ORIGINAL ARTICLE

Antenatal Depression: Prevalence Predictors and Frequently Employed Coping Strategies

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ABSTRACT

Background: Depression, a psychological disorder manifested as persistent sadness, sleep disturbance etc. is a threatening condition during pregnancy, as it has been shown to be associated with adverse maternal and fetal consequences.

Aim: To evaluate the prevalence of antenatal depression in a hospital based sample in Lahore, Pakistan, ascertaining its significant predictors and frequently utilized coping techniques.

Methods: A total of 197 antenatal attendees within the age limit of 20-40 years, visiting the out-patient department of the said tertiary-care hospital, were accepted as the study participants. Subjects receiving psychiatric treatment or anti depressant medication were excluded from the study. Beck's Depression Inventory, was utilized as the screening tool for depression.

Results: Brief COPE was employed to assess the use of various coping strategies. Pearson Chi square and multiple linear regression analysis were used to evaluate significant risk factors and predictors respectively, for development of depression. As per investigation, 57.4% participants screened negative for depression, 23.4% showed mild mood disturbance, 4.6% screened positive for borderline clinical depression, 10.2% presented with moderate depression, 3.6% elicited severe depression and 1% reported with extreme depression.

Conclusion: History of abortion/miscarriage, unplanned pregnancy, separation from husband and stressful life events, were identified as the predictors of antenatal depression. Great majority of the sample population used Problem Focused Coping techniques.

Keywords: Antenatal depression, Beck's Depression Inventory, Prevalence study, Tertiary care set-up

INTRODUCTION

Normalcy of mood and balance of the emotional and psychological state of mind, depend on various factors, including the functional coherence of neuro-hormonal mechanisms, healthy behavioral patterns, certain environmental factors and many more, the alteration in which leads to negative mood changes what we call as depression. This very psychological imbalance is symptomatically manifested as low mood, irritability, lack of interest in daily life routines, altered biological functions e.g., sleep disturbance etc. and in severe cases may even lead to suicidal ideations[1].

Pregnancy is a complex physiological phenomenon involving intricate interactions and feedback loops between various hormones with continuous variation in their levels throughout its three trimesters[2]. Functional integrity and homogeneity of neuro-hormonal mechanisms is a key factor in the maintenance of mood and psychodynamic stability of the human mind. So, it is evident that the time span of pregnancy particularly bears vulnerability to mood disturbances, which alongside certain other factors collectively form the basis for antenatal depression, that prevails among the pregnant women up to a considerably high extent especially here in Pakistan[3]. According to the *American College of Obstetricians and Gynecologists* (ACOG), it is estimated that between 14-23% of the women will experience depressive symptoms during pregnancy[4]. A survey was conducted in United Kingdom which reported that 69% of the survey respondent women experienced low mood during or after any pregnancy. Anxiety was experienced by 49% of the women and depression by 37% of the women[5]. A research study in USA reported that amongst pregnant women, 16.6% and 6.1% participants met the criterion for minor and major depression respectively[6]. Another study comparing the prevalence of depressive symptoms during pregnancy between Pakistani and Canadian women reported that a higher proportion of Pakistani women (48.4%) had depression as compared to their counterparts, aboriginal (31.2%) and Caucasians (8.6%) in the Canadian population[7]. A research study in Hyderabad, Pakistan revealed that 18% women out of the sample population suffered, as a whole, from antenatal depression/anxiety[8]. Likewise a study in Lahore, Pakistan reported that 24.9% of the sample population screened negative for depression, 10.5% screened positive for depression at EPDS scores between 10-12 and 64.6% screened positive at the EPDS cut-off >12 i.e., a total of 75.1% screened positive at the EPDS cut-off ≥10 thereby qualifying for minor/major depression[9].

Although the exact underlying mechanism of antenatal depression is not known, yet it may, in part, be attributed to dysregulation of the Hypothalamo-Pituitry-Adrenal-axis. For instance, estrogen and progesterone released during pregnancy, in addition to their well documented roles in reproductive events, have been shown to possess strong neuro-regulatory impact on non reproductive behaviours as well, including mood and cognition. The increased level of circulating CRH (Corticotropin Releasing Hormone) of placental origin and decreased levels of CRH binding proteins lead to hyperactivity of Hypothalamo-Pituitry-Adrenal axis. This subsequently leads to raised cortisol levels in the blood

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which are considered noteworthy in giving rise to maternal depressive symptoms like mood changes, irritability, emotional numbness and deranged sleep-wake cycle etc.[10].

