Mother's mental preparedness for pregnancy : The affecting factors and its effect on birth outcomes

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Abstract

Background: Increased maternal anxiety level has been reported to have detrimental effects on the physical outcome of pregnancies such as not achieving vaginal births. This study thus aims to determine the level and factors affecting mental preparedness among mothers with normal pregnancies and its correlation with birth outcomes.

Methods: Three hundred healthy mothers above 37 weeks of gestation in the early stage of labour were assessed for their level of mental preparation before birth process and outcomes after births which include general feeling (euphoria), ability to withstand labour pain and bonding with the new born. The successfulness of vaginal birth and other data on factors affecting mental preparation were also collected.

Results: The level of mental preparedness was found good in 78% of the mothers, mainly determined by their socioeconomic status, family support and personal ability to adjust to changes. Age (p= 0.048), parity (0.00) and income (0.01) were found to influence mental preparedness significantly. Race, occupation, education level and marital status are however not significantly related. Poor mental preparedness is associated with greater pain during labour. A correlation analysis also found a positive relationship between the level of mental preparation and mental outcomes following birth in these mothers but it did not significantly influence the mode of delivery.

Conclusion: Mental preparation before birth seems to have an effect on mental outcomes of mothers following birth process. It is vital that mothers of the younger age group with no previous obstetric experience be given more attention in preparing them mentally before they face the painful birth process.

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Keywords: Affecting factors, pregnancy, mental preparedness, factors, birth outcome

Introduction

Pregnancy is a time of great joy, but carrying a child is also a time of great stress to a woman, both physically and mentally.[1] Excessive worrying may bring about an adverse outcome in even a low risk pregnancy.[2]

A woman who is already adjusting to the unexpected physiological and physical changes during pregnancy will be more easily affected mentally by anxiety, depression, social isolation, and interpersonal conflict that occur during pregnancy.[3,4] Much emphasis has been placed on maternal anxiety because it has been shown to have an association with higher incidences of obstetrics complications. This is explained by the response of the release of high amounts of stress hormones such as cathecolamines and corticotrophin releasing hormone mediating various mechanisms. The results of overstimulation of these mechanisms include vasoconstriction leading to foetal distress, as well as delayed uterine contractions leading to prolonged labour and uterine atony. It has been shown that poor mental state during pregnancy is associated with poor physical birth outcome such as increased probability of a Caesarean section.[4-7] In contrast, mothers with an optimistic outlook tend to go through easier labour, though it is also associated with the hypothesis of the release of endorphins as a result of various activities performed during course of pregnancy, such as exercise.[4,5,7]

However, there is insufficient evidence supporting other factors affecting mental preparation other than anxiety. A review of the various factors influencing maternal stress such as social support, prior experience with pregnancies, socioeconomic and interpersonal problems and the correlation with the outcome of pregnancy would provide an insight into how much education and support should be instilled into the mental and psychological aspects of mothers. The aim of this study is to assess the level of mental preparedness of pregnant women in Malaysia, the most likely factors affecting it and its effect on the birth outcomes especially mentally and emotionally.

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Material and Methods

This cross sectional study was conducted in a tertiary hospital (Hospital Tuanku Jaafar) in Negeri Sembilan, Malaysia. A total of 300 mothers who were admitted to the obstetric ward in early first stage of labour or for planned vaginal delivery were consented and recruited into the study. The subjects were conveniently sampled. The inclusion criteria were; Mothers between the ages of 18 – 50 years old who intended to have vaginal birth at term gestation. Those who are single (not married), with premorbid diseases or complication during pregnancy were excluded from the study. They underwent a similar process of monitoring and care during labour that includes accessibility to analgesia which was intramuscular opiates and nitrogen oxide inhalational gas.

