



The Correlation of Maternal Childbirth Experience Satisfaction with Postnatal Depression, Anxiety and Stress Scoring

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Abstract

Aim: To evaluate the relationship of childbirth satisfaction and maternal postnatal emotional disturbances and to explore the social-demographic factors that affects the maternal childbirth experience. **Methods:** The study was performed at Hospital Ampuan Afzan in Kuantan, Pahang, Malaysia. All women presented with labour or elective caesarean sections (CS) at term were counselled to participate in the study. A total number of 600 participants were recruited. Elective CS perform in 99 patients and vaginal delivery achieved by 320 mothers, 40 ended by instrumental delivery and 141 went through emergency CS. Patients were interviewed 24 hours postnatal using two questionnaires; childbirth satisfaction questionnaire and DASS21 for psychological assessment. The data were analysed using possible correlation matrix in SPSS 23 version. **Results:** Pearson correlation test; Satisfaction had an inverse relation with depression scores ($r = -0.14$, $n = 600$, $p = 0.001$), anxiety ($r = -0.125$, $n = 600$) ($p = 0.002$), and stress ($r = -0.116$, $n = 600$, $p = 0.005$). Independent sample t-test; Women with satisfaction score below the mean (<66.01) have higher depressive mood (4.66 ± 5.31) than women with satisfaction score above the mean (≥ 66.01) (3.69 ± 5.40) ($p < 0.03$). The same significant relation was seen with stress score (8.91 ± 7.27 and 7.78 ± 7.01 respectively) ($p < 0.05$) but not with anxiety. Mothers who deliver first child (Primiparous) have lower satisfaction than women with previous delivery experience (Multiparous) (64.99 ± 6.31 and 66.70 ± 6.45 respectively) ($p < 0.05$) and women with neonates admitted to neonatal intensive care (65.08 ± 6.52 and 66.70 ± 6.42 respectively) ($p < 0.05$) are more liable to have dissatisfaction. Women delivered by elective caesarean section (CS) or instrumentation have lower satisfaction score than normal delivery and emergency CS ($p < 0.05$). **Conclusion:** Negative psychological background of mothers affects the level of maternal satisfaction post-childbirth. Primiparous mothers are dissatisfied with childbirth as compared with multiparous women. Neonatal admission to the Intensive Care Unit (NICU) negatively affects maternal satisfaction. Mothers with higher education have better satisfaction score.

Keywords: Satisfaction, childbirth, depression, anxiety, stress

Introduction

Childbirth satisfaction is one of the primary factor that reflects the performance of medical institutions^[1]. Satisfaction is affected by many factors, including maternal psychology^[2] maternal socio-demographic background, antenatal preparation and mode of delivery^[3]. Medical institute's performance largely affects patient satisfaction, therefore those institutes use different tools to measure this subjective aspect in evaluating their services. In this study, we are exploring the relation between maternal psychology that is reflected by depression, anxiety and stress level, and the satisfaction score in the postnatal period. Childbirth satisfaction questionnaire (CEQ) is a tool used in measuring women's satisfaction after delivery^[4]. It consists of 22 items to evaluate patient own capacity, professional support, perceived safety and patient participation with maximum score of 88, the questionnaire

was translated and validated to the Malaysian language (Bahasa Malaysia) and thus could be applied to the local population^[5].

Maternal emotional disturbances, namely; depression, anxiety and stress are common symptoms that peak in the peripartum period^[6]. Those adverse emotions may influence the level of satisfaction^[7]. Many researchers studied the impact of postpartum depression and its negative effect on mother and new born^[8]. However, these symptoms are considered treatable by reducing the risk factors using cognitive-behavioural therapy and interpersonal therapy^[9].

The depression, Anxiety and Stress Scale - 21 (DASS-21) is one of these questionnaires consists of 21 questions constructed to evaluate depression, anxiety and stress and had been used in postnatal period^[10]. It was also translated to the Malaysian language and validated in the community^[11]. The two

questionnaires were used to evaluate maternal childbirth satisfaction and maternal psychological disturbances at 24 hours postnatal.

