to impair functioning even after clinical depression is treated to remission (Fava et al., 2014; Zajecka, 2013). In postpartum women, interventions to improve maternal mood by improving sleep have had mixed results, in part due to methodological limitations, and most sleep intervention studies have excluded women with a history of major depressive disorder (Doering & Dogan, 2016; Kempler, Sharpe, Miller, & Bartlett, 2015; Lawson et al., 2015).

Researchers are calling for inclusion of underrepresented racial and ethnic groups and diverse socioeconomic contexts in studies of postpartum sleep, fatigue, and depression to improve representation of groups who are more likely to suffer from health disparities (Bhati & Richards, 2015; Goyal, Gay, & Lee, 2010; Goyal, Wang, Shen, Wong, & Palaniappan, 2012; Posmontier, 2008). Although some researchers are beginning to examine postpartum sleep and fatigue in low-income women (Doering & Durfor, 2010; Lee & Gay, 2011; Runquist, 2007) or examine depression symptoms in low-income mothers (Abrams & Curran, 2009), no published reports were found on the everyday experience and management of postpartum sleep and fatigue by low-income women who also have depressive symptoms.

Because more than 10% of postpartum women meet the criteria for major depressive disorder (Hoertel et al., 2015), we argue that women with depressive symptoms may require more personalized

attention by outpatient and home visiting nurses to maximize intervention efficacy and improve health outcomes. This may be especially important in women whose depressive symptoms are sub-clinical and do not meet a threshold to qualify for depression treatment, or for whom rates of detection, evaluation, and treatment are low (Anderson et al., 2006; Goodman & Tyer-Viola, 2010; Kelly, Zatzick, & Anders, 2001; Kim et al., 2010).

Interventions to address the modifiable depression risk factors of sleep disruption and postpartum fatigue may slow or stop the trajectory toward clinical depression (Giallo et al., 2016). A grounded theory research approach can generate theories of complex human health processes and guide intervention development (Reed & Runquist, 2007). The purpose of this study was to generate a grounded theory of the process used by postpartum women with depressive symptoms to manage sleep and fatigue.

## Method

This grounded theory study (Glaser, 1992) was nested within a larger study focused on fatigue and depressive symptoms (Doering, Runquist, Morin, & Stetzer, 2009). Study approval was obtained from the affiliated university institutional review board, and permission was obtained to recruit participants from an inpatient postpartum unit at a major midwestern urban medical center. This medical center reported approximately 2,500 births per year, of which 84% were to families with incomes below the federal poverty level.

## Recruitment

A convenience sample was recruited. Postpartum nurses gave potential participants study brochures, and those interested invited the researcher into their rooms. After screening for eligibility (i.e., 18 years or older, able to converse in English, reachable by telephone and expected to be discharged with the infant), demographic information was collected and contact information was obtained from women who were interested in the study.

At week 3 postpartum, women were screened by phone for depressive symptoms using the Postpartum Depression Screening Scale™ Short Form (PDSS-SF; WPS, 2016). The first 20 women who screened above the cutoff score of 14 or higher) were asked by phone about their willingness to complete a semi-structured qualitative interview in addition to the survey portion of the study.

## Sample

Nineteen women were interviewed at months 1 and 3 and 18 at month 6. One participant was lost to follow-up at month 6 when she could not be reached by phone despite multiple attempts to make contact. The sample was on average 27 years old ( $SD = 6.7$ , range 18–45) with 12 years ( $SD = 2.4$ ) of education and 2.8 children ( $SD = 1.44$ , 1–7). The racial and ethnic make-up was 63% African-American, 37% Non-Hispanic White, and 21% Hispanic. Relationship status was as follows: Married or partnered/co-habiting (79%), single un-partnered (16%), and separated (5%). When asked how “comfortable” they felt about their finances, 10% indicated *very*, 58% reported feeling *somewhat comfortable*, and 32% stated *not at all*. Most (79%) women gave birth vaginally and 22% operatively.

