The magnitude and determinants of antepartum depression among women attending antenatal clinic at a tertiary hospital, in Mwanza Tanzania: a cross-sectional study

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Abstract

Introduction: there is an increased vulnerability for the development of common mental disorders during the peripartum period as evidenced in depressive disorder. Methods: a cross sectional study was used to determine the prevalence and risk factors associated with depression among pregnant women attending antenatal clinic (ANC) at Bugando Medical Centre (BMC), a tertiary level hospital in Mwanza Tanzania. A total of 380 pregnant women were recruited and interviewed by using Edinburg Postnatal Depression Scale. The sample size was randomly selected from the clinic. Results: the mean age of the participants was 30.35 years, with minimum and maximum age of 20 years and 47 years respectively with 89.74% of the participants being married. Almost half of the participants, 53.68% were on the third trimester, with about two-third of the participants, 76.84% reports to have planned for their current pregnancies. The overall prevalence of depression was 15% with middle age of the partner (31-40 years), been married, high level of education, partner and family support were found to be statistically protective for depression while polygamy and partner violence were statistically risk factor for depression. Conclusion: the results showed high prevalence of antepartum depression which emphasizes the importance of earlier screening, detection and intervention to reduce the burden of morbidity and disability.

Introduction

There is an increased vulnerability for the development of common mental disorders among perinatal and postnatal women, including depression [1]. Antepartum depression is a nonpsychotic depressive episode of mild to moderate severity that presents during pregnancy [2]. Perinatal common mental disorders (PCMDs) such as depression are three times more prevalent in low-and middle-income countries (LMICs) than in high-income countries (HICs) [3] and a major cause of disability among women. Studies have shown that the prevalence of depression during pregnancy ranges from 7-15% in high-income countries and 19-25% in low- and middle-income countries depending on the populations studied and instruments used [3, 4] while in Tanzania, the prevalence of almost 40% for symptoms of depression among pregnant women has been reported [5].

Antepartum depression is of concern because it has been linked to negative health-related behaviors and outcomes, including poor nutrition, increased substance use, inadequate prenatal care, miscarriages, preeclampsia, preterm delivery, low birth weight, impairments in mother-infant interactions, postnatal depression, and suicide [6, 7]. Genetic vulnerabilities, hormonal dysregulation and psychosocial factors have been postulated as risk factors for PCMDs [8]. The most significant psychosocial factors identified are severe life events, chronic strain, relationship quality, lack of partner support, partner violence, previous experience of pregnancy loss or complications, and HIV diagnosis during the index pregnancy [8-10]. The aim of this study was to determine the prevalence and factors associated with depression among pregnant women attending antenatal clinic (ANC) at Bugando Medical Centre, Mwanza Tanzania.

Methods

Study design and settings: a cross-sectional study was conducted at Bugando Medical Centre a tertiary referral, teaching and research Centre for the Lake and Western zones of the United Republic of Tanzania. The hospital has 1000 beds and serves a catchment population of approximately 15 million people, about 500 women attends ANC at BMC per month [11].

Sample size, participants´ enrolment and data collection: the study population involved all pregnant women attending antenatal clinic at Bugando Medical Centre. A minimum sample size of 345 participants was estimated from Kish-Lisle formula of cross-sectional studies, assuming about
33.8% of all ANC women will have depression [12]. All pregnant women who presented for ANC at BMC during the study period were invited to participate. The aim of the study was explained and consent to participate was requested. After signing an informed consent, participants were asked to complete self-administered research questionnaires starting with the socio demographic followed by Edinburg Postnatal Depression Scale (EDPS), the data entry was done using an Epi info software. Participants were serially enrolled until the sample size was reached. Physically ill participants were excluded from the study. Those scored moderate or high on EDPS or have active suicidal behavior were referred and escorted to the psychiatry clinic found within the hospital for further clinical evaluation and intervention.

Data analysis: data was analyzed using Stata version 13 software for Windows where categorical variables were summarized using frequencies and percentages and continuous variables were summarized using medians with interquartile range (IQR). Descriptive analysis was conducted to describe the socio-demographic characteristics, the prevalence and severity of depression which was primary outcome in this study and participants were regarded to have depression if scored above 4 on the Edinburg Postnatal Depression Scale (EDPS) [13]. Logistic regression was used to calculate the odds ratio and 95%CI to assess the association between different factors and the outcome of interest while controlling for possible confounders. Variables in the univariate analysis were considered for inclusion into the final multivariable logistic model if they had a p<0.2 and the level of significance in the final model was set at p<0.05.

Ethics: ethics approval to conduct and publish the findings from this study was given from Catholic University of health and Allied Sciences/Bugando Medical Centre Joint Ethical Committee with an ethical clearance certificate number CREC/406/2019 and a further permission to conduct this study was granted by BMC administrations. Patients identifies were not used in analysis to further maintain confidentiality.

