



Caesarean Delivery and Postnatal Depression in a Tertiary Hospital in Southern Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Postnatal depression is one of the most devastating of the mental disorders affecting women six weeks postpartum, accounting for more than 20% of maternal deaths after childbirth. It is said that young children of mothers with postnatal depression have greater behavioural problems than those of non-depressed mothers. Mode of delivery with other risk factors has been implicated as a predictive factor and caesarean section in any form is said to be most implicated. This study intends to contribute to the raging arguments on the relationship between caesarean section and postnatal depression.

Objective: To examine the relationship between caesarean sections and postnatal depression.

Methods: Women visiting the postnatal clinic six weeks postpartum who consented to the study, were interviewed and screened for depression using the study designed questionnaire and the Edinburgh postnatal depressive scale (EPDS). Data obtained were analysed using the statistical package for social sciences (SPSS) version 23.0, p values <0.05 were statistically significant.

Results: Out of 405 women who participated in the study, 135 (33.3%) had an EPDS score of ≥ 12 points. Among the risk factors isolated which included co-habiting, death of children, children challenges and partner violence, caesarean section showed a very strong association $p=0.001$, OR 1.68, 95% $ci=1.10-2.58$. Emergency caesarean section showed a stronger association $p=0.001$, OR 3.6, 95% $ci=2.35-5.69$.

Conclusion: Emergency caesarean section has a strong significant impact on the development of postnatal depression.

Keywords: Postnatal depression; EPDS; caesarean section; predictors.

1. INTRODUCTION

Postnatal depression is the most common of the mood disorders in women after delivery, 15% of women are known to have severe depression within six weeks of delivery [1]. It is a significant health problem with severe consequences on mothers, children and the entire family. It accounts for more than 12.5% of maternal deaths after child birth [2]. It affects maternal-infant interaction including infant feeding outcomes [3], and causes emotional, cognitive and behavioural problems, and low social competence [4]. It is said that children of mothers with postnatal depression have greater behavioural problems than those of non-depressed mothers [5].

Risk factors predisposing women to postnatal depression, have been discussed across the globe and the discussions are still ongoing because no consensus has been reached. Among several risk factors, mode of delivery has been implicated as a predictive factor [6,7].

Conventional modes of delivery include all types and manoeuvres of vaginal delivery and the caesarean sections (C/S). The caesarean sections are either elective or emergencies. The elective C/S appears to be a preferred mode of delivery to some women, since it affords them the opportunity to choose the date, the day, the choice of surgeon and place of surgery. It also allows them to plan their programmes and career profile. This observed preference and other reasons have steadily increased the rate of C/S worldwide in the past decades, to a rate exceeding 20% [8,9]. Although C/S can prevent maternal and perinatal mortality and morbidity, they are also associated with risks which can extend beyond the delivery, affecting mother and child health and even future pregnancies [10,11]. Studies have shown that C/S in any form is a predictive factor to postnatal depression [12,13]. Other studies insist that emergency C/S as against elective C/S are predictive factors to postnatal depression [14,15] while others found no association [16,17]. This study intends to contribute to this raging discussion between C/S and postpartum depression.

2. METHODS

The study was carried out in the Rivers State University Teaching Hospital, Port Harcourt

Nigeria. As a tertiary health institution, it serves as a referral centre to all the secondary health facilities within the region. The postnatal clinic of the hospital attends to all mothers who must have delivered their babies within the hospital in the last six weeks. The clinic therefore reviews the health conditions of women six weeks postpartum. The study criteria included all women who were delivered of children within the hospital in the last six weeks, who were visiting the postnatal clinic for review during the period, who were in good physical health and were not psychotic and who had a minimum of primary education. All women who met the criteria and who consented to the study were requested to sign a consent form which also explained the study to them. Only women who consented were allowed to take part in the study.

2.1 Data Collection and Study Instruments

Each participant responded to two questionnaires; The study designed questionnaire which contained the socio-demographic variables and the risk factors, and the English version of Edinburgh Postnatal Depression Scale (EPDS). The study questionnaire also considered socio-economic variables and obstetrics history.

Postnatal depression was measured using the EPDS developed by Cox et al (1987), validated for detecting depression in both antenatal and postpartum. It is globally used to screen for postpartum depression [18,19]. It contains 10 specific questions with four likert scale response options (most of the time, sometimes, not often and never), targeting stress indicators within the previous week. Scores are recorded as 0,1,2,3 or 3,2,1,0, according to symptom severity. It has a sensitivity and specificity of 86% and 76% respectively. Using the English version, the respondents who scored 12 points and above were considered as likely depressives.

2.2 Data Analysis

Using the statistical package for social sciences SPSS version 23.0, all relevant descriptive statistical variables were computed using student t-test and chi-squared tests and associations between means of continuous variables and categorical variables were determined. Linear multiple regression analysis determined the

predictors of postnatal depression at bivariate analysis $p < 0.05$.

3. RESULTS

Table 1 showing obstetrics and maternal history with depression.

The mean gestational age was 37 ± 3.80 weeks ($p=0.69$), planned pregnancy ($p=0.81$), family size ($p=0.040$), antenatal care ($p=0.767$), showed no strong association with depression. Death of children ($p=0.001$), child health challenges ($p=0.002$), showed strong association with depression.

Table 2 showing mode of delivery and depression.

Mode of delivery is described in Table 2. The indications for women who had elective C/S included recurrent sections and breech presentations. Emergency C/S were mainly referrals from peripheral hospitals with delayed first stage, foetal distress and other obstetrics complications as reasons for referral and surgery. In all, C/S showed a strong association with depression $p=0.019$ OR;1.68, 95%ci=1.10-2.58. Emergency C/S showed a stronger association $p=0.001$ OR;3.6, 95%ci=2.35-5.69, while elective C/S $p=0.081$. Table 2 shows the rest of the results.

