

Prevalence of Perinatal Depression and Anxiety Symptoms of Pregnant Women During Covid-19 Outbreak

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Abstract

Background: Perinatal depression (PND) is one of the most common mental health problems. The physical health impact of the coronavirus disease infection (COVID-19) has received attention worldwide. However, data about the psychological impact of the pandemic is still emerging and little has been reported on psychological effects among vulnerable groups. In light of the coronavirus disease 2019 outbreak, pregnant women may be particularly at risk and in special need for preventive mental health strategies.

Aims: To determine prevalence and severity of perinatal depression and anxiety symptoms of pregnant women during COVID-19 outbreak.

Materials & Methods: This cross-sectional study was conducted from December 2020 to March 2021 to identify mental health concerns in pregnancy during the covid 19 outbreak using the Edinburgh Postnatal Depression Scale and conducted in obstetrics OPD at KRL Hospital, Islamabad and HBS Medical and Dental College, Islamabad, Pakistan. A total of 248 pregnant patients attending the OPD who met the inclusion criteria were included in the study. The internationally recommended Edinburgh Postnatal Depression Scale was used to assess maternal depression and anxiety symptoms. The collected data after being documented on the proforma was analyzed on Statistical Package for Social Sciences (SPSS) 21.

Results: Out of the 248 cases, included in study, the prevalence of depression was 55.2%. Demographic factors especially education levels, socioeconomic status, parity, and higher gestational ages had significant relationship with perinatal depressive symptoms ($p < 0.05$). However, no significant relationship was found between the working and non-working women ($p = 0.994$). This pandemic has greater impact on pregnant women as compared to the pre-pandemic perinatal depression.

Conclusion: This study concludes that primiparous, at higher gestational ages, with low socioeconomic status, and low education levels are at an increased risk of developing perinatal depression.

Kew Words: covid-19; pregnancy; anxiety; depression

Introduction

In December 2019, clusters of individuals were found with symptoms of pneumonia having unknown etiology in Wuhan province of China which raised attention to the health authorities and led to immediate investigation and isolation of novel coronavirus (CoV). [1] On 12th March 2020, World Health Organization (WHO) announced a new Corona virus outbreak pandemic globally. [2] Pregnancy is a stressful condition for women being vulnerable both physically and mentally. Approximately 20–30% of women worldwide experience at least one psychiatric disorder during pregnancy or postpartum. [3] About 13–21% of prenatal and 11–17% postpartum women

experience anxiety and depression. [4] The prevalence of anxiety disorders during pregnancy in developing and developed countries are 25% and 10% respectively, indicating a higher prevalence in low-income countries. [5] Pandemics lead to increased levels of stress and anxiety among the masses. The pregnant women have a difficult access to medical resources and centers during covid outbreak and all of these lead to decreased antenatal care visits, ending in bad consequences. [5] In Wuhan, 41.9% of pregnant women refused to visit hospitals for their follow-ups and perinatal scans. [6] Data from other countries like Canada and Ireland showed that pregnant women

were concerned about their unborn babies. This stress related anxiety may result in fetal death or fetal anomalies. [7,8,9]

During the 2003 SARS outbreak in Canada, post-traumatic stress disorder was seen in 29% and depression in 31% of pregnant females after quarantine period; indicated by limited studies regarding psychological wellness in pregnancy during this outbreak. [8] Psychological resilience is the ability, outcome, or dynamic process of successfully adapting to trauma or other major stressors. [10] It has mediated the impact of personality traits and family dysfunction on depressive symptoms and sleep quality. Resilience is an essential buffer for stress or a traumatic incident and could defend against psychological distress. The assessment of individual psychological resilience could help to predict mental health status. [10] Similarly, this novel pandemic has affected pregnant women’s perceptions, appetite, physical and psychosocial behavior, and sleep patterns thus affecting fetal development in utero. [8]

Quarantine and lockdown situations during an epidemic are the main factor leading to depression. Pregnant females need social support but the recommendations regarding avoidance of social gatherings and close contact were considered as the main reason. The main objective of this study was to determine the prevalence of anxiety and depression among pregnant women at the peak of the epidemic and the associated factors that may lead to the severity of the condition. In pandemics psychiatric services were not widely available and fear of patients about hospitals as a hub of the infection reduces their visits. But by using this simple questionnaire, screening can be done by obstetricians and high-risk patients can be sent for further review by the psychiatrist. This is a type of triage screening adopted by the antenatal care providers of our unit to guide the patient for further mental health services.