A self-administered questionnaire was constructed based on the adaptation from the Pregnancy Experience Scale (PES) - brief version[8] which was also validated on a similar population using English language before the conduct of the study. It is divided into three sections; A for demographic data, B for level of mental preparedness and C for pregnancy outcome. Sections A and B in the questionnaire were filled up by the subjects on the day of their admission to general obstetric wards once the diagnosis of early first stage of labour was made. The same set of questionnaire was then redistributed 24 hours after their birth processes for the patients to complete section C. Further translation or explanation of questions was provided by the researchers and the completion of questionnaire was assisted by researchers as per required (Figure 1- Flow chart of study design).

The demographic status and general characteristics of the subjects that included age, parity, marital status, education background and socio-economic status were taken in section A of the questionnaire. Section B determined the level of mental preparedness for birth using an adapted version of Pregnancy Experience Scale (PES)[8] which had 31 items covering perceived social support, antenatal anxiety, and adjustment towards changes in pregnancy and preparation for pregnancy. Mental preparedness was determined by 7 criteria: Personal thoughts on pregnancy, antenatal anxiety, family & social support, personal adjustment to pregnancy, knowledge about labour and socioeconomic status. The level of preparedness was calculated based on cut off scores i.e. 46-56 presents good level and 57-81 as poor level.

Section C was to assess the birth outcomes that included physical and mental outcomes. The successfulness of birth was determined by the ability to bond with child (able to breastfeed independently and not disturb with baby's crying), birth pain experience which was measured using the visual pain analogue scale or VAS (0 – 3; mild pain, 4-7; moderate pain and 8-10; severe pain), and euphoric feeling after delivery (measured using a Likert scale 1-4). A respondent is considered to have an overall good outcome if she had at least two good individual outcomes from the determinants. Pain tolerance was assessed by 1) severity of pain during labour and after birth; 2) the type of analgesia required during labour and further need for analgesia after birth; 3) mobility after delivery (6 hrs after vaginal birth; 12 hrs post caesarean section). Low score on VAS, no requirement of analgesia after birth and immediate mobilization after delivery were considered as good pain tolerance.

Several phrases require definition in our study. *Early first stage of labour* is defined as having contractions which are mild (<20 seconds) with an interval of >=30 seconds and cervical dilatation of < 3 cm. *At term* is having reached 37 weeks of pregnancy. An uncomplicated pregnancy is a normal pregnancy with no associated medical diseases or pregnancy related disorders as well as no fetal complication. *Vaginal delivery* indicates delivery of a child via the birth canal without the use of obstetric instruments.

Analysis was done using SPSS 17.0 programme (SPSS Inc, Chicago, IL). Descriptive statistics were used to illustrate the demographic characteristics of the sample. Comparison of data was performed with t-test for

continuous variables and chi-squared test for categorical variables. Statistical significance was determined at a p value of <0.05, with a confidence interval of 95%. Pearson correlation test was applied in areas where correlation analysis was required.

The research received ethical approval from National Medical Research Registry of Malaysia (NMRR ID; 8875) and permission for use of the PES questionnaire was obtained from the constructor.

Results

Of the 300 women who consented to participate in the study, 27 dropped out. The mean age of the sample was 27.9 ± 5.3 years. More than 95% had a background income of less than RM3000 and about one third even had less than RM1000 per month. Many (74.5%) of them were housewives. Most mothers had received more than secondary level education (92.5 %). About three quarters of the samples were multiparous (75.1%). More than three quarters of the mothers (77.7%; n=212) were found to have good mental preparedness overall.

The characteristics that influenced the level of mental preparedness of these mothers were age, parity and income level. Subjects with higher income level, parity and age seem to have better mental preparedness for pregnancy and delivery. Occupation and education level do not show significant impact. Table 1 shows the general characteristics of the sample and effect on level of mental preparedness.

Other determinant factors are family support (93.2%), socioeconomic status (89%), own positive personal thoughts about the pregnancy (88%), past experience of birth (73.7%) and knowledge about labour (70.5%) (Figure 2). Those with a poor level of mental preparedness (22.3%) are mainly affected by poor personal adjustment to pregnancy (54.3%) and anxiety (61.2%). Paired t-test showed that a p value of 0.0039 which is significant.

