

PREVALENCE OF POSTNATAL DEPRESSION AND ASSOCIATED FACTORS AMONG HIV-POSITIVE WOMEN IN PRIMARY CARE IN NKANGALA DISTRICT, SOUTH AFRICA

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Background. The prevalence of postpartum depression in South Africa is high, but there is lack of prevalence data on postnatal depression among HIV-infected women.

Aim. The aim of this study was to determine the prevalence of depressed mood and associated factors in postnatal HIV-positive women in primary care facilities in Nkangala district, Mpumalanga, South Africa.

Methods. This cross-sectional study was carried out on 607 HIV-positive postnatal women in 48 primary health care clinics and community health centres in Nkangala district. Postnatal women were recruited by systematic sampling (every consecutive patient over a period of 2 months). Demographic and other data were obtained from all the women who responded to a questionnaire in the local language on male involvement, HIV test disclosure, delivery and infant profile, infant HIV diagnosis, stigma, discrimination, postnatal depression, attendance of support groups and social support.

Results. Overall, 45.1% of women reported a depressed mood in the postnatal period. Depressed mood in a multivariable analysis was significantly associated with internalised stigma (odds ratio (OR) 1.12, 95% confidence interval (CI) 1.05 - 1.19; $p=0.000$), discrimination experiences (OR 1.22, CI 1.03 - 1.46; $p=0.023$), lack of social support (OR 0.86, CI 0.74 - 0.99; $p=0.037$) and having had an STI in the past 12 months (OR 2.22, CI 1.21 - 4.04; $p=0.010$). There were no statistically significant correlations between the Edinburgh Postnatal Depression Scale (EPDS) scores of the women and age, marital status, level of education, employment status and number of own children.

Conclusion. Depressed mood is common among HIV-positive postpartum women. This is significantly associated with lack of social support, stigma and discrimination. Routine screening to identify those currently depressed or at risk of depression should be integrated into postnatal care settings to target those most needing intervention.

Postnatal depression is the most frequently recognised mental disorder after delivery and generally begins within 4 - 6 weeks after childbirth.¹ The symptoms include low mood, tiredness, insomnia, lack of energy, forgetfulness, irritability and poor functioning. The occurrence of depressive illness after childbirth can be detrimental to the mother, her marital relationship and her children and can have adverse long-term effects if not treated.² In addition, maternal postpartum depression poses significant risks for mother-child interaction and long-term infant outcomes.²

Although the prevalence of postpartum depression in South Africa is high (34.7%), there are few studies on the prevalence of postnatal depression among HIV-infected women.³ The postpartum period is a time in which women are more vulnerable to depressive symptoms,⁴ but most

studies have only focused on depressive symptoms in HIV-positive individuals in general. In a study conducted in an urban setting in South Africa, maternal postpartum depression was measured using the Edinburgh Postnatal Depression Scale (EPDS) among 83 HIV-infected mother infant dyads and 42.2% of the women scored above the cut-off point for depression.⁵ HIV-infected mothers are at high risk for a range of emotional and psychiatric problems that may impact on immunity and HIV disease progression.^{4,6-8}

Preterm delivery⁹ and difficulties with partners¹⁰ have been found to be associated with postpartum depression. In addition, low levels of social support, particularly partner support and availability of people to depend on during the pregnancy and early postpartum, and a woman's relationship with her own parents were

found to be significant factors for both antenatal and postnatal depression.¹¹ Society expects women to be mothers, and yet at the same time it negatively judges HIV-positive women who choose to become pregnant.¹² Emotional support plays a role in depressive symptoms; with limited support, HIV-positive individuals are more likely to exhibit depressive symptoms.^{13,14}

The present study aimed to determine the prevalence of depressed mood and associated factors in postnatal HIV-positive women in primary care facilities in Nkangala district, Mpumalanga, South Africa.