These symptoms not only compromise the quality of woman's life but also impart negative effects to the fetus including increased risk of preterm delivery, low birth weight and even spontaneous abortion may ensue in severe cases[11,12,13]. Therefore, it is highly desirable to assess the extent up to which depression prevails, among the antenatal attendees visiting a tertiary care setup in Lahore, Pakistan for antenatal follow-up. Several risk factors have been shown to predispose to the development of antenatal depression, some of which may act as significant predictors for its onset, including unwanted/ unplanned pregnancy, poor social support, low income, stressful life events and so and so forth, all of them contributing to enhance the vulnerability, for depression to ensue[14].

METHODS

A cross sectional study was conducted in Shalamar Hospital, a tertiary care hospital in Lahore. A sample size of 197 pregnant women, who were visiting the OPD of the said hospital for their regular antenatal check up, was screened for depression. The sample size was calculated to be 197 by using the anticipatory prevalence of antenatal depression as 16.3%, as stated by a study carried out in coastal south India in 2015[15]. Pregnant women within the age group of 20-40 years, presenting in the said hospital for routine antenatal check-up were included in the study. It was made sure by the interviewers and questionnaire distributors that the subjects taking any sort of medication that influences mood shall be excluded from the study. The survey was carried out with the help of a structured questionnaire.

The questionnaire was structured into of three sections. In the first one, the subjects were questioned for information regarding variables related to their socio-demographic profile, including age, education occupation, household income, family type, the obstetric history and some other potential risk factors for antenatal depression including unplanned pregnancy, separation from the husband, childhood trauma, stressful life events. The second section included Beck's Depression Inventory; a self -scoring questionnaire, as the screening tool for depression. [16]. In the third section, using the Brief COPE, the subjects were enquired about their most frequently used coping strategies[17]. Brief cope can be broadly categorized as, Active Avoidance coping (item number: 1, 4, 6, 9, 11, 13, 16, 19, 21, 26), Emotional focused coping (item number: 12, 15, 17, 18, 20, 24, 28), Problem focused coping (items number:2, 5, 7, 10, 14, 23, 25) and Religious coping (item number 3, 8, 22, 27,28). Each subject was provided with a printed consent form to be signed, comprehending necessary information pertaining to the concerned study and voluntary agreement on the part of the subject to participate in the study. The surveys and data collection were confined to the time span of 1 month (from July 1, 2017 to July 31, 2017). A prior ethical approval for this study was obtained from the Institutional Review Board of the said hospital.

Statistical Analysis: The obtained data was analyzed by SPSS, version 20. In view of getting an account of the significant risk factors, strength of association between various demographic and obstetric factors obtained from the socio-demographic profile and obstetric history respectively, and the subsequent onset of depression, was ascertained by Pearson correlation. The significant risk factors thus obtained were subjected to multiple linear regression analysis, to assess the predictors of depression.

RESULTS

The great majority of the participants were in the age group of 25 -35 years. Mean age was 27.8±3.38. As per investigation, employing Becks Depression Inventory as the screening tool, it was found that 133/197 (57.4%) antenatal attendees screened negative for depression (BDI score 1-10), 46 (23.4%) attendees showed mild mood disturbances (BDI Score 11-16), 9 (4.6%) presented with borderline clinical depression (BDI score 17-20), 20 (10.2%) screened positive for moderate depression (BDI score 21-30), 7 attendees (3.6%) elicited severe depression (BDI score 31-40) while 2 women (1%) suffered from extreme depression (BDI score >40) according to the BDI scale. Overall 33 (16.8%) pregnant women scored ≥17 on BDI and presented with depressive symptoms ranging from borderline clinical depression to extreme depression while 164 (83.2%) women scored <17 eliciting either normal mood status or mild mood disturbances, according to the scale of aforementioned inventory.

Chi square analysis was performed to ascertain the strength of association between several potential risk factors and the onset of antenatal depression. Results are listed in Table 1. This analysis revealed significant association between gestational age, gravidity, parity, past history of abortion/miscarriage, history of C section, household monthly income, fear associated with child birth, unplanned pregnancy, separation from the husband, childhood traumatic experiences and other stressful life events, and the onset of depressive symptoms whereas age, education level and family type (joint / nuclear) showed no significant association with depressive symptoms.

These 11 risk factors were subjected to multiple linear regression. Results of regression analysis are presented in Table 2. According to these results, history of previous abortion/miscarriage (P=0.035), unplanned pregnancy (P<0.001), stressful life events (P=0.003) and separation from the husband (P<0.001) appeared to be the significant predictors of antenatal depression while rest of the risk factors, did not appear significant (p<0.05).