Overall, 81.3% were found to have good birth outcomes. Nevertheless, about 47.7% of women with good mental preparation were reported to have poor pain tolerance which was almost comparable to 58% of women with poor mental preparation. It is recognized that 147 of the 235 women (62.6%) who had severe pain during labour had never attended child-bearing or antenatal classes.

It was found that there is significantly poorer pain tolerance (p = 0.014) among mothers who are pregnant for the first time. Forty-six out of the 73 primigravidas had poor pain tolerance (63%) in contrast to the 93 out of 205 multiparous mothers (45.4%) who reported the same. Despite the poor tolerance to pain, the number of primigravidas who did not wish for future pregnancies was significantly less than the multiparous (19[26%] vs 99[48.3%]; p = 0.001) Nevertheless, there is no significant difference (p= 0.609) in euphoria (good feelings) after delivery in mothers of any parity. 97.3% of primigavidas and 98.5% of multiparous mothers experienced good feelings after birth. Although an overwhelming number of mothers (98.2%) had positive feelings after delivery with mean score of 3.52, almost half of the women (42.4%) did not plan to have any more children after this delivery. Figure 4 shows the correlation between number of parity and birth outcomes.

A Pearson correlation test was performed to test the relationship between the level of mental preparation and mental outcome of pregnancy, which included pain tolerance at birth and feelings after delivery. A p-value of 0.046 was found, demonstrating that there was a positive correlation between the two (Figure 3).

Correlation of mental preparation with mode of delivery was also analysed. Of the 235 women who delivered vaginally, 185 (78.7%) had good mental preparation compared to 17 of the 23 (73.9%) women who underwent Caesarean section. A student t-test done to assess the effect of mental preparedness on delivery outcomes showed no significant difference (p = 0.595).

Discussion

The study has shown that almost a quarter of the subjects were mentally unprepared for their pregnancy due to anxiety and lack of personal adjustment to pregnancy. They were particularly not well accommodated for the normal discomforts of pregnancy. Almost half of the respondents (51%) were unaccustomed to morning sickness, back pain, incontinence and heartburn.

Most of the patients had good family and societal support. The most influential support came especially from their husbands. It has been shown that relationships that provide empathy, encouragement, practical assistance and opportunities to confide are protective thus influencing good mental preparation for pregnancy and delivery.[9,10,11] The importance of various types of support changes with the changing needs of women as they move from pregnancy to labour and delivery, then to puerperium. During pregnancy, emotional and tangible support provided by the spouse and others influence the expectant mother's mental well-being. Informational support such as prenatal classes has also been shown to be associated with a decrease in maternal physical complications during labour and birth, including an improvement in physical and mental health at postpartum. Mothers who have the support of a companion during labour and delivery experience fewer childbirth complications and lesser postpartum depression.[12,13] About 62% of the mothers in this study did not attend any prenatal classes or were not given educational information about pregnancy and birth. As a result, they were anxious to adapt to the changes and experienced severe pain at birth despite the common regime of analgesia administered in the labour suite of the hospital. However, we did not look into the possible effect of companionship to the birth outcomes of these mothers.

Young age has always been conceptually thought to be associated with poor mental preparation. Younger expectant mothers are more likely to have unwanted pregnancies, be unemployed, involved in domestic violence or intimate partner abuse, thus have greater fear for childbirth resulting in less mental preparedness for the unforeseen changes during this period.[13] Lee *et al* evaluated that the prevalence of antenatal anxiety and depression is higher among young mothers[14] whereas more matured pregnant mothers (30-35 years old) are found to be more ambivalent with less fear as they have wider social based support allowing greater sense of joy and happiness during conception.[15] It has been shown that though the type of stress affecting younger or older mothers differ, it has an equal mental effect on their adjustment towards changes in pregnancy.[3] Working women are perceived as to be able to cope with their household and childrearing responsibilities well but the level of anxiety and poor preparation for pregnancy are found to be greater in working pregnant mothers.[16] However, the findings in this study are contradictory to the earlier ones as there seems to be no correlation between mental preparation and occupation. Further analysis is required to look into this incongruity as the phenomenon could be explained by the possible difference in the social set up and cultural belief in Malaysian families.

