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Postpartum health of working mothers: A prospective study

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Abstract

Introduction: Most working women experience poor physical and mental health during their postpartum period. This prospective study aimed to describe the physical and mental health issues faced by working mothers during their postpartum period.

Methods: Respondents were recruited using the proportional sampling method among mothers who attended the Maternal and Child Health Clinic in the Kuching division in Sarawak, Malaysia. Face-to-face interview was conducted using a questionnaire that consisted of items on socio-demographic data as well as perinatal, prenatal and postpartum factors, and the Edinburgh Postnatal Depression Scale and a checklist of 28 specific postpartum symptoms were used during the first 6 weeks and after 12 weeks of childbirth.

Results: A total of 281 respondents participated in this study. Fatigue (42.7%), back or neck pain (36.3%), breast discomfort (16.4%), dizziness (13.5%) and nipple irritation (11.0%) were among the most common symptoms experienced by the mothers during the first 6 weeks after childbirth. There was a significant decrease in the physical symptom scores of the respondents from the first 6 weeks to after 12 weeks of childbirth (1.73±1.96 vs 0.16±0.42; P<0.0005). A significant decrease was also found in the depression scores (6.26±4.26 vs 1.35±1.85, P<0.0005).

Conclusion: The prevalence of postnatal depression was higher during the first 6 weeks of postpartum than after 12 weeks of postpartum. Screening and treatment of poor postpartum mental health among working women are essential owing to the impacts on occupational outcomes.

Introduction

Since most working women resume to the workforce within their initial year of postpartum, a concern rises as women are more likely to develop depressive symptoms during the first year of childbirth than during any other time of their life.[1] The growing participation of women in the labour force has forced employers to start looking after the psychological well-being of working mothers since mental health problems can be costly to employers in terms of higher absenteeism rates, lower productivity and profits and increased costs of medical treatment. Although postpartum issues by definition refer to mother-related issues after the birth of the baby up to 6 weeks (42 days),[2] maternal health conditions can occur beyond the time stipulated. Thus, some studies have recommended that the postpartum period should cover both the physical and mental recovery beyond the 6-week duration.[3] This is supported by the report by Woolhouse et al.[4] that poor physical health during the early postpartum period was associated with poorer mental health throughout the first 12 months of postpartum.

After childbirth, some women will undergo stages of rapid changes that affect their physical health, ranging from medical conditions, such as postpartum haemorrhage, uterine inversion, amniotic fluid embolism and eclampsia, to haemodynamic, genitourinary, metabolism and emotional problems after delivery up to 2–6 weeks of postpartum.[5] Restoration of the muscle tone, connective tissues and even the genitourinary system to the pre-pregnant state will take a longer time, thus making recovery from childbirth challenging.[5]

The physical health problems experienced by some women during the first 6 weeks of postpartum may lead to episodes of depression[6] and vice versa, as depression may lead to or exacerbate the delay in recovery from physical health problems owing to certain factors, including delays in help-seeking, incompliance to treatment and poor behaviour towards health.[7] Thus, it is vital to recognise physical health problems earlier so that effective measures can be taken to address them and consequently improve the mental well-being of childbearing mothers. Therefore, this study

aimed to evaluate the physical and mental health problems faced by women during their postpartum period – within the first 6 weeks and after 12 weeks of childbirth. The findings are expected to provide insights into the trend or background of the postpartum health of working mothers from Sarawak, the largest state of Malaysia with the most diverse socio-cultural background.

Methods

This prospective study was conducted among working mothers after childbirth in the Kuching division in Sarawak, Malaysia. Kuching is classified as the administrative division in Sarawak with the most populated area including 705,546 residents.[8] Working mothers are operationally defined as women who have a full-time job outside the home in addition to taking care of their family. In this study, working mothers who attended the Maternal and Child Health Clinic (MCHC), operated under the Ministry of Health Malaysia, were invited to participate.

