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Post-traumatic stress disorder after childbirth in Nigerian women: prevalence and risk factors

AO Adewuya,[a] YA Ologun,[b] OS Ibigbami[c]

[a] Department of Mental Health [b] Department of Clinical Services [c] School of Midwifery, Obafemi Awolowo University Teaching Hospitals Complex, Wesley Guild Hospital, ILESA, Osun State, Nigeria
Correspondence: Dr A Adewuya, Department of Mental Health, Obafemi Awolowo University Teaching Hospitals Complex, Wesley Guild Hospital, ILESA 233001, Osun State, Nigeria. Email biodunwuya@yahoo.com

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Objective To estimate the prevalence of post-traumatic stress disorder (PTSD) after childbirth in a group of postpartum Nigerian women and to examine any associated factors.

Design A cross-sectional survey.

Setting Postnatal clinics and infant immunisation clinics of the five health centres in Ilesa Township, Nigeria.

Population A total of 876 women at 6 weeks postpartum.

Methods The postpartum women were assessed for PTSD at 6 weeks. Other data collected were demographic characteristics, details of pregnancy and delivery and neonatal outcome. Additionally, the following measures were used: the MINI International Neuropsychiatric Interview to assess PTSD, the Index of Marital Satisfaction to measure the degree of problem a spouse encounters in the marital relationship, the Medical Outcome Study Social Support Survey to measure social support, the Life Events Scale to measure the life stress covering the preceding 12 months and the Labour Agentry Scale that measures the maternal experiences of control during childbirth.

Main outcome measures Prevalence of PTSD in this population of postpartum Nigerian women, and how this prevalence related to other maternal and neonatal characteristics.

Results The prevalence of PTSD was 5.9%. The factors independently associated with PTSD after childbirth include hospital admission due to pregnancy complications (OR 11.86, 95% CI 6.36–22.10), instrumental delivery (OR 7.94, 95% CI 3.91–16.15), emergency caesarean section (OR 7.31, 95% CI 3.53–15.10), manual removal of placenta (OR 4.96, 95% CI 2.43–10.14) and poor maternal experience of control during childbirth (OR 5.05, 95% CI 2.69–9.48).

Conclusions The prevalence of PTSD after childbirth in Nigerian women is slightly higher than those found in western culture. An effective model for the prediction of the development of PTSD after childbirth needs to be developed and evaluated, and interventions aimed at reducing the incidence of PTSD after childbirth need further research.

Keywords Caesarean section, cross-culture, postpartum, post-traumatic stress disorder, trauma.

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Introduction

Post-traumatic stress disorder (PTSD) is a reaction to an event, either personally experienced or witnessed, which involves actual or threatened death or serious injury or a threat to the physical integrity of self or others.[1] PTSD after childbirth was first described by Bydlowski and Raoul-Duval,[2] with long ordeals during labour leading to tocophobia and recurrence of tension, nightmares and flashbacks towards the end of the next pregnancy. Several authors thereafter proposed that a PTSD may occur after a distressing labour or delivery,[3–7] suggesting that difficult or traumatic birth may act as a significant stressor, in a fashion similar to known stressors, such as violence or war, and living through the experience might trigger the symptoms of PTSD.

Birth trauma is an event occurring during the labour and delivery process that involves actual or threatened serious injury or death to the mother or to her infant. The stressful experience is pain in most cases, but loss of control and fear of death can be the focus.[8,9]

Studies performed in USA,[10] Sweden,[7] Germany,[11] UK,[12,13] Australia[14] and Canada[15] have reported a prevalence ranging between 0.9 and 5.6%. Correlates of PTSD found in these studies include locus of control, level of social support and previous traumatic experiences.

These studies are few and are mostly from developed countries where delivery is relatively safe. Most African women do not use any health services when pregnant, and there is a high rate of deliveries at home, mission houses and with traditional birth attendants (TBAs). Obstetric practice is poor in Africa, with associated higher maternal mortality and morbidity.[16,17] There may be a cross-cultural difference in the response of African women to traumatic birthing compared with their counterparts from the western culture. A review of literature, both electronic and manual, reveals no study performed on PTSD after childbirth in Africa.

The objectives of the present study are to estimate the prevalence of PTSD after childbirth in a group of postpartum women in Nigeria and to examine the contributing factors associated with PTSD after childbirth in these women.