## Data Collection Procedure and Measures

### *Consent and study visits*

The first study visit took place 1 week after the screening phone call, when women were 1 month postpartum. First, consent was obtained. Then a semi-structured interview was conducted. Finally, the surveys were administered after interviews were complete to prevent survey questions from influencing the interview content. This same process (review of consent, interview, surveys) was followed at months 3 and 6, for a total of 3 study visits. Participants' infants were frequently present for interviews (unless sleeping in another room), as were other young children, and interviews were paused and re-started to allow for children's needs. Study visits were primarily conducted in the homes of the participants or their family members, although for one participant, the visit took place in the researcher's car, and another participant was residing in a long-term transitional home.

### *Semi-structured interviews*

Questions were created to guide the interviews. Month 1 focused on learning about patterns of sleep and fatigue since giving birth and how the participant managed challenges with sleep and fatigue. Questions also were asked about stressors in the participant's life, how relationships with family and friends had changed since the birth as well as infant sleep, feeding, and activity patterns. Month 3 and 6 interview questions included questions reflecting on changes in sleep and fatigue since the previous interview, as well as questions about stressors, returning to work, sources of fatigue, and about the process participants used to help the infant develop patterns and routines. All interviews were conducted by the first author who is an experienced qualitative researcher. Field notes were taken after each study visit to capture the context of the interviews. Interviews lasted on average 22, 25, and 20 min for months 1, 3, and 6, respectively. While interviews were shorter than what might be considered typical for a grounded theory study, significant attention was given by the researcher and the institutional review board to the need to minimize participant burden, given this was a study about fatigue in women who were fatigued, sleep-deprived, and experiencing depressive symptoms.

### *Postpartum depression screening scale*

Depressive symptom severity was measured using the PDSS™ (Beck & Gable, 2000, 2001; WPS, 2016). Postpartum depression is major depressive disorder as defined by the *DSM-5* criteria occurring in postpartum women (American Psychiatric Association, 2013). The short form (first 7 questions) was used to screen participants by phone for study eligibility. The long form was administered at the 3 study visits. The 35 questions are summed into a total score ranging from 35 to 175. A score of 60 or higher indicates “significant symptoms” of postpartum depression. A score of 80 or higher is a “positive screen” for postpartum depression, which is the score upon which the tool's sensitivity (94%) and specificity (72%) was established (Beck & Gable, 2000, 2001). PDSS™ cutoffs have been validated in a low-income Black population (Chaudron et al., 2010).

### *Modified fatigue symptoms checklist (MFSC)*

The MFSC is a valid and reliable 30-question tool to measure the severity of fatigue in physical and mental dimensions (Pugh, 1993). Conceptually, fatigue is “an overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work” (North American Nursing Diagnosis Association, 1990, p. 73). Responses (*yes* or *no*) to the MFSC questions are summed to produce a score

from 0 to 30, with a score of 6 or higher indicating “severe” fatigue (Milligan, Parks, Kitman, & Lenz, 1997). The MFSC has adequate psychometrics in low-income postpartum women (Doering et al., 2009).

### Protection of Participants

Women who scored  $\geq 60$  on the PDSS™ were informed of their risk for depression and provided with referral information for mental health, encouraged to inform their primary care provider, and assisted to make an appointment for evaluation as needed. Regardless of PDSS™ score, the depression information brochure was provided to any participant upon request or if they initiated a conversation about mental health with the first author.

Question 7 on the PDSS™ short form assesses risk for suicide. Thoughts of self-harm were documented in 10 of 19 participants at one or more points. Participant who indicated any positive response to having thoughts of self-harm were referred to the MCH Hotline in Wisconsin and to their obstetrical or primary care provider, and the area mobile mental health crisis line was called by the researcher for consultation. The first author conducted all study visits and offered personal assistance with making those calls to ensure the immediate safety of the participant.

### Data Analysis

Interviews were digitally recorded and transcribed verbatim by a transcription service. Transcripts were de-identified and compared to the audio-recordings to ensure accuracy. Seven PhD students participated in the analysis of the data over several semesters, led by the first author. Audio-files were available to the research team members for the purpose of adding more context to the transcripts, because the first author was the only person present for the actual interviews.

Constant comparative analysis was used to prepare raw data and to advance the data analysis systematically from open to selective to theoretical coding (Glaser, 1992). The team compared every unit of data with all other units of data in an iterative manner to generate the codes, categories, concepts, relationships, and eventually, the theory (Glaser, 1978; Glaser & Strauss, 1967).