Maternal emotions are affected by other factors such as mode of delivery^[12] where, pregnancy can end up by spontaneous vaginal delivery or as an elective caesarean section (CS). In some instances, unexpected events might take place during vaginal delivery and end up by instrumental delivery or emergency CS. Changes in the plan of delivery can contribute to dissatisfactions with the birth experience^[13].

Other factors that influence maternal satisfaction may include the economic and educational status, neonatal admission to NICU^[14]. Prolonged labour reported as a risk factor for developing post-traumatic stress disorder^[15]. Similarly for unplanned events like instrumentation and emergency CS^[16]. Identifying the factors that affect satisfaction can help with planning strategies for early intervention to improve maternal impression regarding childbirth experience before it affects the future feelings^[17]. This will decrease the cost of late interventions in the public medical institutions and improve the contentment of patients in the private sectors^[18].

Materials and Methods

A prospective cohort study conducted on a sample of 600 pregnant women presented for delivery. Elective CS was performed in 99 women and 501 went through a trail of vaginal delivery. The study was approved by IIUM Research Ethical Approval Committee (IREC), Clinical Research Centre (CRC) and National Medical Research Register (NMRR). Informed consent was obtained from the participants after explaining the nature of the study. All participants were ensured of the confidentiality and that the information gathered was only used for research purposes. Postnatal women who are able to give informed consents and communicate in Bahasa Malaysia were counselled to participate in the study on voluntary bases.

Socio-demographic characteristics data were collected from the patients. Normal vaginal delivery achieved by 320 mothers, 40

ended by instrumental delivery and 141 went through emergency CS. The Childbirth Experience Questionnaire (CEQ) applied to evaluate the level of satisfaction after 24 hours post-delivery. The severity of depression, anxiety and stress symptoms were assessed by using the self-rating Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS-21). Both questionnaires had been translated and validated^[5,11].

The collected data were keyed into a database and cleaned before analysis. The statistical package for social sciences (SPSS) software version 23.0 was used for both descriptive and inferential analysis. Univariate statistics such as mean values, standard deviations, frequencies and proportion percentages were derived for continuous and categorical variables respectively. Pearson correlation matrix and paired sample ‘t’ test were used to determine the maternal satisfaction against depression, anxiety and stress encountered during the child birth. Strength of association between the variables in the study was validated by correlation coefficient (r). All tests were two-tailed with significance defined at 95% confident interval (p < 0.05).

Results

Socio-demographic data showed no significant difference in the mean of income and education, but there is a difference in age group underwent instrumentation. Babies delivered by instrumentation and emergency CS have significantly high admission rate to NICU. Prevalence of clinically significant depression, anxiety and stress were 0.92%, 9.8% and 2.23% respectively. The influence of different mode of delivery on the level of satisfaction on the volunteers showed overall satisfaction mean score of 66.01 out of 88 (maximum score for full satisfaction) which gives a 75% satisfaction of delivery service. There were significant differences in satisfaction score between women delivered by normal vaginal delivery compared to elective CS and instrumentation, however, no significant difference in the mean satisfaction score of women delivered by emergency CS as compared to normal vaginal delivery (Table 1).

Table 1: Socio-demographic characteristic and mean level of satisfaction, depression, anxiety and stress