Materials and methods

Subjects

Between January and July 2004, all postpartum women who attended the 6-week postnatal clinic and those attending the infant immunisation clinic at 6 weeks at the five government health centres in Ilesa were consecutively approached and asked to participate. There were only few nongovernment healthcare facilities in Ilesa, and most women use the government health centres especially for pregnancy, childbirth and immunisation of their infants. Of the 923 women approached, 876 (94.7%) were recruited for the study. The 47 women who were excluded include those who were discovered to be critically ill (n = 11), did not speak the local language or English (n = 14) or who just declined to give an informed consent (n = 22). There were no significant differences in the sociodemographic characteristics (age, marital status and educational level) of the participants and the women excluded from the study.

Testing procedure

The Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals Complex approved the study protocol, and an informed consent was obtained from the participants after the aims and objectives of the study had been explained.

Mothers were administered the first questionnaire, which covered the sociodemographic characteristics (age, parity, marital status, level of education, socio-economic status), the pregnancy characteristics (pregnancy-related hospital admissions, whether pregnancy was planned or not, gestational age at delivery, antenatal care), the delivery characteristics (place of delivery, length of delivery, mode of delivery, use of analgesia during labour) and the baby's characteristics (gender, abirthweight, length of stay in the hospital).

The women also completed various rating scales including the Index of Marital Satisfaction (IMS), the Medical Outcome Study Social Support Survey (MOSSS), the Life Events Scale (LIS) and the Labour Agentry Scale (LAS).

The IMS[18] is a 25-item self-report scale designed to measure the degree of problem a spouse encounters in the marital relationship. It has been shown to have excellent internal consistency, test–retest reliability and concurrent validity. A score of 31 or above is commonly used to define marital problems. The MOSSS[19] is a 20-item self-administered questionnaire developed by the Rand and Medical Outcome Study teams to measure social support. It has good reliability and validity. The LIS[20] measures the life stress covering the preceding 12 months. The LAS[21] is a 10-item Likert-type instrument that measures the maternal experiences of control during childbirth. Items were rated on a 7-point Likert-type scale to produce a total score ranging from 10 to 70, with higher scores indicating higher personal control and positive feelings.

The rating scales were translated to Yoruba by a psychiatrist and a linguist. Precise idiomatic equivalents were considered as far as possible. The back translation, which was performed independently by another set of psychiatrist and linguist, was compared and found to be satisfactory. The questionnaires were completed in a waiting room in the clinics. Literate women complete the questionnaires either in English or in Yoruba. For those who are not literate (n = 78), one of the research assistants reads out the questions and marked the responses.

A psychiatrist and a trained clinician blind to the sociodemographic and clinical details of the subjects assessed each of the postpartum women for PTSD using the MINI International Neuropsychiatric Interview (M.I.N.I). The M.I.N.I[22] was designed as a brief, structured interview for the major Axis I psychiatric disorders in DSM-IV[1] and ICD-10.[23] Validation and reliability studies have been performed for M.I.N.I, with the results showing that the M.I.N.I. has acceptably high validation and reliability scores. Clinicians can use it after a brief training session, but lay interviewers require more extensive training.

Statistical analyses

The Statistical package for the Social Sciences 11 (SPSS.11, SPSS Inc., Chicago, IL, USA) program was used for statistical analysis. Participants were classified as cases or noncases of PTSD based on their M.I.N.I–DSM-IV diagnosis. Results were calculated as frequencies (%), means and SD. Group comparison was by Student's t test and chi-square test. Correlation was by Spearman's correlation coefficient. Significance was computed at $P < 0.05$. To predict the risk for PTSD, the significant independent variables were then entered into a stepwise regression analysis. Odds ratio and 95% CI were calculated for the associated variables.