Results

Socio demographic characteristics: the mean age of the participants was 30.35 years, with minimum and maximum ages of 20 years and 47 years respectively. The mean age of the participant’s partners was 35.68 years with minimum and maximum ages of 20 years and 60 years respectively. About half of the participants, 51.84% (n=197) were in the age group of 20-30 years and more than two quarter of the participants, 89.74% (n=341) were married, with monogamy being the most common type of marriage, 97.63% (n=371). More than half of the participant’s partners, 58.95% (n=225) were at the age group of 31-40 years. Almost half of the participants, 53.68% (n=204) were on the third trimester, with about two-third of the participants, 76.84% (n=292) reports to have planned for their current pregnancies. Majority of the participants, 95.53% (n=363) reported partner support and 96.58% (n=367) reported family support. Table 1 summarizes the socio-demographic characteristics of the study participants.

Prevalence of depression among pregnant women attending ANC at BMC: prevalence and severity of depression were classified using scores derived from the Edinburg Postnatal Depression Scale (EDPS). Out of the possible maximum score of 30, the 380 study participants had an average score of 4.90. The lowest score recorded in the sample was 0 and the highest score was 23. The prevalence of depression was found to be 15%. The remaining 85.00% of participants did not have depression (EPDS score from 0-10).

Factors associated with depression: in an unadjusted model, age of the partner, type of marriage, level of education, employment, partner support, family support and partner violence were significantly associated with depression. After adjusting for other covariates, women whose partners were at the age of 31-40 years were
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What is known about this topic

- The prevalence of depression of 7-15% among pregnant women have been reported in low and middle income countries;
- A high prevalence of 40% was reported in one study in a pre-urban setting in Tanzania.

What this study adds

- A low prevalence of 15% was reported in this study from an urban setting;
- The risk of developing depression was high among women in polygamy marriage and those experiencing partner violence.

Competing interests

The authors declare no competing interests.

Authors’ contributions

Matiko Mwita designed the study and wrote the protocol. Doreen Kasongi and Eliya Bernard managed the literature searches and data collection. Matiko Mwita and Daniel Gunda undertook the statistical analysis, and Blandina Mmbaga wrote the first draft of the manuscript. All authors contributed to and read and approved the final manuscript.

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Tables

**Table 1**: socio-demographic characteristics of pregnant women attending antenatal clinic at Bugando Medical Centre

**Table 2**: association between socio-demographic factors and depression among pregnant women attending antenatal clinic at Bugando Medical Centre

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| Variable                              | Frequency (n) | Percentage (%) |
|--------------------------------------|---------------|----------------|
| **Age of mother (years)**            |               |                |
| 20-30                                 | 197           | 51.84          |
| 31-40                                 | 172           | 45.26          |
| >40                                   | 11            | 2.89           |
| **Age of partner (years)**            |               |                |
| 20-30                                 | 81            | 21.32          |
| 31-40                                 | 225           | 58.95          |
| 41-50                                 | 70            | 18.42          |
| >50                                   | 5             | 1.32           |
| **Marital status**                   |               |                |
| Never married                         | 39            | 10.26          |
| Married                               | 341           | 89.74          |
| **Type of marriage**                 |               |                |
| Monogamy                              | 371           | 97.63          |
| Polygamy                              | 9             | 2.37           |
| **Education level**                  |               |                |
| Never go to school                   | 5             | 1.32           |
| Primary                              | 57            | 15.00          |
| Secondary                             | 114           | 30.00          |
| College                               | 92            | 24.21          |
| University                            | 112           | 29.47          |
| **Occupation**                       |               |                |
| House wife                            | 59            | 15.53          |
| Self-employment                      | 120           | 31.58          |
| Employed                              | 201           | 52.89          |
| **Income (monthly) TShs**             |               |                |
| <100,000                              | 92            | 24.21          |
| 100001-300000                        | 73            | 19.21          |
| 300001-500000                        | 104           | 27.37          |
| 500001-999999                        | 78            | 20.33          |
| >999999                              | 33            | 8.68           |
| **Gravidity**                        |               |                |
| Prime                                | 83            | 21.84          |
| Multiparous                           | 297           | 78.16          |
| **Trimester**                        |               |                |
| 1st                                  | 40            | 10.53          |
| 2nd                                  | 136           | 35.79          |
| 3rd                                  | 204           | 53.68          |
| **Planned-for the pregnancy**        |               |                |
| No                                   | 88            | 23.16          |
| Yes                                  | 292           | 76.84          |
| **Previous pregnancy loss**          |               |                |
| No                                   | 236           | 62.11          |
| Yes                                  | 144           | 37.89          |
| **Previous baby loss**               |               |                |
| No                                   | 337           | 88.68          |
| Yes                                  | 43            | 11.32          |
| **Partner support**                  |               |                |
| No                                   | 17            | 4.47           |
| Yes                                  | 363           | 95.53          |
| **Family support**                   |               |                |
| No                                   | 13            | 3.42           |
| Yes                                  | 367           | 96.58          |
| **Partner violence**                 |               |                |
| No                                   | 362           | 95.26          |
| Yes                                  | 18            | 4.74           |
| **Smoking history**                  |               |                |
| No                                   | 372           | 97.89          |
| Yes                                  | 8             | 2.11           |
| **HIV status**                       |               |                |
| Negative                             | 350           | 92.11          |
| Positive                             | 30            | 7.89           |
Table 2: association between socio-demographic factors and depression among pregnant women attending antenatal clinic at Bugando Medical Centre