According to our investigation 93(47.21%) pregnant women countered depressive symptoms by problem focused coping, 42 21.32%) used active avoidance to get rid of mood disturbance, 33 (16.75%) used religion based coping as their main strategy and 29(14.72%) used to follow emotional focused coping according to brief COPE sub scale.. Cross tabulation showed that depressive symptoms (beyond mild mood disturbance on BDI scale) prevailed minimally in women employing emotional focused coping style, according to our sample, however, Pearson correlation showed no significant association between the use of any specific coping technique and prevalence of depressive symptoms

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Table 1: Significant Risk factors for antenatal depression

Variable	Category	Total population	Depressive symptoms beyond mild mood disturbance		P value
			No (BDI score<17)	Yes (BDI score≥17)	
Age	<25 years	31	27(87.1%)	4(12.9%)	0.468
	25-35 years	161	132(82%)	29(18%)	
	>35 years	5	5(100%)	0	
Education	Illiterate	2	1(50%)	1(50%)	0.59
	Primary-Matric.	56	47(83.92%)	9(16.08%)	
	Inter.- Graduation	107	88(82.24%)	19(17.76%)	
	Above graduation	32	28(87.5%)	4(12.5%)	
Gestational Age	First trimester	89	81(91%)	8(9%)	0.029
	Second trimester	58	45(77.6%)	13(22.4%)	
	Third trimester	50	38(76%)	12(24%)	
Gravidity	1 (Primigravida)	49	47(95.9%)	2(4.1%)	0.000
	Multigravida	148	117(79.0%)	31 21%)	
Parity	Nulliparous	49	47(95.9%)	2(4.1%)	0.016
	1	66	55(83.3%)	11(16.7%)	
	Multiparous	82	62(75.6)	20(24.4%)	
History of abortion/ miscarriage	No	144	126(87.5%)	18(12.5%)	0.002
	Yes	53	38(71.7%)	15(28.3%)	
Fear associated with child birth	No	127	111(87.4%)	16(12.6%)	0.046
	Yes	70	53(75.7%)	17(24.3%)	
History of C-section	No	127	111(87.4%)	16(12.6%)	0.027
	Yes	70	53(75.7%)	17(17.24%)	
Family Type	Nuclear	34	25(73.5%)	9(26.5%)	0.127
	Joint	163	139(85.3%)	24(14.7%)	
Household income (per month)	≤Rs.25000	16	8(50%)	8 (50%)	0.000
	Rs.25000-65000	176	153(86.9%)	23(13.1%)	
	>Rs.65000	5	3(60%)	2(40%)	
Pregnancy	Planned	78	75(96.2%)	3(3.8%)	0.000
	Unplanned	119	89(74.8%)	30(25.2%)	
Childhood traumatic events	No	189	160(84.7%)	29(15.3%)	0.028
	Yes	8	4(50%)	4(50%)	
Separation from husband	No	188	164(87.2%)	24(12.8%)	0.000
	Yes	9	0	9(100%)	
Other Stressful life events	No	167	148(88.6%)	19(11.4%)	0.000
	Yes	30	16(53.3%)	14(46.7%)	

Table 2: Predictors for the onset of Depression during pregnancy

Variables	Beta	T	Significance
Gestational age	0.058	0.976	0.33
Gravidity	-0.043	-0.309	0.75
Parity	0.093	0.689	0.49
History of abortion /miscarriage	0.123	2.123	0.035*
Fear associated with child birth	0.081	0.775	0.43
Past history of C-section	-0.106	-0.989	0.32
Household income (per month)	0.035	0.728	0.46
Pregnancy (planned/unplanned)	0.396	8.187	0.000**
Separation from husband	0.501	9.704	0.000**
Childhood traumatic events	0.059	1.294	0.197
Other stressful life events	0.153	3.010	0.003*

* significant with p<0.05 ** p<0.001

DISCUSSION

In our research, we estimated the prevalence of depression during pregnancy to be 4.6% for borderline clinical depression, 10.2% for moderate depression, 3.6% for severe depression and 1% for extreme depression as per BDI scale. Collectively it comes out to be 16.8%, considering BDI cut off value ≥17.

A number of studies on antenatal depression published to date throughout the world have reported its prevalence in the range of 7-20% in high income countries and 20% or above in lower income countries which is consistent with our findings[3], while it is mentioned to be estimated as, 14 to 23 percent by American College of Obstetricians and Gynecologists[4]. Likewise, a cohort study of depression in pregnancy has outlined its prevalence to

be 19.5% in Middle Easterners and 17.5% in South Asians, which is close to what we have found in our study[18].