METHOD

STUDY SETTING

The study was conducted in Nkangala district, Mpumalanga, which is ranked the third most rural province in South Africa, with 60.9% of its population living in rural areas.¹⁵ Nkangala district had a population of 1 121 839 people in 2008/9. At 28.4%, the unemployment rate is higher than the national unemployment rate (25.3%). More than a quarter (28.6%) of households in Nkangala earned less than R30 000 per year (R2 500 per month) in 2009.¹⁵ It was estimated that 90% of the population was dependent on the state for the provision of all their health services.¹⁶ The primary health care utilisation rate of 2.2 visits per person per year has been constant from 2008 to 2009.¹⁷ The antenatal HIV prevalence rate in Nkangala district was 32.5% in 2009.¹⁸

SAMPLE AND PROCEDURE

The sample included 607 postnatal HIV-positive women with an infant aged 1 - 10 weeks (30.8%), 11 weeks - 6 months (36.7%) or 7 - 12 months (32.5%). Almost all (98%) were from a black African population group, mainly Zulu, Swati and Tswana. The inclusion criteria for the postnatal study were that the participant attended the clinic, was HIV positive, was 18 years of age and older, and had an infant less than 12 months old. Postnatal women were recruited by systematic sampling (every consecutive patient over a period of 2 months) from 48 primary care clinics and community health centres (of in total 74 clinics) in all 6 sub-districts of Nkangala district in Mpumalanga province. In all the 48 prevention of mother-to-child transmission (PMTCT) service points in the study area, every consecutive HIV-positive mother was invited to participate in the study through referrals by health care providers. These individuals were asked to inform HIV-positive mothers about the study when the mothers came to clinic visits, and to encourage them to volunteer. Trained interviewers conducted interviews with postnatal women at health care facilities, using structured questionnaires. The questionnaire was translated into the local language, isiZulu. Informed consent was obtained from each participant before she was interviewed. Study approval was obtained from the Human Sciences Research Council ethics committee and health authorities (provincial, district, sub-district and clinic level).

MEASURES

The questionnaire included socio-demographic items, male involvement, HIV test disclosure, delivery and infant

profile, infant HIV diagnosis, stigma, discrimination, postnatal depression, attendance of support groups, and social support.

Male involvement was assessed with one item, 'Did the father of the baby accompany you to the clinic when you received antenatal care?' Response options were 'yes' or 'no'.

Postnatal depression. The 10-question Edinburgh Postnatal Depression Scale (EPDS) is a valuable and efficient way of identifying patients at risk for 'perinatal' depression.¹⁹ The EPDS is easy to administer and has proved to be an effective screening tool. Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity.^{20,21} The EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has *felt during the previous week*. It has specificity and sensitivity greater than 76%,²² has been validated antenatally and postnatally,²⁰ and has been validated in a black South African population.²³ The EPDS consists of 10-self-reported items, each response rated 0 - 3 based on severity, and summed to yield the total score (0 - 30). The scale has items related to anxiety and depressive symptoms such as anhedonia, anxiety, tearfulness, helplessness and motivation. The EPDS scale does not rely on somatic symptoms, which is common in postpartum women irrespective of depression. Research has supported the construct validity of an interviewer-administered isiXhosa version of the EPDS for use in South Africa.²⁴ In South Africa there have been two validation studies of the EPDS in community samples. The first found an optimal threshold of 11/12, or 12 and above, for women in the postnatal period.²⁵ The second found that a threshold of 13/14, or 14 and above, was optimal for classifying 'probable' cases of depression.²⁵ The present study uses the threshold of 14 as a basis for interpretation.⁵ Cronbach's alpha for EPDS in this sample was 0.84.

