ORIGINAL ARTICLE

Postpartum Depression Among Malaysian Mothers During the COVID-19 Pandemic and Its Relationship With Breastfeeding Practices and Perceived Social Support

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ABSTRACT

Introduction: Breastfeeding practice aids babies in acquiring nutrients they need but it could be impeded when women are struggling from postpartum depression (PPD). The prevalence of PPD varied across countries and certain sociodemographic traits along with breastfeeding practices have influenced PPD rates differently. The aim of this research was to study the prevalence of PPD among Malaysian mothers during the COVID-19 pandemic and to study the overall relationship between breastfeeding practice with PPD and perceived social support. **Methods:** Through an online questionnaire, 109 mothers have participated, and the collected data were analysed based on the sociodemographic information, Edinburgh Postnatal Depression Scale (EPDS) and Multidimensional Scale of Perceived Social Support (MSPSS). **Results:** The prevalence of PPD was 48.6%. Sociodemographic characteristics like working status, ethnicity, living region and household income had no association with PPD. No statistically significant differences in working status with PPD and perceived social support levels respectively, although the occurrence of PPD was higher among working-class mothers. A significant negative correlation was found between PPD level with perceived social support (P=0.040, r_s=-0.197) and paid maternity leave (P=0.015, r_s=-0.333). Perceived social support was positively correlated with education level (P=0.044, r_s=0.194) and paid maternity leave (P=0.023, r_s=0.218). **Conclusion:** The social support and paid maternity leave may reduce the PPD, yet further studies involving a larger and more diverse subjects may warrant a more conclusive finding.
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INTRODUCTION

Postpartum depression (PPD) could be defined when any five of these common symptoms are present among postpartum women which are loss of interest in leisure activities, feeling moody or depressed, loss of appetite, insomnia, physically agitated, lethargy or fatigue, feeling excessively useless or guilty, poor concentration, indecisiveness and suicidal or self-harm thoughts (1). PPD varies from "baby blues" as it refers to a period where new mothers are emotionally challenged with persistent symptoms like irritability, trouble sleeping and anxiety for a short period of time with onset being typically within the first few days after giving birth and subsides within ten days while PPD could occur within the first four to six weeks postpartum and could last up to two years or more. Women experiencing PPD could also be present with other symptoms such as anxiety and obsessive-compulsive disorder (OCD) or prone of harming the new-born baby (2).

In the largest meta-analysis conducted from 565 studies from 80 different countries, it was observed that the global prevalence of PPD was 17.22% where South Africa was noted to have the highest prevalence of 39.96% (3). In a perspective cohort study conducted in Sabah, Malaysia, 14.3% of 2072 women suffered from depression within the first six months postpartum (1) while 14.29% was affected in postpartum mothers who were treated at Kuala Lumpur Health Clinic (4). There were five main factors among others that contributed to the progression of PPD were antenatal depression, assistance of spouse in infant care, marital relationship satisfaction, maternal occupation, and continuous worrying about the infant (1). Lower household was also a significant predictor

for PPD (4).

Perceived social support is the overall perception that the people around their social network will provide help and care when needed and the general perceived availability in assistance from the surrounding people (5). Most mothers or postpartum women who suffer from PPD tend to not seek for help mainly because of lack of support from their spouse or family members and often have the fear of being vulnerable, abandoned or neglected by their closed ones (2).

The prevalence of PPD and the sociodemographic characteristics that would affect breastfeeding practices among mothers during the COVID-19 pandemic period is scarcely studied in Malaysia. However, both a unidirectional relationship as well as bidirectional relationship were seen among PPD and breastfeeding practices over the years across the world (2). Subsequently, although there are limited studies pertaining to the different working status implemented during the COVID-19 pandemic, employment rates were widely found to be both positively and negatively affecting the levels of PPD (6). However, working from home is a new norm that has been implemented ever since the COVID-19 virus outbreak in Malaysia and research relating to its effects on breastfeeding practices and PPD levels has not been done. This is because previously, the option of working from home in many work-fields were close to non-existence.

Therefore, the aim of this research was to determine the prevalence of PPD during the COVID-19 pandemic period and to study the overall relationship between breastfeeding practices with PPD and support levels.