The sample size was calculated using the PS software developed by Dupont and Plumme.[9] Based on the prevalence of postpartum depression of 3.5% in the study by Klainin and Arthur[10] and 14.3% in the study by Yusuff et al.,[11] the minimum total sample size needed was 280 women, with an attrition rate of 30%.

Respondents were recruited using the proportional sampling method. All working mothers who attended the MCHC for postnatal follow-up for a minimum of 6 months, were on maternity leave and resumed their work after a given leave of absence by their employers were included. Mothers with severe childbirth outcomes such as severe postpartum haemorrhage, uterine rupture, hypertensive disorders requiring prolonged hospitalisation (>2 weeks) and admission to the intensive care unit, severe obstetric conditions and pre-existing psychiatric illness diagnosed before pregnancy were excluded.

Initial recruitment was performed among the mothers eligible for participation in the study at the first 6 weeks after delivery in the respective clinics. Under the mothers' consent, they were presented with a data collection instrument, which consisted of items on socio-demographic data; perinatal, prenatal and postpartum factors and employment characteristics.

For the mothers selected to participate in this study, they must sign a written commitment in the follow-up of the subsequent screening. The initial recruitment was performed among 288 working mothers from August to December 2017. In this process, the mothers were required to answer the Edinburgh Postnatal Depression Scale (EPDS) and a checklist of 28 specific postpartum symptoms. The subsequent follow-up involved 281 mothers, with a dropout rate of 2.43% owing to refusal towards participation.

Three sets of data instrument were used in this study. The first set consisted of items on socio-demographic data (i.e. age, ethnicity, marital status, parity and monthly family income), prenatal factors (i.e. chronic health problems, preconception health and mood disturbances), postpartum factors (i.e. delivery complications, caesarean delivery, infant girl, breastfeeding and elapsed time after childbirth) and employment characteristics (i.e. employment status, occupational sector classification, job satisfaction and supervisor support).

The second set of data instrument was the EPDS. The EPDS is a 10-item questionnaire designed specifically to measure postnatal depression, which has been extensively used among mothers after childbirth worldwide.[12] Each item is rated on a 4-point scale (0 to 3), with a total score ranging from 0 to 30. The Malay version of the instrument was adopted from Azidah et al.[13] According to the recommendation of Azidah et al.,[13] the mothers who achieved a score of 12 or higher in the EPDS were categorised as having depressive symptoms.

The third set of data instrument was the 28-item postpartum symptom checklist, which was adopted from Gjerdingen et al.[14] and McGovern et al.[15] The checklist classifies symptoms based on six main categories, namely neurologic symptoms, gynaecologic and breast symptoms, cardiovascular and respiratory symptoms, skin and hair problems, gastrointestinal symptoms and general symptoms such as fatigue, fever and back or neck pain. Respondents are required to answer with either a 'YES' or 'NO' towards each symptom as a response to each item in the postpartum checklist.

A pre-test of the questionnaire was conducted among 30 respondents in one of the clinics under the sampling frame. This clinic was excluded from the main survey. The reliability

testing showed a Cronbach's alpha of 0.850, acceptable for an exploratory study as recommended by Garson.[16]

The respondents were approached after their postnatal check-up or child immunisations. They were briefed regarding the purposes of the study and the questionnaires used. Ethical approval was obtained from the Medical Research and Ethics Committee of the Ministry of Health Malaysia (NMRR-17-743-35240IIR) and Medical Ethics Committee of Universiti Malaysia Sarawak (UNIMAS/NC-21.02/03-02 Jld 2 [72]).

All data were entered and analysed using IBM SPSS version 21.0. A univariate analysis was used to answer the research questions, and P<0.05 was used as the cut-off value for significance.

Results

Table 1 shows the socio-demographic characteristics and health profiles of the respondents. Of the 281 respondents, more than 40% were from the Sarawak indigenous group, had their highest education up to secondary school and were working for the government. The mean monthly household income was RM 4735.5 (SD 3957.78 or USD 1138). The respondents had a parity of 1 or 2. Only a small number of respondents reported to be smoking, had chronic health problems and had delivery complications. More than 95% breastfed their children.