HIV/AIDS discrimination experiences. To assess AIDS-related discrimination, we asked participants if they had experienced seven discrimination-related events. All items referred to discrimination experiences related to their HIV-positive status, e.g. 'Have you experienced discrimination because of HIV?' Each item was responded to dichotomously, yes or no; scale scores represent the sum total of endorsed items, range 0 - 7.²⁶ The Cronbach's alpha of this 7-item scale was 0.75. In addition, three items on discrimination experiences with health care providers were included. To assess exposure to discrimination experiences with the health care provider, interviewees were prompted with the following: 'People with HIV often sense discrimination from health care providers in subtle ways. Has anyone in the health care system ever done any of the following to you?' e.g. 'Has anyone in the health care system ever exhibited hostility or a lack of respect toward you?' Each item was responded to dichotomously, yes or no; scale scores represent the sum total of endorsed items, range 0 - 3. The Cronbach's alpha of this 3-item sub-scale was 0.83.

Internalised AIDS stigma. We used the 7-item internalised AIDS-related stigma scale for people infected with HIV.²⁷ Items reflected self-defacing beliefs and negative perceptions of people living with HIV/AIDS, e.g. 'It is difficult to tell other people about my HIV infection.' Response options ranged from 1 = strongly agree to 4 = strongly disagree. The Cronbach's alpha of this 7-item scale was 0.88.

Social support. Three items were drawn from the Social Support Questionnaire to assess perceived social support.²⁶ The items were selected to reflect perceived tangible and emotional support. The four response options ranged from 'completely true' to 'completely false'; scale scores represent the sum total of endorsed items, range 3 - 12. The Cronbach's alpha of this 3-item scale was 0.61.

In addition, three individual items were used to assess social support. Two items referred to support during pregnancy ('Saw a traditional birth attendant during pregnancy' and 'Father of baby accompanied to antenatal care'), and one item assessed the attendance of a support group. Response options were 'yes' or 'no'.

Alcohol use was assessed with one item, 'Did you ever drink alcohol (beer, wine, home-brewed beer or spirits) in the past month?' Response options were 'Yes' or 'No'.

DATA ANALYSIS

The Statistical Package for Social Sciences (SPSS version 18.0 for Windows; SPSS Inc., Chicago, IL, USA) was used for data analyses. Descriptive data on the total sample were first examined. Postnatal women were then classified as having depressed mood or not, based on a score greater than or equal to 14 on the EPDS. Significantly skewed variables such as discrimination experiences were transformed using the formula $\log_{10}(x+1)$. Bivariate analysis and multivariable logistic regressions were used to investigate associations between the socio-demographic, stressor, risk behaviour and social support variables and depressed mood. Unconditional logistic regression was then performed including the variables that had a significant ($p < 0.05$) bivariate relationship with EPDS. Associations were considered significant at $p < 0.05$.

RESULTS

SOCIO-DEMOGRAPHIC CHARACTERISTICS

Of the 615 women invited to participate in the study, 8 declined, resulting in a total sample of 607 participants (response rate 98.7%). The mean age of the women was 28.5 (standard deviation (SD) 5.8) years, with a range of 18 - 51 years. One hundred and eighty-seven (30.8%) of the participants had an infant aged 1 - 10 weeks, 223 (36.7%) an infant aged 11 weeks - 6 months and 197 (32.5%) an infant aged 7 - 12 months. Thirty-five per cent had grade 12 or higher formal education, 53.6% grade 8 - 11 education, and 11.4% grade 7 or less education. Most postnatal women (69.6%) had never been married, 28.4% were married or cohabitating and 2% were separated, divorced or widowed. Almost all came from a black African population group (98.3%), with the main ethnic groups being Ndebele (27.8%), Northern Sotho

(26.8%) and Zulu (26.0%). Economically, few mothers were employed (11.4%) or receiving money from their partner (23.2%) or family (9.6%), while most received a child care support grant (66.4%) and/or disability grant (3%).