This study also demonstrated the influence of income on the level of mental preparation. Many of our respondents were unemployed or have lower ranged total family income which is generally an indicator of socioeconomic status. Socioeconomic status and therefore income by proxy is inversely related to the level of anxiety experienced.[2] In families with insufficient income, there is additional stress of inability to obtain enough resources for normal daily living. Moreover, it is the worry about feeding an extra mouth once the child is born. It is thus no surprise that those with poor income have poor mental preparation.

Parity also has an effect on mental preparation. Studies by Melender and Qiao *et al*[17,18] have demonstrated that nulliparous women are more likely to be ill-prepared for pregnancy. This is attributed to the possibility of lack of experience. Even with the reliance on others for advice, most nulliparous women seem to fear the unknown

especially in tolerance to pain and additional worry of possible deformities to the child. In many of the studies, nulliparous women were found to have lower pain tolerance at birth.[17-19] Despite the experience with pain, the majority of them look forward for future conceptions.

It has been generally accepted that there is positive correlation between poor mental preparation and adverse physical outcomes in pregnancy. Nevertheless, there is insufficient data in the literature that directly looked at the correlation between mental preparedness and mental outcomes in pregnant mothers.

It has been found that the majority of the patients seem to have good mental preparation towards birth. The level of mental preparation, mostly related to personal adjustment to pregnancy is influenced by age, parity and income. These factors have a common denominator – the fear of the unknown. Every pregnancy is different and mothers may feel that they cannot predict what the outcome will be. A possible method of intervention would be antenatal classes to improve mental preparation. Our research showed that women with insufficient mental preparation during pregnancy and being pregnant for the first time are more likely to have poorer pain tolerance but did not significantly affect the euphoric feelings after birth and views about future pregnancies. While theoretically it is possible to evaluate individual factors that influence mental preparation in a pregnant mother, in reality, these factors are often not mutually exclusive. Therefore, it is important to manage a patient holistically and individually. Further case control studies on larger samples of primigravida would be useful to minimize biasness and other confounding factors like pre pregnancy mental state and support should be assessed to obtain stronger correlation with birth outcomes.

The duration of study is a limiting factor, therefore an observational study was conducted on all parity of patients rather than a specific parity ie: parity 1. The subjects were also chosen by convenient sampling thus may not represent the true status of Malaysian women whom may be socially or culturally inconsistent especially among urban and rural communities.

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Table 1: General characteristics of participants and effect on their level of mental preparedness

Characteristics	n	%	p value
Age			
<18	0	0	0.048
18-35	248	90.48	
>35	25	9.15	
Occupation			
Professional	13	4.8	0.183
Non- professional	53	19.4	
Housewife	207	75.8	
Education level			
Primary	18	6.6	0.755
Secondary	184	67.4	
Tertiary	68	24.9	
No schooling	3	1.1	
Parity			
Nulliparous	68	24.9	0.000
Multiparous	205	75.1	
Income			
<1000	89	32.6	0.010
1001 – 2000	110	40.3	
2001 – 3000	62	22.7	
3001 – 4000	9	3.3	
4001 – 5000	2	0.73	
>5000	1	0.36	