MATERIALS AND METHODS

Research Partakers

This study was conducted from the beginning of November 2021 up until middle of December 2021. The sample size calculation was based on a study conducted by Myo et al. (7) and Pourhoseingholi et al. (8). The sample size calculation is as follows:

$$n = Z^2 \times (1-P) / d^2$$
$$n = 1.96^2 \times 0.318(1-0.318) / 0.10^2 \approx 83$$

A sample size of 83 participants was found to be needed for this study but a total of 109 participants ended up partaking in this study. It was a convenient sampling where data were collected from an online questionnaire which was distributed to various online motherhood or breastfeeding support groups. The inclusion criteria was Malaysian mothers within 24 months postpartum time frame. Mothers who were unable to breastfeed due to serious conditions (HIV/ on antiretroviral therapy/ tuberculosis/ undergoing cancer chemotherapy/ consuming illicit drugs) or women who have not given birth but suffered from miscarriage or mothers who were unable to breastfeed due to infant's serious conditions such as galactosaemia were considered as the exclusion criteria.

Questionnaire and consent form

The distributed questionnaire to participants was supplemented with the appropriate details and consent form. The participants were given a choice to participate in this study willingly without any coercion. The data collected was in line with the Personal Data Protection Act 2010 (PDPA). The personal details of the participants along with their responses were kept anonymous and confidential.

The questionnaire was comprised of sociodemographic questions, with two selected renowned published scales, namely the Edinburgh Postnatal Depression Scale (EPDS) (9) and Multidimensional Scale of Perceived Social Support (MSPSS) (10). EPDS consisting of 10 questions was used to diagnose PPD. Mothers were required to choose single answer which was the closest out of four of the provided options as to how they have felt in the past one week. Questions numbered 1, 2 and 4 were scored normally from a scale of '0' to '3' whereas the first answer option carried a score of '0' and the last answer option carried a score of '3'. For questions 3, 5, 6, 7, 8, 9, and 10, it was reverse scored where the first answer option carried a score of '3' and the last answer option carried a score of '0'. All the scores from the 10 questions were then totalled and a cut-off value of more than 9 showed that women were suffering from PPD (11).

MSPSS, which comprised of 12 questions measured an individual's perception of support received from family, friends and their significant other. Each question came with 7 different answer options ranging from '1' being very strongly disagree to '7' being very strongly agree. The scores of all 12 questions were then totalled up and the lowest possible score that could be obtained was 12 whereas the highest possible score that could be obtained was 84. The higher the score, greater the levels of perceived social support and the lower the levels of depression and anxiety seen.

Data analysis

Data analysis was conducted via IBM SPSS Statistics for Windows, Version 26 (IBM Corp, Armonk, NY, USA). Besides descriptive statistic, Chi-Square test was conducted to study the association between PPD with selected sociodemographic characteristics. The One-Way Analysis of Variance (ANOVA) test was then carried out to analyse the differences in mean between the working status with PPD and perceived social support. Lastly, a Pearson's correlation test was

done to measure the strength of the linear relationship and to study the overall correlation of PPD and perceived social support. All the tests were two-tailed and $p < 0.05$ was set as the level of statistical significance.

Ethical approval

The study was conducted in accordance with the Declaration of Helsinki and approved by the UTAR Scientific and Ethical Review Committee (U/SERC/224/2021).

RESULTS

Sociodemographic Characteristics

Out of 160 respondents, only 109 respondents were found to be valid respondents as they complied with the guidelines of this study by falling into the respective inclusion and exclusion criteria ensuring accurate results were yielded. Table I shows the sociodemographic characteristics of participants. It was observed that the majority of respondents' age ranged from 31 to 35 years old. All the major ethnic groups in Malaysia composing of Malay, Chinese and Indians participated in this study but in varying proportions. The predominant ethnic group was found to be Chinese mothers followed by Malay and Indian mothers. A large group of mothers were exposed to tertiary level of education and were found to be privately employed. Among the group of working mothers, majority of the mothers, were found to be working at the company's premises. When the average household income was compared, 29.3 % fell into the lowest income group (B40) based on the Household Income and Basic Amenities Survey Report 2019, Department of Statistics Malaysia. (https://www.comparehero.my/budgets-tax/articles/t20-m40-b40-malaysia). Most of the mothers were also not on maternity leave when they were attempting the questionnaire. Among the group of mothers who were previously on maternity leave, most were only paid for two to three months. Nonetheless, most of the mothers were not keen or did not have any unpaid maternity leave. Larger proportion of the mothers were from urban area with a huge number of mothers lived in the central region of Malaysia and family with single child was more common.