Transcripts were entered into N-Vivo 9 software. Open codes were generated from transcript analysis, and as the open coding process advanced, selective coding began to take shape as open codes were linked to concepts. Memoing was critical to advancing from selective to theoretical coding, and the diagramming function in N-Vivo was used to show relationships between concepts at each time point and for initial coding across time points.

Analysis was first conducted separately for each time point. Later in the analysis, when the team explored how to integrate the findings across time points to generate the grounded theory, the team noticed that some participants seemed to progress through the process at different rates. Then the team examined the quantitative data for insight into how patterns of change over time in those data might provide insight into the qualitative grouping. Each individual's EPDS and MFSC scores were examined in the context of their qualitative experiences and these data were subjected to constant comparative analysis to reveal three patterns of change over time. This part of the analysis only used complete data (i.e., 18 participants).

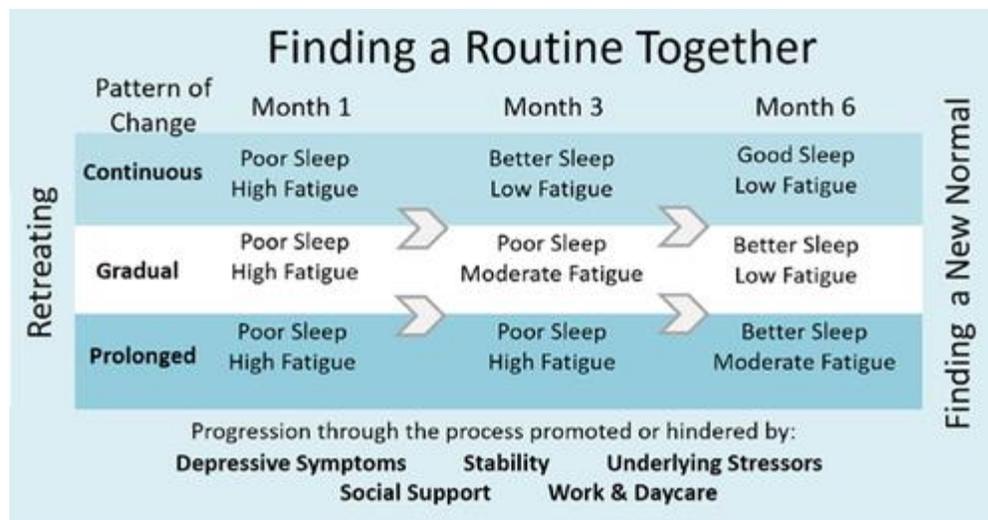
A three-member team worked intensively to move the analysis from the point of theoretical coding to identification of the basic social process and the grounded theory.

Trustworthiness was promoted by the use of field notes, and by strategies including member checks, peer debriefing, having all members involved in data analysis maintain memoing journals, and confirmability audits (Lincoln & Guba, 1985). One form of member checks was conducted by the first author during the interview process, by using the data analysis from month 1 to shape the questions asked in subsequent study visits. A form of peer debriefing involved having a member of the research team who participated early in the analysis process return near the end of the analysis for reflection on the emerging grounded theory. Confirmability audits were conducted by graduate students who verified the completeness and accuracy of data analysis conducted by the prior graduate student. Questions about quality and adequacy of the data analysis were brought to the first author for discussion and resolution with the research team. Descriptive statistics were used to characterize sample demographics and survey scores.

## Results

### Basic Social Process

“Finding a Routine Together” was the basic social process that explained how low-income postpartum women with depressive symptoms managed their sleep and fatigue over time (Fig. 1). The concepts anchoring the process were “Retreating” at month 1 and “Finding a New Normal” at month 6.



**Figure 1** Grounded theory of finding a routine together.

At month 1, participants uniformly depicted a time that lacked routines and patterns and was generally exhausting and chaotic:

I've got to try and get everybody bathed, homework done, lunches packed, you know, it's just...exhausting...'cause it's like I have to remember everything.

