# Determinants of Early Postpartum Psychological Reaction among Mothers in Kuala Lumpur Hospital

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## ABSTRACT

**Introduction:** *Maternal psychological well-being determines early mother-infant relationship and baby's health. Paying attention on this aspect is essential particularly in early postpartum period. This study aimed to determine early psychological reactions toward socioeconomic profiles, delivery methods and delivery outcomes among postpartum mothers in Kuala Lumpur Hospital.* **Materials and Methods:** *A total of 150 two-week-postpartum mothers participated in this cross sectional study and their psychological perspective was measured by using the Depressive, Anxiety and Stress Scale (DASS).* **Results:** *4%, 16% and 4.7% of respondents had significant depressive, anxiety and stress levels respectively.* **Conclusion:** *Socioeconomic variables such household income, level of education and presence of medical illness were statistically significant to determine early postpartum psychological reactions but not the modes or outcomes of delivery.*

**KEYWORDS**: Postpartum mothers, socio-economic, depressive, anxiety, stress.

## INTRODUCTION

Any detrimental conditions on the aspect of maternal psychological wellbeing would have long term effects on the emotional and cognitive development for both mothers and their children.[1] There had been little attention paid to look at an immediate postnatal psychological wellbeing among mothers in relation to their delivery in Malaysia. The agonizing and painful procedures that the mothers have to endure during the childbirth would certainly impose an element of psychological distress. This is particularly pertinent among mothers whose deliveries have to be assisted via instrumental delivery or cesarean operation. Pain, hemorrhage and adjustment to a new responsibility that these mothers have to endure would influence their mood.[2] This psychological aspect is also compounded by other social factors such as financial difficulties, higher number of children, marital conflict and baby's condition.

Scarce local studies have implicated possible relationships between low socioeconomic group and marital difficulties to postpartum mood changes.[3,4] A substantial number of studies in the past either internationally or locally were mainly focused on postpartum depression. In this study, we attempted to look at an immediate and broader psychological perspective by measuring levels of anxiety, depression and stress and focus on the immediate psychological reactions in relation to their modes of delivery.

The main objective of this study is to explore early psychological changes of postpartum mothers in Hospital Kuala Lumpur in relation to their deliveries and social backgrounds. Difficult deliveries such as Cesarean section and assisted delivery (forceps and vacuum delivery) would certainly impose anxiety and psychological distress to these mothers. Low socioeconomic status (lower income group, low level of education and those with many children) theoretically would result in poorer psychological outcome.

The second objective of this study is to determine whether demographic factors such as ethnicity and marital status would also have influence on the psychological aspect of these mothers.

## MATERIALS AND METHODS

### Study Design

This is a cross sectional study with selection of the subjects was based on stratified quota sampling. The subjects were selected on their presence in the wards during the period of this study. Prior to commencement of this project, a written approval and permission were obtained from the hospital director and ethics committee.

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## Procedures

The nature of study was explained to the subjects and the study proceeded after informed consent was obtained. Demographic data such as age, gender, race, occupation, marital status and mode of delivery were obtained by using a survey form. Levels of anxiety, stress and depression were determined based on the Depression Anxiety Stress Scales (DASS).

## Selection of Respondents

Based on sample size analysis, a total of 140 subjects were required but we managed to recruit 150 patients during the study period. Study population of this study was all mothers in postnatal wards of Hospital Kuala Lumpur including first class wards.

150 mothers with various age, ethnicity and social backgrounds were enrolled in this study by using stratified quota sampling. In the aspect of ethnicity we tried to gather heterogeneous population to reflect the actual Malaysian population. Based on Malaysian Statistic Department (2004) 54.1% were Malays, 25% were Chinese, 7.5% were Indians and 13.2% from other races.[5] We used 2 sets of questionnaire. First was demographic questionnaire to measure age, gender, ethnicity and level of education. Second was the Bahasa Malaysia or English version of DASS-21.

Inclusion criteria of the subjects were the mothers' age between 16 to 50 years old; they must be proficient in Bahasa Malaysia or English and within the immediate postpartum period which was determined by 14 days and less. The reason for the last inclusion criteria were due to main objective of this study was to gauge immediate postpartum psychological changes. Subjects who were not able to give informed consent were excluded from the study.

## The Depression Anxiety Stress Scales

Edinburgh Postnatal Depression Scale and Beck Depression Inventory have been validated for its Bahasa Malaysia (BM) versions.[6] Unfortunately these scales are designed to measure level of depression only. The Depressive Anxiety and Stress Scale (DASS) is a questionnaire that has the ability to gauge 3 psychological aspects. They are depression, anxiety and stress. The DASS has been translated in various languages and validated in many different populations. It is not a diagnostic questionnaire but rather as a severity measurement.[7] DASS is suitable to be used in any clinical or non-clinical settings. The Bahasa Malaysia version of DASS has been validated and it has excellent reliability and validity. The BM DASS-21 has very good Cronbach's alpha values of 0.84, 0.74 and 0.79 respectively, for depression, anxiety and stress. In addition, it also has good factor loading values for most of its items (.39 to .73).[8] In measuring immediate psychological reactions toward delivery process, particularly stress and anxiety reactions, DASS would be the appropriate tool to use. The DASS has been used to assess the negative emotional states of, not only depression, but of anxiety and stress in postnatal women.

