Depression, Anxiety, Stress and Social Support Among Pregnant Women Attending Antenatal Clinic in a Nigerian Teaching Hospital

Oluwaseyi Isaiah Olabisi[1], Taiwo Dosumu[2], Grace Ademuyiwa[3], Joana Adeleke[4], Olufisayo Nathaniel[5], Tolulope Olabisi[6],

[1]Mental health/Psychiatric Nursing Unit, Department of Nursing Science, BOWEN University, Iwo
[2]Parent and Child Health Unit, Department of Nursing Science, BOWEN University, Iwo
[3]Community Health Nursing Unit, Department of Nursing Science, BOWEN University, Iwo
[4]Department of Physiotherapy, BOWEN University, Iwo
[5]Department of Clinical Nursing, University College Hospital, Ibadan
[6]Department of Clinical Nursing, University College Hospital, Ibadan
Corresponding Author: Olabisi, O. I.
Corresponding Email: seyiolabisi55@gmail.com

Abstract

Background: Pregnant women who experienced depression, anxiety and stress are prone to prolong labour, have a preterm baby and delivering of low birth weight baby. This study determined the level of depression, anxiety and stress among pregnant women and also the influence of social support (family, friends and significant others) on depression, anxiety and stress level among pregnant women. **Methods:** Cross-sectional descriptive study was done at the antenatal clinic of University College Hospital (UCH). A systematic sampling technique of every third pregnant woman was used to recruit 400 pregnant women but only 380 questionnaires were completed for analysis. Multidimensional Scale of Perceived Social Support (MSPSS) and the Depression, Anxiety and Stress scale (DASS-21) questionnaire were administered to the respondents. Statistical Package for Social Sciences was used to analyze the data and descriptive statistics, independent t-test and correlations statistics were generated. **Result:** The result shows that about one-fourth of the pregnant women experienced depression (24.3%). More than two-third were anxious (63.2%) and only a few (7.9%) of the respondents were stressed. Family social support negatively correlated with depression and stress. Social support from friends negatively correlated with depression, anxiety and stress. Social support from significant others negatively correlated with depression and stress **Conclusion:** Pregnant women experienced a high level of anxiety and social support received from friends is the most effective in reducing the impact of depression, anxiety and stress. There is a need to integrate mental health care service into the existing antenatal care.

Keywords: *Depression, Anxiety, Pregnant Women, Stress, Antenatal Clinic*

Introduction

Pregnancy is a privileged function that brings great joy not only for the woman but the couple especially in an African setting, which assumes that a woman should give birth after nine months of wedding. This period of transition to motherhood however comes with numerous changes for the woman in terms of their physical, social and mental being(Akintaro & Olabisi, 2014; Deklava et al., 2015; Madhavanprabhakaran et al., 2015). The mental challenge usually comes in form of anxiety, depression and stress which are capable of incapacitating pregnant women.

Mental health component, defined as depression, anxiety and stress are a common experience among women during the prenatal stage(Deklava et al., 2015; Dibaba et al., 2013; Murphey et al., 2017) but are difficult to notice in clinical practice(Murphey et al., 2017). A study has reported that there is a high level of anxiety during the last trimester of pregnancy (Madhavanprabhakaran et al., 2015). Pregnant women's concern about the neonatal developmental disorder and potential birth trauma to newborn(Deklava et al., 2015), young age, nulliparous and family nature of the pregnant women (Madhavanprabhakaran et al., 2015), fear of unknown, physical and hormonal changes (Deklava et al., 2015) contributes to the level of anxiety.

Depressive disorders among women is a major source of disability and the most common psychiatric disorder throughout the world(Ayele et al., 2016). Prenatal depression is one of the determinants of depression during the postnatal period(George et al., 2015). Studies have ascertained that about one in four to one in five pregnant women reported symptom of depression(Ayele et al., 2016; Biratu & Haile, 2015; Dibaba et al., 2013). The risk factors for depression during the antenatal period are unwanted or unintended pregnancy(Bales et al., 2015; Barton et al., 2017; Biratu & Haile, 2015; Dibaba et al., 2013) low socioeconomic status(Ayele et al., 2016; Bales et al., 2015; Bunevicius et al., 2009) previous history of depression(Bunevicius et al., 2009) and poor social support (Biratu & Haile, 2015; George et al., 2015; Sia et al., 2016).