Table 1. Socio-demographic characteristics and health profiles of the respondents (N=281).

	n (%)	Mean (standard deviation)
Age (year)		30.02 (4.82)
Ethnicity		
Sarawak indigenous	120 (42.7)	
Malay	107 (38.1)	
Chinese	46 (16.4)	
Others (Sabah indigenous)	8 (2.8)	
Educational level		
Primary to secondary	120 (42.7)	
Tertiary	161 (57.3)	
Occupation		
Government employee	123 (43.8)	
Private sector employee	130 (46.3)	
Self-employed	28 (10.0)	
Working status (on maternity leave)		
1st interview	279 (99.3)	
2nd interview	11 (3.9)	
Total monthly household income (RM)		4735.5 (3957.78)
Parity		1.9 (0.88)
Smoking	2 (0.7)	
Chronic health problem	3 (1.1)	
Delivery complication	3 (1.1)	
Caesarean delivery	83 (29.5)	
Breastfeeding	273 (97.2)	
Perceived prenatal control		
None/minimal	76 (27.1)	
Great/complete	205 (72.9)	
Self-perceived prenatal health status		
Poor/fair	1 (0.4)	
Good/substantially good/excellent	205 (99.6)	
Self-rated prenatal mood disturbance (depressed/anxious)	26 (9.3)	

Among the physical symptoms reported, fatigue (42.7%), back or neck pain (36.3%), breast discomfort (16.4%), dizziness (13.5%) and nipple irritation (11.0%) were among the most common symptoms experienced by the mothers during the first 6 weeks after childbirth. Subsequently, the physical symptoms gradually resolved over time, which contributed to a fewer number of cases reported from 12 to 27 weeks than during the first 6 weeks after delivery. Table 2 details the physical symptoms experienced by the working mothers after childbirth.

Table 2. Physical symptoms experienced during the first 6 weeks and after 12 weeks of childbirth (N=281).

	n (%)	
	First 6 weeks	After 12 weeks
General		
Fatigue	120 (42.7)	26 (9.3)
Back or neck pain	102 (36.3)	9 (3.2)
Fever (>37.8°C)	4 (4.14)	-
Neurologic		
Headache	15 (5.3)	
Hand numbness or tingling	17 (6.0)	
Gynaecologic and breast		
Decreased desire for sex	22 (7.8)	
Nipple irritation	31 (11.0)	1 (0.4)
Breast irritation (mastitis)		1 (0.4)
Uterine infection	2 (0.7)	
Cardiovascular		
High blood pressure	1 (0.4)	-
Irregular heartbeat		
Respiratory		
Runny or stuffy nose	6 (2.1)	
Sore throat, cough or cold	7 (2.5)	
Sinus problems	1 (0.4)	
Skin and hair		
Acne	8 (2.8)	
Hair loss	24 (8.5)	3 (1.1)
Excessive sweating	15 (5.3)	
Rash	6 (2.1)	1 (0.4)
Gastrointestinal		
Constipation	19 (6.8)	
Abdominal pain	1 (0.4)	1 (0.4)
Haemorrhoids	1 (0.4)	1 (0.4)
Decreased appetite	1 (0.4)	1 (0.4)
Diarrhoea	1 (0.4)	1 (0.4)
Physical symptom score	Mean (standard deviation)	
	1.73 (1.98)	0.16 (0.41)
	95% confidence interval of the difference (1.352, 1.081), P<0.001	

In the comparison of the physical symptom score between the first 6 weeks and after 12 weeks, a significant decrease was found in the physical symptom score of the working mothers from the first 6 weeks [mean (standard deviation {SD})=1.73 (1.96)] to after 12 weeks of childbirth [mean (SD)=0.16 (0.42)] (t [280]=28.10, P<0.0005; **Table 3**).