Table 1. Obstetric history and depression

Variables	Frequency/ % N=405	Depressed N=135	Not depressed N=270	p-value
Gestational age				P=0.69
14-26	30 (7.4%)	12 (8.9%)	18 (6.70)	
27-40	288 (71.1%)	93 (68.9%)	195(72.2%)	
≥ 41	87 (21.5%)	30 (22.2%)	57 (21.1%)	
	405	135	270	
Planned Pregnancy				P=0.81
No	104 (25.7%)	36 (26.7%)	68 (25.2%)	
Yes	301 (74.3%)	99 (73.3%)	202 (74.8%)	
Family size				P=0.401
0	4 (1.0%)	2 (1.5%)	2 (0.7%)	
1	183(45.2%)	60 (44.4%)	123 (45.6%)	
2-4	213 (52.6%)	73 (54.1%)	140 (51.9%)	
≥ 5	5 (1.2%)	0(0.00%)	5 (1.9%) → 101,1%	
Death of Children				P=0.001 OR1.87 95%ci=1.27-2.62
0	322 (79.5%)	92 (68.1%)	230 (85.2%)	
1	69(17.0%)	36 (26.7%)	33 (12.2%)	
≥ 2	14 (3.5%)	7 (5.2%)	7 (2.6%)	
Child health Challenges				P=0.002 OR2.9 95%ci=1.46-5.67
No	366 (90.4%)	113 (83.7%)	253(93.7)	
Yes	39 (9.6%)	22 (16.3%)	17 (6.3%)	
Antenatal care				P=0.767
No	13 (3.2%)	5 (3.7%)	8 (3.0%)	
Yes	392 (96.8)	130 (96.3%)	130 (96.3%)	
Preferred child Sex				P=0.001 OR 0.42 95%ci=0.31-0.72
Yes	200 (49.4%)	50 (37.0%)	150 (55.6%)	
No	205 (50.6%)	85 (63.0%)	120 (44.4%)	

Table 2. Mode of delivery and depression

Variables	Frequency/% N=405	Depressed N=135	Not depressed N=270	P-value
Caesarean Section	227 (56%)	87 (64.4%)	140 (51.9%)	P=0.019 OR 1.68, 95%ci=1.10-2.55
Emergency C/S	198 (48.9%)	94(69.2)	104 (38.5%)	P=0.001 OR3.6, 95%ci=2.35-5.69
Elective C/S	29 (7.20%)	5 (3.7%)	24 (8.9%)	P=0.081
Vaginal Delivery	178 (43.9%)	36 (26.6%)	152 (56.2%)	P=0.69

4. DISCUSSION

In this study, the rate of C/S in this tertiary hospital is 56%. This is relatively high compared with other studies from different regions of the country. Emmanuel Adenuyi et al. [20] reported 2.1% from a population based cross-sectional study, Oluwarotimi et al. [21] reported 40.1% from Lagos, Ashie BA et al. [22], Gunn JKL et al. [23] reported rates of 2.1% and 7.2% respectively from Eastern Nigeria, while Dennis Allagoa et al 2021 reported 42.4% from a three-year review. The variation in rates are largely due to several factors including location of study centres, research samples and methods.

The rate of postnatal depression at six weeks postpartum, with a cut off point of ≥ 12 for the EPDS was 33.3%. This rate is in keeping with several research works all over world and in Nigeria which considered all the other risk factors involved in postnatal depression [24-26]. In this study, mode of delivery was the focus even though other risk factors were accommodated. There was a strong association between mode of delivery and postnatal depression, with C/S playing the major role, being responsible for >56% of the deliveries. There was a strong association between C/S as a whole against vaginal delivery $p=0.019$ OR;1.69, 95%ci=1.10-2.58. This is in keeping with Hossein Moameri et al 2019, who concluded after reviewing 32 articles, that C/S, regardless of the type is a risk factor for postnatal depression OR; 1.15, 95%ci=1.00-1.34.

This result is at variance with findings of Roshni R. Patel et al. [27] who reported 'no significant difference between C/S and vaginal deliveries' and Carter Fracness et al 2006 who after reviewing 24 studies concluded that no link has yet been found between C/S and postpartum depression. The emergency C/S when further analysed showed a stronger association $p=0.001$ OR; 3.6, 95%ci=2.35-5.69. Emergency C/S as a

strong predictive factor, has earlier been highlighted by Boyce PM et al 1992, Haba Kamal M et al. 2020, and Vincent Koo et al. 2003.

Women who requested for elective C/S may have higher antepartum depression, but no different postpartum level, as reported by Dennis Allagoa et al 2021. This may be the position of this report since elective C/S turned out, without a strong association $p=0.81$. This finding was also reported by Rong Liu et al 2022 in a prospective study of 590 women [28]. In keeping with this report, Renske M Olieman et al. [29] concluded that unplanned C/S may have a particularly negative psychological impact on mothers because they are unexpected, unusually mentally and physically stressful events.

5. CONCLUSION

We observed that C/S, especially emergency C/S has a strong significant impact on the development of postnatal depression. There is therefore an urgent need to improve obstetrics care to reduce complications leading to emergency caesarean sections.

6. STUDY LIMITATIONS

There are some limitations to this study, data were collected by a cross-section method, this may limit several other factors that may contribute to depression. EPDS is a screening test, and may require a diagnostic confirmation by a structured interview. This study allowed other women who had vaginal delivery and may have limited the desired number for the study.

CONSENT

All respondents signed a written consent, and all the relevant authorities consented to the study.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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