Materials and methods:

This prospective cross-sectional study was conducted in the Department of Obstetrics and Gynecology HBS medical and dental college, Islamabad and KRL Hospital Islamabad, from December 2020 to March 2021 after taking approval from respective hospital’s ethical committees.

A total of 280 pregnant women, aged 18-45 years, attending the antenatal outpatient department (OPD) were enrolled. Sample was collected by non-probability consecutive sampling. Pregnant women having fetal anomaly, fetal non-viability and admitted for terminations, known or family history of depressive disease and other psychological problems, taking anti-depressant drugs, having confirmed Covid disease, chronic illnesses like type 2 diabetes mellitus, chronic hypertension, chronic kidney disease, autoimmune diseases like systemic lupus erythematosus (SLE), and antiphospholipid syndrome (APLS) were excluded from the study. Informed consent was taken from the participants after thoroughly explaining the procedure of filling the form, keeping in mind the current covid-19 pandemic situation. Confidentiality of responses throughout the study was ensured.

The sampling tool was a questionnaire. It contained two parts; the first part consisted of the patient’s demographic profile, age, gestational age, parity, education, and socioeconomic status. The second part comprised 10 questions derived from the Edinburgh Depression scale. [20] The proforma was translated to the local language for patient convenience and bias removal. Proformas with incomplete demographic data or unattempted questions were discarded. A total of 32 proforma were discarded, and the remaining 248 patients were then recruited for further analysis.

The Edinburgh Postnatal Depression Scale (EPDS) is a standard scale worldwide used for screening of antenatal and post partum patients for depression.^{20,25} It is a 10-item questionnaire, translated worldwide to 20 languages and all these have been validated in the respective populations. This self reported tool is rated on a four-point Likert scale ranging from 0 to 3. [8,20] The lowest total score is 0, and the highest score is 30. The cut off used in different studies are 9/10 or higher cut off as 12/13 for the diagnosis of probable depression. The sensitivity and specificity ranges from 65 to 100 % and 49 to 100 % respectively at different cut off levels. [25] The use of higher cut off value will lead to higher specificity in diagnosing the depression. Impact of COVID-19 on anxiety and depression status was regarded as main outcome variables and score equal to or more than 13 was taken as a cut off in our study. The accumulative score from the items [3,4] and [5]. in EPDS(EPDS-3A) represents anxiety dimension. [8] Most of the Hospitals Psychiatric departments used this scale for evaluation of mental health in pregnant population, as there is no proper scale designed for evaluation of maternal mental health so that’s why we are using this standard scale questionnaire performa. On the basis of this screening, further referral to the psychiatric department was done where the mental state examination, further assessment by different tools and pharmacotherapy were considered.

Data was entered and analyzed using Statistical Package for Social Sciences (SPSS) 21. Chi square test was applied for comparing the groups to evaluate perinatal depression. Logistic regression analysis was performed to assess the predictors for the presence of perinatal depression. A p-value of ≤ 0.05 was considered significant.

Results:

A total of 248 cases were included in study. Median age was 29.75 (IQR = 7). Median EPDS score was 13 (IQR= 8). 111 (44.8%) patients had EPDS score less than 13 while 137 (55.2%) had a score of 13 and above and were considered to be having antenatal depression. Median gestational age was 32 (IQR= 10). There was no relationship between age and presence of depression (p= 0.105). Women with higher gestational age (in third trimester) were more likely to have depression with a score of 13 and above on EPDS (p<0.000).