Table 3. Postnatal depression during the first 6 weeks and after 12 weeks of childbirth (N=281).

	First 6 weeks	After 12 weeks	P-value
EPDS score, n (%)			b
<12	238 (84.70)	280 (99.64)	
≥12	43 (15.30)	1 (0.36)	
EPDS score, mean (standard deviation)	6.26 (4.26)	1.35 (1.85)	0.000

EPDS, Edinburgh Postnatal Depression Scale; [b] insufficient cell count for analysis.

In terms of the symptoms of postnatal depression, a significant decrease was found in the postnatal depression score among the working mothers from the first 6 weeks [mean (SD)=6.26 (4.26)] to after 12 weeks of childbirth [mean (SD)=1.35, (1.85)] [t (280)=28.10, P<0.0005 (two-tailed)]. The mean decrease in the postnatal depression score amounted to 4.904, with a confidence interval ranging from 4.56 to 5.25 (**Table 3**).

Discussion

In this prospective study of working mothers after delivery, the highest number of symptoms was recorded within the first 6 weeks after childbirth, with fatigue identified as the most common symptom, followed by back or neck pain. Overall, these findings are consistent with those of a previous study conducted at a different location,[17] in which the aforementioned symptoms were identified as the most common symptoms despite a notable decrease in the number of respondents with these symptoms. Meanwhile, most other symptoms were resolved in the second interview, which was conducted 12 weeks after delivery. Notably, these findings are common considering similar findings shown in other studies, which recorded similar common symptoms during the first few weeks after delivery among mothers.[4] Despite the decrease in the trend of fatigue, a substantial proportion of mothers still experienced this symptom after 12 weeks of delivery. In this study, fatigue was experienced by 42.7% of the mothers in the first 6 weeks after delivery. Although the trend of this symptom decreased, 9.3% still experienced fatigue at a later point after postpartum. These findings are generally in agreement with previous reports.[18]

The fatigue and physical exhaustion experienced by the mothers after childbirth in the present study were attributed to several possible factors, specifically childbirth and changing roles. These factors were typically associated with disrupted sleep, as the mothers' babies frequently woke up in the middle of the night, and the mothers were faced with difficulties in settling their babies and night-time feeding. Doering et al.[19] found that although the efficiency of maternal sleep was the lowest during the first few days after delivery, it improved as the baby's sleep pattern shifted to nocturnal hours. This situation is a possible reason for the reduced symptoms of fatigue over time.

Herein, 9.3% of the mothers still experienced fatigue after 12 weeks of childbirth. This finding could be explained by a previous report that the melatonin of physically exhausted mothers is transmitted to the infant through breastmilk. This phenomenon would delay the development of mature sleep cycles, possibly prolonging sleep disruption in the postpartum period.[20] These findings indicate that the complaints regarding fatigue among the mothers in the second interview, which was conducted at least 3 months after postpartum, were attributed to prolonged sleep deprivation and the job commitment to be fulfilled. Most mothers returned to work during the second interview: 96.1% of the mothers returned to their job, while 3.9% were still on maternity leave.

In a previous study conducted in the Netherlands, 24.5% of mothers were found to experience fatigue at 12 weeks of postpartum, while 18.1% complained of fatigue at 52 weeks of postpartum.[21] In another study conducted on working mothers after childbirth in Minnesota, it was found that 43% of working mothers reported fatigue at 11 weeks of postpartum; this percentage increased to 64% of mothers at 5 weeks of postpartum.[3] However, the prevalence of fatigue in the present study is slightly lower than the prevalence reported in the two previous studies during the corresponding time frame. Therefore, it can be concluded that the variation in the prevalence of fatigue among working mothers after childbirth is influenced by other factors, including culture, the support obtained from their surroundings, educational level of their spouse and sleep problems. Nevertheless, a previous study reported that the prevalence of postpartum fatigue at 12 and 52 weeks was 24.5% and 18.1% respectively, was associated with the working environment of mothers.[21] In this case, intervention by the working environment of mothers is necessary, in which employers and colleagues could initiate some actions to alleviate the symptoms of postpartum fatigue.