Prevalence of PPD

Out of 109 mothers, 53 (48.6%) of them were affected with PPD. Regrettably, 30.3 % had suicidal thought at least once in the period of postpartum.

Intention and practice of breastfeeding

Among the respondents, 67.9 % of them were found to have the intention to exclusively breastfeed and 63.3 % had successfully breastfed their babies for the first six months. Table II shows the breastfeeding intention and breastfeeding practices.

Table I : Sociodemographic characteristics of participants

Variables	Number of respondents	Percentage (%)
Age group (years)		
21-25	6	13.6
26-30	30	27.6
31-35	52	47.7
36-40	18	16.6
41-45	3	2.7
Marital status		
Married	108	99.1
Others	1	0.9
Ethnicity		
Malay	7	6.4
Chinese	93	85.3
Indian	7	6.4
Others	2	1.8
Education level		
Primary	1	0.9
Lower secondary	4	3.7
Upper secondary	20	18.3
Tertiary - Bachelor's degree or below	72	66.1
Tertiary - Master's degree or above	12	11.0
Occupation		
Unemployed	10	9.2
Self-employed	20	18.3
Privately employed	52	47.7
Public servant	16	14.7
Homemaker	11	10.1
Current working status		
Work at company's premise	45	41.3
Work from home	37	33.9
Not working	27	24.8
Household income		
Less than 2000	12	11.0
2001 - 4000	20	18.3
4001 - 6000	24	22.0
6001 – 8000	14	12.8
8001 – 10000	14	12.8
More than 10000	25	22.9
Maternity leave		
Yes	11	10.1
No	98	89.9

Duration of paid maternity leave		
Less than or equal to 1 month	28	25.7
1 – 2 months	4	3.7
2 – 3 months	47	43.1
More than 3 months	27	24.8
Nil	3	2.8
Duration of unpaid maternity leave		
Less than or equal to 1 month	5	4.6
1 – 2 months	3	2.8
2 – 3 months	5	4.6
More than 3 months	3	2.8
Nil	93	85.3
Urban or rural region		
Urban	97	89.0
Rural	12	11.0
Living region		
Central region	53	48.6
Southern region	26	23.9
Northern region	15	13.8
East Malaysia	14	12.8
East coast region	1	0.9
Total number of children		
1 child	55	50.5
2 children	44	40.4
More than 2 children	10	9.2
Youngest baby's age (months)		
0 - 6	30	27.5
6 - 12	33	30.3
12 - 18	30	27.5
18 - 24	16	14.7

Association between selected sociodemographic factors and PPD

The bivariate analysis of the association between the sociodemographic factors like working status, ethnicity, living region, and household income with PPD was conducted using Chi-squared test to determine whether these variables were statistically significant. Although these comparisons seemed to show some differences, these sociodemographic factors were not statistically significant as shown in Table III.

Table II : Breastfeeding intention and breastfeeding practices

Variables	Number of respondents	Percentage (%)
Breastfeeding intention for the first 6 months before delivery		
Exclusive breastfeeding	74	67.9
Mixed breastfeeding with formula milk	27	24.8
No plans	8	7.3
Breastfeeding practice for first 6 months after delivery		
Exclusive breastfeeding	69	63.3
Mixed breastfeeding with formula milk	38	34.9
Formula milk	2	1.8

Table III : Association between selected sociodemographic factors and PPD

Variables	Postpartum depression (PPD)		p-value
	Yes	No	
Working status			
Work at company's premise	20	25	0.659
Work from home	18	19	
Not working	15	12	
Ethnicity			
Malay	3	4	0.649
Chinese	44	49	
Indian	4	3	
Others	2	-	
Living Region			
Urban	45	52	0.185
Rural	8	4	
Household Income (RM)			
Less than 2000	7	5	0.616
2001 – 4000	11	9	
4001 – 6000	13	11	
6001 – 8000	4	10	
8001 – 10000	7	7	
More than 10,000	11	14	

Table IV : PPD and perceived support in term of working status.