Prenatal depression and anxiety have adverse effects on the women's mental health(Coburn et al., 2016; Dibaba et al., 2013; Murphey et al., 2017) and the labour outcomes such as prolonged labour, low birth weight and preterm delivery (Madhavanprabhakaran et al., 2015). Stress is well-linked with depressive symptoms in pregnant women and has lasting negative effect on maternal mental health status(Coburn et al., 2016). Evidence has also shown that psychological changes during pregnancy bring changes in the relationships with partner, friends, family and the social environment (Sia et al., 2016).

In order to reduce the menace of anxiety during pregnancy Biratu and Haile, (2015) suggested that mental health services should be incorporated into maternal health care, improving referral systems and sensitization on family planning in various primary health care facilities. Proper evaluation of the pregnant woman's stress, anxiety and depression is necessary whenever perinatal distress is suspected (Sia et al., 2016). Madhavanprabhakaran (2015) and colleagues opined that prompt diagnosis and management of anxiety during prenatal care routine screening will enhance the women' coping mechanism. Women with the high level of social support are less likely to experience depression during the antenatal period (Agostini et al., 2014; Barton et al., 2017). Emotional social support provided by family members and spouses is considered as a major mediator and protector against depression and the negative impact of stress among pregnant women (Coburn et al., 2016).

In Nigeria, there is evidence on the relationship among the high prevalence of marital dissatisfaction, postpartum depression and anxiety among nursing mothers(Ezeme et al., 2018; Odinka et al., 2017). A study conducted among pregnant women in South Western Nigeria also identified high level of psychological disorders among pregnant women and suggested psychological support during the antenatal period(Usman et al., 2018). However, there are scanty studies assessing the influence of social support (family, friends and significant others) on the mental health component (depression, anxiety and stress). Hence the need for the study.

2. Materials and Methods
Study setting and design.
Cross-sectional descriptive research design was used to collect data on depression, anxiety, stress and social support among the pregnant women attending the antenatal clinic of University College Hospital (UCH), Ibadan. UCH is the Premier Academic Teaching

Hospital in Nigeria and is located at Ibadan North Local Government. UCH antenatal clinic is a subsection of the obstetrics and gynaecology department of the hospital and made up of five different units including the assisted conception unit, fertility research unit, gynaecological oncology unit, Feto-maternal medicine and genitourinary unit.

Sample size determination and procedure
Antenatal clinic runs thrice a week with an average number of 58 pregnant women in attendance every week. A year retrospective calculation of the pregnant women attending the Hospital was done to give the estimated population. i.e 58 pregnant women multiplied by 4 weeks = 232, then multiplied by 12 months = 2784.

Using Yamane method i.e $N/1+N(e)^2$
Therefore n = 2784/7.96 = 350
15% attrition rate is approximately 50.
Therefore, the sample size is 400.

The respondents for the study were recruited between October 2018 and February 2019. The inclusion criteria included the following: (1) being 18 years of age or older, (2) fluency in the English language (3) being of Nigerian nationality. Since the recruitment was done within 6 months, the expected pregnant women is the total population divided by 2 .i.e 2784/2 = 1392. The sample size is 400. i.e 1392/400 = 3.4 . approximately 3. A systematic sampling technique of every third pregnant woman was used to recruit 400 pregnant women but only 380 questionnaires were complete for analysis.

Data Collection Method and Instrument
Data were collected using three self-report questionnaires. The first questionnaire assessed the obstetric data and sociodemographic variables of the pregnant women including age, parity and gestational age. Adopted Multidimensional Scale of Perceived Social Support(MSPSS) questionnaire (Zimet et al., 1990) was used to evaluate the social support received by the pregnant women from friends, family members and significant others. It is a twelve item with a seven-point Likert scale ranging from very strongly disagree ("1") to very strongly agree ("7"). The level of social support is gotten by calculating the mean of the total items scores. Social support received from friends is the sum of items 6, 7, 9 and 12 divided by 4; for significant others, the sum of items 1, 2, 5 and 10 divided by 4 and family is the sum of items 3,4,8, and 11 divided by 4. Any mean score ranging from 1 to 2.9 is low support; a mean score of 3 to 5 is moderate support and a mean score of 5.1 to 7 is high support. The internal consistency and the reliability of the instrument have been reported to be good in a study conducted in Nigeria (0.781)(Mohammad et al., 2015).