Results

Sociodemographic and clinical characteristics

The mean age of the postpartum women was 25.98 years (SD = 7.27). There were 70 (8.0%) single women, 753 (85.9%) married and 53 (6.1%) divorced/separated women. The mean number of children was 2.79 (SD = 1.58), with 236 (26.9%) having just delivered their first baby. The average number of years of formal education was 7.75 (SD = 4.28). One hundred and thirty-one (15.0%) women did not plan the pregnancy, 201 (22.9%) did not have any antenatal care and 70 (8.0%) had hospital admissions due to pregnancy complications. Eighty-eight (10%) women delivered at home, 324 (37.0%) delivered at either mission houses or with the TBAs, 332 (37.9%) delivered at primary health centres, while 132 (15.1%) delivered in either a secondary or a tertiary health institution (General hospital or teaching hospital). The mean duration of labour in hours was 12.71 (SD = 7.88). Six hundred and thirty (71.9%) women had spontaneous vaginal deliveries, while 105 (12.0%) had assisted instrumental vaginal delivery (forceps or vacuum delivery). There were 100 (11.4%) women who had emergency caesarean sections, while 41 (4.7%) had an elective caesarean section. Five hundred and sixty-one (64.0%) women had no form of analgesia during labour, and of the 735 who delivered vaginally, 96 (13.1%) had a manual removal of placenta. There were 105 (12.0%) preterm deliveries and 44 (5.0%) postterm deliveries. There were also 280 (31.9%) babies with low birthweight (<2.5 kg) and 27 (3.1%) babies with a birthweight more than 4.0 kg. The women's mean scores on the IMS scale was 23.04 (SD = 11.21) and on the LAS was 42.22 (SD = 15.54). Five hundred and ninety (67.4%) had good social support, and only 27 (3.1%) had significant stressful life events 12 months prior to assessment.

Prevalence and risk factors for PTSD

There were 52 (5.9%) women fulfilling the DSM-IV criteria for PTSD. The agreement between the psychiatrist and clinician diagnosis was 0.97 measured by kappa. The association of the independent variables and the diagnosis of PTSD was first examined, and the result (Table 1) showed the following to be statistically significant: parity ($P < 0.001$), whether pregnancy was planned or not ($P < 0.001$), any pregnancy-related hospital admissions ($P < 0.001$), place of delivery ($P < 0.001$), mode of delivery ($P < 0.001$), duration of delivery in hours ($P < 0.001$), analgesia use in labour ($P = 0.004$), mode of placental removal ($P < 0.001$) and maternal experience of control during childbirth ($P < 0.001$).

Table 1. Analysis of the comparison of the women with and without PTSD on some variables

Variables	Differences		
	t	*df*	*P*
Age in years	−0.159	874	0.873
No. of children (parity)	−3.593	874	<0.001
Labour duration (in hours)	3.622	874	<0.001
Years of formal education	0.261	874	0.794
Score on IMS	1.952	874	0.051
Score on LAS	−4.185	874	<0.001
	χ^2	*df*	*P*
Marital status (single/married/separated-widowed)	0.016	2	0.992
Admission due to pregnancy complication (yes/no)	88.546	1	<0.001
Whether pregnancy was planned (yes/no)	16.803	1	<0.001
Gestational age at delivery (term/preterm/postterm)	0.071	2	0.965
Antenatal care (nil/at PHC/at SHC–THC)	5.923	2	0.052
Place of delivery (home/TBA-churches/PHC/SHC–THC)	32.514	3	<0.001
Mode of delivery (SVD/instrumental/EMCS/ELCS)	54.854	3	<0.001
Use of analgesia in labour (yes/no)	8.351	1	0.004
Mode of placental removal (spontaneous/manual removal)	23.102	1	<0.001
Sex of baby (male/female)	2.284	1	0.131
Weight of baby (<2.5 kg/2.5–4.0 kg/>4.0 kg)	0.112	2	0.544
Mother's stay in hospital (<3 days/3–7 days/>7 days)	0.018	2	0.991
Social support-MOSSS (good/fair/poor)	3.132	2	0.089
Significant stressful life events in past 12 months (yes/no)	2.678	1	0.152

EMCS, emergency caesarean section; ELCS, elective caesarean section; PHC, primary health centre; SHC, secondary health centre; SVD, spontaneous vaginal delivery; THC, teartiary health centre.

When the significant variables were entered into a stepwise regression analysis, the predictors of PTSD in postpartum women were found to be pregnancy-related hospital admission, mode of delivery, mode of delivery of the placenta and maternal experience of control during childbirth (Table 2). The calculated odds ratio and 95% CI for the predictors of PTSD are shown in Table 3.

Discussion

To our knowledge, this study is the first to examine the prevalence of and risk factors for the development of PTSD in a nonwestern culture. The prevalence of PTSD measured at 6 weeks postpartum in our study was 5.9%. This rate is much higher than the 1.9% found in US women,[10] 0.9% in German women,[11] 2.8–3% in women in the UK,[12,13] 1.7% in Swedish women,[7] but close to the 5.6% found in Australian women.[13] Thus, our study found support for a PTSD syndrome associated with childbirth in nonwestern culture.

