

THE ROLE OF INFANT'S GENDER AND OTHER PSYCHO-SOCIAL VARIABLES ON WOMEN WITH POSTPARTUM DEPRESSION IN JOS, NIGERIA

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ABSTRACT

Background: *The preference for male child abounds in many cultures across the globe and not having a male child serves as a source of worry for a woman in the postpartum period which might contribute to depression. There is dearth of information on the role of infant's gender and other psycho-social factors associated with pregnancy and postpartum depression in Jos Nigeria.*

Aim: *This study aimed to determine the association between the role of infant's gender and other psycho-social factors, and postpartum depression.*

Methods: *Five hundred and fifty women were recruited in a cross sectional study that involved a two stage procedure in a Tertiary Hospital in Jos, Nigeria. The Edinburgh Postnatal Depression Scale (EPDS) questionnaire and the Depression Module of the Structured Clinical Interview for DSM-IV axis I Diagnosis (SCID) were used.*

Results: *One hundred and sixteen (21.8%) participants were found to have postpartum depression among the study population. Though the gender of the infant was not statistically associated with postpartum depression, however, the expected gender of baby by both parents [new mothers ($p=0.002$) and spouses ($p<0.001$)] were significantly associated with postpartum depression among participants.*

Conclusion: *The infant's gender expectation from both parents could serve as a determinant for postpartum depression of women of childbearing age.*

Key Words: *Infant's Gender, Psycho-Social Variables, Postpartum Depression*

INTRODUCTION

In cultures where there is high preference for male child, not having a male child may be a source of worry for a woman in postpartum period which might contribute to depression¹⁻⁴. However, where neither female nor male is preferred, the women might not be too worried about the gender of their baby⁵.

Likewise, undesired gender of a baby has also been

reported to be a significant risk factor in developing PPD in women⁶. Nakku and colleagues in Uganda showed a significant increase in the rate of PPD with undesired gender of the baby⁶. The gender of the child can be said to be associated with increased prevalence rate of PPD reported in most countries where male domination is high. The number of children a woman has, has been reported in the

literature to predispose a woman to develop depression. Literature has shown that women with 4 children, who are less than 12 years may be at risk of developing depression⁷. Inandi and colleagues in Turkey reported that even the number of daughters at home was an important factor in developing PPD⁸. That is, the higher the number of daughters a woman has the more likely she will have depression⁸. The Turkish culture and majority of the non-Western societies are patriarchal in nature and as such, the number of male children a woman gives birth to determines how well accommodated she is in the family⁸.

Childbirth is a stressful event and the new mother needs support from others in order to cope. Several studies have shown that receiving social support through friends and relatives during stressful times, serves to protect against the development of depression⁹⁻¹³.

The fetal gender cannot, therefore, be taken in isolation and so is the societal expectations and spousal dissatisfaction or preferred gender which tend to modulate the outcome of pregnancy. With such in view the study aimed to find the relationship between the gender of the infant and other psychosocial factors related to pregnancy and postpartum depression among women in Jos, Nigeria.

Methodology and Materials

Study design: This was a cross-sectional descriptive study designed to determine the association between the role of infant's gender, the number of children and postpartum depression.

Study setting: The study was carried out at the postnatal unit of the Department of Obstetrics and Gynaecology (O & G Department) and the Children's Welfare Clinic of the Department of Community Medicine of the Jos University Teaching Hospital, Nigeria. The women's visit to the postnatal clinic often coincides with their visit to the children's welfare clinic for the 2nd set of immunization [Oral Polio Vaccine (OPV), Diphtheria, Pertusis and Tuberculosis (DPT)] schedule for their babies. The Hospital is located in Jos, the capital city of Plateau State, North Central, Nigeria. Jos has an estimated population of about 821,618 according to the 2006 National Census¹⁴.

Ethical Consideration: Ethical approval to conduct the study was obtained from the joint Ethical Committee of Jos University Teaching Hospital and University of Jos. Permission was also sought from the various heads of the Departments/

clinics.

The Edinburgh Postnatal Depression Scale (EPDS): This is a 10-item, self-rating screening questionnaire. When administered 6 weeks postpartum, it has high specificity and sensitivity in detecting postnatal depression^{15,16}. Edinburgh Postnatal Depression Scale has good psychometric properties and was validated in a number of studies in Nigeria. Obindo & Omigbodun validated it in a Sample of 160 women in North-central, Nigeria and found a specificity of 62% and Sensitivity 72% at cut-off of 7¹⁷. Similarly, Uwakwe & Okonkwo reported a 0.97 specificity and 0.75 sensitivity at a cut-off point of 9 in South-east, Nigeria¹⁸. The EPDS in itself cannot confirm diagnosis of depression but at a threshold score of 12, it had a specificity of 92.5% and a sensitivity of 88% in a large community study¹⁶. Each item was scored on a 4-point Likert scale (0-3), the minimum and the maximum total score being 0 and 30 respectively.