| | NVD (N=320) Mean ± SD | Instrumentation (N=40) Mean ± SD | Emergency C.S (N=141) Mean ± SD | Elective C.S (N=99) Mean ± SD |
|---------------------------|--------------------------------------|---|--|--|
| Age/year | 29.52±5.65 | 27.70±4.95* | 30.01±5.12 | 29.90±4.83 |
| Satisfaction score | 67.14±7.63 | 65.00±6.17* | 65.70±7.36 | 64.85±7.35* |
| Depression | 3.33±4.97 | 3.68±5.76 | 2.80±4.11* | 3.57±5.04 |
| Anxiety | 6.36±6.38 | 6.73±7.63* | 5.60±5.88 | 6.52±6.30 |
| Stress | 6.63±6.56 | 7.36±8.75* | 6.27±5.95 | 6.95±7.31 |
| | Number (%) | | | |
| Income: | | | | |
| <5000 RM | 271(84.68%) | 34(85.00%) | 123(87.23%) | 79(79.79%) |
| >5000 RM | 49(15.31%) | 6(15.00%) | 18(12.76%) | 20(20.20%) |
| Education: | | | | |
| Primary | 16(5.00%) | 3(7.50%) | 14(9.93%) | 3(3.03%) |
| Secondary | 186(58.13%) | 23(57.50%) | 87(61.70%) | 56 (56.57%) |
| Higher | 118(36.87%) | 14(35.00%) | 40(28.37%) | 40(40.40%) |
| NICU Admission | 27(8.43%) | 11(27.50%)* | 32 (22.69%)* | 14 (14.14%) |
| Parity: | | | | |
| Primigravida | 37(11.56%) | 6(15.00%) | 23(16.31%) | 7(7.07%)* |
| Multigravida | 283(88.43%) | 34(85.00%) | 118(83.69%) | 92(92.93%) |

Note: * Adjustment for multiple comparisons; represent significant variation in different mode of delivery at 95% confident interval (p<0.05)

No difference in satisfaction score between different age groups, income, gestational age, but there are higher satisfaction score in multiparous patients comparing to primiparous. Women with a high educational level have a high score of childbirth satisfaction. Women with neonatal admission to NICU have low satisfaction score. (Table 2).

Table 2: Satisfaction score with socio-demographic characteristics.

| Socio-demographic characteristics | Maternal childbirth satisfaction score |
|-----------------------------------|--|
| Age | |
| 15-35 | 66.53 ± 6.53 |
| >35 | 66.47 ± 6.01 |
| Income | |
| < 5000 | 66.46 ± 6.31 |
| >5000 | 66.73 ± 7.26 |
| Parity | |
| Primi | 64.99 ± 6.31* |
| multip | 66.70 ± 6.45 |
| Educational level | |
| Primary | 65.00 ± 5.68 |
| Secondary | 66.38 ± 6.42 |
| Higher education | 67.00 ± 6.60* |
| NICU admission | |
| YES | 65.08 ± 6.52* |
| NO | 66.70 ± 6.42 |

Pearson correlation coefficient used to assess the relation between childbirth satisfaction score and depression, anxiety, and stress symptom scores. A negative correlation between satisfaction and depression scores were observed ($r = -0.14$, $n = 600$, $p = 0.001$), the same trend was noticed with anxiety ($r = -0.125$, $n = 600$, $p = 0.002$), and stress ($r = -0.116$, $n = 600$, $p = 0.005$). (Figure 1, 2 and 3).

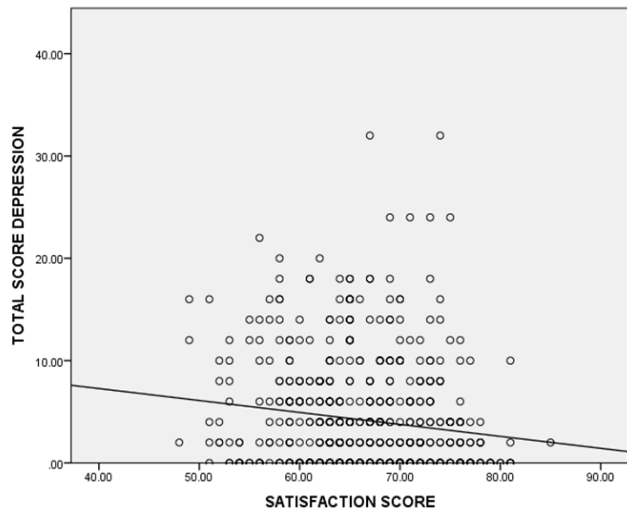


Figure 1: Correlation of satisfaction with depressive symptoms score.