Our study revealed that obstetrics factors are most associated with occurrence of PTSD after childbirth in our Nigerian sample. In our study, hospital admission due to pregnancy complications showed a significant effect on the risk for developing PTSD (OR 11.86, 95% CI 6.36–22.10). Obstetric practice is still poor in Nigeria, with a high proportion of pregnant women not attending any antenatal clinic. Late detection of serious and life-threatening health problems in pregnancy could necessitate hospital admission.

In our study, we found unplanned interventions during childbirth to be significantly associated with PTSD. Earlier studies in the western culture had implicated emergency caesarean sections and instrumental deliveries.[2,3,9,13,24] It should be noted, however, that only instrumental delivery (OR 7.94, 95% CI 3.91–16.15) and emergency caesarean section (OR 7.31, 95% CI 3.53–15.16) were associated with PTSD, while elective caesarean sections showed no significant effect (OR 1.97, 95% CI 0.44–8.87). This suggests that unplanned interventions rather than operative deliveries were associated with PTSD. This notion is further supported by our finding of a significant association between manual removal of placenta and a higher rate of PTSD.

In this study, we found poor maternal experience of control during childbirth to be significantly associated with a diagnosis of PTSD after childbirth. This is in agreement with earlier findings,[5,10,13] which reported an association between coping and expectations of childbirth and PTSD after childbirth.

Unlike the studies of Lyons,[5] Wijma *et al.*[7] and Czarnoka and Slade,[13] we did not find any sociodemographic factors associated with PTSD after childbirth in our sample of women.

There were a number of limitations to this study. First, we excluded critically ill women and women not speaking the local Yoruba language. Also, we obtained our sample of women mainly from child immunisation clinics of government health centres, thereby excluding women whose babies were brought to the clinic by relatives or by women who had either used nongovernment healthcare facilities or had not used any healthcare facilities for pregnancy, childbirth or immunisation. Also, many women, particularly those who are depressed or have complications, may not attend these clinics. We also excluded mothers with ill or stillborn infants who may have been more likely to experience a difficult delivery and, possibly, PTSD. Thus, the extent of PTSD after childbirth in this study is likely underestimated. We also did not assess PTSD symptoms that may have existed prior to childbirth. It may also be possible that 6 week may be too early for PTSD symptoms to develop.

The strength of our study is that it is the first to examine prevalence and risk factors for PTSD after childbirth in any nonwestern culture. Our sample size was large enough, and the range of variables we examined was extensive. We had also used a structured diagnostic instrument.

We had shown that a PTSD syndrome following childbirth does occur in Nigerian postpartum women, and the prevalence is slightly higher than those found in the West. We have also shown that obstetrics factors, such as hospital admission due to pregnancy complications, unplanned interventions during childbirth and loss of maternal control during childbirth, are significantly associated with a diagnosis of PTSD after childbirth in Nigerian postpartum women. Maternal and infant health policies, a priority in low-income countries, should include maternal PTSD after childbirth as a disorder

Table 2. Regression analysis for the predictors of PTSD in Nigerian postpartum women

Variables	*R*	Adjusted R^2	R^2 change	*F* change	*df*	Significant *F* change
Admission due to pregnancy complication	0.406	0.164	0.165	145.145	734	<0.001
Mode of delivery	0.428	0.181	0.018	16.080	733	<0.001
Mode of placental removal	0.440	0.190	0.011	9.571	732	0.002
Maternal experience of control during childbirth	0.446	0.194	0.055	4.708	731	0.030

Table 3. Odds ratio and 95% CI for the predictors of PTSD in Nigerian postpartum women

Variables	Total no. of women	Women with PTSD	Women without PTSD	OR (95% CI)
Admission in pregnancy				
Not admitted	806	30	776	1
Admitted	70	22	48	11.86 (6.36–22.10)
Mode of delivery				
Spontaneous vaginal delivery	632	16	614	1
Instrumental delivery	105	18	87	7.94 (3.91–16.15)
Emergency caesarean section	100	16	84	7.31 (3.53–15.16)
Elective caesarean section	41	2	39	1.97 (0.44–8.87)
Mode of placental removal				
Normal	639	21	618	1
Manual	97	14	83	4.96 (2.43–10.14)
Maternal experience of control during childbirth (LAS score)				
>40	552	14	538	1
<40	324	38	288	5.05 (2.69–9.48)

of public health significance. An effective model for the prediction of the development of PTSD after childbirth needs to be developed and evaluated, and interventions aimed at reducing the incidence of PTSD after childbirth need further research. ■

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