The Hausa version translated through back translation was adopted for this study and was used on women who do not understand English.

The Structured Clinical Interview for DSM-IV AXIS I Disorders (SCID): Structured Clinical Interview for Diagnostic and Statistical Manual-IV-AXIS-I Disorders (SCID) is a semi-structured instrument that can be used as part of a normal assessment procedure to confirm diagnosis in research or screening¹⁹. The Module for Depression on SCID provides diagnosis according to or as described in the 4th edition of DSM-IV was used in this study. The SCID has been used to diagnose depression in a number of studies²⁰⁻²². A patient having 5 or more of the symptoms of depression in the depression module of the SCID is diagnosed as having major depression in the postpartum period. The instrument has been reported to have a good reliability with percent agreement of rates to 86% and a kappa value of 0.72²³.

Data Analysis

The Statistical Package for Social Sciences (SPSS) VERSION 20.0 (SPSS 20) for Windows software²⁴ was used.

RESULTS

Socio-Demographic Characteristics of Participants

Five hundred and fifty (550) participants were

recruited for the study, out of whom 531 women completed the questionnaires. The socio-demographic details of the participants, as shown in Table 1, indicate that the mean age of participants was 26.98±5.97 years, with an age range of 18 to 45 years.

Three hundred and seventy-two (70.1%) of the participants had male deliveries, 45.8% were undecided about the gender of the baby and 29.8% expected to deliver female babies. Thirty-eight percent reported that their spouse expected male babies (Table 2).

One hundred and forty-nine (28.1%) of the participants had more than 4 children prior to the current childbirth (see Table 3 below).

Association between Baby's Gender and Postpartum Depression

Table 4 shows that there was no significant association between the gender of the baby and postpartum depression (p=0.056) however, there was a statistically significant association between mother's and spouses' expected gender of baby and

postpartum depression ($\chi^2=11.99$, df =2, p= 0.002 and $\chi^2=24.03$, df=2, p<0.001), respectively.

Association between Baby's Gender and Mother's Relationship with others

Table 5 shows that there was a statistically significant association between the baby's gender and having conflict with the spouse, and depression ($\chi^2=40.55$, df=1, p <0.001).

Association between Number of Children and Depression among Respondents

In Table 6 the number of children a participant had was not significantly associated with depression ($\chi^2=2.33$, df= 1, p= 0.313). However, there was a statistically significant association between the number of female children ($\chi^2=22.46$, df=3, p< 0.001), number of male children ($\chi^2=34.45$, df= 3, p<0.001) and postpartum depression.

Table 1: The Socio-demographic Distribution of all Respondents

Socio-demographic Variables	n=531	Percentage (%)
Age groups (years)		
18-25	190	35.8
26-35	315	59.3
36-45	26	4.9
Religion		
Christianity	180	33.9
Islam	323	60.8
Traditional*	28	5.3
Ethnicity		
Hausa	282	53.1
Igbo	53	10.0
Yoruba	39	7.3
Others**	157	29.6
Marital Status		
Single	13	2.4
Married	518	97.6
Types of marriage		
Church	181	24.1
Islamic	278	54.4
Court/ Registry	9	1.7
Traditional	63	11.9
Level of Education		
No formal	10	1.9
Primary	93	17.5
Secondary	266	50.1
Tertiary	162	30.5
Occupational Status		
Employed	152	28.6

Unemployed	26	4.9
Apprentice	8	1.5
Student	20	3.8
Housewife	325	61.2
Place of Residency		
Urban	483	91.0
Rural	48	9.0
Types of Household		
living alone	25	4.7
Nuclear family	342	64.4
Extended family	164	30.9

*African traditional religion
Mwaghavwel, Uhorobo etc.