Category	EPDS Scores (Mean ± SD)	p-value	MSPSS Scores (Mean ± SD)	p-value
Working from company's premise	8.87 ± 5.02	0.268	63.87 ± 16.49	
Work from home	9.30 ± 4.53		62.86 ± 18.41	0.323
Not working	10.81 ± 5.50		57.48 ± 19.60	

PPD and perceived social support in term of working status

Table IV shows the outcome of ANOVA test between working status based on scores of EPDS and MSPSS. Neither EPDS nor MSPSS was significantly different in term of the working status. Nevertheless, the highest depression score was recorded among mothers who were not working while the greatest support received by mothers who were working at the premise.

Correlation tests of PPD and perceived social support

Table V shows the outcome of Pearson's correlation test between PPD and perceived social support. Negative correlation was found between PPD and perceived social support as well as PPD and paid maternity leave. Meanwhile, perceived social support had a positive correlation with education level and paid maternity leave.

DISCUSSION

Prevalence of PPD among Malaysian mothers in this study was notably higher compared to a previous study conducted in Malaysia by Hairol et al. (4). This could be caused by the stress related to the COVID 19 pandemic which was prolonged up to two years, whereas Hairol and colleagues (4) conducted their study at the early stage of pandemic period. Based on EPDS assessment, prevalence of PPD across the Asian countries were comparatively lesser with Thailand having a prevalence of 16.8% (12) and Indonesia at 22.35% (13) with more than 10 as cut-off point while Japan at 14.0% (14) and Taiwan at 21.0% (15) with more than 9 as cut off point.

A decrease was observed when the breastfeeding intention before delivery and breastfeeding practices after delivery were compared. Although the decrease was only by a small margin, there could be multitude of reasons behind it. According to Piankusol et al. (16), who conducted their study in Thailand during the COVID-19 lockdown period, revealed that most mothers stopped breastfeeding due to several reasons which included the nationwide lockdown implementation, fearful of contracting COVID-19 virus which caused a disturbance in lifestyle routine and the misinformation of not being able to breastfeed if mothers showed signs and symptoms of COVID-19. A lack of professional support by healthcare professionals or health personnel alongside disrupted support from family members and new social distancing rules were also found to have contributed to the reduction in breastfeeding practices (9).

There were no significant association between working status, ethnicity, living region and household income with PPD. A previous study in Kuala Lumpur, Malaysia showed that, although working status was not considered as a significant predictor with PPD, higher cases were seen among mothers who were not working (30.16%) compared to the mothers who were working (13.37%) (10). Lewis et al. (11) also demonstrated that signs and symptoms of PPD were lesser among the group of employed women. Besides that, another study conducted during the COVID-19 pandemic period by Alfayumi-Zeadna et al. (17), in Israel, showed that Arab women who were not employed were seen having higher incidence of PPD instead of Jewish women. However, the unemployment in Israel is highly associated with factors like abuse and insecurity that persist among the female community. In contrast, the partakers who had PPD in the present study were 53 mothers (48.6%) but majority were working mothers. This could be due to the pandemic period where new norms were introduced but not commonly applied under private sectors, especially during the end of 2021 where most employees were required to return to work at the employer's premises. Most employees are also temporary and easily replaced because private sectors do not keep their workers for long (18). All these reasons could have affected the mother's mental health, especially the unnecessary work stress and the constant commuting to work causing maternal distress, which indirectly contributed to PPD. Amidst these contrasting studies, a study conducted in the Philippines in 2019 showed that working-class mothers (69.7%) had thrice the chances of suffering from PPD compared to those non-working-class mothers (19). Incidence of PPD among the working-class mothers in Turkey were seen to be slightly higher compared to the non-working class mothers although the difference was not significant (6), which was in line with our

findings.

Kalok et al. (20) showed that women who worked from home originated from the higher economic status. However, since they had restrictions on conducting their social activities and the added pressure of looking after their children apart from their infants, had imposed elevated depressive symptoms in these mothers. The findings were slightly similar to this study because the incidence of PPD among mothers who worked from home were still higher than the non-working mothers.