PREVALENCE AND CORRELATES OF DEPRESSED MOOD

Overall, 45.1% of women reported depressed mood in the postnatal period. Bivariate comparisons are presented in Table I. Having an HIV-positive sexual partner, no alcohol use in the past month, having been diagnosed with a sexually transmitted infection (STI) (other than HIV) in the past 12 months, inconsistent condom use with the primary partner, internalised stigma, discrimination experiences, lack of social support, and the baby's father not accompanying the woman to antenatal care were all found to be associated with depressed mood. Results from multivariable logistic regression are presented in Table II. In multivariable analysis, having been diagnosed with an STI (other than HIV) in the past 12 months, internalised stigma, discrimination experiences and lack of social support were associated with depressed mood.

DISCUSSION

Overall, 45.1% of women reported depressed mood in the postnatal period in the present study compared with 42.2% found in the study conducted by Hartley *et al.*⁵ in Cape Town and 54% meeting DSM-IV criteria for depression among urban primary clinic attendees in Zimbabwe.²⁸

The study found that the strongest predictors of depressed mood among postnatal women were having had an STI in the past 12 months, internalised stigma, discrimination experiences and lack of social support. In a large Canadian community study STIs among women also increased the risk of depression.²⁹ Diagnosis with an STI may contribute to the development of depression.²⁹ Further, in previous studies it was also found that discrimination experiences were common and internalised AIDS stigma was prevalent among people living with HIV/AIDS.²⁶ The results of the current study show a significant relationship between internalised stigma and depressed mood, and these results concurs with the study conducted by Ross *et al.*,⁴ which found self-esteem to be the most powerful predictor of depressive symptoms among HIV-positive postpartum women and Wight's³⁰ finding that internalised stigma is related to the development of depressive symptoms. Social support was found to be a factor buffering against postnatal depression. In the multivariate analysis, lack of social support remained significantly associated with depressed mood, and this finding concurs with other studies.^{5,14,31,32}

Having an unintended unplanned pregnancy, the infant being HIV positive and preterm delivery were not associated with a depressed mood in the current study. Tomlinson *et al.*³³ also found that having an unintended pregnancy was associated with a depressed mood. Alcohol use in the current study was not associated with depressed mood in multivariate analysis, although

TABLE I. SAMPLE CHARACTERISTICS AND EPDS (N=607)

	EPDS <14 (n=333)		EPDS ≥14 (n=274)		Unadjusted OR (95% CI)	p-value
	N or mean	% or SD	N or mean	% or SD		
Socio-economic variables						
Age	28.7	5.9	28.3	5.7	0.99 (0.96 - 1.02)	0.440
Age of infant						
1 - 10 weeks	85	51.2	81	48.8	1.00	0.874
11 weeks - 6 months	110	53.1	97	46.9	0.97 (0.66 - 1.43)	0.506
7 - 12 months	102	56.0	80	44.0	0.87 (0.58 - 1.31)	
Education						
Grade 0 - 7	32	46.4	37	53.6	1.00	0.127
Grade 8 - 11	183	56.5	141	43.5	0.67 (0.40 - 1.12)	0.229
Grade 12+	116	54.7	91	45.3	0.72 (0.42 - 1.23)	
Single	232	55.4	187	44.6	1.00	0.462
Married/cohabitating	89	52.0	82	48.0	1.14 (0.80 - 1.63)	0.074
Separated/divorced/widowed	10	83.3	2	16.7	0.25 (0.05 - 1.15)	
Number of (own) children	2.2	1.2	2.2	1.6	0.98 (0.85 - 1.13)	0.784
Mother employed	44	63.8	25	36.2	1.00	
Mother receives child care grant	224	55.6	179	44.4	0.95 (0.64 - 1.39)	0.785
Mother receives money from partner	84	59.6	57	40.4	0.80 (0.53 - 1.21)	0.288
Mother receives money from family	25	43.1	33	56.9	1.57 (0.86 - 2.85)	0.140
Health status and reproductive health						
CD4 cell count <200 cells/μl	68	56.7	52	43.3	0.77 (0.51-1.18)	0.235
Had STI (other than HIV) in the past 12 months	49	34.8	92	25.6	2.66 (1.80 - 3.91)	0.000
Alcohol use in past month	29	74.4	10	25.6	0.40 (0.19 - 0.84)	0.016
Current baby unintended	186	51.5	175	48.5	1.33 (0.95 - 1.88)	0.102
Preterm (v. term) delivery)	31	63.3	18	36.7	0.68 (0.37 - 1.24)	0.209
Baby had hospital admission	75	56.0	59	44.0	0.80 (0.55 - 1.16)	0.234
Infant HIV positive	9	56.3	7	43.8	0.94 (0.35 - 2.57)	0.910
Sexual behaviour and partner characteristics						
Main sexual partner HIV positive	105	45.1	128	54.9	1.48 (1.04 - 2.11)	0.029
Intimate partner violence in past 12 months	16	44.4	20	55.6	1.49 (0.75 - 2.93)	0.253
More than one sexual partner in past 12 months	34	53.1	30	46.9	0.98 (0.58 - 1.65)	0.932
Casual partner in past 3 months	23	48.9	24	51.1	1.19 (0.66 - 2.17)	0.562
Inconsistent condom use with primary partner	166	49.1	172	50.9	1.47 (1.04 - 2.07)	0.030
Discrimination and stigma						
Internalised stigma score (range 7 - 28)	16.0	4.2	18.6	5.2	1.13 (1.08 - 1.17)	0.000
Discrimination experiences score (range 0 - 7)	0.9	1.3	1.4	1.7	1.28 (1.13 - 1.44)	0.000
Social support						
Social support score (range 3 - 12)	8.2	1.7	7.3	2.0	0.77 (0.70 - 0.84)	0.000
Saw a traditional birth attendant during pregnancy	68	45.6	81	54.4	1.35 (0.94 - 1.93)	0.105
Father of baby accompanied to antenatal care	77	67.0	38	33.0	0.51 (0.34 - 0.78)	0.002
Attended support group	62	51.2	59	48.8	1.20 (0.81 - 1.80)	0.368

