Original contribution

Anxiety disorders among Nigerian women in late pregnancy: a controlled study

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Summary

This study aimed to investigate the rate and type of anxiety disorders among Nigerian women in late pregnancy. Women in late pregnancy ($n = 172$) and a non-pregnant control group were assessed for DSM-IV anxiety disorders. The rate of any anxiety disorder in the pregnant women was 39.0% compared with 16.3% in the non-pregnant population ($p < 0.001$). Although all the anxiety disorders were more common, only the rate of social anxiety disorder was significantly higher among the pregnant than non-pregnant population. Correlates of anxiety disorder in the pregnant population include age less than 25 years (OR 4.62, 95% CI 2.39–8.92), primiparity (OR 3.90, 95% CI 2.00–7.59) and presence of medical conditions (OR 3.60, 95% CI 1.28–10.12). More research is needed in this field to ascertain the specific association between pregnancy and anxiety disorders.

Keywords: Anxiety disorders; pregnancy; Nigeria.

Introduction

Most of the researches into perinatal mood disorders have focused on depression especially in the postnatal period. Only few studies have examined perinatal anxiety, fewer still when occurring during pregnancy. Apart from being associated with increased risk of spontaneous preterm labour and pre-eclampsia, increased health care use during pregnancy and delivery and intense postnatal depression (Kurki et al, 2000; Dayan et al, 2002; Andersson et al, 2004; Sutter-Dalay et al, 2004), there is some evidence that maternal antenatal anxiety is associated with increased uterine artery resistance (Teixeira et al, 1999) and could have a direct effect on foetal brain develop-

ment constituting a mechanism for an increased vulnerability to psychopathology in children and adolescents (O'Connor et al, 2002; 2005).

As symptoms of anxiety are often similar to those found in pregnancy, careful assessment for anxiety in pregnancy is useful (Weisberg & Paquette, 2002). It is important to differentiate between manageable antenatal anxiety occurring as part of the life transition to parenthood which is amenable to extra support and information, and more debilitating antenatal anxiety conditions that require specific assessment and treatment by a mental health professional. Concerns have been expressed that the use of continuous measures and rating scales for anxiety disorders which are categorical states might lead to over-pathologizing the normal heightened levels of emotion during pregnancy (Oates, 2002).

A range of anxiety disorders potentially have their onset during pregnancy, including panic disorder, obsessive compulsive disorder, and generalised anxiety disorder (Shear & Mammen, 1995). However, the literature concerning anxiety disorders in pregnancy is limited and contradictory with conflicting reports as to whether anxiety disorders are more or less common during pregnancy (Altshuler et al, 2000; Hertzberg & Wahlbeck, 1999; Williams & Koran, 1997). It is frequently complicated by the use of various methodologies, procedures and study population. Studies using diagnostic interview or comparing with non-pregnant women or done at the late pregnancy when women are more vulnerable to anxiety are scarce.

The present study is aimed at investigating the rate and type of anxiety disorders in late pregnancy among Nigerian women using a diagnostic interview and compare with a non-pregnant control group.

Methods

Subjects

Between January and March 2005, 181 women in late pregnancy (32 weeks and above) presenting to the antenatal clinics of the five health centres in Ilesa, a semi-urban town in western Nigeria were invited to participate in the study. Out of this group, 6 women refused to participate leaving a sample size of 175. Excluded from the study were women who were receiving any treatment for a mental health condition, do not speak the local language or English, or unable to give informed consent. The age and marital status of the women who refused were not significantly different from the participants.

Within the same period, 180 non-pregnant women from the General Medical Practise register of two of the participating centres were contacted at home and invited to participate in the study as controls. They were individually matched with the pregnant women for age (± 2 years), marital status, parity and social class. Out of this group, 8 refused participation leaving a sample size of 172. Excluded were women who had delivered a baby in the last one-year or receiving treatment for a mental health condition at that time. In addition, there was no significant difference in the age and marital status of the participants and those who refused participation.