Out of 248 cases, 219 (88.43%) were house wives while the rest 29 (11.7%) were employed. 23 (9.3%) were illiterate. 100 (40.3%) got education till matric. 47 (19%) studied till intermediate. 78 (31.5%) obtained graduate degree or higher education. Fifty-four (21.8%) belonged to lower class while 194 (78.2%) belonged to middle class families. There was no significant relationship between occupation and antenatal depression (p= 0.994). However maternal education and socioeconomic status were significantly related to presence of antenatal depression. Depression was significantly more prevalent in women who were illiterate or who were educated till matriculation as compared to those who had higher education (p<0.000). Women belonging to lower class families were more frequently depressed as compared to those of middle-class ones (p<0.000).

Out of 248, 112 (45.2%) were nullipara, 48 (19.4%) were para 1. While 88 (35.5%) were multipara. Depression was more prevalent in nullipara as compared to multi parous women (p= 0.015). This is shown in Table 1

Variable	Groups	Perinatal depression		P - value
		Absent	Present	
Age	< 20	11 (37.9%)	18(62.1%)	0.060chi
	21-30	67 (51.9%)	62 (48.1%)	
	> 30	33 (36.7%)	57 (63.3%)	
Socioeconomic status	Lower	6 (11.1%)	48 (88.9%)	0.000 chi
	Middle	105 (54.1%)	89 (45.9%)	

Maternal education	Illiterate	7 (30.4%)	16 (69.6%)	0.000 chi
	Matriculation	31 (31%)	69 (69%)	
	Intermediate	23 (48.9%)	24 (51.1%)	
	Graduation and above	50 (64.1%)	28 (35.9%)	
Occupation	House wife	98 (44.7%)	121 (55.3%)	0.994
	working	13 (44.8%)	16 (55.2%)	
Parity	Nulliparous	39 (34.8%)	73 (65.2%)	0.015
	Para 1	24 (50%)	24 (50%)	
	Multiparous	48 (54.5%)	40 (45.5%)	

Table 1: Relationship between perinatal depression and demographic parameters.

The results of stepwise binary logistic model showed that maternal education and parity were the best predictors of perinatal depression as shown in Table 2.

The validity of translated version of scale was checked and has good internal consistency (Cronbach’s alpha = 0.785).

Variables	B	Exp (B)	P-value
Parity	- 0.603	0.547	0.006
Maternal education	- 0.675	0.509	0.001
Socioeconomic group	-1.864	0.155	0.000
Age	0.908	2.479	0.006

Table 2: showing a model containing best predictors for the presence of perinatal depression

Discussion:

Worldwide researches evaluating perinatal mental health during this global pandemic, prevalence of depressive symptoms has increased as the number of deaths and newly diagnosed cases are increasing day by day. The patients correlate their anxiety and behavioral changes to the novel coronavirus infection. There exists a fear of having the infection and concern of transmitting the contagious disease to the fetus and impending adverse fetal outcomes.

The overall prevalence of moderate and severe depression was 55.2% in our study. This result was consistent to a study done in Italy, that illustrated a severe psychological impact of covid-19 in 53% of pregnant participants. [7] Similarly, in another study, [11] the prevalence of anxiety and depression in pregnant women was 64.5% and 56.3% respectively. However, the scale used in this study was the hospital anxiety and depression scale (HADS) which mainly assesses the severity of anxiety and depression in visiting the hospital as compared to the EPDS scale used in our study. [11] In another multicenter study conducted in China at the start of the pandemic showed a progressive increase in the prevalence of depression from 26% to 29.6% after the declaration of this disease as a worldwide pandemic. [12] A study conducted in Lahore showed a 33% prevalence of anxiety and depression in pregnant females with EPDS score above 10 as a cut off level. [13]

While considering different waves of the pandemic a study done in Srilanka shows the increasing trend of depressive symptoms from 1st to 2nd covid wave (16.2 - 27.0%) in non-infected mothers using same Edinburg Depression Scale as used in our study [22]. In a study conducted in India [23]. combined proportions of anxiety and depression among pregnant women were 67.7% and 53% respectively which is closer to results found in our study. This study also highlighted that these psychological factors ultimately lead to preterm labor, intrauterine growth restrictions and long-term facts including increased prevalence of postpartum depression, anxiety disorders and cognitive delays in baby.