| Variable                  | Depression | Unadjusted OR (95% CI) | Adjusted OR (95% CI) |
|---------------------------|------------|------------------------|----------------------|
|                           | Yes (N %)  | No (N %)               | OR (95%CI)           | OR(95%CI)          | P value | P value |
| Age mother (years)        |            |                        |                      |                    |         |
| 20-30                     | 32 (16.24) | 165 (83.76)            | 1.0                  | 1.0                |         |
| 31-40                     | 23 (13.37) | 149 (86.63)            | 0.7 (0.4-1.4)        | 0.440              | 0.9 (0.4-1.6) | 0.759 |
| >40                       | 2 (18.18)  | 9 (81.82)              | 1.1 (0.2-5.6)        | 0.866              | 1.4 (0.2-7.0) | 0.657 |
| Age partner (years)       |            |                        |                      |                    |         |
| 20-30                     | 18 (22.22) | 63 (77.78)             | 1.0                  | 1.0                |         |
| 31-40                     | 25 (11.16) | 199 (88.84)            | 0.4 (0.2-0.9)        | 0.016              | 0.4 (0.2-0.8) | 0.020 |
| 41-50                     | 12 (17.14) | 58 (82.86)             | 0.7 (0.3-1.6)        | 0.436              | 0.7 (0.3-1.7) | 0.520 |
| >50                       | 2 (40.00)  | 3 (60.00)              | 2.3 (0.3-15.1)       | 0.373              | 1.9 (0.2-13.4) | 0.497 |
| Marital status            |            |                        |                      |                    |         |
| Not married               | 10 (25.64) | 29 (74.36)             | 1.0                  | 1.0                |         |
| Married                   | 47 (13.78) | 294 (86.22)            | 0.4 (0.2-1.1)        | 0.054              | 0.4 (0.2-0.8) | 0.026 |
| Type of marriage          |            |                        |                      |                    |         |
| Monogamy                  | 51 (13.75) | 320 (86.25)            | 1.0                  | 1.0                |         |
| Polygamy                  | 6 (66.67)  | 3 (33.33)              | 12.5 (3.0-51.76)     | 0.000              | 9.8 (2.1-45.2) | 0.003 |
| Education level           |            |                        |                      |                    |         |
| Never go to school        | 2(40.00)   | 3(60.00)               | 1.0                  | 1.0                |         |
| Primary                   | 11 (19.30) | 46 (80.70)             | 0.4 (0.1-2.4)        | 0.292              | 0.3 (0.0-2.1) | 0.239 |
| Secondary                 | 20 (17.54) | 94 (82.46)             | 0.3 (0.1-2.0)        | 0.227              | 0.2 (0.0-1.8) | 0.197 |
| College                   | 7 (7.61)   | 85 (92.39)             | 0.1 (0.0-0.8)        | 0.035              | 0.1 (0.0-0.8) | 0.030 |
| University                | 17 (15.18) | 95 (84.82)             | 0.2 (0.0-1.7)        | 0.166              | 0.2 (0.0-1.5) | 0.131 |
| Employment                |            |                        |                      |                    |         |
| House wife                | 14 (23.73) | 45 (76.27)             | 1.0                  | 1.0                |         |
| Self-employment           | 19 (15.83) | 101 (84.17)            | 0.6 (0.2-1.3)        | 0.203              | 1.6 (0.3-1.4) | 0.241 |
| Employed                  | 24 (11.94) | 177 (88.06)            | 0.4 (0.2-0.9)        | 0.027              | 0.4 (0.2-1.1) | 0.058 |
| Planned-for the pregnancy |            |                        |                      |                    |         |
| No                        | 14 (15.91) | 74 (84.09)             | 1.0                  | 1.0                |         |
| Yes                       | 43 (14.73) | 249 (85.27)            | 0.9 (0.5-1.8)        | 0.785              | 0.9 (0.5-1.7) | 0.774 |
| Partner support           |            |                        |                      |                    |         |
| No                        | 9 (52.94)  | 8 (47.06)              | 1.0                  | 1.0                |         |
| Yes                       | 48 (13.22) | 315 (86.78)            | 0.1 (0.0-0.4)        | 0.000              | 0.1 (0.1-0.6) | 0.008 |
| Family support            |            |                        |                      |                    |         |
| No                        | 5 (38.46)  | 8 (61.54)              | 1.0                  | 1.0                |         |
| Yes                       | 52 (14.17) | 315 (85.83)            | 0.2 (0.1-0.8)        | 0.024              | 0.2 (0.1-0.9) | 0.041 |
| Partner violence          |            |                        |                      |                    |         |
| No                        | 46 (12.71) | 316 (87.29)            | 1.0                  | 1.0                |         |
| Yes                       | 11 (61.11) | 7 (38.89)              | 10.7 (3.9-29.3)      | 0.000              | 7.1 (2.1-23.4) | 0.001 |