Testing procedures

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

Two trained psychiatrist then used the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al, 1998) to assess all the pregnant women and their non-pregnant controls for the DSM-IV (APA, 1994) anxiety disorders. The MINI was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM-IV. Validation and reliability

studies have been done for MINI with the results showing that the MINI. has acceptably high validation and reliability scores. Clinicians can use it, after a brief training session, but lay interviewers require more extensive training. The psychiatrist interviewed the women together, in the same room, at the same time. While the pregnant women were interviewed in the clinic, the non-pregnant women were interviewed at home.

Statistical analysis

Results were calculated as frequencies (%), means and standard deviations. Groups' comparisons by Student's t-test and Chi-square test. Significance was computed at $p < 0.05$.

Results

Three of the pregnant women had incomplete data so 172 were used for the analysis. The average age of the pregnant women in years was 26.86 (SD = 6.76) while that of the non-pregnant women was 26.22 (SD = 5.81). Twenty one (12.2%) of the pregnant women were single compared to 24 (14.0%) of the non-pregnant women. Of the pregnant women, 58 (33.7%) had never delivered before compared with 57 (33.1%) of the non-pregnant women. There were 71 (41.3%) pregnant women from low socioeconomic status while there were 68 (39.5%) of the non-pregnant women. Of the pregnant women, 18 (10.5%) had a present medical condition compared to 15 (8.7%) of the non-pregnant women. There were no statistically significant differences in the age, marital status, parity, socioeconomic status and presence of medical conditions between the pregnant women group and their matched controls. The two psychiatrists agreed on all the diagnosis except one, which was resolved by consensus.

Comparing the DSM-IV anxiety disorders among the pregnant women with their non-pregnant controls (Table 1), it was shown that the rate for any anxiety disorder in the pregnant group was 39.0% compared with 16.3% in the non-pregnant group ($\chi^2 = 22.119$, df = 1,

Table 1. Rates of anxiety disorders in Nigerian women in late pregnancy compared with non-pregnant matched controls

Anxiety disorder	Pregnant women (n = 172)	Non-pregnant women (n = 172)	Differences	OR (95% CI)
Panic disorder	9 (5.2%)	3 (1.7%)	$\chi^2 = 3.108$, df = 1, $p = 0.078$	3.11 (0.83–11.69)
Specific phobia	16 (9.3%)	10 (5.8%)	$\chi^2 = 1.898$, df = 1, $p = 0.221$	1.66 (0.73–3.77)
Social phobia	11 (6.4%)	3 (1.7%)	$\chi^2 = 4.765$, df = 1, $p = 0.029$	3.85 (1.05–14.65)
GAD	18 (10.5%)	9 (5.2%)	$\chi^2 = 3.256$, df = 1, $p = 0.071$	2.12 (0.92–4.85)
OCD	9 (5.2%)	3 (1.7%)	$\chi^2 = 3.108$, df = 1, $p = 0.078$	3.11 (0.83–11.69)
PTSD	1 (0.6%)	0 (0.0%)	$\chi^2 = 1.003$, df = 1, $p = 0.317$	1.01 (0.99–1.02)
AD-Medical	11 (6.4%)	5 (2.9%)	$\chi^2 = 2.360$, df = 1, $p = 0.125$	2.28 (0.78–6.71)
Any anxiety disorder	67 (39.0%)	28 (16.3%)	$\chi^2 = 22.119$, df = 1, $p < 0.001$	3.28 (1.98–5.45)

GAD Generalised anxiety disorder; OCD obsessive compulsive disorder; PTSD post-traumatic stress disorder; AD-medical Anxiety disorder due to medical conditions; OR (95% CI) odds ratio (95% confidence interval).

$p < 0.001$). Specifically, although all the individual anxiety disorders were more prevalent among the pregnant women, only the social phobic anxiety reached a significant proportion ($\chi^2 = 4.765$, df $= 1$, $p = 0.029$). However, when compared with non-pregnant women, panic disorder and obsessive-compulsive disorder were three times more common among the pregnant population. Likewise, generalised anxiety disorder and anxiety disorders due to medical condition were two times more common among the pregnant population. Pregnancy was not considered as a medical condition in this study, the medical condition present include hypertension, diabetes mellitus and asthma.