## RESULTS

**Table I.** Socio-demographic data

| | | No. | % | Total |
|---|---|---|---|---|
| **Age** | | | | |
| | 16-20 | 11 | 7.3 | 150 |
| | 21-35 | 125 | 83.3 | |
| | 36-45 | 14 | 9.3 | |
| **Race** | | | | |
| | Malays | 117 | 78 | 150 |
| | Chinese/others | 18 | 12 | |
| | Indians | 15 | 10 | |
| **Marital status** | | | | |
| | Married/living together | 142 | 94.7 | 150 |
| | Divorced/separated | 7 | 4.7 | |
| **Household Income** | | | | |
| | < RM 1000 | 36 | 24 | 150 |
| | RM 1001-5000 | 111 | 74 | |
| | > RM 5000 | 3 | 2 | |
| **No of Children** | | 100 | 66.7 | |
| | <3 | 50 | 33.3 | 150 |
| | 3 and more | | | |
| **Levels of Education** | | | | |
| | Primary school | 13 | 8.7 | 150 |
| | Secondary school | 101 | 67.3 | |
| | Tertiary education | 36 | 24 | |
| **Occupation** | | | | |
| | Housewife | 79 | 52.7 | 150 |
| | Professional | 19 | 12.7 | |
| | Semi-skill | 36 | 24 | |
| | Labour | 16 | 10.7 | |
| **Mode of Delivery** | | | | |
| | Normal vaginal | 105 | 70 | 150 |
| | Assisted/Instrument | 3 | 2 | |
| | LSCL | 42 | 28 | |
| **Baby's condition** | | | | |
| | Healthy | 139 | 92.7 | 150 |
| | Unhealthy | 11 | 7.3 | |

**Table 1** summarizes demographic profiles of the subjects. Chinese were obviously underrepresented in this study. Majority were from middle income group, aged between 21 to 35 years old and obtained highest education until secondary school.

Since the development of Bahasa Malaysia DASS was at infancy stage we also analyzed the internal consistency of DASS among these mothers. Cronbach's

alpha values of 0.81, 0.86 and 0.82 were achieved for depressive, anxiety and stress scales.

**Significant Depressive, Anxiety and Stress Levels among Postpartum Mothers**

Based on scoring of DASS, 0-9 is normal level for depression, 0-7 for anxiety and 0-14 for stress level, we analyzed that 6 patients (4%), 24 patients (16%) and 7 patients (4.7%) had significant depressive, anxiety and stress levels respectively.

**Table II.** Factors Determine Significant Depressive, Anxiety and Stress Levels.

| | N | Mean depressive Level | P value | Mean anxiety level | P value | Mean stress level | P value |
|---|---|---|---|---|---|---|---|
| *Age* | | | | | | | |
| 16-20 | 11 | 3.2 | 0.89 | 6.2 | <0.05* | 5.7 | 0.88 |
| 21-30 | 125 | 2.2 | | 4.6 | | 4.9 | |
| 31-45 | 14 | 2.1 | | 2.2 | | 2.2 | |
| *Race* | | | | | | | |
| Malays | 117 | 2.1 | 0.61 | 4.5 | 0.44 | 4.7 | 0.31 |
| Chinese/other | 18 | 6.3 | | 5.7 | | 8.3 | |
| Indians | 15 | 2.5 | | 4.2 | | 5.7 | |
| *Marital status* | 142 | 2.2 | | 4.5 | | 4.8 | |
| Married/living together | 8 | 3.25 | 0.55 | 4.6 | 0.21 | 4.5 | 0.53 |
| Divorced/separated | | | | | | | |
| *Household Income* | | | | | | | |
| < RM 1000 | 36 | 3.8 | <0.05* | 5.5 | <0.05* | 6.1 | <0.01* |
| RM 1001-5000 | 111 | 1.8 | | 4.3 | | 4.4 | |
| > RM 5000 | 3 | 0.3 | | 2 | | 2.3 | |
| *No of Children* | 100 | 2.4 | | 5.2 | | 5.5 | |
| <3 | 50 | 2 | 0.38 | 3 | 0.06 | 3.3 | 0.28 |
| 3 and more | | | | | | | |
| *Levels of Education* | | | | | | | |
| Primary school | 13 | 4.5 | <0.05 | 4.9 | 0.56 | 6.3 | 0.53 |
| Secondary school | 101 | 2.2 | | 4.3 | | 4.6 | |
| Tertiary education | 36 | 1.64 | | 4.8 | | 4.7 | |
| *Occupation* | 79 | 2.2 | | 4.3 | | 4.6 | |
| Housewife | 19 | 1.1 | 0.13 | 3.7 | 0.43 | 3.8 | 0.07 |
| Professional | 36 | 2.3 | | 4.6 | | 4.4 | |
| Semiskilled | 16 | 3.9 | | 5.8 | | 7.2 | |
| Labour | | | | | | | |
| *Mode of Delivery* | 105 | 2.3 | | 4.5 | | 4.7 | |
| Normal vaginal | 3 | 0.3 | 0.46 | 4.5 | 0.65 | 4.3 | 0.91 |
| Instrument | 42 | 2.3 | | 4.6 | | 5 | |
| LSCL | | | | | | | |
| *History of Medical Disorders* | 139 | 2.1 | | 4.5 | | 4.5 | |
| No | 11 | 4.8 | <0.05* | 7.7 | 0.29 | 7.7 | <0.05* |
| Yes | | | | | | | |
| *Baby's condition* | 139 | 2.2 | | 4.5 | | 4.7 | |
| Healthy | 11 | 3.1 | 0.53 | 4.4 | 0.29 | 5.9 | 0.47 |
| Unhealthy | | | | | | | |