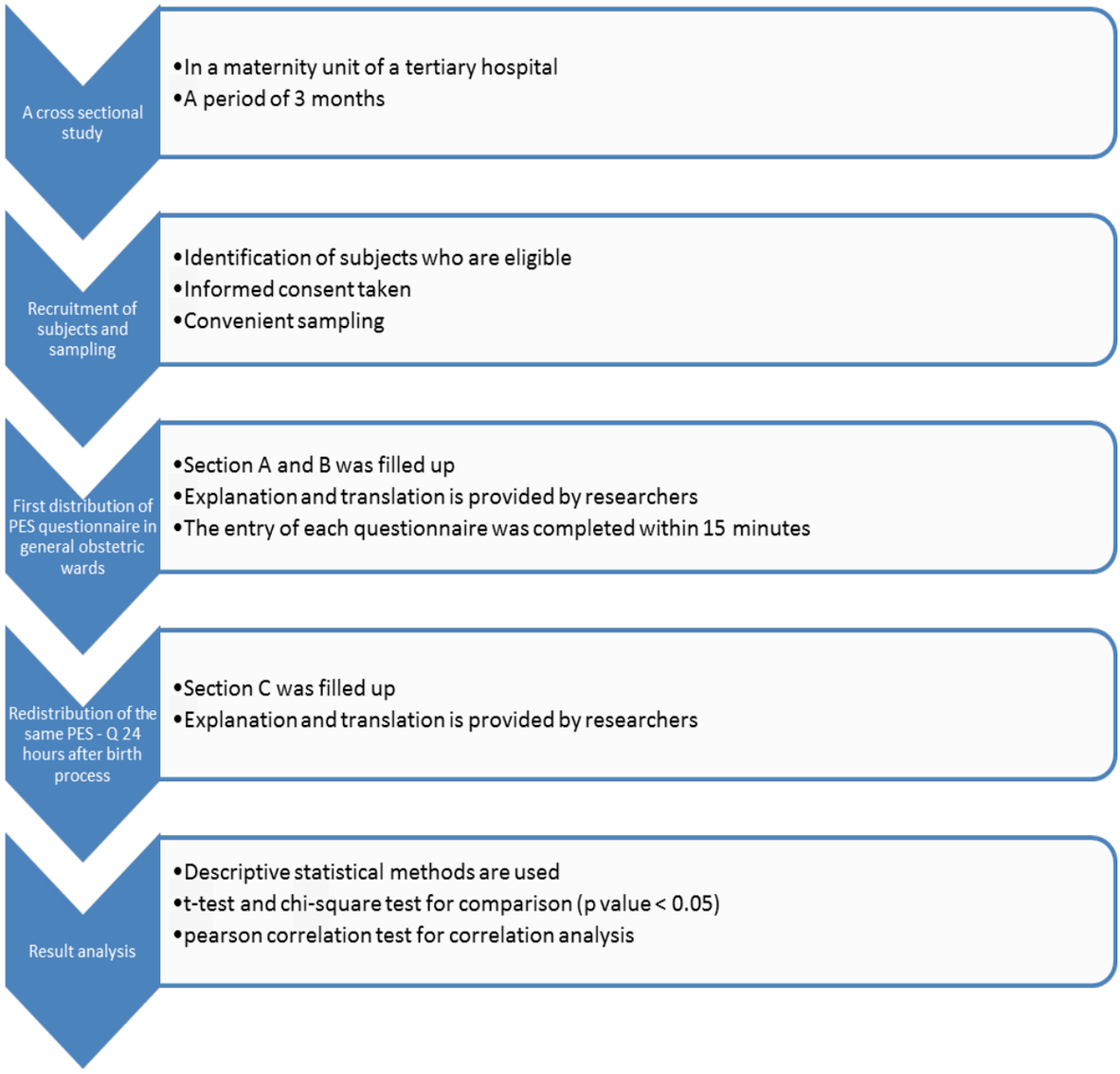


Figure 1: Flow Chart of Study Design and Methodology

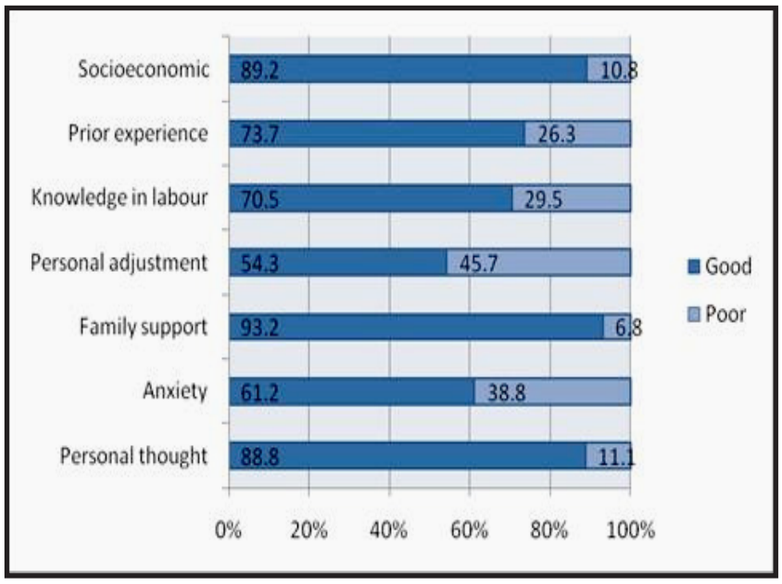
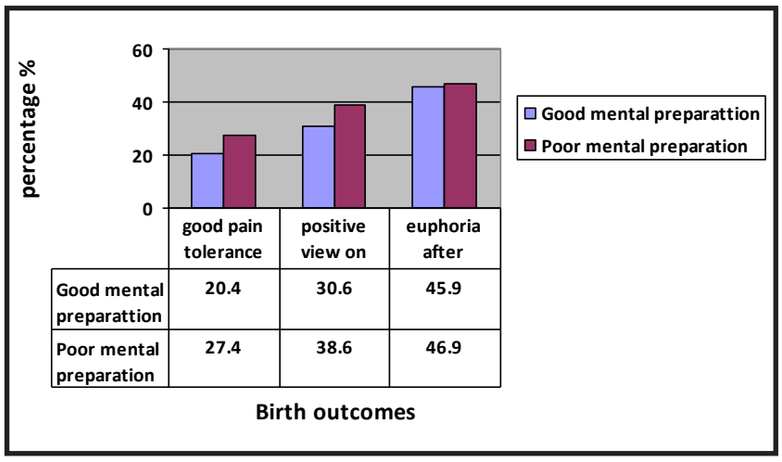


Figure 2: Determinants for level of mental preparation among mothers



	good pain tolerance	positive view on	euphoria after