Further analysis on the pregnant population revealed a significant relationship was found between diagnoses of anxiety disorder and age ($t = 5.021$, df $= 170$, $p < 0.001$), parity ($\chi^2 = 16.839$, df $= 1$, $p < 0.001$) and presence of a medical condition ($\chi^2 = 6.493$, df $= 1$, $p = 0.011$) whereas no significant relationship was found with marital status ($\chi^2 = 3.328$, df $= 1$, $p = 0.068$) and socioeconomic status ($\chi^2 = 2.041$, df $= 2$, $p = 0.360$). Logistic regression analysis of the variables also showed significant relationship between any anxiety disorders and age less than 25 years (OR 4.62, 95% CI 2.39–8.92), primigravidity (OR 3.90, 95% CI 2.00–7.59) and presence of medical condition (OR 3.60, 95% CI 1.28–10.12).

Discussion

To our knowledge, this is the first study to have specifically compared the rates of different anxiety disorders in a pregnant population with a non-pregnant control using diagnostic interview. The main findings of our study were the significant difference in the rate of any anxiety disorders between the pregnant group (39.0%) and the non-pregnant controls (16.3%). In addition, the rate for social anxiety disorder was significantly higher in the pregnant women compared to controls while there were non-significant increases in the rate of other anxiety disorders.

The higher rate of categorical anxiety disorders despite our use of diagnostic interview (compared with rating rates and continuous measures) support the notion that anxiety disorders are more common during pregnancy and not just the normal heightened levels of emotion during pregnancy as suggested (Oates, 2002). As expected, many of our women had more than one anxiety disorder and this was noted especially amongst the pregnant women.

The association between pregnancy and social anxiety disorder had not been well reported in literature. We therefore view our finding of a significantly higher pre-

valence of social anxiety disorder in pregnant women compared to non-pregnant controls as peculiar to this study. Whether the uniqueness of our finding is due to lack of research in this direction or a reflection of cross cultural differences in the emotional response of women to pregnancy needs to be seen.

Although not clinically significant, the rates of panic disorder and obsessive compulsive disorder (OCD) in pregnant women were three times those in non-pregnant controls. Our finding seemed at variance with findings from earlier studies. Hertzberg & Wahlbeck (1999) in a meta-analysis of 8 relevant literatures on the impact of pregnancy and peuperium found improvement of panic symptoms in 41% of the patients during pregnancy. None of these studies were however controlled studies and all but one were retrospective. Our study however lends support to other studies that have reported onset or worsening of symptoms of obsessive compulsive disorders during pregnancy (Buttolph & Holland, 1990; Williams & Koran, 1997).

We also found that younger age, being pregnant for the first time and presence of a medical condition are independently associated with diagnosis of an anxiety disorder. Lack of experience of pregnancy and the fear of safe delivery especially when the woman is young is likely to be a contributing factor to anxiety disorders in pregnancy. Most African women book late in pregnancy thereby making early detection and treatment of health problems in pregnancy difficult. In fact, for most young women pregnant for the first time, the antenatal visit was the first contact with medical services. Poverty and malnutrition, which are prevalent in Africa, may further worsen maternal health during pregnancy.

Our study is limited by several factors. We had assessed our subjects only in late pregnancy whereas there may be differences in the rates of anxiety disorders at various stages of pregnancy. We had not ruled out those who might have been having anxiety disorders prior to pregnancy and we had assessed only for the current rates of anxiety disorders. The strength of our study lies in the use of diagnostic interview schedule for making DSM-IV diagnosis of anxiety disorders, its use of non-pregnant controls and coming from a culture which had not been previously studied.

In conclusion, we had shown that although most anxiety disorders appeared more commonly in women in late pregnancy than their non-pregnant controls, only social anxiety disorders appeared to be significantly so. More research is needed in this field to ascertain the specific association between pregnancy and anxiety disorders.

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