In the first postpartum weeks, Retreating was the primary means for managing sleep and fatigue while simultaneously integrating a newborn into home and family routines. Retreating usually involved withdrawing or isolating oneself from friends and family, as indicated by the following two participants.

Me being tired with my immediate family, I usually just keep my distance because if you take an attitude out on them they're not gonna be so forgiving.

One time I be this bubbly happy person and then the next day I'm grumpy and bad attitude.... I feel anti-social. Sometimes I be in my room and I just kind of feel like, I feel sad, but I don't know why I feel that way. Sometimes I'm crying.

Over time, women engaged in the process of Finding a Routine Together, moving from Retreating toward Establishing the New Normal, when they reported the infant had established a routine that was predictable enough for participants to be able to plan and carry out their everyday activities without being excessively fatigued.

And I feel wonderful in the morning, because she really slept all night, it give me enough time to do what I have to do, you know. Especially when I'm behind in my work.

### Strategies to Promote Finding a Routine Together

During the first weeks, the mothers engaged in a variety of strategies to encourage the infant to establish a routine, with varying degrees of success. Between months 1 and 3, most women reported their infants remained "mixed up," by which they meant that the longest period of sleep was during the day rather than the night. This meant that women would be awake for several hours in the night most nights of the week, which contributed to poor sleep and high fatigue.

Their nights and days is mixed up. They don't know when to go to sleep and when to stay awake, so it's like when they tired, you're not tired. But it's when they woke, that's when you be tired and it's like you can't stay woke while they woke, you know. That's how I am with my baby (month 1).

I'm really not getting none now. It seem like you think that...you would get more sleep now that he getting older, I'm getting less, less sleep. And it's like he still got his nights and days kind of mixed up, he don't sleep at all very well (same woman at month 3).

The distress of being up for large parts of each night was amplified in women who had older children to care for during the day, because the demands of these women's families essentially required them to be awake 24 hours a day.

But [infant] would sleep all day and then stay up all night. She wake up at night 1:00 in the morning till 6:00 in the morning and then she will finally go to sleep. Like she did last night. And I get no sleep. I was so tired. It's like I was watching her. I wanted to go to sleep, but I just couldn't. I keep feeling like tired ... I'm not ... my body feels like I don't want to do nothing, because I be so tired, but I can't go to sleep, because I always got to attend her [infant] if she whine or something and he [3 year old] keep me up too and it's just I be really, really tired, though.

Modifications to feeding and sleep were the primary areas targeted to encourage the infant into a more regular schedule. One strategy women was to keep the infant awake during the day through play. Other activities helped to establish a routine that would eventually improve concordance between maternal and infant sleep.

I want [infant] to be up when I'm up so usually if I'm doing something I be wanting him up.

Building upon this strategy, women would ask for the support of family members caring for the infant to keep the infant up during the day. Women also introduced specific strategies into their routines that ultimately signaled to the infant that bedtime was near. These strategies were seen as a way to soothe and quiet the infant.

Like make sure that, you know, you always take them a bath, a nice bottle. You know, play with them, you know, until they fall out. You know, until the baby fall out ... play with her and all this and that.

Finally, being able to recognize and pay attention to an infant's unique patterns, preferences and dislikes assisted in Finding a Routine Together.

But now I found out that the ways that he likes to be ... he goes to sleep faster, then quiets down.

### Change Over Time in Depression and Fatigue Scores

All women at month 1 reported clinically significant depressive symptoms. By month 3, depressive symptoms began easing for some women based on quantitative measures, and differences began to emerge qualitatively. Mean PDSS™ scores were highest at month 1 and declined over time but still remained in the referral range at 6 months (Table 1). The percentages of the sample reporting symptoms in the highest category ( $\geq 80$ ) were 84%, 58%, and 33% at months 1, 3, and 6, respectively. The percentages who reported significant symptoms (i.e., score 60–79) were 16%, 16%, and 11% at months 1, 3, and 6, respectively. No one scored as without significant symptoms ( $< 60$ ) at month 1, but 26% did so at month 3 and 56% at month 6. Mean fatigue scores (MFSC) followed a similar trajectory. Fatigue was highest at month 1 and decreased rapidly to a low at month 6, but 63% was persistently and severely fatigued at both 1 and 3 months as indicated by a MFSC score of  $\geq 6$ .