During the first 6 weeks after delivery, 15.3% of the working mothers had scores of ≥12, indicating that they were at a possible risk of developing postnatal depression. Nevertheless, the prevalence of depressive symptoms is notably lower herein than in other studies.[22,23] Postnatal depression is one of the most common factors of maternal distress, making it a significant area of concern in public health. This type of depression affects not only the mother but also the child and her family.[24] Furthermore, there is an increase in the physical and emotional demands among women in the postnatal period, and the debility associated with depression may impair the capacity of women to take care of themselves, provide for their family and maintain productivity in their organisations. However, in the subsequent follow-up visits in the present study, the percentage of working mothers with scores of ≥12 was reduced to 0.4%. This low prevalence of postnatal depression may be attributed to the fact that most respondents eventually returned

to their work during the second interview. It is possible that the working environment plays a protective role in reducing the risk of postnatal depression. Further exploration focusing on the working environment among mothers should be performed to gain deeper insights into the role of employment in improving the quality of life.

This study has a few limitations. As antenatal depression could be a predisposing risk factor of postnatal depression, depression should be ideally screened during the antenatal period among mothers to exclude those with signs of depression. However, there would be some inconsistency in using the same screening tool to screen antenatal depression, as the EPDS is typically used to assess the severity of depression during pregnancy and postpartum. Such concerns should be addressed in future studies. The postpartum period could be viewed as a transitional stage in mothers' postnatal phase. Within the first 12 weeks after giving birth, physical symptoms lessen at varied rates, with the majority of them significantly or completely disappearing by the end of that time. It can be suggested that the postpartum periods for working women should be evaluated at two extremes. Since depressive symptoms might change over time, it is possible to suggest multiple somewhat different findings by evaluating the symptoms and severity of depression within the time interval. This information is crucial in gaining an understanding of the factors contributing to postnatal depression among mothers.

Conclusion

The prevalence of postnatal depression was higher during the first 6 weeks of postpartum than after 12 weeks of postpartum. Although physical symptoms are reduced over time, it would be a notable opportunity for health professionals to screen such symptoms early and initiate an early intervention.

As the majority of women in their childbearing age in Malaysia are working outside the home, screening and treatment of postpartum mental health problems are essential owing to the impacts on occupational outcomes that affect a company's workforce and labour productivity. A supportive working environment helps to optimise loyalty, retention and trust among employees. A mandatory incorporation of screening of postnatal depression and physical symptoms into postnatal follow-up could benefit working mothers' well-being and promote a more productive life between work and family.

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Author contributions

ME, CWL and HH designed the study. ME acquired the data. ME, CWL and HH analysed and interpreted the data. ME and CWL drafted the manuscript. All authors critically revised the manuscript and have reviewed and approved the final manuscript.

Ethical approval

Ethical approval was obtained from the Medical Research and Ethics Committee of the Ministry of Health Malaysia (NMRR -17-743-35240IIR) and Medical Ethics Committee of Universiti Malaysia Sarawak (UNIMAS/NC-21-02/03-02 Jld 2 [72]).

Conflicts of interest

The authors declare no conflicts of interest related to this article.

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Data sharing statement

The datasets are not publicly available. Data are however available from the corresponding author upon reasonable request.

How does this paper make a difference in general practice?

- This study provides useful insights for primary care providers into the physical and mental health of working women during their postpartum period.
- The findings further confirmed that most women experienced fatigue, back or neck pain, breast discomfort, dizziness and nipple irritation during the first 6 weeks after childbirth. Nevertheless, such symptoms decreased after 6 weeks onwards.
- As the majority of women in their childbearing age in Malaysia are working outside the home, screening and treatment of postpartum mental health problems are essential owing to the impacts on occupational outcomes.

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