The finding in Table V shows that the lower the perceived social support, the higher the depressive level. In Italy, it was found that many postpartum women (38.1%) reported a decrease in social support received, thus leading to a decreased mental health state (21). In Japan, it was observed that mothers from low-support group were more prone to suffer from PPD than the high-support group. The perceived social support was also significantly associated with PPD. As diminished care and support contribute to PPD, thus when postpartum women did not receive adequate support from either family or non-family members, depressive moods were seen to increase due to the weak bonding or relation (22). However, this study showed that no matter if the women were working at employer's premises, working from home, or not working at all, these statuses had no impact on PPD levels and perceived social support among Malaysian mothers during the pandemic.

Higher level of depression was found among mothers, who were affected by PPD with lesser paid maternity leave. Overall, there were also significant weak positive correlation between perceived social support and education level as well as between perceived support and paid maternity. In a pre-pandemic study done in the United States by Kornfeind and Sipsma (23), the results obtained showed that there were no significant association between maternity leave and PPD but women were found to have lesser risk of suffering from PPD once they crossed the 12 weeks mark, or minimum 3 months of maternity leave. This was because mothers were imposed with the burden of juggling work and raising a baby at the same time. Furthermore, at the same time, it was necessary for them to continuously ensure their physical and emotional well-being remained stable during this crucial period as they are important for maternal bonding as well as to prevent the onset of PPD. Longer maternity leave aids postpartum mothers in healing after childbirth, physical and emotional adaption to new responsibilities, new sleep patterns and hormonal adjustments as well as aid in bonding time with their babies (23). On the other hand, mothers who had paid maternity leave most likely to breastfeed longer and their children's general health status were better (24).

As elucidated by Erbaba and Pinar, (20), postpartum mothers who had higher educational level were found to have better coping mechanism against PPD, although the results were not statistically significant in this study (data not shown). With sufficient social support from friends, family and partners, mothers could easily overcome PPD and simultaneously ensure the overall health of the baby and mother to remain intact (25). Similar to the findings in this study, majority of the mothers had at least a tertiary level of education comprising of a bachelor's degree or below, hence, the overall incidence of PPD was not high. Most of these mothers also had a monthly household income ranging from RM4001 to RM6000, hence why in the EPDS scale, most mothers opted for the answer which said 'never' or 'hardly ever' to the last question relating to suicidal thoughts and self-harm. This proves that women who are equipped with sufficient knowledge would find ways to seek help when needed instead of making reckless decisions.

Poor breastfeeding practice was seen among mothers who were struggling with severe PPD symptoms but mothers who had an exorbitant amount of social support from the people around them had better adapted to breastfeeding for a longer duration. For example, mothers who lacked perceived social support only managed to breastfeed for 17 days at most (25). On the contrary, majority of the mothers in our study opted to exclusively breastfeed their infants and managed to do so for the first six months after delivery. Besides that, due to the plummeting economic status and inflation rate, breastfeeding practice would be a safer and cheaper option compared to formula milk feeding in infants.

Recent amendment in employment act 2022 which extends maternity leaves from 60 days to 98 days and from 2 days to 7 days of paternity leaves in Malaysia may reduce the PPD and improve perceived social support (26). Future study on how this new support system could be beneficial to postpartum mothers can be carried out in a larger and more diverse group and the current study can be utilised to compare the effectiveness of the amendment.

Amidst how the current research study was conducted, undeniably, there were some limitations such as the restricted data collection method. In Malaysia, the COVID-19 pandemic standard operating procedures were stringently practiced in most establishments. Due to the limited in-person contact rule, interviewing new mothers or passing questionnaires to participants who were qualified was harder, hence the use of an online platform to disperse the questionnaire was done. That could be a reason why this study

had a predominant sum of Chinese mothers as respondents.

CONCLUSION

Prevalence of PPD among postpartum mothers was 48.6 %. PPD level was negatively correlated with perceived social support and lower level of depression was found among mothers affected PPD when longer paid maternity leave given. Shorter paid maternity leave could be one of the causes for PPD while higher educational level and longer paid maternity leave were found to have greater perceived support. These findings could be used to educate, create awareness and making new policy.

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