OR = odds ratio; CI = confidence interval; SD = standard deviation.

it reached significance in the bivariate analysis. This concurs with the results of Hartley *et al.*⁵ Other factors that were significantly associated with a depressed mood in the current study in bivariate analysis included

having an HIV-positive partner and inconsistent condom use with the primary partner. This seems to indicate that partner dynamics may influence the wellbeing of HIV-infected mothers.

TABLE II. LOGISTIC REGRESSION ANALYSIS: PREDICTORS OF DEPRESSED MOOD (N=607)

	Adjusted OR (95% CI)*†	p-value
Health status, sexual behaviour and partner characteristics		
Had STI (other than HIV) in the past 12 months	2.22 (1.21 - 4.04)	0.010
Alcohol use in past month	0.43 (0.16 - 1.17)	0.099
Main sexual partner HIV positive	1.63 (0.97 - 2.71)	0.063
Inconsistent condom use with primary partner	1.51 (0.88 - 2.59)	0.140
Discrimination and stigma		
Discrimination experiences score (range 0 - 7)	1.22 (1.03 - 1.46)	0.023
Internalised stigma score (range 7 - 28)	1.12 (1.05 - 1.19)	0.000
Social support		
Social support score (range 3 - 12)	0.86 (0.74 - 0.99)	0.037
Father accompanied to antenatal care	0.55 (0.28-1.08)	0.084

*Using 'enter' logistic regression selection of variables.
†Hosmer and Lemeshow chi-square 14.55, df 8, 0.536; Cox and Snell R² 0.20; Nagelkerke R² 0.27.
OR = odds ratio; CI = confidence interval.

CONCLUSION

The study found a high prevalence of postnatal depression symptoms among HIV-positive women, and that several factors were associated with depression. The development of interventions can specifically address such factors, i.e. encouraging partner involvement campaigns, and training health workers to address their own and mothers' stigma towards HIV. It is feasible to screen for postnatal depression in primary care clinics using peer counsellors. We recommend that screening for postnatal depression and access to mental health interventions should be part of routine antenatal care for all women.

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