Table 1. Mean Depressive Symptoms and Fatigue Scores at 1, 3, and 6 Months Postpartum ( $N = 19$ )

	Month 1		Month 3		Month 6	
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
PDSS™ total score	106 (28.0)	67–169	86 (34.0)	38–149	70 (33.0)	37–138
MFSC total score	18 (6.3)	9–28	11 (7.8)	0–26	8 (7.3)	0–21

- *Note* . *SD* , standard deviation; PDSS, Postpartum Depression Screening Scale™; MFSC, Modified Fatigue Symptoms Checklist.

### Patterns of Change Within Finding a Routine Together

The Finding a Routine Together process took several months. Some women moved quickly through the process, others moved more slowly, and a few at month 6 had not yet found the New Normal they were seeking. Five factors promoted or hindered women's advancement through the process: depressive symptoms, social support, work and daycare, stability in social circumstances, and underlying stressors.

#### *Continuous pattern of change*

Slightly more than half of the sample (10 of 18) showed a pattern of continuous and steady improvement. This group's sleep and fatigue improved rapidly from months 1 to 3. By month 6, these

women reported good sleep and low fatigue, as depicted at month 3 from one woman who had a 3-year-old with type 1 diabetes as well as a 3-month old.

And I have to make sure things are, you know, taken care of. I have three, four blood checks during the day, the baby needs to eat breakfast, lunch – lunch, and dinner. She knows when it's breakfast, lunch, and dinner. She wants to be fed before I eat. I just – um, my routines are mostly a need. I can't really skip anything I do during the day or else, just medical things bad will happen.

At month 6, this group of women no longer attributed fatigue or sleep difficulties to the infant but instead to work schedules or social schedules.

Social support was the strongest factor contributing to the reduction of fatigue in women who continuously improved. A majority of the women stated that the father, paternal or maternal grandmother, siblings, or other extended family members continued over time to help caring for the infant and gave participants time to sleep. Women reported their infants slept approximately 8 to 10 hours per night by 3 months postpartum, and the infants either slept through the night or had little difficulty falling back to sleep.

I get plenty of sleep now. She sleep, often I, I give her a little cereal now so she sleep all through the night. When she wake up right now I give her a bottle, when I give it at 9:00 or 2:00, she will sleep 'til like 7:00, it be time for her to get up anyway.

This pattern was distinguished by women's rapid use of several strategies to effect a change when infants were not sleeping well, including seeking out help, asking for advice, changing the infant's diet (e.g., introducing a “cereal bottle”), or drinking caffeinated drinks.

The girls are old enough now that they just watch her, she plays for about an hour and then they just come and get me so I can just shut my eyes for a half hour.

This group of women shared the same types of stressors as women in the other patterns (e.g., money, time, adjusting to a newborn, and some had family issues), but they typically only reported one or two stressors rather than several, so their lives seemed more stable on a daily basis. Finding a Routine Together was easiest for this group.

A key factor these women described was returning to work, because this necessitated that they establish a routine with the infant to facilitate their transition back to work. There was a sense of urgency that the infant needed to learn the family's routine and share this daily routine with enough concordance that the mother could get sufficient sleep and be functional enough to return to work, as indicated by this mother of seven children.

But now my kids, I had to talk to them seriously, like, okay, this is what I'm gonna be doing. I'm gonna be working ten hours a day. I need for you, when I come home, you know, try to cook for me, try to have my house clean.

#### *Gradual pattern of change*

This group ( $n = 4$ ) was still reporting poor sleep at month 3. Their fatigue was improving, but not as quickly as for women in the continuous pattern. By month 6, sleep and fatigue were reported to be

much improved, and almost paralleled the sleep and fatigue of the continuous-pattern participants. Getting to a New Normal from month 3 to 6 was more difficult for the women in the gradual pattern, but eventually they did achieve it. Stressors were still present, but sleep played an important role in helping them handle stressors without being overwhelmed.

A mother of a 2-year-old and infant whose partner worked third shift reported sleeping only 30 min at a time for several consecutive months. She had suicidal thoughts until a public health nurse provided her with a play yard and instruction for transitioning her baby into a separate sleep environment.