The depression, anxiety and stress scale questionnaire (DASS-21) was used to assess the level of depression, anxiety and stress. DASS (adopted) is a 21 items scale that comprises three subscales with seven items each rated on 4 points Likert scale and the total score range from 0 - 42. Depression score is classified as normal (0 -9), mild (10 - 13), moderate (14 -20), severe (21 -27) and extremely severe (28 and above). Anxiety score as normal (0-7), mild (8-9), moderate (10-14), severe (15-19) and extremely severe (20 and above). Stress is classified as normal (0-14), mild (15-18), moderate (19 -25), severe (26-33) and extremely severe (34 and above). Studies have shown that the DASS-21 has overall good-to-excellent internal consistency(Gloster et al., 2008). The subscale instruments have been reported to have high internal consistency (cronbach's alpha) of stress(0.93), depression (0.94) and anxiety (0.88) (Nieuwenhuijsen et al., 2003) . Permission to conduct the study was obtained from the University College Hospital ethical committee. The purpose of the study was explained to each of the pregnant women attending the antenatal clinic and their permission to participate was sought. Consent form was first given to those who agreed to participate to sign then the questionnaire of the study was administered thereafter. Confidentiality of the participant was ensured.

Data Analysis

The data collected from the pregnant women were analyzed using the Statistical Package for the Social Sciences (SPSS 21.0 for Windows). Descriptive analyses including frequency and percentages, means and standard deviations were used to describe the socio-demographic characteristics of the respondents and the level of depression, anxiety, stress and social support received by the respondents. Pearson correlation was used to determine the relationship among depression, anxiety, stress and social support. Analysis of Variance (ANOVA) and independent t-test were used to determine the association between the sociodemographic variables and the mental health factors.

Results

The majority (90%) of the pregnant women had post-secondary education and less than one-sixth of the respondents were unemployed. More than half (54.7%) of the respondent were primigravida and only ten pregnant women were single or separated from their husband. About one fourth (24.8%) of the pregnant women experienced depression (mild = 17.4%, moderate 4.2% and severe = 3.2%). More than two-third (63.2%) were anxious (mild=27.4%, moderate = 29.5%, severe = 6.3) and according to table 2, only a few (7.9%) of the respondents were stressed (mild = 4.2%, moderate = 3.7%).

Table 1: *Socio-demographic of the Respondents among Pregnant women admitted in University College Hospital, Ibadan.*

Variables	N (%)
EDUCATION	
< Secondary School	2(0.5)
Secondary School	34(8.9)
>Secondary School	344(90.5)
INCOME/MONTH	
< 50,000	114(30.0)
50,000-100,000	168(44.2)
>100,000	98(25.8)
MARITAL STATUS	
Single/separated	10(2.6)
Married	370(97.4)
PREGNANCY INTENT	
Planned	330(86.8)
Unplanned	50(13.2)
PARITY	
Primigravida	208(54.7)
Multigravida	172(45.3)
EMPLOYMENT STATUS OF RESPONDENT	
Employed	312(82.1)
Unemployed	68(17.9)

Table 2: *Mental Health Component (Depression, Anxiety and Stress) and Social Support (Significant others, Friends and Family) among Pregnant Women*

MENTAL HEALTH COMPONENT	Level	N (%)
Depression	Normal	286(75.2)
	Mild	66(17.4)
	Moderate	16(4.2)
	Severe	12(3.2)
Anxiety	Normal	126(33.2)
	Mild	104(27.4)
	Moderate	112(29.5)
	Severe	24(6.3)
	Extremely severe	14(3.6)
Stress	Normal	350(92.1)
	Mild	16(4.2)
	Moderate	14(3.7)
SOCIAL SUPPORTS		
Significant others	High	318(83.7)
	Moderate	42(11.1)
	Low	20(5.3)
Friends	High	222(58.4)
	Moderate	124(32.4)
	Low	34(8.9)
Family	High	310(81.6)
	Moderate	52(13.7)
	Low	18(4.7)

Age of the pregnant women was not significant to depression, anxiety and stress level. There was a negative significant correlation between the gestational age and the stress level ($r = -0.124*$, $p = 0.016$) but not significant with depression and anxiety (table 3).