Table 3: The relation between level of satisfaction and maternal emotions

| Satisfaction | Depression Mean | p value | Anxiety Mean | p value | Stress Mean | p value |
|--------------|-----------------|---------|--------------|---------|-------------|---------|
| ≥66.01 | 3.69 ± 5.40 | 0.03 | 6.92 ± 6.71 | NS | 7.78 ± 7.01 | 0.05 |
| <66.01 | 4.66 ± 5.31 | | 7.62 ± 6.09 | | 8.91 ± 7.27 | |

Discussion

In order to improve maternal childbirth satisfaction, one has to evaluate the psychological background of mothers. Maternal psychology should be screened during first antenatal visit for

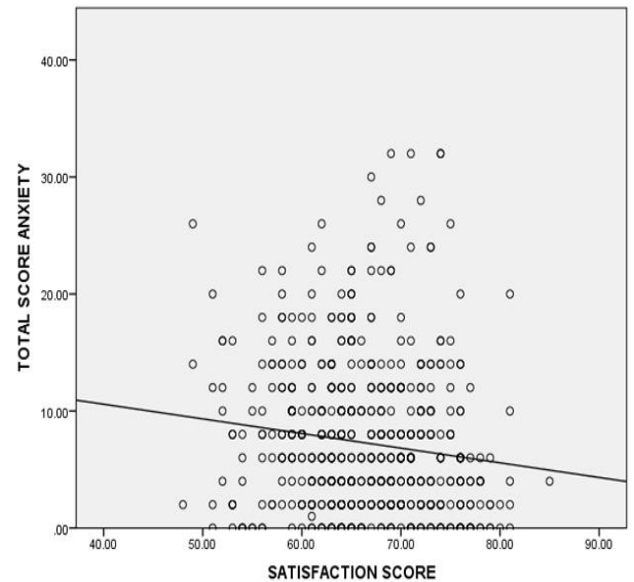


Figure 2: Correlation of satisfaction with anxiety score.

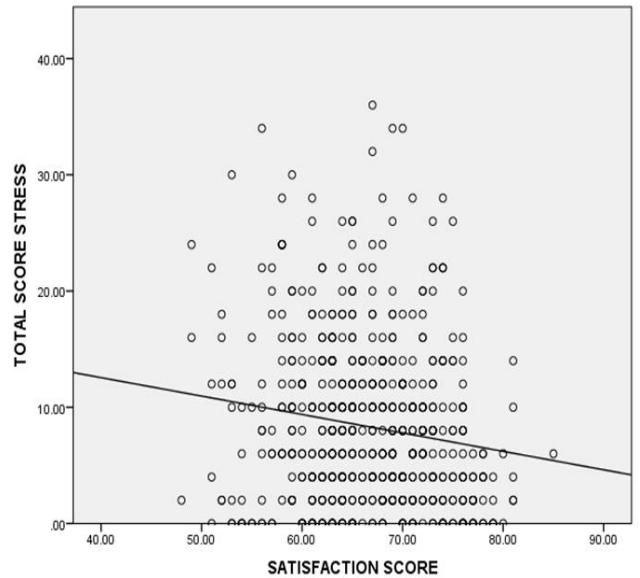


Figure 3: Correlation of satisfaction with stress score.

Using an independent samples t-test, we further analysis the relation between satisfaction score and maternal psychology scoring by dividing the studied population into two groups according to mean satisfaction score. The first group were women scored above the mean and a second group were women scored below the mean; Table 3 shows women with a satisfaction score below the mean have significant differences in depression and stress mean score than those with satisfaction score above the mean with $p < 0.05$ while there was no difference in the anxiety score in both groups. (Table 3).

postpartum blue and depression^[19]. Antenatal classes should be offered to decrease anxiety towards the unknown events that might take place during pregnancy and labour specifically with first time mothers^[20]. Early screening and counselling, benefits other obstetrical interventions during pregnancy and can prepare the

women for any unexpected procedures^[21,22]. Knowledge about events can help in decreasing psychological impact on mother^[23]. In our study; mothers with higher education showed higher level of satisfaction than mothers with lower education level.