Good mental preparattion	20.4	30.6	45.9
Poor mental preparation	27.4	38.6	46.9

Figure 3: The correlation between level of mental preparation and birth outcomes

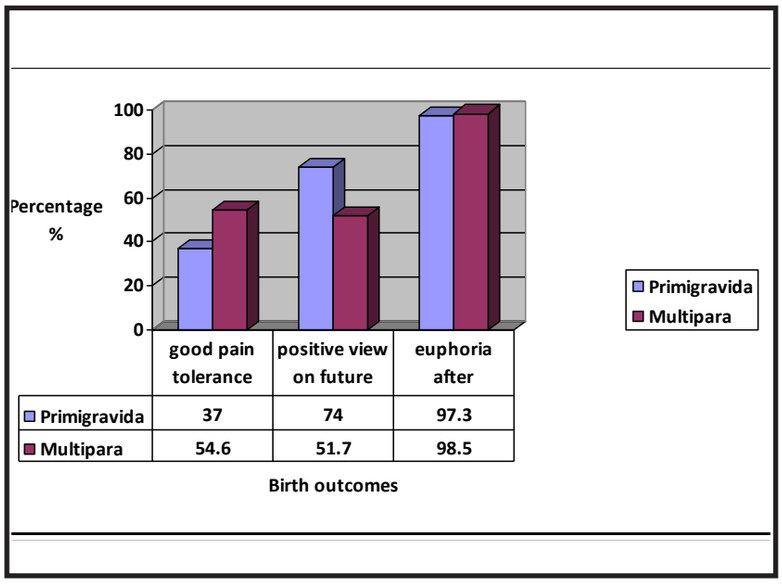


Figure 4 : The correlation between number of parity and birth outcomes