COVID-19 pandemic has reduced pregnant women’s access to routine antenatal care due to factors such as rapid spread of the disease, lack of an effective treatment or vaccine, the necessity of quarantining, stigmatization and concerns over contamination with the virus in health care settings. Hamzehgardeshi Z. et al [24]. reported 21% pregnancy related anxiety and 42% depression in participants comparable to our study results.

There is a wide variation of prevalence in studies [14] worldwide due to different tools used for calculating depression and anxiety. In one of the meta-analyses, it was proposed that the anxiety measured by the STAI scoring system showed significantly higher anxiety levels in the pregnant females during the pandemic as compared to the pre-pandemic period. The depression measured by the EPDS scale has increased during the pandemic but it was not statistically significant as compared to the pre-pandemic period [14]. In contrast to our study, a study in China showed a lower prevalence of anxiety and depression in pregnant females as compared to non-pregnant females (p<0.05) (15). Depression was present in only 6.8% of pregnant females as compared to 17.5% in non-pregnant females. The tool used in this study was the Patient health-related questionnaire (PhQ-10) for depression and generalized anxiety and depression scale (GAD-7) for anxiety.

Our results showed significant anxiety scores among nulliparous (p=0.00) and those in the third trimester of pregnancy (p=0.00). A study conducted by Taubman–Ben-Ari O, et al. comparing the anxiety and depression among Jewish and Arab women found that there was no significant difference between the anxiety and depression among primiparous and multiparous women but a relation between delivery related anxiety in this pandemic was more in primiparous [16]. Similarly, a study done by Iqbal N, et al. showed a higher prevalence of anxiety in the third trimester [17]. This was in contrast to a study done in Italy by Saccone G et al, which showed a higher level of anxiety in females in the first trimester as compared to second and third trimesters. The study [7] showed that there was anxiety related to the risk of vertical transmission and the majority of females opted for the first and second-trimester screening tests like cell-free fetal DNA.

Our study showed that depressive symptoms were more prevalent in females with no formal education or up till matriculation as compared to those with a higher education level (p=0.015). In a study by Hatice K. et al, depression and anxiety were more common in females with low educational status and having a chronic illness (p<0.001) [11]. Similarly, other studies also showed that females with below college-level education were associated with more depressive symptoms including both the general population and pregnant women [12,18,19]. In a local study, 72% of pregnant patients with anxiety were having education below matriculation [17]. In the contrary, in a study done in Italy, the prevalence of anxiety in pregnancy was higher in those with a higher educational level [5].

There was no significant relation between occupation/employment with the development of perinatal depression in our study ($p=0.994$). The majority of studies demonstrated a higher prevalence of depression in those with no work or having part-time work only ($p<0.001$) [12]. Similarly, a study done in Turkey demonstrated a significant association of anxiety and depression in those who are not working ($p=0.047$) [11]. One of the study conducted in United States, [21] assessed racial and ethnic differences in prevalence of anxiety and depression their results also shows that most of the asians maternal anxiety and depression during Covid wave was basically due to high risk of employment which was not corresponding to our study. This difference in results could be attributed to the fact that, in our study, a major proportion of females included housewives. The proportion of working women, if increased, may change the result statistics.

Our study showed a linear relationship of perinatal depression with low socioeconomic status. This was parallel to studies done in India and United States [21]. showing moderate positive correlation between income status and depressive outcomes [20]. Similarly, a study done in China showed a higher prevalence of depression in low annual household income ($p\text{-value}<0.001$) [12].

In developing countries where pandemic related scenarios including social distancing, quarantine, unemployment, no income, economical fallout, low resources will ultimately generate anxiety and depression, and for pregnant population these will add additional psychological burden.

Limitations:

Small sample size and data collected from 2 hospitals only. Data from other tertiary care centers at the peak of pandemic is required.

Conclusion:

This study concludes that primiparous, at higher gestational ages, with low socioeconomic status, and low education levels are at an increased risk of developing perinatal depression. The overall prevalence of moderate to severe depression was 55.2%.

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