# Mann-Whitney test (95% CI)

Based on table 2, those in younger age group (16-20 years old) were having higher crude means for depressive, anxiety and stress levels, however only anxiety was statistically significant (p<0.05). Low income group was a strong determinant to all psychological aspects (p<0.01-0.05). Those who obtained education until primary school were also had significant higher level of depression. Those with medical history were having significant depressive and stress levels. Other factors such as marital status, ethnicity, mode of delivery and baby's condition did not have significant impact on the immediate postpartum psychological status.

## DISCUSSION

From a total of 150 respondents, 4% of them had significant level of depression, 16% for anxiety and 4.7% for stress. Looking at the significant level of depression, a comparison with other local study, the figure obtained in this study is much smaller as compared to 9.8 % yielded by Rushidi et al.[3] Between this study and the study done by Rushidi et al, there were a few similarities in the aspects of ethnicity distribution, level of educational and mode of delivery of the subjects. In comparison with another large population cohort study in overseas, the rate of depression obtained was 5.7% and anxiety was 2.0%.[9] It is worth noting that these discrepancies are due to various reasons. Bear in mind that the tools used in these studies are different. We cannot conclusively say 4.7% of women obtained in this study were clinically depressed as DASS is not a screening tool for depression. Other aspect is the study period and postpartum timeframe are different from one study to another. Study period for this project is only 2 weeks postpartum which is too short as compared to the latter.

Chinese in this study were glaringly underrepresented. To explain to this polarization, a similar pattern of ethnic distribution was also found in a study done among vacuum deliveries in the Maternity Unit Hospital Kuala Lumpur.[10] The study found Chinese only contributed 14% of study population, 58% Malays and 17% Indians. Chinese generally are at higher income level and they less utilize government hospitals. Other reason is there was quite significant number of Chinese respondents in this study refused to participate or they were not fluent in either Bahasa Malaysia or English.

A considerable number of studies have consistently shown that the following risk factors were strong predictors of postpartum depression and anxiety. These factors include; history of depression or anxiety during pregnancy, stressful life events, poor social support and a previous history of depression and socio-economic disadvantage.[11] Other predictors of postpartum depression and blues are maternal low self-esteem, obstetric complications and single marital status.[12] Based on the results of this study, there were no relationships found between early maternal psychological reactions with regard to their ethnicity, maternal age, level of education, number of children, marital status and delivery events. This finding is aligned with a meta-analyses study of various suitable studies. It failed to find evidence for a significant association between cesarean section and postpartum depression.[13]

From our analysis we found factors that determine significant depressive level are income, level of education and presence of medical illnesses, factors that determine significant anxiety level are only age and income while factors that determine significant stress level are income and medical history. The socio-economic status of the mother plays a huge role in the mental health of postpartum women especially among level of income. This finding is also in concert with the meta-analysis by O'Hara & Swain.[14] They concluded that less family income and lower socio-occupational status indeed were associated with increased risk of maternal stress. The findings suggested that women with fewer financial resources are vulnerable to adverse psychological health. They would certainly benefit from psychological and social services during the period of pregnancy or postpartum.[14,15] This is a form of primary preventive approach to the problem.

Having identified the risk factors for detrimental postpartum psychological outcomes, a specific attention should be paid to this high risk mothers as postpartum depression and anxiety are proven preventable.[16] These preventive steps include better antenatal care.[17]

This early psychological reactions is a strong predictive because study in the past showed that there was a strong correlation between maternal mood on a week postpartum to 4 weeks and 8 weeks.[18] Therefore this early psychological profile could predict intermediate and long term mood pattern. Prospective study looking at the correlation between early mood changes with intermediate outcomes would be worth doing.

Other confounder that the authors feel may influence the psychological outcomes of these mothers is a recent adverse life event.[19] This aspect was not measured in this study. Paying attention of this factor would require an administration of a specific questionnaire.

### Limitations

Recruitment of the subjects in this study was based on one hospital only and the polarization of these mothers in the aspect of ethnicity was not really reflecting Malaysian population. Hence we may not be able to generalize the findings and conclusion in this study to the general Malaysian population.

### CONCLUSION

Finally, we conclude that socio-economic status of an individual is the most significant factor contributing to the mental health of postpartum women as compared to their delivery events.

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