Table 3: *Relationship Among the Social Support (Family, Friends, Significant orders), Age, Gestational Age and Mental Health components (Depression, Anxiety and Stress)*

		DEPRESSION	ANXIETY	STRESS
FAMILY	N	380	380	380
	Pearson correlation	-0.167**	-0.076	-0.124**
	Sig. (2-tailed)	**0.001**	0.137	**0.016**
FRIENDS	N	380	380	380
	Pearson correlation	-0.206**	-0.189**	-0.232**
	Sig. (2-tailed)	**0.000**	**0.000**	**0.000**
SIGNIFICANT OTHERS	N	380	380	380
	Pearson correlation	-0.154**	-0.092	-0.170**
	Sig.(2-tailed)	**0.003**	0.074	**0.001**

AGE	N	380	380	380
	Pearson Correlation	-0.099	-0.067	-0.061
	Sig. (2-tailed)	0.544	0.193	0.239
GESTATIONAL AGE	N	380	380	380
	Pearson Correlation	-0.038	-0.077	-0.124*
	Sig.(2-tailed)	0.460	0.134	0.016

*. Correlation is significant at the 0.05 level (2-tailed).
** Correlation significant at the 0.01 level (2-tailed)

Majority of the pregnant women: 83.7%, 58.4% and 81.6% received high social support from their significant order, friends and family respectively (table 4).

Table 4: *Relationship among Depression and The Socio-Demographic Variables of the Pregnant Women*

VARIABLES		Mean/SD	t/f test	Sig.(2-tail)
EDUCATION	Primary	10.00(0.00)		
	Secondary	9.41(4.09)	0.384	0.670
	Tertiary	8.89(3.04)		
INCOME	< 50,000	9.49(3.03)		
	50 -100,000	9.14(3.51)	4.158	**0.016****
	>100,000	8.29(2.39)		
MARITAL STATUS	Single/separated	12.40(5.15)	3.49	**0.001****
	Married	8.94(3.03)		
PREGNANCY INTENT	Planned	8.99(3.13)	-0.516	0.606
	Unplanned	9.24(3.25)		
PARITY	Primigravida	9.13(3.26)	0.739	0.460
	Multigravida	8.89(3.00)		
EMPLOYMENT STATUS	Employed	8.80(3.06)	-3.024	**0.003****
	Unemployed	10.06(3.31)		

Table 5 reveals the relationship among the social support and the mental health factors. Family social support negatively correlated with depression (r = -0.167**, P= 0.001) and stress (r =-0.124**, P=0.016). Social support from friends negatively correlated with depression (r= -0.206**, p= 0.000), anxiety (r= -0.189**, p = 0.000) and stress (r = -0.232**, p =0.000). Social support from Significant order negatively correlated with depression (r = -0.154**, p = 0.003) and Stress (r = -0.170**, p = 0.001).

Table 5: *Relationship Among Anxiety and Socio-Demographic Variables*

VARIABLES		Mean/SD	t/f test	Sig.(2-tail)
EDUCATION	Primary	10.00(0.00)		
	Secondary	9.76(3.76)	0.005	0.995
	Tertiary	9.81(3.61)		
INCOME	< 50,000	10.26(3.69)		
	50 -100,000	9.83(3.84)	2.208	0.111
	>100,000	9.22(2.99)		
MARITAL STATUS	Single/separated	13.40(9.71)	3.23	**0.001****
	Married	9.71(3.52)		
PREGNANCY INTENT	Planned	9.70(3.60)	-1.506	0.133
	Unplanned	10.52(3.75)		
PARITY	Primigravida	10.06(3.78)	1.50	0.134
	Multigravida	9.50(3.37)		
EMPLOYMENT STATUS	Employed	9.60(3.52)	-2.44	**0.015****
	Unemployed	10.76(3.88)		

There was a significant difference between some sociodemographic variables (income, marital status and employment status) and depression. Income (f-test= 4.158, p = 0.016), marital status (t-test= 3.49, p=0.001) and employment status (t-test= -3.024, p = 0.003) of the pregnant women influenced the level of depression (table 6).

Table 6: *Relationship Among Stress and Socio-Demographic Variables*

VARIABLES		Mean/SD	t/f test	Sig.(2-tail)
EDUCATION	Primary	11.00(0.00)		
	Secondary	9.35(2.25)	0.401	0.670
	Tertiary	9.76(3.29)		
INCOME	< 50,000	9.93(3.15)		
	50 -100,000	9.93(3.58)	2.198	0.112
	>100,000	9.14(2.47)		
MARITAL STATUS	Single/separated	12.40(5.15)	2.69	**0.007****
	Married	9.65(3.12)		
PREGNANCY INTENT	Planned	9.64(3.12)	-1.216	0.225
	Unplanned	10.24(3.70)		
PARITY	Primigravida	10.09(3.61)	2.42	**0.016****
	Multigravida	9.29(2.58)		
EMPL0YMENT STATUS	Employed	9.51(3.08)	-2.80	**0.005****
	Unemployed	10.71(3.59)		

Table 7 shows the relationship between anxiety and sociodemographic variables. Pregnant women marital status (t-test =3.23, p = 0.001) and employment status (t = -2.44, p = 0.015) were associated with the level of anxiety experienced by the pregnant women.