**Other ethnic groups residing in Plateau state e.g. Berom, Ngas,

Table 2: Distribution of Baby's Gender and other Psycho-social variables

Variables	n=531	Percentage
Gender of baby		
Male	372	70.1
Female	109	20.5
Missing value	50	9.4
Mother's expected sex of baby		
Male	130	24.4
Female	158	29.8
Undecided	243	45.8
Spouse's expected sex of baby		
Male	200	37.7
Female	92	17.3
Undecided	239	45.0
Conflict with spouse over the gender of the baby		
Yes	108	20.3
No	423	79.7
Conflict with mother in-law over the gender of the baby		
Yes	17	3.2
No	514	96.8
Conflict with father in-law over the gender of the baby		
Yes	14	2.6
No	517	97.4

Table 3: Distribution of Number of Children

Variables	n=531	Percentage
Number of children		
1	68	12.8
2-3	314	59.1
.	149	28.1

Number of female children		
None	77	14.5
1	181	34.1
2-3	214	40.3
4	59	11.1
Number of male children		
None	130	24.5
1	146	27.5
2-3	230	43.3
4	25	4.7

Table 4: Association between Baby's Gender and Postpartum Depression

Variables	Depression status		Total	Chi-Square (²)	(df)	p-value
	Depression (%)	No depression (%)				
Gender of baby						
Male	92 (24.7)	280 (75.5)	372	0.34	1	0.560
Female	24 (22.0)	85 (78.0)	109			
Total	116 (24.1)	356 (75.9)	481			
Mother's expected gender of baby						
Male	40 (30.8)	90 (69.2)	130	11.99	2	0.002
Female	38 (24.1)	120 (75.9)	158			
Undecided	38 (15.6)	205 (84.4)	243			
Spousal's expected gender of baby						
Male	60 (30.0)	140 (70.0)	200	24.03	2	<0.001
Female	27 (29.3)	65 (70.7)	92			
Undecided	29 (12.1)	210 (87.9)	239			

Table 5: Association on How the Baby's Gender Affects Mother Relationship with Others and Depression

Variables	Depression status		Total	Chi-square	(df)	p-value
	Depression (%)	No depression (%)				
Conflict with spouse over the gender of baby						
Yes	48 (44.4)	60 (55.6)	108	40.55	1	<0.001
No	68 (16.1)	355 (88.9)	423			
*Conflict with mother in-law over gender of baby						
Yes	17 (100.0)	0 (0.00)	17	-	-	-
No	99 (19.3)	415 (80.7)	514			
*Conflict with father in-law over gender of baby						
Yes	14 (100.0)	0 (0.0)	14	-	-	-
No	102 (19.7)	415 (80.3)	517			

Table 6: Association between Number of Children and Depression

Variables	Depression status		Total (100%)	Chi-Square (²)	Df	p-value
	Depression (%)	No depression (%)				
Number of children						
One child	13 (19.1)	55 (80.9)	68			
2-3 children	64 (20.4)	250 (79.6)	314			
4 children	39 (26.2)	110 (73.8)	149	2.33	1	0.313
Number of female children						
None	12 (15.6)	65 (84.4)	77			
Only one female child	31 (17.1)	150 (82.9)	181			
2-3 female children	54 (25.2)	160 (74.8)	214	22.46	3	<0.001
4 female children	19 (32.2)	40 (67.8)	59			
Number of male children						
None	50 (38.5)	80 (61.5)	130			
Only one male child	31 (21.2)	115 (78.8)	146			
2-3 male children	35 (15.2)	195 (84.8)	230	37.12	3	<0.001*
4 male children	0 (0.0)	25 (100.0)	25			

*likelihood-ratio Chi-square

DISCUSSION

The gender of infant and parental attitude to it, are two controversial but interacting risk factors for PPD^{1-3,7,9}. This study found no significant association between PPD and the infant's gender despite the differences in the proportion of those that were with depression with male infants to those with female infants. Despite the similarity of culture and tradition that is often based on patriarchal ground in both Nigeria and Indian, the finding in the present study is a direct contrast to what Patel and colleagues reported in a study in India¹. Patel et al reported that being unhappy with the infant's gender was a significant risk factor for PPD and the birth of a daughter when a mother already had a female child was more an important risk factor for PPD¹. Xie et al in China also had a contradictory finding to our study³. Xie et al reported a significant increase in PPD if a female baby is born which was attributed to the patriarchal family nature of Chinese societies^{2,3}, in which there is increase in male preference at childbirth. This cultural preference for male gender and male domination as elsewhere is also common in our study area. However, a plausible reason for the dissimilarity in findings between others studies

and this present study may be due to the fast modernization of our societies and the infusion of western cultures (that place less emphasis on patriarchal tradition) into our culture. Another important reason for the differences may be temporal, that is, Patel et al reported their finding in 2002 when the effect of modernization or westernization was not too pronounced in most of the low- and middle- income countries known to be stronghold of patriarchal traditional practices when compared to what is obtainable now. Times have changed, and many of such strongholds of patriarchal traditions are down played by Western life-style and culture, making the male gender less important in economic ventures and in some instances in cultural and traditional rites issues. Another important point is that, industrialization, which is fast becoming more prominent in non-Western world, places little emphasis on having a son to continue a family name as compared to the old traditional agrarian society which depended on agriculture as an economic venture and places more emphasis on a son. In industrialized clime, white collar jobs are means to earn a living and females can also participate well as their males' counterpart.