I think most of my stress was that I wasn't getting enough sleep so that would make you feel like crap. So it's like now that everything is like going on the even pace it's like I really don't have stressors. I'm not stressing like I used to.

At month 3, women in the gradual pattern reported moderate fatigue. They had indicated they had a good support system in place at month 1, with immediate or extended family members or friends available to call on when needed. While this support helped with reestablishing a routine, some women experienced mixed results when a caregiver did not carry out infant care according to the mother's intentions.

So he just started on this routine (right before month 6). It's kind of hard though because besides my fiancé, like nobody else will stick to his schedule and it's irritating.

While women in the gradual pattern reported working to recognize infant behaviors and cues that would suggest the infant was establishing a routine, they did not describe actively trying to establish a routine within the first month. In contrast to women in the continuous pattern, who were more persistent at trying various strategies to nudge the infant's behavior into a routine, actions of women in the gradual pattern more often revolved around recognition of what the infant was doing naturally without the mother's deliberate action,: “He [infant] did it on his own. I didn't know how to get him in a routine anyway.”

#### *Prolonged pattern of change*

Severe fatigue and poor sleep persisted through month 3 for women in the prolonged pattern ( $n = 4$ ), unlike women in the gradual pattern, who reported at least some improvement in fatigue, if not sleep. By month 6, sleep was getting better for these women, but they reported their fatigue was only slightly improved over month 3 levels.

Women in the prolonged pattern indicated more difficulty than women in other patterns in establishing an infant routine. In their month 1 interviews, they seemed to use more negative language when describing their infants and their lives. Examples of adjectives used commonly by this group included “Angry,” “Body shut down,” “Resent baby,” “Beat/Exhausted,” “Overwhelmed,” and “Can't think straight.” This group of women clearly struggled with the most severe and prolonged depressive symptoms.

Yeah ... and then I have to hold her and sit up with her all night ... I think I hate her.

I don't feel angry towards her but it's almost like an anxious feeling, like I'm so tired and my mind's racing to take care of her and figure out why is she crying at 9:00 at night when she should be resting. It's almost kind of sad, I feel kind of sad.

When asked: "Tell me about how you managed, going back to work/school with a young baby and other children?" women in the prolonged pattern struggled to answer the question. Throughout the study period, these women indicated having little help or support and felt alone.

You know, I keep it inside. I know that is not good, but I don't have nobody like, you know, to talk to like that, you know, like we're talking now.

I feel like I'm stretched a lot more. I don't have time for – to get everything done. When I'm surrounded by kids all day, I feel lonelier.

By month 3 some did begin to say that support was better, but for others, the lack of support was noted again.

A defining characteristic of this group of women was the use of self-talk as a primary management strategy, rather than strategies that would change infant behavior. In their self-talk, women coped by telling themselves that life would get better in the future.

He's in his own little world. I know it will get better after a while.

You know what I think? You're going to be tired until she turn one ... it will get better.

I try to do—I don't know. I try to push myself harder to do things that needs to be done for me and my family, so I don't know. I push myself harder. At first I wasn't, but now I expect to just get out there and just do what I need to do.

Absence of strategies to help the infant establish a routine was another defining characteristic. These women ascribed more control to their infants and less control to themselves as mothers than did women in other patterns.

I'm still working on that [the routine]. The majority of the time I let her do her thing because I just ... I guess I don't feel like being bothered, I just let her do it her way.

The infants of several prolonged pattern participants also had difficulty with acid reflux: "She's been on rice cereal ever since she was three weeks old because of the acid reflux." Home life and family situations also were notably more unstable in this pattern. Women did not necessarily have enough stability on a daily basis to begin to work on establishing a routine.