A study from Karachi in 2012 reported the prevalence of antenatal depressive symptoms to be 16.8 percent using Hospital Anxiety and Depression Scale (HADS), which is similar to our findings [19]. Like our research it also reported that advancing age is not significantly associated with the onset of depression and regarded adverse pregnancy outcome including abortion, as a significant risk factor for development of depression. Similarly, a cohort study, on British Pakistani mothers, for depression during pregnancy, reports the prevalence of depression to be 16.8% employing EPDS as the screening tool [20] However, contrary to our findings, another research from Karachi, Pakistan reports the prevalence of depressive symptoms to be 29% for moderate depression, 11% for severe depression and 5.33% for very severe depression using Hamilton Rating Scale for Depression, as their screening tool[21].

In our study, we have found various demographic and obstetric factors such as unplanned pregnancy, separation from the husband, history of previous abortion/ miscarriage etc. to be significantly associated with the development of depressive symptoms. Separation from the husband may be explained as a significant risk factor for the onset of depression, as it is associated with psychological trauma and poor social support. An unplanned pregnancy may put a woman at risk for developing depression, when she comes to know about an unwanted and surprise pregnancy, not being prepared for it, still feeling obliged to continue it owing to the cultural norms and religious practices. History of abortion/miscarriage may predispose a woman to depression, in successive pregnancies, owing to increased concern and associated fear about the outcome of pregnancy. Similarly, childhood traumatic experiences and other stressful life events, which get imprinted on mind, can also play a major role in causing antenatal depression.

A research study from India in 2013, employed Beck's Depression Inventory as depression assessing tool and estimated the prevalence of depression to be 9.18%, using BDI cut-off value 17 and above[22]. This is less than what we have calculated from our sample in our population. The contrast can be explained by certain factors such as difference in local socioeconomic conditions etc. It mentioned unplanned pregnancy, multigravidity and previous history of abortion as significant risk factors for antenatal depression. However, multigravidity did not appear to be a significant predictor of antenatal depression in our study.

We found eleven socio-demographic and obstetric risk factors to have significant role in the onset of depression many of which are consistent with the risk factors reported by other research studies[23,24]. Only four of these qualified as the significant predictors for the development of depression during pregnancy. These include history of abortion/miscarriage, separation from the husband, unplanned pregnancy and stressful life events. A research study conducted in Lahore, Pakistan in 2007, aimed at finding the predictors of antenatal depression, reported separation from the husband and fear of childbirth, to have a significant role in the onset of depression[9]. As compared to our study, it did not regard unplanned pregnancy as a significant risk factor for the onset of depression in pregnant women. Our investigation additionally considers history of abortion/miscarriage and unplanned pregnancy as the significant predictors of depression. Contrary to the findings of previously mentioned study, another research from Oman stated unplanned pregnancy as a significant risk factor for antenatal depression along with some other factors, based on the results of logistic multivariate regression, which is consistent with our findings[25]. Another such study from Iran has reported age, education, parity, abortion, gestational age, income etc as significant predictors of depression[26]. In our study, we did not find age, gestational age, parity and income as the predictors for development of depression, however history of abortion/miscarriage was found to be a significant predictor which has also been reported by the above mentioned study. Likewise, a study from Ethiopia has also reported much higher prevalence of depression in pregnant women with past history of abortion[27].

As far as various depression coping techniques are concerned, , we found that a great majority, 47.21% pregnant women employed problem focused coping as their main depression coping method, 21.32% used active avoidance, 16.75% used religious coping as their main strategy and 14.72% used emotional focused coping. Although, a recently conducted research has reported active avoidance coping style to have positive association with the onset of depression and problem focused coping to be negatively associated with depressive symptoms, yet in our study, we did not find any particular coping strategy to have positive or negative association with depressive symptoms[28].

CONCLUSION

Depressive symptoms prevail during pregnancy upto considerably high extent in our population. History of abortion/miscarriage, unplanned/unwanted pregnancy, stressful life events and separation from the husband are its significant predictors. Betterment of socioeconomic conditions, good relationship with the partner and provision of proper social support can prove fruitful in decreasing its occurrence in our population. Since pregnancy is the time when a woman is particularly susceptible to mood disturbances, so antenatal attendees should be screened for such disorders, especially depression, in order to minimize its onset and subsequent complications.

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