Their participation in white collar job may take off the over reliance on the male folk to bear the economic burden and a woman without a male may be less stressful thinking about economic activities if she knows that her female child has an equal opportunity to take care of her and the entire family. In the present study, participants whose spouses had expected a male child or male babies ab initio developed depression than those whose spouses expected a female child. Also, participants whose spouses were undecided or showed no particular desire for any gender of infant have no depression. Chandran et al in Iran reported similar finding that the birth of a daughter when a son was desired was an important risk factor for depression in the postpartum period²⁵. Kheirabadi et al also in Iran reported similar finding that parental expectations or the desired gender of the infant or their attitude towards the gender of the infant was a significant risk factor for PPD²⁶. The “male preference” orientation in most of the African cultures and in Asia on one hand and the patriarchal practices predominant in the two continents maybe factors contributory to the occurrence of PPD in the present study.

Studies across the globe especially the one carried out by Lee et al²⁷ reported that marital dissatisfaction was associated with an increased risk for PPD in the new mother²⁷ and this was also evidence in our findings that showed a significant association between having a conflict with a spouse over an infant's gender and depression. Participants who had conflict with their spouses on the gender of their infants had depression and so are participants who had more female children prior to their current delivery. The later finding in this current study is in keeping with a study carried by Inandi and colleagues in Turkey⁸. Inandi et al reported that the number of daughters at home was an important factor in developing PPD⁸. A plausible reason for this finding is that the Turkish culture and majority of the non-Western societies are patriarchal in nature and as such, the number of male children a woman gives birth to determines how well accommodated she is in the family.

Conclusions

The expected gender of the infant by both mother and spouses were found to be associated with PPD. Other psychosocial factors such as conflict with spouse and the number of female children are important factors associated with postpartum depression.

Recommendation

- Future research is needed to tease out the cause and effect between infant's gender and postpartum depression.
- Advocacy against issues of “gender preference” and other psychosocial factors such as social support and marital conflicts should be undertaken in the community and family to change the negative influence of some cultural practices in the society.
- Psycho-educating both spouses and in-laws on “gender equality” should be undertaken by service providers in order to prepare the minds of women and their spouses/ in-laws on how “male preference” has a negative outcome for would be new mothers if male child is preferred over a female child.

Limitation and Strength of the Study

The cross-sectional design of this study limits the inference on causality of the variables in postpartum depression. The use of standardized instruments to assess depression status (EPDS and SCID) in participants serves as strength for the study.

Acknowledgement

We acknowledge the Departmental Heads of Obstetrics and Gynaecology, and community Health of the Jos University Teaching Hospital for the permission granted us to carry out the study, the staff of the two departments and the women whose cooperation and understanding made the study possible.

Conflict of interest: None

References

1. Patel, V, Rodrigues M & DeSouza N. Gender, poverty, and postnatal depression: a study of mothers in Goa, India. *American Journal of Psychiatry*, 2002; 159: 43-47.
2. Xie R, Hea G, Liua A, Bradwejn J, Walker M, Wen SW. Fetal gender and postpartum depression in a cohort of Chinese Women. *Social Science & Medicine*. 2007;65:680-684
3. Lee DT, Yip AS, Leung TY & Chung TK. Identifying women at risk of postnatal depression: prospective longitudinal study. *Hong.Kong.Med.J*, 2000;6:349-354
4. Adewuya OA, Adekunle B, Lawal AM, et al. Prevalence of postnatal depression in Western Nigerian women: a controlled