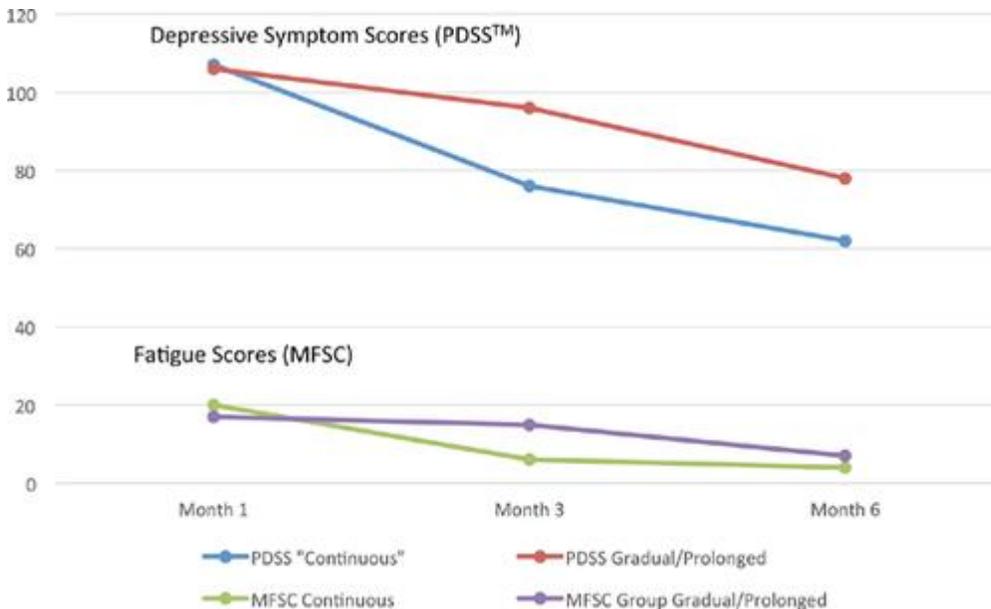
Prolonged pattern participants were most challenged to progress through the process of Finding a Routine Together and reported being unable to consistently make time to do this work. At month 6, they reported still having a long way to go to establish an infant routine and achieve a sense that their lives had settled into the New Normal.

The day I went to the mall, I just, I walked around, I went in the bookstore and I looked through a few books, I bought me some. I just took out some time for myself, 'cause that hadn't happened in almost a year. It was like I didn't exist. A lot of days I don't feel like being bothered.

And I don't think that's good, because there was a time when I wanted to be around my family. 'Cause like Thanksgiving, I, I practically stayed at home all day. And my daughter's like, mama, I wanna go somewhere. But I just didn't, I didn't feel like it.

### Patterns of Change Reflected in Depression and Fatigue Scores

Participants in the continuous pattern ( $n = 10$ ) seemed distinctly different from participants in the gradual ( $n = 4$ ) and prolonged ( $n = 4$ ) patterns. Given the fairly even split between those in the continuous pattern and those who could be grouped into the gradual/prolonged patterns, the PDSS™ and MFSC scores were examined in these two groups (Fig. 2).



**Figure 2** Mean depressive symptom and fatigue scores grouped by pattern of change over time. Women in the gradual and prolonged patterns were combined into a single group for comparison with women in the continuous pattern. PDSS, Postpartum Depression Screening Scale™; MFSC, Modified Fatigue Symptoms Checklist.

Mean PDSS™ scores in the two groups were initially similar, but the mean PDSS™ scores in the continuous group declined more quickly from months 1 to 3 and decreased further from months 3 to 6. Although mean MFSC scores started off relatively similar at month 1, the groups had separated at month 3, with the gradual/prolonged group having higher fatigue levels. From months 3 to 6, the fatigue scores of both continuous and gradual/prolonged women continued to decline, albeit not as sharply as did their PDSS™ scores.

### Discussion

The three patterns found in this grounded theory help to explain differences in the experience of the basic social process of Finding a Routine Together for lower-income urban postpartum women who were experiencing depressive symptoms. At month 1, all women reported having poor sleep and high fatigue, and the quantitative findings reinforced the qualitative finding. However, by month three, there was a noticeable split in the pattern of improvement. Half the sample, women in the continuous

pattern of change, rapidly progressed through the process of Finding a Routine Together from months 1 to 6 and achieved a New Normal. Women in the gradual pattern also achieved the New Normal, albeit more slowly, and women in the prolonged pattern had not yet found a routine or the New Normal by month 6. Efforts of women in the prolonged pattern toward Finding a Routine Together were impeded by persistent severe fatigue, poor sleep, and depressive symptoms.