Our results have shown a negative correlation between satisfaction and maternal psychological scoring results. Other researchers support this observation^[24]. The antenatal screening can pick up the depressive symptoms, stress, and anxiety by applying different questionnaires that can be accompanied by proper counselling to improve the satisfaction throughout labour^[25]. Unfortunately the ideal tools do not exist yet as shown by meta-analysis studies^[26]. Screening instruments can pick up pathological level of psychological disturbances to get the benefit of early psychological consultation referrals and follow up^[21]. In our study we used DASS21 for screening as it was used before by many other studies for postnatal evaluation^[26].

Our study shows that patients with low satisfaction have the highest score for depression and stress. In our study the prevalence of clinically significant depression was 0.9%. Previous studies have shown the prevalence of postpartum depression (PPD) with the percentage range between 0.5% - 60% globally and between 3.5% and 63.3% in Asian region with the minimum PPD of 3.9% to 22% based on different mode of delivery and demographic status in Malaysia^[27,28,29,30] and maximum PPD value of 36% to 63.3% in Pakistan^[31,32,33]. Ameliorating the depression and stress can help in improving the satisfaction and decrease the incidence of interventions during labour^[34]. Depression can be aided by coping with pregnancy strategies and decreasing the incidence of antenatal maladaptation coping behaviour^[35]. Antenatal interventions and education can help in preparing the couples for the upcoming event of paternity. Planning for a clear protocol is also important^[21,36].

Stressful factors can be overlooked in the physical environment that surround the patient during labour and most of these factors pass unnoticed by the medical staff. Those factors include; poor communication, noisy-busy environment in the labour room, non participation in decision making and may even include the layout of the labour room^[37].

Anxiety can be mitigated by simple physical measures such as massage that is recommended for some high risk cardiac patients^[38] or with music for mechanically ventilated patients^[39]. Antenatal visits to the labour room and the choice of the setting is a good practice to help patient's anxiety^[40].

Mode of delivery indirectly influence women's satisfaction with childbirth experience but factors like involvement in decision-making, support and effective analgesia appear to be important to improve women's birth experience^[41]. From our study, women who run through vaginal delivery had the highest satisfaction score followed by women with emergency CS. Significant difference and lower satisfaction was observed with patients underwent the elective CS and instrumentation ($P < 0.05$). Subjective distress in labour and obstetrical emergencies are important risk factors for post-traumatic stress disorder^[42]. This observation goes with our results regarding the instrumentation, but not the emergency CS. Literatures considered the planned delivery carry more satisfaction than the unplanned events like the emergency CS, however, our result contradicts with previous reports^[13].

Our socio-demographic variable analysis includes; parity, neonatal admission to NICU, maternal age, income and level of education. Most of these factors did not show a significant difference in satisfaction apart from being a primigravida. Some literatures were found evaluating this factor, but few emphasize on that being first time mothers are a risk factor for psychological disturbances or dissatisfaction^[43]. It is clear that NICU admission is a real issue for mothers to worry about, thus it will affect their childbirth satisfaction^[44].

Conclusion

Maternal childbirth satisfaction is inversely affected by maternal depression, anxiety and stress level. Other factors negatively affect satisfaction level include: delivery via instrumentation or elective CS, being a first time mother and mothers with neonate admitted to the intensive care unit while high educational level associated with positive maternal childbirth satisfaction.

Study Limitation

There was no antenatal supportive intervention applied to compare the effect of support, explanation and reflection of the positive aspects of labour to improve maternal psychology towards childbirth and measure the effect difference between the two groups.

Precise

The purpose of this study is to assess the relation between maternal childbirth satisfaction and the triad; depression, anxiety, and stress.

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