- study. *International Journal of Psychiatry in Clinical Practice*, 2005; 9:60-64
5. Josefsson A, Angelsioo L, Berg G, et al. Obstetric, somatic, and demographic risk factors for postpartum depressive symptoms. *Obstetrics and Gynecology*, 2002; 99: 223-228.
 6. Nakku JEM, Nakasi G, Mirembe F. Postpartum major depression at six weeks in primary health care: prevalence and associated factors. *Afr Health Sci*, 2006; 6: 207–214.
 7. Gelder MG, Harrison P, Cowen P. Affective mood disorders and Psychiatric aspect of obstetrics and gynaecology in M. Gelder, P. Harrison & P.Cohen (4th ed) *Oxford Text Book of psychiatry*. Oxford University Press, New York, 2006; pp 402-3
 8. Inandi T, Elci OC, Ozturk A, et al. Risk factors for depression in postnatal first year, in eastern Turkey. *International Journal of Epidemiology*, 2003; 31(6):1201–1207
 9. Brugha TS, Sharp HM, Cooper SA, Weisender C, Britto D, Shinkwin R, Sherrif T, Kirwan PH. The Leicester 500 Project. Social support and the development of postnatal depressive symptoms, a prospective cohort survey. *Psychol Med*, 1998; 28(1):63-79.
 10. Swendsen JD and Mazure CM. "Life Stress as a Risk Factor for Postpartum Depression: Current Research and Methodological Issues." *Clinical Psychology: Science and Practice*. 2000; 7(1):17-31
 11. Yehia DB, Callister LC, Hamdam-Mansour A. Prevalence and predictors of postpartum depression among Arabic Muslim Jordanian women serving in the military. *J Perinat Neonatal Nurs*. 2013; 27 (1): 25-33
 12. Gjerdingen DK, Chaloner KM. The relationship of women's postpartum mental health to employment, childbirth and social support. *J Fam Pract*. 1994; 38:465–472
 13. Lau Y, Wong D, Chan K. The utility of screening for perinatal depression in the second trimester among Chinese: a three-wave prospective longitudinal study. *Archives of Women's Mental Health*. 2010; 13:153–164
 14. Ege E, Timur S, Zincir H, Geckil E, Sunar-Reeder B. Social support and symptoms of postpartum depression among new mothers in Eastern Turkey. *J Obstet Gynaecol*. 2008; 34(4): 585-93
 15. National Bureau of Statistics, National Census Commission, Nigeria. (2006) [Available from: <http://www.nationalcensus.gov.ng.com>. [Assessed on the 20th April 2013]
 16. O'Hara MW, Neunaber DJ & Zekoski E. A prospective study of postnatal depression prevalence, course and predictive factors. *J Abnor Psychol*. 1984; 93: 158-171
 17. Cox JL, Holden JM, and Sagovsky R. Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatr*. 1987; 150: 782-786
 18. Obindo TJ and Omigbodun OO. The validation of Edinburgh Postpartum Depression Scale I North Central, Nigeria. *J. Med Tropics*, 2007; 9:29-40
 19. Uwakwe R and Okonkwo JE. Affective (depressive) morbidity in puerperal Nigerian women: Validation of the Edinburgh Postnatal Depression Scale. *Acta Psychiatr Scand*, 2003; 107:251–259
 20. Spitzer RL, Williams JBD, Gibbon M. Structured clinical interview for DSM-IV (SCID). New York State Psychiatric Institution, 1978; New York
 21. Agbir T. M, Audu MD, Adebowale TO, Goar SG. Depression among medical outpatients with diabetes: A cross-sectional study at Jos University Teaching Hospital, Jos, Nigeria. *Annals of African Medicine*. 2010; 9(1): 5-10
 22. Agbir TM, Audu MD, Oche M, Oyigeya M. Relevance and correlates of depression among patients with Epilepsy: Oral presentation at 42nd Annual General meeting and scientific conference Markurdi. *APN Book of Abstract*. 2011; 32-33.
 23. Riskind JH, Beck AT, Berchick RJ, Brown G, Steer RA. Reliability of DSM III diagnoses for major depression and generalized anxiety disorder using the structured clinical interview for DSM-III. *Arch Gen Psychiatry*. 1987; 44:817-20
 24. IBM Corp. Release IBM SPSS Statistics for Windows Version 20.0. Armonk, NY: IBM Corp. 2011

25. Chandran M, Tharyan P, Muliyl J, Abraham S. Postpartum depression in a cohort of women from rural area of Tamil Nadu, India: incidence and risk factors. *British Journal of Psychiatry*.2000;181: 499-504
26. Kheirabadi GR, Maracy MR, Barekatin M, Salehi M, Sadri GH, Kelishadi M, Cassy P. Risk factors of postpartum depression in rural areas of Isfahan Province, Iran. *Archives of Iranian Medicine*. 2009;12 (5):461-467
27. Lee DT, Yip AS, Leung TY & Chung TK. Identifying women at risk of postnatal depression: prospective longitudinal study. *Hong.Kong.Med.J*, 2000;6:349-354