The underlying factors of social support, stability, work and daycare, daily stressors, and depressive symptoms promoted or hindered progression through the process. Whereas women with lower depressive symptoms used several strategies to manage sleep and fatigue challenges for themselves and their infants, women with high depressive symptoms seemed more reliant on self-talk as the strategy to manage the same challenges.

Watling, Pawlik, Scott, Booth, and Short (2016) described a negative cascade when there are ongoing disruptions of both sleep and mood that could lead to more persistent sleep problems and psychopathology, particularly for women who struggled with sleep quality and quantity and fatigue across the 6-month study period. Such a cascade may reflect the long-term experience of the women in the prolonged pattern. Others (Giallo et al., 2016; Piteo et al., 2013; Posmontier, 2008) have suggested the need to promote early clinical identification of women with sub-clinical depressive symptoms who are at high risk for following a trajectory leading to clinical depression, which was also supported by our data.

When women with high depressive symptoms are identified, nurses have an opportunity to help this group of women recognize their infants' cues and identify strategies to help infants sleep better, especially in infants who remain "mixed up" on their day/night patterns for several months. Women who experience persistent postpartum difficulties with sleep and mood may need to be identified sooner rather than later, to disrupt a progression to more serious and chronic sleep problems and psychopathology. Nurses in outpatient, home visiting, and public health settings may be ideally placed to help identify women at risk for long-term health challenges and can provide referral and assistance to navigate the health care system to access needed care, both for women's own sleep and mental health and for infant sleep problems.

Tikotzky (2016) identified that the most sleep-deprived mothers reported more negative perceptions of the mother-infant relationship. We found similarly that women in the prolonged pattern referred to their infants more negatively. Dennis and Ross (2005) also noted strong associations among infant sleep patterns, maternal mood and fatigue, and infant fussiness. Sharkey, Iko, Machan, Thompson-Westra, and Pearlstein (2016) reported that infant sleep and feeding patterns were associated with maternal sleep, stress, and depressed mood in women with a history of major depressive disorder, which reinforces our perception that interventions must address both maternal and infant sleep to be most effective. This notion is reinforced by the finding that women in the prolonged group reported their babies suffered from reflux at what seemed like an unusually high rate compared to women in the other groups. Perhaps fussiness attributed to infant reflux is another indicator of women and infants at higher risk than others for developing longer-term health difficulties.

Interventions are especially needed to target this high-risk group to prevent the development of sleep disorders and psychopathology in women and disordered sleep in infants. Interventions to treat sleep

disturbance and fatigue, either as an adjunct to depression treatment or to treat residual symptoms after a depressive episode is treated to remission, hold potential for improving health outcomes of both women and infants (Romera et al., 2014). Given the complexities of addressing sleep and fatigue in postpartum women with both depressive symptoms and lower income, we suggest that researchers approach intervention development in a manner that takes into account how the context of poverty or pre-existing psychiatric symptoms can change (e.g., mediate or moderate) how women respond to an intervention.

## Strengths and Limitations

Interviewing over a 6-month period was a strength of this study that allowed us to unearth differences in improvement of sleep and fatigue that would have remained hidden had we completed only a single interview. Achieving data saturation sufficient to establish the basic social process was a strength of this study. However, a larger sample of women in the gradual and prolonged patterns might shed light on how best to identify those women who struggled most with achieving concordance between their own and their infant's sleep patterns. Future work is recommended to further delineate the characteristics of women who are at highest risk for progressing more slowly toward establishing an infant routine, to aid in identifying the women who most need ongoing nursing care.

## Conclusion

A basic social process of Finding a Routine Together allowed women in this study with initially significant depressive symptoms to manage their postpartum sleep and fatigue challenges. Although social support is important for managing postpartum sleep and fatigue in order to work on establishing an infant routine, several other important factors (e.g., instability/stability in daily life, ongoing daily stressors) promote or hinder progression through the process. Nurses can help women and their families with the process of fully integrating an infant into the family's life. Identifying corollaries and eventually predictors of a prolonged trajectory toward a New Normal may help nurses tailor resources and interventions to groups of women who are most vulnerable to the development of chronic depression and disordered sleep and their adverse effects on infants, women, and families.

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