Table 8 reveals the influence of sociodemographic variables on the level of anxiety. Marital status (t-test =2.69, p=0.007**), Parity (t-test =2.42, p = 0.016**) and employment status (t –test = -2.80, p =0.005**) shown a significant difference on the level of stress experienced by the pregnant women.

Discussions of Findings.
This study assessed the level of depression, anxiety and stress among the pregnant women attending a Teaching Hospital in Nigeria. It also determined the influence of social support on the mental health concept (depression, anxiety and stress.). The results revealed that one-fourth of the respondents experienced depression. This supports the study conducted on depression among women in Nigeria during the antenatal period (Thompson & Ajayi, 2016)and during late pregnancy (Adewuyi et al., 2007). The finding of Dibaba and colleagues among pregnant women in Southwestern Europe also revealed that depression has an adverse outcome for both mothers and children and about one in five pregnant women reported symptoms of depression(Dibaba et al., 2013). Depression is a common psychiatric problem during pregnancy and is influenced by clinical obstetrics and psychosocial factors, serious physical illness and history of depression.(Pereira et al., 2009).

Finding from this study shows that more than two-third of the pregnant women had experienced anxiety ranging from mild, moderate to severe anxiety of 27.4%, 29.5% and 6.3% respectively. Anxiety is common during pregnancy and mild anxiety are normal however the moderate and severe anxiety symptoms such as fear, frequent sense of

panic, and inability to concentrate are a major concern for child health professionals(Stadtlander, 2017). A study conducted in Brazil on the prevalence of anxiety among pregnant women revealed that 26.8% of them had experienced anxiety(Nogueira et al., 2017) and a similar study among pregnant women in Nigeria (Gadanya et al., 2018), Nicaragua (Verbeek et al., 2015) and Croatia(Rados & Tardinac, 2018) revealed that 23.2%, 41% and 35% experienced anxiety. The prevalence of pregnant women who experienced stress in this study was very few. This finding is contrary to the previous study conducted in Kathmandu which revealed that one-third of pregnant women experienced stress (Pantha et al., 2014).

In this study, the stress level of pregnant women reduces as the gestational age increases. The similar inference was made in a study in Kathmandu, Nepal that the stress level during the third trimester is lower than that of the first trimester(Pantha et al., 2014).

According to the result of this study, family social support negatively correlated with depression and stress. This is consistent with the study by Rahman and colleagues that depressed pregnant women had poor family social support(Rahman et al., 2003). Also, it has been reported that women with high levels of social support manifested low symptoms of stress(Glazier et al., 2009).

Social support from friends negatively correlated with depression, anxiety and stress in this study. This finding is in line with a previous study that social support received by pregnant women reduces the level of state anxiety in pregnancy(Aktan, 2011). A study among Asian American pregnant women revealed that social support from friends was associated with a decreased level of anxiety and depression(Sanganlang & Gee, 2012). Chavis findings also indicated that social support from friends and family with a maternal sense of competence reduced the level of anxiety among pregnant women(Chavis, 2016). However, a study on the effects of social support on low socioeconomic-status pregnant women revealed that daily stressors and co-rumination with friends increased the level of depressive symptoms(Byrid-Craven & Massey, 2013).

Social support from significant others negatively correlated with depression in this study. This finding corroborates a study conducted among the rural pregnant women in Malawi which indicated that social support from a significant other could act as a buffer on the level of depression due to intimate partner violence (Stewart et al., 2014).

Conclusion

Pregnant women experienced a high prevalence of anxiety and depression but a low level of stress. Pregnant women received good social support from family, friends and significant order but the social support received from friends is the most effective in reducing the impact of depression, anxiety and stress. Variables such as income, employment status, marital status of the pregnant women influenced the level of depression. Therefore, there is a need to integrate mental health care service into the existing antenatal care. Mental health nurses should collaborate with midwives in managing pregnant women especially those who are at risks. Midwives should be trained on the assessment of depression, anxiety and stress and the importance of social support**.**

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